Addis Ababa University
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Department of Accounting and Finance

Determinants of Behavioral Factors Influencing Individual Investors' Decisions Making in Addis Ababa at Ethiopian Private Commercial Banks.

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Statement Of Declaration

I, the undersigned hereby declare that this thesis is my original work. It has not been submitted for any MSc/ /BA degree in other Universities in Ethiopia. I have undertaken it independently with the advice and suggestions of my advisor for the thesis, Gebremedihin G/ Hiwot (Ato). In carrying out of the thesis work I have different sources and materials, which have been appropriately acknowledged.

Yoseph Tadesse Signature _____Date _____

This thesis has been submitted for examination with the approval of Advisor

Gebremedihin G/ Hiwot (Ato) Signature _____ Date_____

Addis Ababa University
School of Graduate Studies

This is to certify that the thesis done by Yoseph Tadesse , entitled: Determinants of Behavioral Factors Influencing Individual Investors' Decisions Making in Addis Ababa at Ethiopian Private Commercial Banks complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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ABSTRACT

Traditional finance theories such as Capital Asset Pricing Model, Efficient Market Hypothesis and Modern portfolio theories presumes that markets are efficient, people make rational decisions to maximize profits. But recent studies on individual investors' behavior have shown that people do not act in a rational manner, rather several factors influence their investment decisions in the stock market. This paper aims at identifying the factors influencing the individuals investors' behavior in Ethiopian private commercial banks. A sample of 252 investors has been selected as sample size by simple random sampling technique. Self completion questionnaire is employed to collect the data. To test the model and reliability of the data the author has used Cronbach's alpha test, factor loadings, KMO, total variance explained and Eigen value. In this study, exploratory factor *analysis is used to find out the determinants of individual investment behavior. The present study has identified five major factors that can influences individual investor's investment decision in Ethiopian private commercial banks. They are Heuristic: representativeness-overconfidence and availability bias, Prospect: loss aversion and regret aversion, Market factors: past trends of stocks, market information, price changes of stocks and customers' preferences ,and Herd factors: buying and selling decision of others, amount of stocks bought by others and speed of herding . All the behavioral variables have a moderate impact on investment decision of individual investors in EPCB. The Pearson's correlation coefficient analysis was used to examine the significant relationship of behavioral factors and investment decision, the result revealed that most of behavioral variables have positive and significant relationship to investment decision.*

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Acronyms

1. AdIB:- Addis International Bank S.C
2. AwIB:- Awash international Bank S.C
3. BeIB:- Berhan International Bank
4. Bof Abs:- Bank of Abyssinia S.C
5. BuIB:- Buna International Bank S.C
6. CFA:- Confirmatory factor analysis
7. CoBO:- Cooperative Bank of Oromia S.C
8. DeGb:- Debub Global Bank S.C
9. EFA:- Exploratory factor analysis
10. EMH:- Efficient market hypothesis
11. EnatB:- Enat Bank S.C
12. EPCB:-Ethiopian private commercial banks
13. HOSE:- Ho Chi Minh Stock Exchange
14. KMO:- Kaiser-Meyer Olkin Measure of Sampling Adequacy
15. LiIb:- Lion International Bank S.C
16. NiIB:- Nib International Bank S.C
17. NSE:- Nairobi Securities Exchange
18. OIB:- Oromia International Bank S.C
19. SPSS:- Statistical package for social sciences
20. UnB:- United Bank S.C
21. WegB:- Wegagen Bank S.C
22. ZemB:- Zemen Bank S.C

CHAPTER I

INTRODUCTION

1.1 Background of the Study

For a long time, the investors' full rationality was the main hypothesis of the most academic research in finance (Abhijeet and Ravinder, 2011). In fact, it was mainly supposed that stock prices are fixed by rational investors' anticipations and reactions. Rationality here refers to the two main factors, namely, the exhaustive and objective treatment of available as well as potential information (Abhijeet and Ravinder, 2011). Because of its simplicity and its success to capture the stock price movements, this famous investor's rationality hypothesis was for a long time supported by the academic researchers in finance.

Nevertheless, since recent movements, the financial academic researchers' enthusiasm for this hypothesis becomes much weaker (Abhijeet and Ravinder, 2011). This changing perceptions lead to experimental research by the psychologists by introducing the irrationality of human beings (Von Neumann and Morgenstern, 1944). Researchers in finance were then motivated to break with the full rationality hypothesis and to recognize from now on the neutral effect of some psychological biases on the investors' decisions and reactions, and subsequently the effect of such reactions on the stock price movements.

Geist (2003) was one of the first psychologists to recognize the impact of human emotions on financial decision making. Geist feels that however much we try to eliminate emotions from the investing process, we will ultimately fail. Why? Because our conscious and unconscious emotional convictions continually operate and influence our decision-making. His research motivates the investor to familiarize him/herself with the emotions and understand how they play an important role in the investing process. The focus was made on recognizing and acknowledging that emotions are an integral part of the investment decision- making process; realizing that the investment decisions are shaped by investor's own unconscious emotional convictions; recognizing that unique emotional patterns and integrating them into an investment style that fits investor personality; and using emotions to guide the investment decisions.

Besides, financial decisions are made in situations of high complexity and high uncertainty that preclude reliance on fixed rules and compel the decision-maker to rely on instinct. Instincts play a crucial role in most decisions. "The reason for overconfidence may also have to do with

hindsight bias, a tendency to think that one would have known actual events were coming before they happened, had one been present then, or had reason to pay attention. Hindsight bias encourages a view of the world as more predictable than it really is." (Shiller, 2000). Douglas I,(2012), reported that the nature of the individual investors' behavior in the investment decision making process at the Securities Exchanges is varied over the world. Le Phuo and Doan (2011, p.23), documented that the behavioral variables that influence the investment decisions of individuals' on investment in stocks are grouped in four factors as they reviewed theories and empirical studies: These are Heuristics factors, Prospect factors, Market factors, and Herding effects which are the detail concern of the study after reviewing literatures.

Kibru (2009), in his study pointed out that the shareholders/retail investors of Ethiopia have inadequate knowledge of the benefits to be realized in relation to investing in shares. The author found that the problems spread across abroad spectrum of share holders of various categories, both genders and different academic disciplines. He concluded that female shareholders are less knowledgeable than male about the benefits realized from investing in equity shares, non business majors have less awareness than business majors and institutional investors/shareholders have better awareness than either individual or joint shareholders.

Having considering the above empirical literature both globally in general and for Ethiopia in particular the researcher initiated to carry out a research on determinants of behavioral factors influencing the individual investors' investment decision making with regards to investment in stocks in distinct of Addis Ababa City on Ethiopian private banks to examine the major behavioral factors influence investment decision which have been found by reviewing the literatures in Ethiopia. The main gap analysis of the study is all the previous studies carried out on behavioral factors influencing individual investors' investment decision making are done in developed countries and in small number of emerging countries in which they have well organized stock market (Caparrelli, Arcangelis & Cassuto, 2004, Fogel & Berry, 2006, and Waweru et al., 2008,). However, Ethiopia does not has such market. Therefore, the researcher initiated to carry out this study in place where there is no well organized stock market which help financial participants by providing a day to day market information and other relevant information that used to make one's own investment decision.

1.2 Statements of the Problems

Even though the government of Ethiopia has undertaken several policy measures to encourage the participation of the private sector in the economy, the response of investment has been not that much attractive and satisfactory (World Bank, 2002) and it is believed that although, there is no capital market in Ethiopia which play a significant role by channeling its society's savings into productive investment opportunities, there are unorganized and illiquid internal stock trading practices which are held through the companies (Belayneh, 2005). However, Kibru (2009) in his study reported that the shareholders/retail investors of Ethiopia have inadequate knowledge of the benefits to be realized in relation to investing in shares and individual investors and joint shareholders have less awareness the benefits realized investing in shares than the institutional investors/shareholders. Yishak (2000) as cited in Belayneh (2005) stated that the absence of secondary markets in Ethiopia makes entry and exit of individual holding equity shares relatively difficult and probably of high cost and it discourage individuals from holding shares.

Besides to the above the Lusardi and Mitchell (2006), documented that most of the equity investors do not have the sufficient knowledge of basic economic concepts required to make investment decisions. Waweru et al., (2008, p.24-41), pointed out that the number of studies using behavioral finance for frontier and emerging markets is much fewer than for developed markets. Therefore, the study was conducted to recognize the driven factors of individual investors' behavior and to identify the determinants of behavioral factors influencing individual investors' investment decision making which have direct consequence of sustainable economic growth of the country as whole. This has necessitated probing the issue further in detail to understand its impact and draw conclusions on the basis of empirical evidence.

1.3 Objective of the study

1.3.1 General objective of the study

The general objective of this study is to identify the determinants of behavioral factors influencing individual investors' decision making regards of investment in equity in Addis Ababa on Ethiopian private banks shareholders.

1.3.2 Based on the above broad objective, the specific objectives of the study are as follows;

- To determine the impact levels of behavioral variables on decision making of individual investors(shareholders) of Ethiopian private commercial banks.
- To identify the most behavioral factor influencing individuals investors' investment decision

making among others on Ethiopian private bank shareholders in Addis Ababa.

- To examine the relationship between behavioral variables and investment decision.

1.4 Research Questions

In line with the broad purpose statement highlighted above, the following specific research questions are formulated:

i. What are the behavioral variables influencing individual investment decision makers at the Ethiopian Private commercial banks and which factors do they belong to?
ii. Which of the behavioral factors more influence individual investors' decisions making at Ethiopian private commercial banks?
iii. At what impact levels (if any) do the behavioral factors influence the individual investors' decisions making in investment in shares in Addis Ababa on Ethiopian private banks?

1.5 Research Hypotheses

To answer the specific research questions and achieve the study objectives, the following hypotheses stated in their alternatives forms were tested on which different behavioral variables obtained from the reviewed literatures and which are fit with the statement of the research problem. The study has the following three major hypotheses and sub hypotheses in each major hypothesis.

H1: The behavioral variables that influence the investment decisions of individuals at the EPCB are grouped in four factors as the reviewed theories: Heuristics, Prospect, Market, and Herding.

This hypothesis is tested by exploratory factor analysis to identify which dimensions the behavioral variables belong to.

H2: The behavioral factors have Moderate levels impact on the investment decisions of individual investors at the Ethiopian Private Commercial Banks.

This hypothesis is tested by synthesizing the respondents' evaluations of influence degrees of behavioral factors on investment decisions.

H3: There is positive and significant relationship between Individual equity investor's decision making and behavioral Variables at the Ethiopian private commercial banks

This hypothesis is tested by using Pearson's Correlation Coefficient Analysis that presents the correlation indexes among the behavioral factors and investment decision.

In order to test the hypothesis 3 above the following sub hypotheses are designed.

- *H3:1:There is positive and significant relationship between Individual equity investor's decision making and heuristic factor*
- *H3:2: There is positive and significant relationship between Individual equity investor's decision making an**d** prospect factor*
- *H3:3: There is positive and significant relationship between Individual equity investor's decision making an**d** Market factor*
- *H3:4: There is positive and significant relationship between Individual equity investor's decision making and herding effects*

1.6 Significance of the Study.

The study had immense value to the following units by assessing determinants of behavioral factors influencing individual investors' decision making in relation to investment in stocks. For Share Companies: Share Companies may use the findings of this research for better understanding on investors' decision to give better recommendations to them. For present and future investors: it is useful for investors to understand common behaviors, from which justify their reactions for better returns and to consider and analyze the stock market trend before making suitable decisions of investment and help them to change their behavior towards this market. For financial planners, brokers and policy makers: A better understanding of behavioral processes and outcomes are important for financial planners because an understanding of how investors generally respond to market movements would help them in devising appropriate asset allocation strategies for clients and to provides an insight of investor heterogeneity, for informed judgments by understanding the behavior of investors in the study area. To the author: The research provides a good chance for the author to understand more theoretically and practically about the stock market as well as the theories of behavioral finance.

1.7 The Scope of the Study

The research had applied to examine determinants of behavioral factors influencing individual investors' decision making at Ethiopian private banks for shareholders those have stock account for on January 31,2015.

1.8 Limitations of the study

Even though the study is a satisfied by the quality criteria as mentioned in chapter 3, it has also some limitations as the following: During the study, the researcher had face some uncontrollable (external) variables that affected the smooth implementation of the research . For instance; lack

of resource and poor cooperation of respondents in responding for the questionnaires, i.e. the study do not include the Dashen bank S.C and Abay bank S.C because of their unwilling to accept the researcher's requisition to obtain their permission to contact their shareholders unlike the others have done, lack of relevant and up to date published literatures mainly in the context of Ethiopia and absence of full information displayed on websites were the major constraints during the study. The other limitation of this research is due to absence of stock market in Ethiopia it was very difficult to obtain the address of individual investors listed in share investment, which has a great impact that limit the findings of this study. As respondents are chosen from large population, generalization for the whole population is may not perfectly fulfilled although random sampling is applied. Behavioral finance and its measurements are very new to investors in Ethiopia. There is no any references for applications of behavioral finance in Ethiopia as well as measurements of investment decision based on the perceptions of the investors rather the researcher used variables of behavioral factors and investment decision founded in others country.

1.9 Organization of the paper

This study had organized into five chapters. Chapter one presents introduction of the study. The literature review part of the study had presented in chapter two. Outline of the method of analysis has stated in chapter three. Chapter four analyses data obtained and discussion the results. Chapter five consist of conclusions and making suggestion for further studies.

CHAPTER II

LITERATURE REVIEW

2.0 Introduction

The purpose of this section of the study is to provide a comprehensive view of the psychological foundations and their applications to finance as determined by the current state of behavioral finance research. Behavioral finance, has achieved impressive strides in explaining the behavioral aspects of investment decisions. Behavioral finance investigates choice under uncertainty. This review of the literature, concentrates on work involving individual investors. Individuals' investment behavior has been explored through a large body of empirical studies. This chapter begins with a brief discussion of behavioral finance from the context of its evolution of standard finance to behavioral finance by reviewing in both theoretical and empirical aspects of the study.

2.1 Evolution of Behavioral Finance: The Traditional Finance versus Behavioral Finance

2.1.1 The Foundation of The Traditional (Standard) Finance

Before the evolution of behavioral finance, there was standard or traditional finance (*H.Kent and John R. ,2010,p.4)*. At its foundation, standard finance assumes that finance participants, institutions, and even markets are rational. On average, these people make unbiased decisions and maximize their self-interests *(H.Kent and John R.,2010,p.4)*. Any individual who makes suboptimal decisions would be punished through poor outcomes. Over time, people would either learn to make better decisions or leave the market place. Also, any errors that market participants make are not correlated with each other; thus the errors do not have the strength to affect market prices *(H.Kent and John R.,2010,p.4)*. This rationality of market participants feeds into one of the classic theories of standard finance, the efficient market hypothesis (EMH). The rational market participants have impounded all known information and probabilities concerning uncertainty about the future into current prices. Therefore, market prices are generally right *(H. Kent and John R.,2010,p.4)*.

Although the traditional finance paradigm is appealing from a market-level perspective, it entails an unrealistic burden on human behavior. After all, psychologists had been studying decision heuristics for decades and found many biases and limits to cognitive resources. In the 1960s and 1970s, several psychologists began examining economic decisions. The beginning of this

psychologically based financial analysis coincided with the start of many empirical findings (starting with the small firm effect) that raised doubts about some of the key foundations in behavioral finance*(H.Kent and John R.,2010,p.4)*..

2.1.2 Emergence of New Paradigm: Behavioral Finance

The modern finance paradigm assumes that the economic agent (termed as homo-economicus) possesses unlimited cognitive and computational capabilities with super mind which takes all likely choices and their consequences into consideration and only values money or consumption to maximize self-interest and the value so assigned is not prejudiced by factors as temper, familiarity with a particular state of affairs, unexpected increases in fear or regret and rectifies beliefs in the approved manner with the reception of new information and also is either risk neutral or has an aversion to risk *(Simon, 1955)*. However, Shefrin *(2000)* wrote a book on behavioral finance and EMH titled "Beyond Greed and Fear" that conveys that people are "imperfect processors" of information and are usually biased, commit mistakes and have perceptual problems.

Behavioral finance is a relatively new developing field of study in academics which mainly focuses on the irrationality in decision making of market participants and its affect on stock prices *(Morck, 2004)*. *Kahneman and Tversky (1974, 1979)* pointed out that most of the time people are unable to adjust beliefs appropriately and have choices which are different from rational agents.. In his study *Mohammad, (2014,p.61),* documented that behavioral finance is a relatively new field that seeks to combine behavioral and cognitive psychological theory with conventional economics and finance to provide explanations for why people make irrational financial decisions.. Psychologists and economists have researched this field since the early 1970s *(Thaler, 1994).* The pioneering work is found as early as the 1950s, for example, *Allais (1953)* and *Ellsberg (1961).*

2.2 Investment Behavior and Decision Making Process

The proponents of the traditional paradigm are of the view that it is quite possible that few agents in the economy can make less than optimal investment decisions however it does not affect the overall efficiency of the market as long as the marginal investors, who make investment decisions rationally, exist in the market. *Milton Friedman (1953),* one of the greatest economists of the time, raised the point that these are the marginal investors who set the asset prices in the

market. But the argument has not been appreciated and critics are of the view that, even if the prices of different assets are set only by rational investors, studying the practices of individual investors' decision making is of main interest. In their study Muhammad *Talha Naseem Uppal et al.,(2012,p.467),* pointed out that decision-making is a complex process and efficiency of decisions depends upon emotional stability of a decision maker. Investors in no exception are induced by his/her intuitive feelings and emotions in making decisions in uncertain and complex situations. While making decisions investors consider variety of options in specific situations by evaluating the available sources *(Mathews, 2005).*

Researches revealed that not only markets do not behave neatly as dictated by the traditional market theories, but also the individual decision makers do not behave in harmony with the doctrines of expected utility while making decisions under uncertainty *(Kahneman & Taversky, 1979; Machina, 1982).* Often decision makers have to choose among many alternatives with uncertain outcomes where many previous decision situations must be considered. In such situations the homo-economicus performs comprehensive search of all relevant alternatives and examines all possible consequences by linking the current decision with other decisions in order to select the best possible choice. However, psychological work suggests that people are not able to behave in such a way in many situations as they have limited working memory, information processing capacity, computational capability to solve especially complex problems and the cognitive load required for complex problems often exceeds people's cognitive capabilities *(Arthur, 1994; Conlisk, 1996; Kahneman, 1973; Miller, 1956; Simon,1979).* To deal with such problems people generally adopt simplifying rules-of-thumb, or heuristics, that may result in behavior that is not fully rational (*Gabaix & Laibson, 2000; Newell & Simon, 1972; Simon, 1979; Kahneman & Tversky, 1974).*

Geist (2003) was one of the first psychologists to recognize the impact of human emotions on financial decision making. Geist feels that however much we try to eliminate emotions from the investing process, we will ultimately fail. Why? Because our conscious and unconscious emotional convictions continually operate and influence our decision-making. His research motivates the investor to familiarize him/herself with the emotions and understand how they play an important role in the investing process. The focus was made on recognizing and acknowledging that emotions are an integral part of the investment decision- making process; realizing that the investment decisions are shaped by investor's own unconscious emotional

convictions; recognizing that unique emotional patterns and integrating them into an investment style that fits investor personality; and using emotions to guide the investment decisions. Studies done by *Kahneman and Tversky, (1979), Evans, 2006, and Waweru et al, (2008)* show that investment decision making is affected by behavioral factors. They have conclude that Investment decisions are guided by investors' desires, goals, prejudices, and emotions.

Ruta Khaparde and Anjali Bhute,(2014, p.61) documented that An investor with investment knowledge is always subconsciously alert and clear with his or her investment objectives and should start the investment process with an understanding of the investment objectives and then framing out the investment policy. However, *Lusardi and Mitchell, (2006)*found that many equity investors do not have appropriate knowledge of the basic concepts of economics required to make decisions of investment. So there exists a need to make research on these factors that can influence the investment decisions.

2.3 Theoretical Review for Determinants of Behavioral Factors Influencing Individuals Investment Decision Making: Traditional Finance Theory Versus Behavioral Finance

2.3.1 Traditional (Standard) Finance Theories

Traditional finance theories such as Capital Asset Pricing Model, Efficient Market Hypothesis and Modern portfolio theories presumes that markets are efficient, people make rational decisions to maximize profits (E.Vijaya,2014). Traditional finance, derived from neo-classical economic theory, assumes a world dominated by homo economicus-people are "rational" utility maximizers and its ideal framework, is a security's price equals its "fundamental value" as frictions do not exist and agents seem to be rational (Le Phuo and Doan, 2011). The fundamental value is said to be the "discounted sum of expected future cash flows", in the context that investors are able to process all available information accurately and the discount rate is consistent with the accepted preference specification.

2.3.2 Behavioral Finance Theories

Being different from traditional finance theories, behavioral finance theories are based on the insights of the experimental cognitive psychologists. It views people as "normal," and thus imperfect, decision makers prone to biased judgments stemming from their limited information-processing abilities. Behavioral finance theories, which are based on the psychology, attempt to understand how emotions and cognitive errors influence investors' behaviors(*Le Phuoc and Doan* 2011). Behavioral finance is a new paradigm of finance theory, which seeks to understand

and predict systematic financial market implications of psychological decision-making (Olsen, 1988).

2.3.3 Arguments about Theories of Behavioral Finance

Many researchers consider behavioral finance as good theory to understand and explain feelings and cognitive errors affecting investment decision-making *(Waweru et al., 2008,p.25).* Supporters of behavioral finance believe that the study of social sciences such as psychology can help to reveal the behaviors of stock market, market bubbles and crashes (*Gao and Schmidt, 2005, p.37).* The concept of behavioral finance argue with the rationality concept of traditional finance; and investors will not always be able to value their utility of decision alternatives, cannot estimate and update probability of events and do not diversify properly *(Sohani Islam,2012).*

Although there are many writers contributing to the development of behavioral theory, *Kahneman and Tversky (1974, 1979)* seem to be ones of the earliest writers who set the foundation for behavioral finance with the study about heuristics and biases as well as prospect theory. Some other writers also have much contribution to behavioral finance are *Odean (1998a, 1998b, 1999), Barber and Odean (2000, 2001, 2002), Barberis and Thaler (2003), Baberis and Huang (2001), DeBondt and Thaler (1985, 1995).*

Selden (1912) in his book, Psychology of the Stock bases his studies `upon the belief that the movements of prices on the exchanges are dependent to a very considerable degree on the mental attitude of the investing and trading public'. The study of *Rakesh H M, (2014, p. 106)* revealed that behavioral finance theories, which are based on the psychology, attempt to understand how emotions and cognitive errors influence individual investors' behaviors. *Ritter (2003, p.429),* documented that behavioral finance theories are based on cognitive psychology, which suggests that human decision processes are subject to several cognitive illusions. These cognitive illusions can be grouped into two classifications: illusions due to heuristic decision processes and illusions caused by the adoption of mental frames, which are conveniently grouped in the prospect theory *(Waweru et al., 2008,p.27).*

Besides to the above two categories form of behavioral theories (Heuristic-Driven Biases Theory and prospect theory) many researchers also had pointed out that the market factors and herding effects are factors affecting the rationality of individual investors, *Waweru etal. (2008,*

*p.36), DeBondt & Thaler, (1985, p.804), Barber and Odean (2000, p.800), Caparrelli et al.(2004, p.223), Tan, Chiang, Mason & Nelling, (2008, p.61), Luu, (2012a), Goodfellow, Bohl & Gebka,(2009, p.213), Kallinterakis ,Munir & Markovic, (2010,p.306), LePhuocLuong and DoanThiThuHa,2011,p.(2022), Navaneethakrishnan Kengatharan,(2014, p.6), Luu Thi Bich Ngoc(2014,p.4-5),*and etc. These behavioral theories are reviewed below.

2.3.3.1. Heuristic theory

Heuristics are defined as the rule of thumb, which makes decision making easier, especially in complex and uncertain environments (Ritter, 2003, p431) by reducing the complexity of assessing probabilities and predicting values to simpler judgments (Kahneman&Tversky, 1974, p1124). In general, these heuristics are quite useful, particularly when time is limited (Waweru *et,al*., 2008, p.27), but sometimes they lead to biases (Kahneman& Tversky, 1974, p.1124; Ritter, 2003, p.431). Heuristics can also be defined as the "use of experience and practical efforts to answer the questions or to improve performance". Due to the fact that more and more information is spread faster and faster, life for decision make in financial markets has become more complicated (Douglas I. Ndungu,2011). They are mental shortcuts that simplify the complex methods ordinarily required to make judgments.

Decision makers frequently confront a set of choices with vast uncertainty and limited ability to quantify the likelihood of the results *(H.Kent Baker and John R. Nofsinger,2010).* In his study *Sohani Islam,(2012);* documented that these psychological factors explains that, people have tendency to take decision or make judgment on the basis of nearest available information, because the act occurred quickly, there are lots of possibilities to capture the wrong decision. Kahneman and Tversky seem to be one of the first writers studying the factors belonging to heuristics when introducing three factors namely Representativeness, Availability bias and Anchoring. Waweru*et, al*, (2008) also list two factors named Gambler's fallacy and Overconfidence into Heuristic theory.

The following paragraphs clearly discuss the factors belonging to heuristics which comes from the different researchers findings in different time; namely representativeness, anchoring overconfidence, gambler's fallacy and availability bias.

2.3.3.1.1 Representativeness

Representativeness refers to the way people make subjective probability judgments based on similarity to stereotypes *(H.Kent Baker and John R. Nofsinger,2010,p.259).* DeBondt & Thaler, (1995, p. 390) defined Representativeness as it is the degree of similarity that an event has with its parent population or the degree to which an event resembles its population. *Gilovich (1991, p. 18)* describes the nature of the heuristic in more detail: "Representativeness is a tendency to assess the similarity of outcomes, instances and categories on relatively salient and even superficial features, and then to use these assessments and similarity as a basis of judgment. People assume like goes with like." Because representativeness is not influenced by several factors that should affect probability judgments, the implication is that errors in judgment sometimes result (*H.Kent Baker and John R. Nofsinger,2010,p.259).*

Representative bias was identified as another responsible variable. Investors can invest on the basis of their past experience that may not return them their desired result, however this scenario is difficult for them to accept, and it is equally difficult to accept their own assessment fault *(Sohani Islam,2012).* Following the past information keenly and take the expert advice can be major tools if the investors want to follow their own past trends (Sohani Islam,2012,). Representativeness may result in some biases such as people put too much weight on recent experience and ignore the average long-term rate *(Ritter, 2003, p. 432).* A typical example for this bias is that investors often infer a company's high long-term growth rate after some quarters of increasing *(Waweru et al., 2008, p. 27).*

2.3.3.1.2 Overconfidence

The theory of overconfidence says that people generally rate themselves as being above average in their abilities*(Ambrose Jagongo and Vincent S. Mutswenje,2014).*They also overestimate the precision of their knowledge and their knowledge relative to others. Many investors believe they can consistently time the market. But in reality there's an overwhelming amount of evidence that proves otherwise *(Ambrose Jagongo and Vincent S. Mutswenje,2014).* Overconfidence results in excess trades, with trading costs denting profits, *(Tapia and Yermo,2007).* When people overestimate the reliability of their knowledge and skills, it is the manifestation of overconfidence *(DeBondt & Thaler, 1995, p.389, Hvide, 2002, p.15).*

2.3.3.1.3 Gambler's Fallacy:

Gambling is the game which depends on target and luck. Not any certain technique is used in playing gamble. A gambler's fallacy, theoretically, identified human nature to develop a reason behind any decision, out of some illogical concept (Sohani Islam,2012). More specifically, in stock market, Gamblers' fallacy arises when people predict inaccurately the reverse points which are considered as the end of good (or poor) market returns *(Waweru et al., 2008, p.27).* In addition, when people subject to status quo bias, they tend to select suboptimal alternative simply because it was chosen previously *(Kempf and Ruenzi, 2006, p.204).*

2.3.3.1.4 Anchoring:

Anchoring is a phenomena used in the situation when people use some initial values to make estimation, which are biased toward the initial ones as different starting points yield different estimates (Kahneman & Tversky, 1974, p.1128). Anchoring bias is a mental state, when the investors set a target and judge their future return nearer to that point. The target point is referred by the socio economist and financial behavior analysist's as "Anchor" *(Sohani Islam,2012). Kannadhasan (2010)* found that, with new information, investors expect that, their investment will be as same as like the past return trend. In his study *Maartje Marchand,(2012),*pointed out that when investors need to make a decisions they often fail to do enough research because there is just too much data to collect and analyses. Instead they proceed based on a single figure or fact, while ignoring the important information. This irrational behavior is called anchoring. Anchoring bias often referred as adjustment bias *(Kishore,2011).*

According to the theory, capital market armature investors often set a target and even after the arrival of a new information, investors denied to adjust according to that *(Sohani Islam,2012).* In financial market, anchoring arises when a value scale is fixed by recent observations *(Luu Thi Bich Ngoc,2013).* Investors always refer to the initial purchase price when selling or analyzing. Thus, today prices are often determined by those of the past. Anchoring makes investors to define a range for a share price or company's income based on the historical trends, resulting in under-reaction to unexpected changes *(Luu Thi Bich Ngoc,2013).* Anchoring has some connection with representativeness as it also reflects that people often focus on recent experience and tend to be more optimistic when the market rises and more pessimistic when the market falls *(Waweru et al., 2008, p. 28).*

2.3.3.1.5 Availability Bias

Availability bias happens when people make use of easily available information excessively *(Luu Thi Bich Ngoc,2013).* In stock trading area, this bias manifest itself through the preference of investing in local companies which investors are familiar with or easily obtain information, despite the fundamental principles so-called diversification of portfolio management for optimization*(Waweruetal.,2003,p.28).* Most of the amateur investors heavily rely upon commonly available data. Without questioning and querying too much they place a market order which in return may give poor result. But availability of hot stocks *(Chandra and Kumar; 2011)* influence them to take such action. Trading brings pride when decisions made are profitable, but it brings regrets when they are not. Investors avoid selling losing stocks and blamed the professional intermediaries for not making a profitable portfolio. Information can be collected through many ways. *Warneryd (2001*) notes, that availability bias can be experience-based, memory-based or imagination-based. To understand the availability heuristic requires recognizing that people disproportionately recall the salient events, that is, those that are very recent and/or those that they are or were emotionally involved with, especially in the recent past (*H.Kent Baker and John R. Nofsinger,2010).* The more salient an event, the more likely is the probability that a person will recall that event. This bias prevents people from considering other potential and related outcomes.

2.3.3.2 Prospect Theory

The prospect theory state that people make decisions based on the potential value of losses and gains rather than the final outcome and thus will base decisions on perceived gains rather than perceived losses*(Maartje Marchand,2012).* As well documented prior study supports the concept that, investors can make mistake and they have different perception regarding risk. This concept is generally termed as Prospect theory. *Tversky and Kaheman (1979)* introduced the leading prospect theory which identified a person's intention to invest."Prospect theory, which was developed by *Kahneman and Tversky (1979),* is one of the most often quoted and best-documented phenomena in economic psychology. The theory states that we have an irrational tendency to be less willing to gamble with profits than with losses." *Tvede (1999, p. 166)* prospect theory showed human behavior when they face with risk and uncertainly. In particular, people are prone to certainly, therefore people overweight on the outcomes that are perceived

more certain than that are considered mere probable *(Luu Thi Bich Ngoc,2014).* This called certainly effect that human beings are not consistently risk-averse; rather they are risk-averse in gains but risk-takers in losses *(Kishore, 2004).*

Prospect theory focuses on subjective decision-making influenced by the investors' value system *(Luu Thi Bich Ngoc,2014).* In other words, traders are most inclined to take subsequent risks if they have already experienced losses. By contrast, trader who have experienced profit, usually their exposure to the next risk. Therefore, people respond differently, depending on whether the choices are framed in terms of gains or in term of losses *(Waweru et al., 2003, p. 28). The study of Milan Lovric, Uzay Kaymak and Jaap Spronk; (2008),* revealed that the prospect theory was focused and discussed from different context among which Loss aversion, Regret aversion and Mental accounting bias are significant. Other emotional and psychological biasness under prospect theory also rule as influential factors upon investment behavior. However, most of them ultimately ended up to these three biases *(Sohani Islam,2012).*

2.3.3.2.1 Loss-Aversion

Loss Aversion refers to the different levels of mental penalty people have from a similar size loss or gain (Barberis& Huang, 2001, p.1248).There is evidence showing that people are more distressed at the prospect of losses than they are pleased by equivalent gains (Barberis &Thaler, 2003, p.1077). A loss always appears larger than a gain of equal size - when it goes deep into our pockets, the value of money changes (*Ambrose Jagongo and Vincent S. Mutswenje,2014,p.95).*Moreover, a loss coming after prior gain is proved less painful than usual, while a loss arriving after a loss seems to be more painful than usual (Barberis &Huang, 2001, p.1248). Lehenkari and Pertinent (2004, p.116) find that both positive and negative returns in the past can boost the negative relationship between the selling trend and capital losses of investors, suggesting that investors are loss averse. The loss-aversion theory points to another reason why investors might choose to hold their losers and sell their winners: they may believe that today's losers may soon outperform today'swinners*(AmbroseJagongoandVincentS.Mutswenje,2014,p.95)*.

Risk aversion can be understood as a common behavior of investor, nevertheless it may result in bad decision affecting investor's wealth *(Odean, 1998a, p.1899).*

2.3.3.2.2 Regret-aversion

It deals with the emotional reaction people experience after realizing they've made an error in judgment *(Ambrose Jagongo and Vincent S. Mutswenje,2014)*. Faced with the prospect of selling a stock, investors become emotionally affected by the price at which they purchased the stock. So, they avoid selling it as a way to avoid the regret of having made a bad investment, as well as the embarrassment of reporting a loss. Regret theory can also hold true for investors who find a stock they had considered buying but did not went up in value. Some investors avoid the possibility of feeling this regret by following the conventional wisdom and buying only stocks that everyone else is buying, rationalizing their decision with "everyone else is doing it" *(Pareto, 1997)*. Regret is an emotion occurs after people make mistakes. Investors avoid regret by refusing to sell decreasing shares and willing to sell increasing ones. Moreover, investors tend to be more regretful about holding losing stocks too long than selling winning ones too soon *(Forgel & Berry, 2006, p. 107; Lehenkari & Perttunen, 2004, p. 116).*

2.3.3.2.3 Mental Accounting

Mental Accounting was coined by Richard Thaler and defined by Thaler (1999) as the "set of cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities." This result in a tendency for people to separate their money into separate accounts based on a variety of subjective reasons. Mental accounting states that humans have a tendency to place particular events into mental compartments, and the difference between these compartments sometimes impacts our behavior more than the events themselves*(Ambrose Jagongo and Vincent S. Mutswenje,2014,p.94)*. Mental accounting biasness leads investors to calculate mentally about the expected profit of the investment*(Sohani Islam,2012,p.18)*. One major problem is because of lesser experience and knowledge; investors fail to recognize the original value of portfolio. They calculated separately on each stock, however that certainly will not match with total portfolio return (*Sohani Islam,2012,p.18).*

2.3.3.3 Market Factors Theory

It says that investors get optimistic when the market goes up, assuming it will continue to do so. Conversely, investors become extremely pessimistic amid downturns*(Ambrose Jagongo and Vincent S. Mutswenje,2014,p.95).* DeBondt and Thaler (1995, p.396) state that financial markets can be affected by investors' behaviors in the way of behavioral finance. If the perspectives of

behavioral finance are correct, it is believed that the investors may have over- or under-reaction to price changes or news; extrapolation of past trends into the future; a lack of attention to fundamentals underlying a stock; the focus on popular stocks and seasonal price cycles. These market factors, in turns, influence the decision making of investors in the stock market. Indeed, part of the original attraction for a fledgling behavioral finance field was that market prices did not appear to be fair. In other words, market anomalies fed an interest in the possibility that they could be explained by psychology*(H.Kent Baker and John R. Nofsinger,2010). Waweru et al. (2008, p.36)* identifies the factors of market that have impact on investors' decision making: Price changes, market information, past trends of stocks, customer preference, over-reaction to price changes, and fundamentals of underlying stocks.

2.3.3.4 Herding Effect

Herding in financial markets can be defined as mutual imitation leading to a convergence of action (Hirshleifer and Teoh, 2003).This is the most common mistake where investors tend to follow the investment decisions taken by the majority. The main reason for this is pressure from or influence by peers. Investors apply to herd behaviour because they are concerned of what others think of their investment decisions (Scharfstein and Stein, 1990). Practitioners usually consider carefully the existence of herding, due to the fact that investors rely on collective information more than private information can result the price deviation of the securities from fundamental value; therefore, many good chances for investment at the present can be impacted*(Navaneethakrishnan Kengatharan,2014)*. Academic researchers also pay their attention to herding; because its impacts on stock price changes can influence the attributes of risk and return models and this has impacts on the viewpoints of asset pricing theories (*Tan, Chiang, Mason & Nelling, 2008, p.61).* Herding describes how individuals in a group can act together without planned direction *(Kimani Victor Waruingi,2011).*.

In the security market, herding investors base their investment decisions on the masses' decisions of buying or selling stocks. In contrast, informed and rational investors usually ignore following the flow of masses, and this makes the market efficient*(Luu Thi Bich Ngoc,2014).* Herding, in the opposite, causes a state of inefficient market, which is usually recognized by speculative bubbles. In general, herding investors act the same ways as prehistoric men who had a little knowledge and information of the surrounding environment and gathered in groups to

support each other and get safety *(Caparrelli et al., 2004, p. 223)*. When the investors put a large amount of capital into their investment, they tend to follow the others' actions to reduce the risks, at least in the way they feel *(Luu Thi Bich Ngoc,2014)*. Besides, the preference of herding also depends on types of investors, for example, individual investors have tendency to follow the crowds in making investment decision more than institutional investors (*Goodfellow, Bohl & Gebka, 2009, p.213). Le Phuoc Luong and Doan Thi Thu Ha (2011,p.23)* identifies the herding effects that have impact on investors' decision making: Buying and Selling decisions of other investors, choice of stock to trade of other investors, volume of stock to trade of other investors and Speed of herding. The following diagram shows the summary of the determinants behavioral factors influencing individual investors' decision making which are emanated from the above theoretical review of the study.

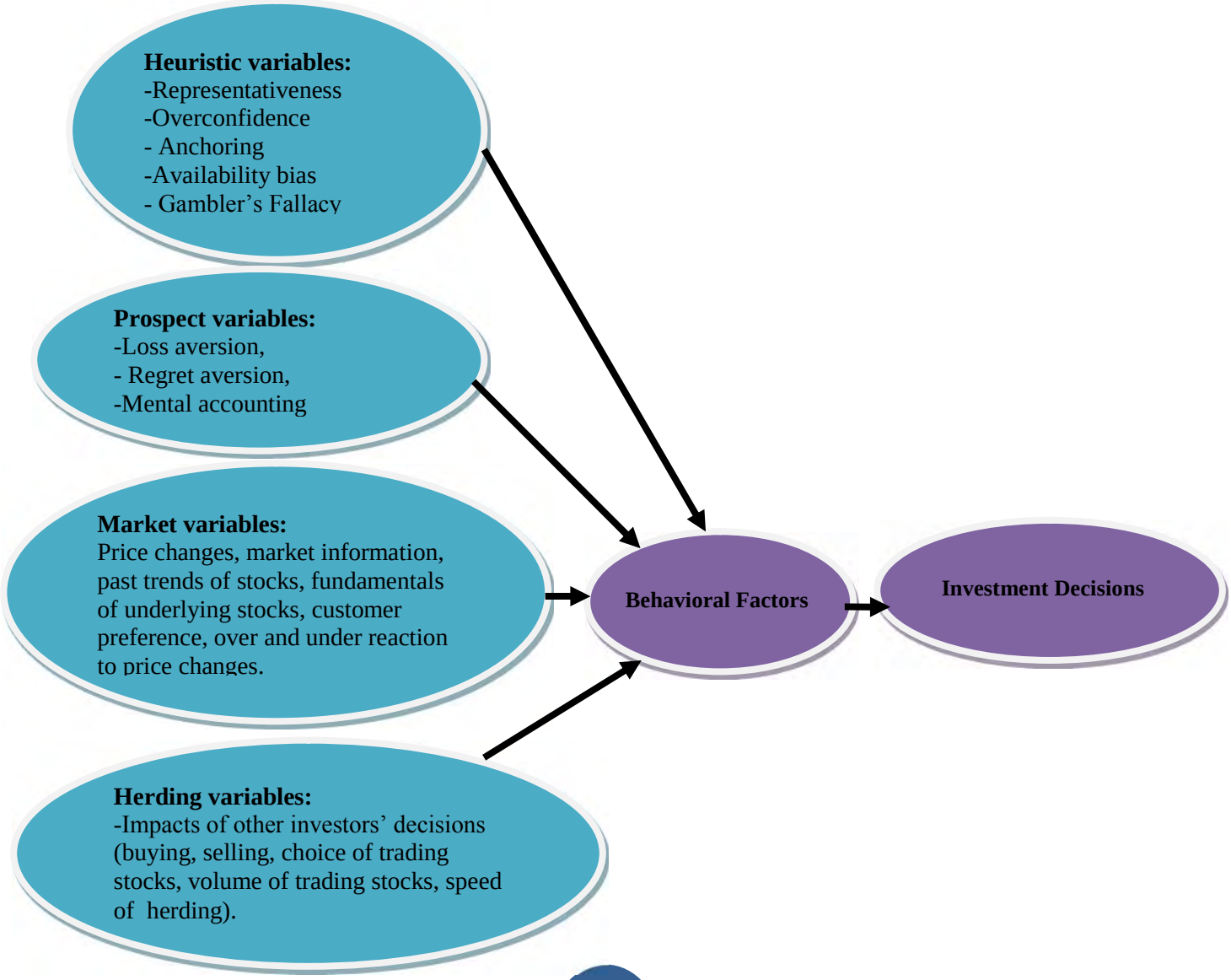

Figure2.1 The Theoretical framework of determinants of behavioral factors' influencing individual investors' investment decisions making. (Source: Researcher's own data by reviewing different literatures related to the research topic).

2.4 The Empirical Findings on Investment Decisions of Individual Investors

Researches in behavioral finance have developed rapidly in recent years and provide evidence that investors' financial decisions are also affected by behavioral factors *(Shefrin, 2000; Shleifer, 2000; Warneryd, 2001).* Prior evidence shows that equity investment of the retail investors, individuals who buy and sell securities for their personal account, is influenced by many factors including firm related, macro environment and investor psychology related (Gunathilaka C,2014). Recent studies also support that investors' deviate from rationality and show repeated patterns of irrational behavior and variation due to greed, fear, emotions, speculation, and subjective thinking while making investment decisions *(Meditinos et al, 2007; Evans, 2006; Gao and Schmidt, 2005; Warneryd, 2001).*

Ambrose Jagongo and Vincent S. Mutswenje (2014), explain that investment decisions are often supported by decision tools. The authors found that information structure and the factors in the market systematically influence individuals' investment decisions as well as market outcomes and investor market behavior derives from psychological principles of decision making to explain why people buy or sell stocks. These factors will focus upon how investors interpret and act on information to make investment decisions. They conclude that it is generally believed that investment decisions are a function of several factors such as market characteristics and individual risk profiles, in addition to accounting information.

The study of Taqadus Bashir et al., (2013) revealed that within behavioral finance it is assumed that characteristics of market individuals and information structure influence investment decisions of individuals and market outcomes as well .*Le Phuoc Luong Doan Thi Thu Ha (2011),* report that there are several investment decisions related to stock trading, such as: buying, selling, choice of stock, length of time to hold stock, and volume of stock to trade.

2.4.1 The selling decision

Previous studies report that investors decrease the selling decisions of assets that get a loss in comparison to the initial purchasing price, a trend called the "disposition effect" by Shefrin and Statman (1985, p.778) as cited in *Le Phuoc and Doan (2011).* Odean (1998b, p.1795) confirms

the same conclusion that individual investors tend to sell stocks which their values, in comparison to their original buying price, increase rather than sell the decreasing stocks. However, it is difficult to demonstrate this phenomenon in the rational ground. It is not really reasonable to conclude that investors rationally sell winning stocks because they can foresee their poor performance *Le Phuoc and Luong Doan (2011).* Genesove and Mayer (2001, p.19) state that investors who sell their assets at the price less than original purchase price usually expect the selling price is more than other sellers' asking price. It is not only the expectation of the sellers, but also the correction of market decides the selling price: investors encountering a loss often do the transaction at the relatively higher price than others. *Le Phuoc and Doan (2011),* conclude that the selling pressure can firstly slow down the stock price, and then create higher returns. In contrast, if the stockholders are experiencing capital losses, they may merely make decision of selling when an expected price is given. In this case, the price may be initially increased, leading to lower returns later.

2.4.2 The buying decision

Odean (1999, p.1293) provides several understandings about the preferable stocks that individual investors would like to buy. As mentioned above, selling decisions mainly prioritize winning stocks; whereas, buying decisions are related to both prior winning and losing stocks. Odean states that the buying decisions may be a result of an attention effect. When making a decision of stock purchase, people may not find a good stock to buy after considering systematically the thousands of listed securities. They normally buy a stock having caught their interest and maybe the greatest source for attention is from the tremendous past performance, even good or bad. According to Barberis and Thaler (2003, p.1103), individual investors seem to be less impacted by attention-grasping stock for their selling decisions because the selling decision and the buying decision are differently run. Barber and Odean (2002, p.2) already prove that the selling decisions are less determined by attention than buying decisions in case of individual investors. To give this conclusion, they create the menu of attention-grasping stocks with several criteria: unusually high trading volume stocks, abnormally high or low return stocks, and stocks including news announcements. *Phuoc Luong Doan Thi Thu Ha 2011)* concluded that, from the viewpoints of behavioral finance, the investor behaviors impact both selling and buying decisions at different levels, and then they also impact the general returns of the market as well as the investment performance of individuals.

2.5 The Empirical Review on Demographic factors influencing individuals' investment decision

Geetha and Ramesh (2012) studied the relevance of demographic factors in investment decisions in Tamilnadu, India, and claimed that the demographic factors have a significant influence over some of the investment decision elements, while insignificant influence was found on some other elements. *Obamuyi (2013)* found out that the socio-economic characteristics of investors (age, gender, marital status and educational qualifications) are significant influencing factors in investment decisions of investors. *Schmidt & Sevak*, (2006), women's investment has historically been lower than men's for several reasons, including Social and various demographic concerns. However the differences continue to be significant even after controlling for individual Characteristics.

ACNielsen Research (2005), the global marketing research firm conclude that the lowest levels of financial literacy were associated with people who have lower education, unemployed or unskilled workers, and people with low income, single people, and those at both extremes of the age profile. People with different ages, income level, knowledge, gender, marital status and occupation makes different decisions *(Jain &Mandot, 2012)*. Patidar (2010) concluded that investors' age and gender predominantly decides the risk taking capacity of investors. There are ample literatures on interaction between demographic and financial behavioral factors in investment decisions for instance one can see the studies of *Kabra.G., Mishra.P.K., and Dash.M.K.* (2010), *Fares and Khamis* (2011), *Taqadus Bashir et al.(2013), Hussain* (2009), *(Mishra & Dash, 2010) ,Volpe et al*. (2002), *Mohammad Shafi,(2014)and etc.*

2.6 The Empirical Review on Behavioral finance .

Behavioral finance says market behavior of investor for explaining the reason why people sell and buy stocks derives from the psychological principals of the decision making. The main focus of behavioral finance is upon the ways people do interpret and act upon information for making investment decisions (*Taqadus Bashir et al.(2013).* Behavioral finance tries to understand and to explain that how cognitive errors and emotions affect investors decision making (*Statman,1999*). *Sohani Islam,(2012)* pointed out that even though many works and researches have been made upon what factors may affect investment decision of investors, it is found that, investment choice may vary from country to country, but, in most of the studies individual investors' choice of investment it taken quite emotionally rather than rationally.

In his study *Pavabutr (2002),*documented that the behavioral finance literature is able to establish that heuristics, self-attribution bias, framing effect, representativeness, loss aversion, risk aversion, over and under reaction, etc., affect and alter decisions of investors. *Kashifur Rehman and Ahmed Imran Hunjra (2012)* look extensively at individual investor investment decision making and find that in complex and uncertain situation individuals use rules of thumb for making decisions and is referred to heuristics and financial decision makers apply mental shortcuts rather than objectively assessing the available information. Limited time might be the practical explanation for implementing a heuristic decision process. However, application of heuristics may result in poor decisions *(Kahneman and Tversky, 1979).* The study of *Kempf and Ruenzi(2006)* revealed that investors adopt the same pattern which was selected previously, even if it not the most favorable option.

Kahneman and Riepe, (1998) said that oftenly, the investors judge the buying value of a stock as a reference point and act to fluctuation in price comparative to the original purchase price. Excessive trading leads to *overconfidence (Evans, 2006).* Investors are overconfident in their own abilities and analysts are particularly overconfident in areas where they have some knowledge *(Shiller, 1998; Evans, 2006).* Another type of heuristics appears when investors give unnecessary weight to easily available information. Such type is referred to as *availability bias (Barberis, 2001).* However, *(Kahneman and Tversky(1979),argue that* application of heuristics may result in poor decisions.

Investors tend to be more regretful about holding losing stocks too long than selling winning ones too soon *(Forgel& Berry, 2006, p.107). Lehenkari and Pertinent (2004, p.116)* find that both positive and negative returns in the past can boost the negative relationship between the selling trend and capital losses of investors, suggesting that investors are loss averse. Mental Accounting was coined by *Richard Thaler* and defined by *Thaler (1999)* as the "set of cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities." This result in a tendency for people to separate their money into separate accounts based on a variety of subjective reasons.

According to *Ritter (2003, p.429),* behavioral finance is based on psychology which suggests that human decision processes are subject to several cognitive illusions. These illusions are divided into two groups: illusions caused by heuristic decision process and illusions rooted from the

adoption of mental frames grouped in the prospect theory *(Waweru et al., 2008, p.27).* These two categories as well as the herding and market factors are found out by the study of *Le Phuoc Luong Doan Thi Thu Ha,2011,Sohani Islam,2012,Kashif ur Rehman and Ahmed Imran Hunjra,2012,VictorWaruingiKimani,2011,MaartjeMarchand,2012,TaqadusBashiretal.(2013),Navaneethakrishnan Kengatharan,2014, Luu Thi Bich Ngoc,2014* , E.Vijaya,2014 and *etc)* which are the concerns of the present study by reviewing the above empirical studies. Different findings are drawn from different studies by researchers' of different countries on behavioral factors influencing individual investors' decision making.

2.7 The Empirical Review on Impact Levels of Behavioral Variables on Individuals' Investment Decision Making.

*Le Phuoc and Doan (2011),*documented that there are four behavioral factors affecting investment decisions namely Heuristics (Over-confident & Gambler's fallacy and Anchoring & Availability bias), Prospect, Market, and Herding. They found that, among four heuristic variables (availability bias, overconfidence, anchoring, and gambler's fallacy) which are tested to have the acceptable reliability and consistency of measurements, availability bias has high impact and among three prospect factors (loss aversion, regret aversion, mental accounting), mental accounting rank as the variable having the highest impact on the decision making of the investors at the Ho Chi Minh Stock Exchange. The authors further reported that market factor has the highest influences on the investment decision-making of the investors at the Ho Chi Minh Stock Exchange. In this case, market factor including the market information (about the customers, company's performance, and so on), the price changes of stocks in the market, and the past trends of stocks . Finally authors pointed out that the herding variables' impact on the investors' decisions at the Ho Chi Minh Stock Exchange, which is assumed high, is moderate only which does not strongly support the researches of Farber, Nguyen and Vuong (2006, p.17) and Tran (2007, p.23-25), which suggest that the herding effect in Vietnam stock market is very strong, especially toward positive return of the market. Chen, Rui and Xu (2003, p.5) argue that herding is more likely to happen in emerging markets than developed ones as the government intervention is high, the quality of information disclosure is low.

Navaneethakrishnan,(2014), carried out a study on the influence of behavioral factors in making investment decisions and performance of Investors in Colombo Stock Exchange, Sri Lanka and

found that there are four behavioral factors that impact the investment decisions of individual investors at the Colombo Stock Exchange : Herding, Heuristics, Prospect and Market. Herding (volume of stocks, buying and selling and speed of herding), Heuristics (over confidence), Prospect (loss aversion and regret aversion, and Market (market information and customer preferences) have moderate impacts on individual investors' decision making at Colombo Stock Exchange whereas from herding choice of stocks has low impacts on investors' decisions and from heuristics (Anchoring) has high impacts on investors' decision. from prospect; loss aversion and regret aversion and from market information and customer preferences do not have significant influence on investment performance.

Houglas I.(2012), conducted a study to examine the determinants of individual investors' behaviour in the Nairobi Securities Exchange. The author observed that Individual investors at the Nairobi Securities Exchange have a relatively high Representativeness impact and they have a high tendency of relying on their skills and previous experiences in making investment decisions. However, they do not appear to be able to predict the end returns at the Nairobi Securities Exchange as evidenced by respondents feedback. The author pointed out that the variability of security prices, market information and past trend of securities are the market variables that impact on the individuals' investment decision at the Nairobi Securities Exchange. Individual investors at the NSE have a relatively very high market impact which implies that investors consider carefully the price changes of securities that they invest in, past trends of securities and market fundamentals. The author further found that in the various kinds of variables under Prospect, namely; mental accounting, loss aversion and regret aversion, only loss aversion appears to impact on the investors' decision making at the Nairobi Securities Exchange which indicated that investors moderately become more of risk takers and highly risk averse after a prior loss and finally he documented that in the Herding dimension, the impact on investors' decision making is evidenced to be relatively very low which inform to us that investment decisions by other investors are of less influence to investors when making investment decisions at the Nairobi Securities Exchange.

Luu Thi (2014), studied the behavior pattern of individual investors in stock market at the Securities Companies in Ho Chi Minh City, Vietnam. The author reported that there are five behavioral factors of individual investors at the Ho Chi Minh Stock Exchange: Herding, Market,

Prospect, Overconfidence-gamble's fallacy, and Anchoring-availability bias. The author further documented that among heuristic variables overconfidence and anchoring have moderate impact on individual investment decision and mental accounting ranks as the variable having the highest impact on the decision making of the investors followed by loss aversion and regret aversion with respective impact of moderate levels at the Ho Chi Minh Stock Exchange. Finally he concluded that market factor has the highest influences on the investment decision of the investors with the means of market variables from 4 to 5 and the herding variables' impact on the investors at the Ho Chi Minh Stock Exchange, which is assumed high, is moderate only that contrary of Farber, Nguyen and Vuong (2006, p. 17) and Tran (2007, p. 23–25), which suggest that the herding effect in Vietnam stock market is very strong, especially toward positive return of the market.

The research conducted by E.Vijaya, (2014) revealed that there are five behavioral factors influencing the investment decisions of individual investors in Indian stock market: Overconfidence, Anchoring, Loss Aversion, Herding and Market factors. Among the 5 behavioural factors variable of Overconfidence: Knowledge of stocks is important to make investment in stock market has high impact and variables of other factors have moderate impact on retail investors' investment decision in Indian stock market.

Mohammad et al.,(2014) conducted a study to analyze the effective behavioral factors on the investors' performance in Tehran Stock Exchange. They conclude that there are three effective factors on the investors' investment decision and performance; These include herding behaviors, heuristic methods, and prospect variable. As the results revealed heuristic methods and herding behaviors influences investors' investment performance positively. On the other hand, prospect variable influences investors' investment performance negatively.

Hussein and Hassan (2006) identify that investors' motive in getting extra-ordinary gains as quick as possible is one of the most influencing factors in equity selections. The study of L. *Riaz et al. (2012),* revealed that information plays an important role in investor's decision making.

Kimani (2011), posits that there are five behavioural factors that impact the investment decisions of individual investors at the NSE; Herding, Market, Prospect, Overconfidence and gambler's fallacy, and Anchoring-ability bias. The author pointed out that the herding factor includes four behavioral variables; following the decisions of the other investors (buying and selling; choice of

trading stocks; volume of trading stocks; speed of herding) and the market factor consists of three variables: price changes, market information, and past trends of stocks. Finally author documented that the prospect factor possesses three variables that have significant impacts on the investment decision making: loss aversion, regret aversion, and mental accounting. Loss aversion ranks as the variable having the highest impact on the decision making of the investors, thus investors tend to seek more risk after a prior gain and consequently after a loss, they tend to be more risk averse.

In summary, behavioral factors influencing the investors‟ decision-making are divided into four groups: heuristic, prospect, herding effect and market factors. These groups reflect a total picture of almost all the behavioral factors that can impact the investors‟ decisions at the Securities Exchanges. Therefore, they can be used in order to recognize the behaviors of individual or even institutional investors in security trading, regardless of the stock market types: frontier, emerging or developed(Douglas I. Ndungu,2012,p.29).

Taking into consideration all the above mentioned literatures on behavioral factors influencing individual investors' decision making found by different researchers in different countries, the researcher initiated to apply a study which investigate the determinants of behavioral factors influencing individual investors' investment decisions making in Addis Ababa" at the Ethiopian private commercial banks. Although some studies have been done on the need, prospects and challenges of establishment of stock market in Ethiopia for instance the study of Abera Bayisasahu,(2011): Can Ethiopian Companies Meet the Listing Requirements of African Stock Exchanges?, Ruediger Ruecker (2011): Market Potential Assessment and Road Map Development for the Establishment of Capital Market in Ethiopia., Asrat Tessema (2003): Prospects and Challenges for Developing Securities Markets in Ethiopia, Kibru Birhanu (2009): Assessment of Perceptions of Shareholders towards the Benefits of Investment in Shares (a case of Awash International Bank S.C)., no studies have been done the behavioral factors influencing individuals investors' decision making in Ethiopia, particularly in Addis Ababa. So that the researcher motivated to apply a study on this particular topic after having reviewed plenty of literatures which related with the chosen topic.

CHAPTER III

RESEARCH METHODOLOGY

3.0 Introduction

The research methodology, based on which this research is done, is adopted from the research "onion" proposed by Saunders, Lewis and Thornhill (2009, p.108), as cited in *Le Phuoc Luong and Doan Thi Thu Ha(2011),*which summaries necessary questions that researchers should answer when conducting a research starting with research philosophy, following with research approaches, research strategies, research choice, time horizons and techniques and procedures for data collection and analysis. The main concern of the chapter is depicted as follows.

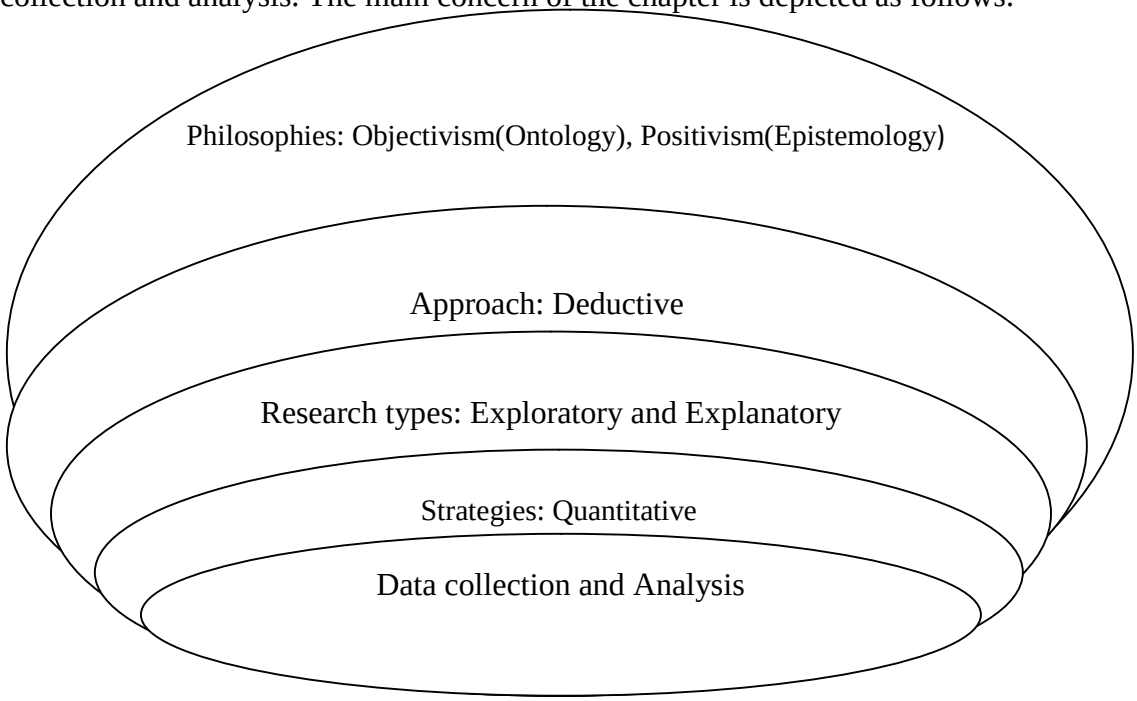

Figure 3.1. Research methodology adopted from the "Research Onion" (Source: Saunders, et al. (2009, p.108)

3.1 Research philosophy

Research is conducted based on the reasoning (theory) and observation (data or information), thus, research philosophy helps to clarify the research design, research approach as well as the data collection and analysis (Blumberg, Cooper & Schindler, 2005, p.18). When discussing about the research philosophy, ontology, epistemology and axiological are three main aspects that should be considered. While ontology concerns with the nature of reality, epistemology

refers to what constitutes acceptable knowledge, and axiological is concerned with the role of values (Collis & Hussey, 2009, p.59).

3.1.1 Ontological assumption

This research is characterized by an objectivist approach regarding ontological consideration. Objectivism asserts that social reality is external to the researchers, thus it is independent of researchers' mind. Moreover, social phenomena and their meanings exist independent of social actors (Sarantakos, 1998, p.40; Bryman & Bell, 2007, p.22). As this study's goal is examining what affects investors' decisions in stock market, which are considered as outside of the researchers' mind and external to the researcher, objectivism is more suitable than constructionism. Constructionism or subjectivism states namely that social entities are constructed and malleable, hence, it is necessary to explore the subjective meanings motivating the actors in order to understand their behaviors and what works behind those actions (Saunders et al., 2009, p.111). Within this research, all the factors influencing investors' decisions are considered as unique and already existing "out there" and the goal is to study them.

3.1.2 Epistemological assumption

Regarding epistemological assumption, this study stands more on the positivism position as it aims at finding the factors influencing investor's decisions, from which synthesize the general rule in order to generalize for the whole population, rather than try to explain and interpret the meanings of such decisions. In fact, epistemology reflects the procedure that should be taken and the principles that should govern the study of reality with two opposite positions: positivism and interpretivism. Positivism is adopted from the natural science the use of natural science's methods in studying social reality (Bryman & Bell, 2007, p.16). Saunder et al.(2009), stress that only following the scientific methods of testing hypotheses developed from existing theories that people can get knowledge about social entities. The purpose of positivism is to produce general laws for behavior prediction (Fisher, 2010, p.19), which is consistent with the goals of understanding the investors' behaviors for generalization and prediction.

Researchers are expected to be neutral to the object of the study, which promotes the value-free manner in data collection and analysis. In another words, the researchers do not affect or be affected by the subjects of the research (Saunders et al., 2009, p.114; Blumberg et al., 2005, p.18-19). As self-completion questionnaire with structured questions is employed, the research is

taken in a very neutral manner and respondents are not affected by the researchers and vice versa. All the assumptions and hypotheses as well as the structure of the questions used in the questionnaire are defined based on the existing theories and researches. The hypotheses are then tested through data collected from the survey, which is consistent with what positivism suggests. For all the reasons stated above, positivism is preferred in this research.

3.2 Research approach

In general, theory is built and tested based on two different approaches: induction and deduction. When deductive approach is employed, researchers start with the existing theory and logical relationships among concepts, and then continue to find empirical evidences (*Le Phuoc and Doan,2011.p.10)*. In contrast, in inductive research, theory is developed from the observations of empirical reality and researchers infer the implications of the findings for the theory that prompted the research (Ghauri & Gronhaug, 2010, p.15-16; Saunder et al., 2009, p.124-126;Blumberg et al., 2005, p.22-24; Bryman & Bell, 2007, p.11).

In this study, exploring the behavioral factors influencing the decision making of investors, which are already "out there", is the main aim, instead of inferring and building theory, deduction approach seems to be the most appropriate choice. The study starts with reviewing the behavioral finance theories in general and in investment decision to stock market in particular, to get the theoretical and conceptual context as well as empirical findings of previous researches, from which the research model and hypotheses are proposed. Then, the questions used questionnaires are prepared. The hypotheses are tested through data collection and analysis. Comparison between the results of the research and the existing theories is made to find out the differences.

Deductive approach is usually associated with quantitative researches, which involve collecting of quantitative or quantifiable qualitative data and analyzing statistical methods, which is also compatible with quantitative research strategies(*Le Phuoc and Doan,2011.p.10)*. In contrast, inductive approach is a process of inducting general explanation from particular phenomenon. The role of inductive research is building theory and typically associated with qualitative methods using interpretative methods (Bryman & Bell, 2007, p.11-13). Deduction is "the process by which we arrive at a reasoned conclusion by logical generalization of a known fact" (Sekaran, 2003).

The following pattern show the research approach chosen for the this study.

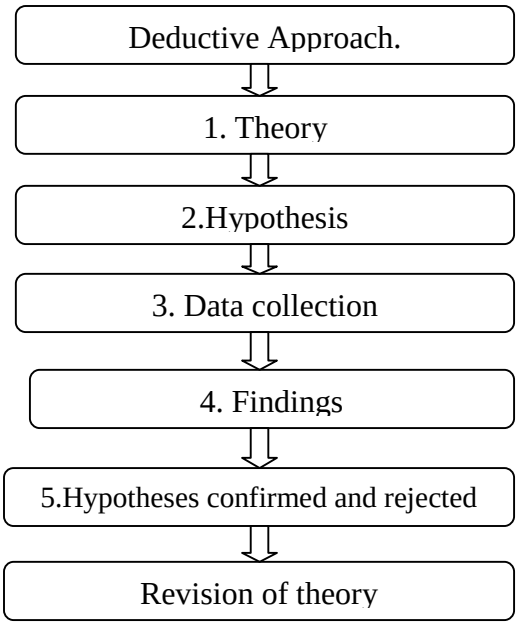

Figure 3.2. Steps in Deductive Process (Source: Bryman & Bell, 2007, p.11-13)

3.3 The type of research

The research questions can result in either exploratory, explanatory or descriptive answers (Saunders et al., 2009, p.138). Exploratory study described by Robson (2002, p.59) as an effective mean to find out what is happening and to seek new insights. It is useful for clarifying an unsure problem (Blumberg et al., 2005, p.132; Saunders et al., 2009, p.139; Ghauri & Gronhaug, 2010, p.56). Thus, this type of research is the best choice fitting the goal of exploring the behavioral factors influencing individual investors at the Ethiopian private banks, which seems to be no studied by any earlier researchers.

3.4 Research Strategies

Research strategy can be understood as the orientation for conducting the research practically. Depending on the extent of existing knowledge, available resources, and the philosophical underpinnings, researchers can employ quantitative , qualitative or mixed strategy (Creswell, 2009 and Le Phuoc and Doan,2011). Quantitative method is employed for this study.

3.5. Justification for the selection of the quantitative method

As cited in Le Phuoc and Doan,(2011.p.12), quantitative research often entails with objectivism, positivism and deductive approach (Collis & Hussey, 2009, p.58; Bryman & Bell, 2007, p.154), it is totally consistent with the chosen ontological and epistemological approaches described in the previous sections. *Le Phuoc and Doan ,(2011.p.12),* pointed out that, quantitative is usually associated with studying behaviors rather than meanings, which is in line with the topic of behavioral finance. Furthermore, the main aim is exploring the factors that affect investors' decisions which may be only done effectively by employing quantitative research since quantitative research is designed for identification and description of variables in order to establish the relationship between them (Garner, Wagner & Kawulich, 2009, p.62). Quantitative research is most suitable when variables can be quantified and measured, where hypotheses can be created and tested, and when inferences and generalizations can be drawn from samples of a population (Gay & Diehl 1992). Alan Phan(2006), documented quantitative method is most suitable for the positivist paradigm, where objectivism is the core assumption and investment decisions in the context of money management are based on quantifiable measurements, benchmarked against market indices or interest rate. As a result the present study employed quantitative method.

3.6 Research design

Research design provides the framework for data collection and analysis (Ghauri & Gronhaug, 2010, p.54; Bryman & Bell, 2007, p.40). In order to understand the common behaviors of individual investors, case study or experimental or longitudinal design are not suitable but cross-sectional design. Experimental design is often used for examining the relationship between variables of a specific issue. Case study infers the analysis of one single case (Collis & Hussey, 2009, p.82); and longitudinal design is employed to examine the changes and provide the casual influences over time (Collis & Hussey, 2009, p.78) whereas, a cross-sectional design is employed, data from more than one case at one single time is collected and analyzed and in which there is a relative large sample size at one single time *(Le Phuoc and Doan(2011.p.29)*. The patent of association is then examined by using the collected quantitative or quantifiable data (Saunders et al., 2009, p.155). Therefore, this feature is relevant to this study, the first because it fits the nature of this study to describe a common trend of investors' behaviors rather than one specific case, and the second because data in this study has not been collected in stages

but carried out in a single time period and finally there is a relative large sample size in the study. The cross-sectional design involves using different research strategies, and is beneficial for this study because it allows collecting both quantitative and quantifiable qualitative data, which is suitable for the chosen this method as described in the above section. The typical forms to collect quantitative data in this type approach was the survey. Mugenda and Mugenda (1999) notes that a survey research attempts to collect data from members of a population and describes existing phenomena by asking individuals about their opinion, attitudes, behavior or values. This design was suitable for this kind of study because the researcher intended to collect data meant to ascertain facts on investment decisions. It is often used to study the general condition of people and organizations as it investigates the behavior and opinion of people usually through questioning them (Cooper and Schindler, 2003).

3.6.1 Target Population, sample size and Sampling Techniques

3.6.1.1 Target Population

According to Mugenda and Mugenda, (1999, 41) a population is a complete set of individuals, cases or objects with some common observable characteristics. The population of study comprised of all the individual investors(shareholders) who had invested and/or were holding stocks in the Ethiopian private banks which are about 69, 229 that have been registered as of January 31,2015. (source: Survey Data from Ethiopian commercial banks' head offices).

3.6.1.2 Selection of Sample Size

As the research aims at exploring the behavioral factors influencing individual investors' (shareholders') decision making at Ethiopian private banks, a relative large sample size is recommended. The larger sample size is, the more representative it can be, thus, the more reliable result is (Saunders et al., 2009, p.219). Nevertheless, the sample size depends on researchers' available resources including time, finance and human (Saunders et al., 2009, p.212). Hair, Black, Babin, Andersion and Tatham (1998, p.111) suggest that with quantitative research, at least 100 respondents should be studied in order to have fit the statistical methods of data analysis. Therefore, 252 questionnaires are given to individual investors in the hope of receiving more than 100 responses. In addition to the above evidences the researcher adopted the following formula to estimate the sample size from other researchers works.

$$n = (z^2pq)/d^2$$

where

n is the sample size

z is the normal variate, 95% confidence is most frequently used and the value for z for 95% is 1.96

p is an estimate of the proportion of people falling in the desired group taken as 10%

q is (1-p), so 90%

d is the proportion of error taken as 5%

n = (1.96^2 *0.10*0.90)/(0.05^2)

n = 138.29

(Source: Ruta Khaparde and Anjali Bhute ,2014)

Therefore, taken as 252 sample size which is on the greater side of being more than the estimate. The following table depicts the name of Ethiopian private commercial banks and the number of shareholders in each bank head offices.

S.No	Name of Ethiopian private Commercial banks	Number of Shareholders as of January 31,2015		
		At NBE as whole	At HO as whole	At HO in AA
1	Abay Bank S.C	1,666	2576	1926
2	Addis International Bank S.C	7,069	6744	6658
3	Awash international Bank S.C	3,117	3436	2983
4	Bank of Abyssinia S.C	1,367	1670	1607
5	Berhan International Bank	6,475	8873	8429
6	Buna International Bank S.C	11,135	12450	9257
7	Cooperative Bank of Oromia S.C	10	9835	1758
8	Dashen Bank S.C	621	810	770
9	Debub Global Bank S.C	5,558	6122	4394
10	Enat Bank S.C	60	10332	9209
11	Lion International Bank S.C	6,662	6661	4674
12	Nib International Bank S.C	3,857	3923	3720
13	Oromia International Bank S.C	8,760	11502	6238
14	United Bank S.C	72	2862	2660
15	Wegagen Bank S.C	2,158	2259	1880
16	Zemen Bank S.C	3,052	3269	3136
Total	**16 Eth private Commercial banks**	**61,639**	**93,324**	**69,299**

Table 3.1 The number of shareholders at NBE and at each EPCB head offices as whole and in Addis Ababa (Source: Survey Data).

3.6.1.3 Sampling Technique

Simple random sampling is employed for selection of respondents in each of Ethiopian private commercial banks except Abay Bank S.C and Dashen bank S.C after drawn a sample frame of 18 shareholders in each bank. Since the aim of the study is to identify the behavioral factors influence the individual investors' decision making, there was no any other criterion for number of questionnaires distributed to each bank head office. Simple random sampling helps ensure that the sample represents the entire population, and is not biased or prejudiced toward any particular groups within the population (Ambrose and Vincent S. ,2014) . It also helps eliminate the tendency to select based on a basing factor (Cooper and Emory, 1995). The name of share company (bank) and the number of questionnaires delivered to each bank head office are described as follows:

S.No	Company name	Number of questionnaires distributed	Sampling Technique
1	Addis International Bank S.C	18	Simple random sampling
2	Awash international Bank S.C	18	Simple random sampling
3	Bank of Abyssinia S.C	18	Simple random sampling
4	Berhan International Bank	18	Simple random sampling
5	Buna International Bank S.C	18	Simple random sampling
6	Cooperative Bank of Oromia S.C	18	Simple random sampling
7	Debub Global Bank S.C	18	Simple random sampling
8	Enat Bank S.C	18	Simple random sampling
9	Lion International Bank S.C	18	Simple random sampling
10	Nib International Bank S.C	18	Simple random sampling
11	Oromia International Bank S.C	18	Simple random sampling
12	United Bank S.C	18	Simple random sampling
13	Wegagen Bank S.C	18	Simple random sampling
14	Zemen Bank S.C	18	Simple random sampling
Total	**14 banks**	**252 questionnaires**	

Table 3.2: The Name of banks and number of questionnaires distributed in each bank head office(Source: the Author).

3.6.2 Data type and Collection Method

Since the aim of the study is to explore the determinants of behavioral factors influencing individual investors' investment decision making the researcher used primary data for the study. Among varies types of data collection methods, the researcher adopted self-completion questionnaire which seems to be one of the most common methods of quantitative researches. With a self-completion questionnaire, respondents answer questions by completing the questionnaire themselves. This method is chosen for some reasons. The first reason is that as the research questions are defined clearly, questionnaire is the best choice to have standardized data, which is easily to process, and analyze. Especially, as no interviewers present when the questionnaires are completing, the results may not be affected by the interviewers (Bryman & Bell, 2007, p.241). Furthermore, Questionnaires also are more convenient for respondents in case they need to provide some sensitive information, in other words; they tend to be more honest than in an interview (Bryman & Bell, 2007, p.242).

According to Saunders et al. (2009, p.362), the self-administered questionnaires are divided into two groups so-called postal questionnaire, and delivery-collection questionnaire according to the way of distributing. Bryman & Bell (2007, p.240) state the two options for questionnaire distribution as well. The first option is to mail the questionnaires directly to selected respondents, then ask them to send the answers back by mails or submit to specific people at specific place (Bryman & Bell 2007, p.240). The other option for researchers is to deliver the questionnaire by hand to each respondent and collected right after he/she completes it (Saunders et al., 2009, p.362-363). In this research, the first option (delivery and collection questionnaire) is selected, due to the difficulty of obtaining each individual investors' address.

Questionnaires are given to the administrators of each Ethiopian private bank head offices expect Abay Bank S.C and Dashen Bank S.C after getting their willingness to contact their shareholders for completing the questionnaires in which it is very difficult to get each and every shareholder in a place where there is no well organized stock market. Although questionnaire distributions done by intermediate people may result some biases due to the lack control over the respondent selection process, some actions are done by the researcher to minimize the negative impact on the data quality. The researcher has try do his best to avoid the negative consequences of questionnaire distributed by intermediate people such as clearly explained about the aim of

the questionnaire to the agent, the one who act on the behalf of the researcher and the Amharic version of the questionnaire was also given to each and every bank head offices. Besides to the above approach the researcher was also supervise the way accomplish the questionnaire time to time to minimize the biases comes from the above cases.

3.6.3 Design of Measurements and Questionnaire

The structural questionnaire developed by *Douglas I. Ndungu (2011*) and *Le Phuoc and Doan (2011)* was employed for this study, with some modifications. The amended questionnaire consists of thirty six questions divided into two sections. The first section contains ten questions relating to socio-economic characteristics of the investors. The second section covers the twenty six identified factors influencing investors' investment decisions in Addis Ababa, using a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree).

The motivation for the use of the questionnaire developed by the above authors was based on the fact that it covered most of the factors specified in literature and provided a standardized instrument, which had been previously tested and found useful in determining investors' investment decisions in similar studies. However, the researcher had carefully amended and adapted the questionnaire to the Ethiopian context in line with the objective of the study, after conducting a pilot study with administrators of each Ethiopian private bank head offices. In the part of personal information, nominal and ordinal measurements are used. Nominal scales are used to classify objects while ordinal scales are necessary for both objectives: classifying and ranking order of objects or observations (Ghauri and Gronhaug, 2010, p.76)as cited in *Le Phuoc and Doan (2011).*The types of measurements used for this part are presented in the *Table 3.3 below.*

Personal Information	Questions	Types of measurements
Classifying: Gender, Marital status, Share company, Attendance of security training, main reason for selecting the share company	1,3,5,6,7&10	Nominal scale
Classifying and ranking order of: Age, Educational level, Income, time of stock investment, Amount of investment.	2,4,7,8&9	Ordinal scale

Table 3.3 Types of measurements for personal information (Source: The author).

This research is based on the theories of behavioral finance: Heuristic theory, Prospect theory, and market factors and herding effect about impacts of behavioral factors on investors' decision making, which are mentioned by *Waweru et al. (2008, p.24-38), Douglas I. Ndungu (2011*) and *Le Phuoc and Doan (2011),* and many other authors cited in the literature review, to synthesize a set of questions related to behavioral factors influencing investment decisions. In these parts, the 5-point Likert scales, which are rating scales widely used for asking respondents' opinions and attitudes are utilized to ask the individual investors to evaluate the degrees of their agreement with the impacts of behavioral factors on their investment decision The measurements and questions for these parts are presented in the *Table 3.4* below.

Groups	**Dimensions**	**Questions**	**Measurements**
Behavioral factors	Heuristic: • Representativeness • Overconfidence and Gamblers fallacy • Anchoring • Ability bias	11,12,13,14, 15,16,17,&18	5-point Likert
	Prospect: • Loss Aversion • Regret aversion • Mental accounting	19,20,21,22, 23&24	5-point Likert
	Market • Price changes • Market information • Past trends of stocks • Customer preference	25,16,27&28	5-point Likert
	Herding • Following the others' trading actions(buying and selling, choice of stock, volume of stock, and speed of herding)	29,30,31&32	5-point Likert
	Investment decision • Information structure • Risk profile • Market factors • positive outcome investment decision(satisfaction).	33,34,35,&36	5-point Likert

Table 3.4: Types of measurement for behavioral variables and investment decision (Source: The author)

3.6.4 Data Process and Analysis

The collected data are processed and analyzed by SPSS soft-ware. At first, the data are cleaned by removing the questionnaire with poor quality such as including too many missing values or bias ratings. Then, statistical techniques such as Descriptive Statistics, Factor Analysis, Cronbach's Alpha test and Pearson's Correlation Coefficient Analysis are used for the data analysis to achieve the research objectives and to test the hypotheses of the study.

3.6.4.1 Assessing the Quality of Data

Before applying the factors analysis to test H1,models used to test H2, and Pearson's correlation coefficient analysis to test H3, the researcher have tested the validity and reliability of the data by using Cronbach's alpha test before factor analysis.

3.6.4.1.1 Cronbach's Alpha Test Before Factor Analysis

The internal consistency of the items used to measure each factor was calculated using Cronbach's alpha, which is the procedure of choice for investigating the internal consistency of items using Likert-type scale (Walsh & Betz, 1995). It includes a statistical summary that describes the consistency of a specific sample of respondents across a set of questions or variables*(Le Phuoc and Doan (2011,p.35)*. In the other words, it can help to estimate the reliability of participants' responses to the measurements (Helms, Henze, Sass & Mifsud, 2006, p.633). A question might be unreliable because it contained words which could be misunderstood and, consequently, which might cause confusion(Ahmed Mohamed Elsayed Ahmed Elsetouhi,2014). Cronbach's alpha is usually used in social and behavioral researches as an indicator of reliability (Liu, Wu & Zumbo, 2010, p.5). As such, the Cronbach's alpha is totally suitable for this research because the questionnaire consists of 5-point likert measurements and the research is in behavioral finance.

Researchers use multiple-item indicators to create reliable indicators. The values of Cronbach's alpha range from 0 (observed items are not consistent) to 1 (they completely correlate). This means that internal consistency will be acceptable if Cronbach's alpha is high (George and Mallery, 2003). Nunnally (1978, p.245) suggests that Cronbach's alpha should be at least 0.7 to make sure that the measurements are reliable. However, many statisticians believe that it can be acceptable if the Cronbach's alpha is over 0.6 (Heung and Chu ,2000; Liu and Arnett, 2000,

Shelby, 2011, p.143). Besides, statisticians recommend that it is necessary to consider the corrected item-total correlations when using the Cronbach's alpha index. The corrected item-total correlations, which reflect the correlation of variables or items designated with the total score for all other items, should be at the acceptable score of 0.3 or higher (Shelby, 2011, p.143). This value revealed the extent to which, within a scale, an item correlated with the other items. It was employed to determine the items which ought to be retained in a scale to support construct validity. This research chooses the acceptable Cronbach's alpha is 0.6 or more, with the corrected item-total correlation index is 0.3 or more because the measurements of financial behavior are new to the stockholders of the EPCB.

3.6.4.1.2 Descriptive Statistics:

Descriptive Statistics (frequency and percentile) are used to describe respondents' personal information. Descriptive statistics are also used to describe the influence level of behavioral variables on the investment decision making of stockholders. However, only behavioral variables that remain after the exploratory factor analysis and Cronbach's alpha test are put into the consideration of the description. These descriptions help to test *the* ***hypothesis 2(H2)*** which is mentioned in the chapter one.

3.6.4.1.3 Factor Analysis

Factor Analysis is a common name of multivariable statistical methods, which aim at defining the core structure in a matrix of data *(Le Phuoc Luong and Doan Thi Thu Ha(2011,p.35)*. It helps to analyze the structure of correlations among many variables by identifying a set of core dimensions, called factors (Ghauri & Gronhaug, 2010, p.189). In factor analysis, variables (or items) of the questionnaire are included in homogeneous domains which represent the similar characteristics (O'brien, 2007, p.143). There are two main types of factor analysis: EFA (exploratory factor analysis) and CFA (confirmatory factor analysis). EFA is the more popular form of factor analysis that attempts to explore the underlying structure of a fairly large number of variables. EFA aims to obtain a set of dimensions (factors) which explain the structure of the interrelationships (correlations) between items which should relate to each other for the purpose of producing an appropriate structure model (Hair et al., 2010). Whereas, CFA plays a role in confirming the compatibility between the numbers of factors extracted by the analysis process

and those formed by pre established theories (Liua & Salvend, 2009, p.506). In this study, EFA is used to explore the factors that the variables of behavioral finance and investment decision of the questionnaire (question 11 to question 36) belong to. EFA is used to reduce the number of items in the questionnaire that do not meet the criteria of the analysis (O'brien, 2007, p.142). In this case, EFA is utilized to test the ***hypothesis 1 (H1),*** which is mentioned in the chapter one. In the factor analysis KMO, Eigen-values, communality (factor extraction), total variance explained and factor rotated are the main issues which should be addressed in factor analysis.

Factor extraction is concerned with finding "the smallest numbers of factors that can be used to best represent the inter-relations among the set of variables" (Pallant, 2003). Communality concerns for any variables, the variances can be divided into two components. These are called common variances which are shared with other variables and the unique variance which is specific to that measure. The communality was interested in common variances (Field, 2009). Therefore, the communality related to how much of the variance in the variables had been explained or was accounted for by the extracted factors. Through the common source with others, the communality estimates a part of the variance in a variable. Low communality may lead to its variable being omitted (Thompson, 2004). Whereas Total variance, sets out, by using Eigenvalues (Kim and Mueller, 1978), is used to determine the number of factors which explain most variances in the data. Eigenvalues indicate the amount of variance explained by each factor. Eigenvectors are the weights which can be used to calculate factor scores which are called loads. Factor Rotation contains the rotated factor loadings which related to the correlations between each item and its construct(Ahmed Mohamed Elsayed Ahmed Elsetouhi,2014,p.156).

In this research, the following criteria of the exploratory factor analysis are applied: Factor loadings, KMO, Total variance explained, and Eigen value and factor extraction. Factor loadings are defined as correlations of each item with the factor that it belongs to. Factor loadings of the items on a factor are greater than 0.5 (with the sample size is 100) ensure that EFA has a practical significance to the analyzed data (Hair et al., 1998, p.111). The Kaiser-Meyer Olkin Measure of Sampling Adequacy (KMO) presents the level of suitability of using EFA for the collected data. The KMO should be between 0.5 and 1.0 (significant level less than 0.005) to make sure that factor analysis is suitable for the data (Ali, Zairi & Mahat, 2006, p.16). Total variance explained is used to identify the number of retained factors in which factors can be

retained until the last factor represents a small proportion of the explained variance. The total variance explained is suggested to be more than 50% (Hair et al., 1998, p.111). Eigen-value is an attribute of factors, being defined as the amount of variance in all items (variables) explained by a given factor *(Le Phuoc Luong and Doan Thi Thu Ha,2011)*. Eigen-value should be greater than 1 because Eigen-value is less than 1 means that information explained by the factor is less than by a single item (Leech, Barrett & Morgan, 2005, p.82). Eigen values greater than one, which together explains a variance of greater than50%; indicate that the factors confirmed the factorial validity (Navaneethakrishnan Kengatharan, 2014).

3.6.4.1.4 Cronbach's Alpha Test After Factor Analysis

Cronbach's alpha test after factor analysis is used to test the reliability of items that passed the criteria of factor analysis with their accepted significant level of the F-test in Cronbach's alpha technique which should not more than 0.05 to verify whether measurements can determine influence levels behavioral variables (independent variables) on investment decision (dependent variable). For this section of the study the researcher chooses the acceptable Cronbach's alpha is 0.6 or more, with the corrected item-total correlation index is 0.3 or more which are mentioned Cronbach's Alpha Test before factor analysis above. Besides, the accepted significant level of the F-test in Cronbach's alpha technique is not more than 0.05.

3.6.4.1.5 Pearson's Correlation Coefficient Analysis

Pearson's correlation, often denoted *r* and introduced by Karl Pearson, is widely used as an *effect size* when paired quantitative data are available(L. Wilkinson and APA Task Force on Statistical Inference,1999). Pearson's *r* can vary in magnitude from −1 to1, with −1 indicating a perfect negative linear relation, 1 indicating a perfect positive linear relation, and 0 indicating no linear relation between two variables. Cohen J (1988), gives the following guidelines for the social sciences: small effect size, $r = 0.1 - 0.23$; medium, $r = 0.24 - 0.36$; large, $r = 0.37$ or larger. Pearson correlation was also used to measures the degree of association between variables under consideration (Uwuigbe O, 2011) . Yu-Je Lee at al year not indicating, Pearson Correlation Coefficient is applied to examine hypothesis of impact and correlations on investment behavior and decision factors to investment performance, and whether there is significant correlation between investment behavior and decision factors to investment performance.

In this part the researcher used to Pearson's Correlation Coefficient Analysis to *Test H3*.

The summary of data process and analysis is presented in the ***Figure 3.3***. below.

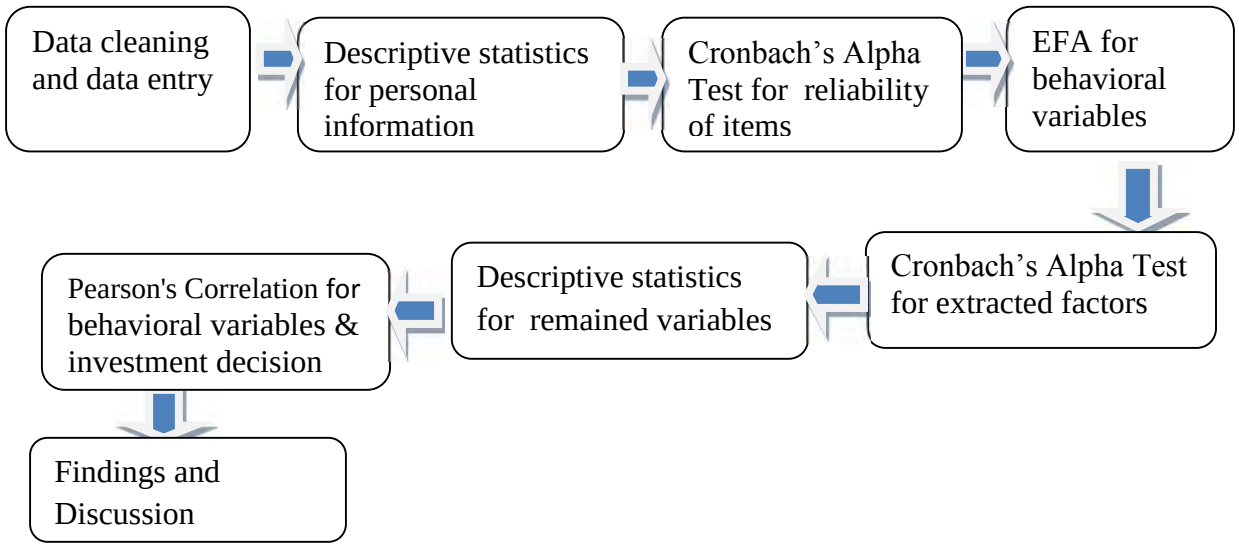

Figure 3.3 The process of data analysis (Source: The author)

CHAPTER IV

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

In this chapter, the determinants of behavioral factors influencing individuals' investment decision making and investment decision variables are analyzed and interpreted by using data analysis tools which are mentioned in chapter 3. Data background is firstly described to have an overview of the surveyed sample. Then, the results of factor analysis, Cronabach's alpha test for measurement reliability, impact levels of behavioral factors on investment decision as well as correlations among behavioral factors and investment decision identified by Pearson's correlation coefficient analysis are analyzed and presented . Through data analysis, the hypotheses shown in chapter 1 are tested.

4.2 Data Overview on Socio-Economic Characteristics of the Respondents

From 252 questionnaires delivered to individual investors at the Ethiopian private commercial banks head offices, 216 respondents are reported, so that the respondent rate is 86.4%, which is a high rate for a questionnaire survey. The 216-respondent sample with the characteristics of gender, age, marital status, educational qualification, monthly income, time for attending stock market, total amount of investment, and so on are described as follows:

Demographic Variables	**Investors' Grouping (n=216)**	**Frequency**	**Percent**
Gender	Male	143	66.2
	Female	73	33.8
	Total	216	100.0
Age	18-25 years	13	6.0
	26-35 years	98	45.4
	36-45 years	67	31.0
	46-55 years	22	10.2
	Over 55 years	16	7.4
	Total	216	100.0
Marital status	Unmarried	69	31.9
	Married	147	68.1
	Total	216	100.0

Educational Qualification	Less than high school	0	0.0
	High school	2	.9
	Certificate	3	1.4
	Diploma	36	16.7
	Degree	141	65.3
	Masters and above	34	15.7
	Total	216	100.0
Monthly Income in Ethiopian Birr.	Below 10,000	101	46.8
	10,001-25,000	83	38.4
	25,001-50,000	19	8.8
	50,001-100,000	6	2.8
	100,001-200,000	4	1.9
	Above 200,000	3	1.4
	Total	216	100.0
Time for attending share trading in the bank	Less than a year ago	26	12.0
	1-5 years ago	113	52.3
	6-10 years ago	51	23.6
	11-20 years ago	23	10.6
	More than 20 years ago	3	1.4
	Total	216	100.0
Amount of investment currently in the bank in Ethiopian Birr,	Below 50,000	71	32.9
	50,001-500,000	122	56.5
	500,001-1,000,000	15	6.9
	100,001-10,000,000	6	2.8
	10,000,001-35,000,000	1	.5
	35,000,001-70,000,000	0	0.0
	Above 70,000,000	1	.5
	Total	216	100.0

Table 4.1 Personal background of respondents (Source: Field Survey by the author, 2015).

A shown in Table 4.1 above, 66.2% of the respondents that participated in the study were males, while 33.8% were female investors. The result is reasonable in view of the fact that capital market is sometimes perceived to be risky and women are generally seen to be risk averse. The study confirms the work of *Babajide and Adetiloye (2012*), who observed that most of the activities in the securities market are carried out by men and *Schmidt & Sevak, (2006)*, Women's investment has historically been lower than men's for several reasons, including Social and various demographic concerns. The age profile of the respondents reveals that most of the respondents (45.4%) were in the age category of 26- 35 years, 31% were in the age category of 36- 45 years and 10% were in the age bracket of 46– 55 years. The results of the age distribution show that most of the investors in the Ethiopian private commercial banks (EPCB) were in the age category of 26– 55 years, which incidentally coincides with the high productive age of the people. In terms of marital classification, majority of the investors sampled numbering 147 (68.1%) are married while 69 (31.9%) are single. This implies that married investors are more attracted to investments at the EPCB.

Interestingly, table 4.1 above show that most of the respondents are highly educated, with more than 175(81%) investors having an education level of degree and above. However, response rate on share investment training and know how is very amazing which accounted 76.9% of respondents reported as they did not get any training on securities investment. The response rate of respondents for attendance of any training on stock investment is depicts in the following figure.

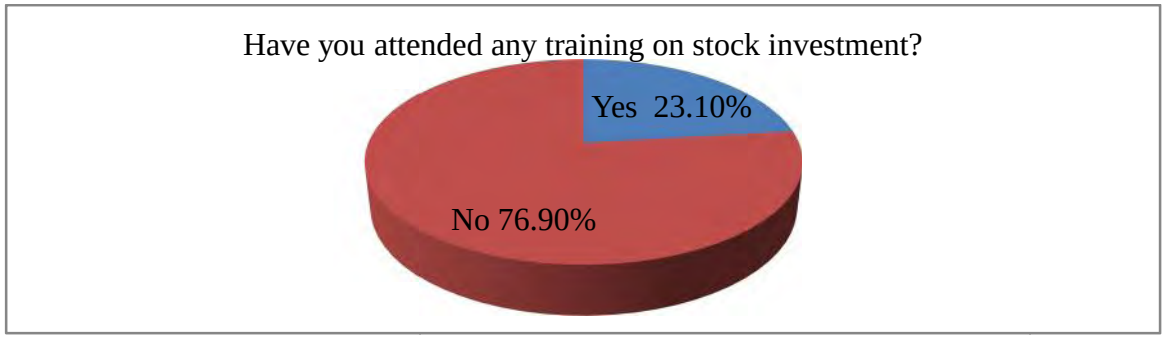

Figure 4.1Percentages of respondents attending training on stock investment (Source: the author).

Most of shareholders of Ethiopian private commercial earn below 10,000 Ethiopian birr which accounted 46.8% of total respondents, 38.4% of respondents earn a monthly income ranging from 10,001- 25,000 Ethiopian birr. Individual investors who earn above 200,000 Ethiopian birr

as a monthly income account only 1.4% of total respondents. 1.9% of respondents earn a monthly income ranging from 100,000 birr to 200,000 birr.

The sample consists of a diversity of stockholders who have an account for their stock trading at different 14 Ethiopian private commercial banks share companies in Addis Ababa. The following figure shows the respondents' response rate and the type of share company in which they have an account for stock investment.

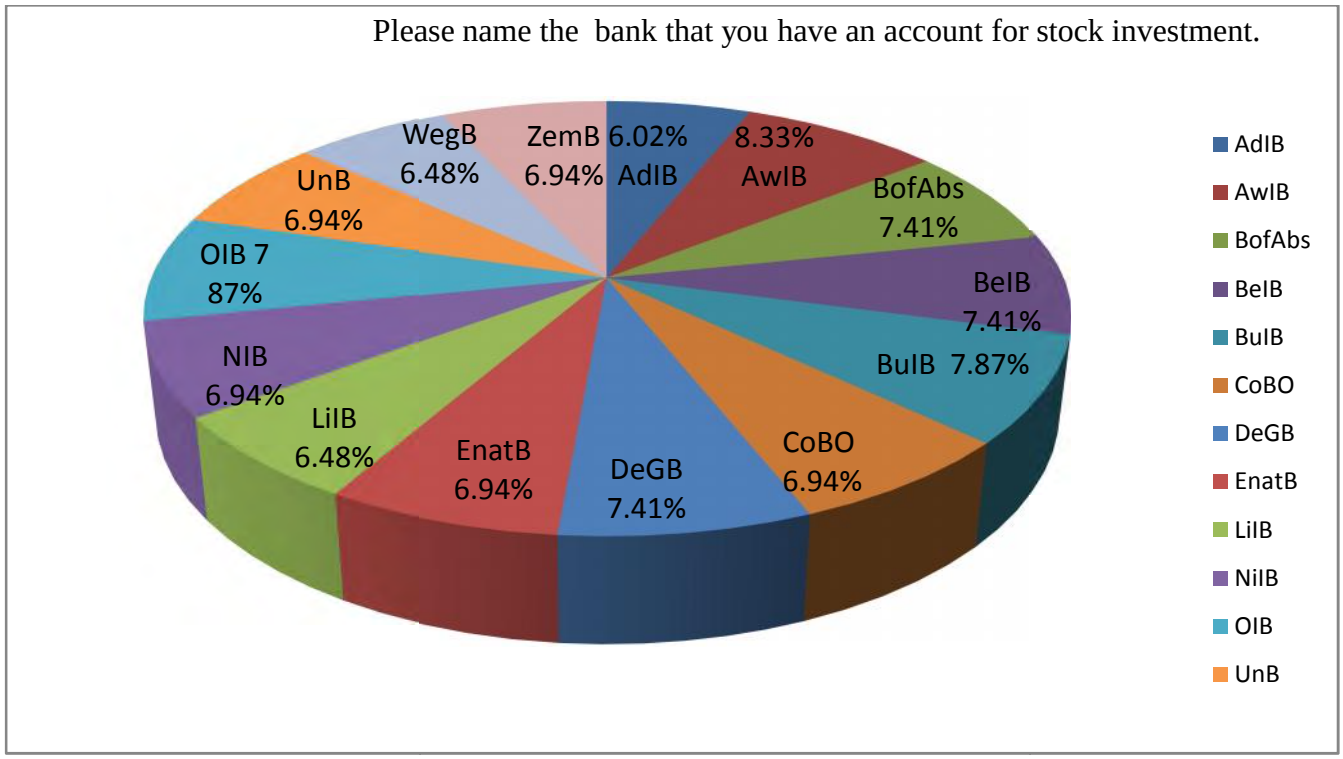

Figure 4.2 Types of share companies where the respondents have an accounts for their stock trading (Source: the Author).

Figure 4.2 shows that 8.33% of respondents (216 shareholders) have account for stock investment at Awash International Bank S.C (AwIB), while 17 stock-holders (about 7.87%) of the respondents have an account for stock trading at Bunna International Bank S.C (BuIB) and at Oromia International Bank S.C (OIB) and so on.

Table 4.1 above shows that a large proportion of the sample are investors who have attended the stock trading for the duration of less than 5years which is accounted for 52.3% of respondents having attended from 1 to less than 5 years, 12% of respondents having attended for less than 1 year. 23.6% of respondents have attended the stock investment for more than 5 years and less than 10 years; 10.6% of respondents have attended the stock investment for more than 10 years

and less than 20 years; whereas, only 3 stock holders, accounting for about 1.4%, have participated the stock investment for more than 20 years. This statistical numbers show that the sample reflects suitably the population of the stockholders at the Ethiopian private commercial banks because the Ethiopian private commercial banks has just existed for 20 years as cited in Belayneh Hailegeorgis (2011) Awash International Bank is the first private bank established in 1994 (National Bank of Ethiopia, 2008). However, most of individuals have just paid their attention to stock investment in the recent years.

Although the respondents cover all the ranges of investment from 50,000 birr to more than 70 million birr currently in the bank, the higher percentages of individual investors in the surveyed sample invest with ranges from 50,000birr to 500,000 birr which accounted for 56.5% of the respondents. 32.9% of respondents investing below 50,000 birr; 6.9% investing from 500,001 birr to 1 million birr, and 2.3% investing from above 1million birr to 10 million birr; 0.5% investing from above 10 million birr to 35 million birr; from the surveyed sample there is only 1 shareholder who has average investment of above 35 million and below 70 million; similarly only 1 shareholder has average investment of more than 70 million.

Respondents were asked the main reason that lead them to select their bank from other banks which seems not be personal background information rather it is a behavioral aspect inquiry. Their response rate and types factors that lead them to select their bank from the others shows in the following figure 4.3.

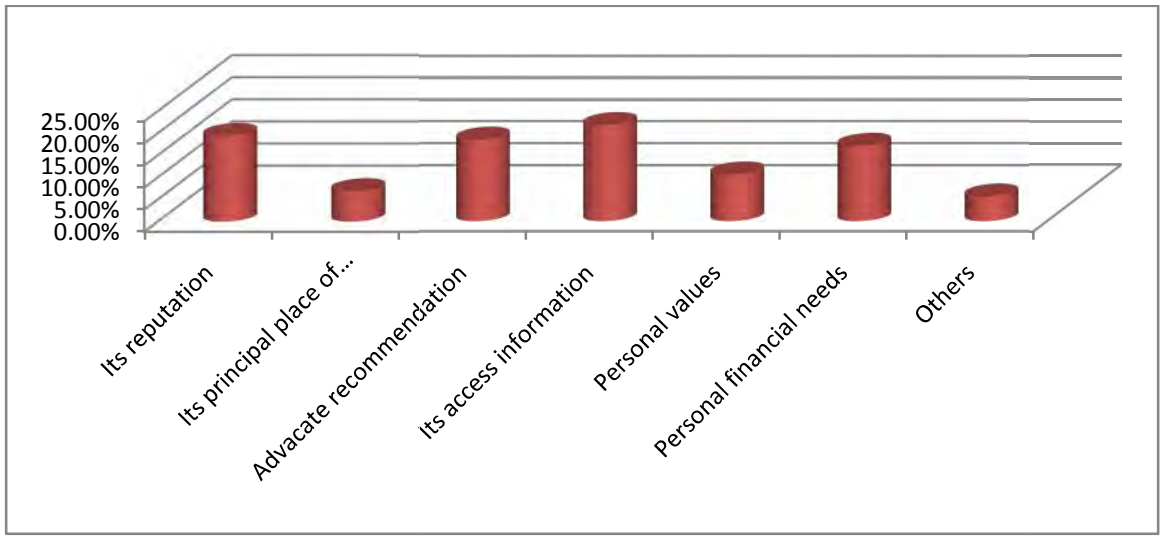

Figure 4.3 The main reasons that leads to shareholders to select their banks from others

From the above figure, 19.4% of respondents respond the main reason that leads them to select their bank is the bank's reputation, 6.9% its place of operation,18.5% advocate recommendations, 21.8% personal values,17.1% personal financial needs and 5.6% others factors.

In summary, Ethiopian private commercial banks' shareholders affected by different factors to select their banks from others banks t.

4.3 Testing the Quality of Data for Behavioral Factors and Investment Decision Variables.

As it is mentioned in chapter 3 above, the researcher have tested the validity and reliability of the data by using Cronbach's alpha test before factor analysis and then has tested hypotheses by using the tools; factor analysis, having as criteria such as factor loadings, KMO, Eigen-values, communality, factor extraction, total variance explained and test H1. The model developed by *Douglas I.* (2011), *Le Phuoc and Doan (2011),* E.Vijaya ,(2014) and Navaneethakrishnan K,(2014) was applied to test H2. Finally the researcher used Pearson's correlation coefficient analysis to test H3

4.3.1 Measurement Reliability Test using Cronbach's Alpha Before Factor Analysis

This study depended on the following two criteria to evaluate reliability:(1) Cronbach's alpha ought to be above 0.60 (Heung and Chu ,2000); Liu and Arnett ,2000, Shelby, 2011, p.143) and (2) Corrected item total correlations ought to be retained if the value is 0.3 or more (Shelby, 2011, p.143) which are already mentioned in chapter 3.

Table 4.2 below shows that the measure of heuristic variables began with 8 items. The three items (QOc2,QAn1 and QAn2) were below 0.30 and, therefore, they were omitted after three trials. Hence, Cronbach's alpha for heuristic factor was 0.628. After deleting the three variables which couldn't pass the above Cronbach's alpha test criteria the total Cronbach's alpha for heuristic variables was 0.628 which is greater than the 0.60 and all the remaining variables of Corrected item total correlations is greater than 0.30.

	α =0.594		Trial 1, α = 0.606		Trial 2, α = 0.634		Trial 3, α = 0.628	
	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QRp1	.373	.535	.374	.548	.386	.583	.378	.577
QRp2	.456	.514	.448	.527	.424	.572	.399	.568
QOc1	.466	.512	.464	.522	.456	.561	.415	.562
QOc2	.239	.578	.246	.592	~~.257~~	.628		
QAn1	.044	.619	~~.058~~	.634				
QAn2	~~.130~~	.606						
QAv1	.381	.532	.375	.548	.395	.580	.399	.566
QAv2	.263	.573	.275	.586	.294	.619	.333	.599

Table 4.2: Corrected Item-Total Correlation and Cronbach's Alpha for Heuristic factor

Where QRp1 : You buy well performing stocks and avoid stocks that have performed poorly in the recent past and QRp2: You use trend analysis of some representative stocks to make investment decisions for all securities that you invest in soon. See for all the symbols of behavioral factors and investment decision variables in the questionnaire appendix.

The variable of prospect factor (QMA2) corrected item total correlation was below 0.30 omitted after a trial then total cronbach's alpha for prospect factor 0.672 and Corrected Item-Total Correlation for remaining items were above 0.30 as presented in the following table.

	α =0.647		Trial 1, α = 0.672	
	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
LA1	.436	.582	.480	.596
LA2	*.294*	.634	.321	.666
RA1	.419	.588	.414	.626
RA2	.551	.539	.555	.562
MA1	.400	.595	.369	.647
MA2	~~.181~~	.672		

Table 4.3: Corrected Item-Total Correlation and Cronbach's Alpha for Prospect factor

All the variables of market factor were 0.30 corrected item-total correlation hence there is no any items omitted for cronbach's alpha test and the total cronbach's alpha was 0.731.

	α =0.731	
	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QMF1	.512	.677
QMF2	.536	.661
QMF3	.567	.645
QMF4	.474	.696

Table 4.4: Corrected Item-Total Correlation and Cronbach's Alpha for Market factor

Only one variable of herding effect(QHE4) corrected -item total correlation was below 0.30 after omitted it the total cronbach's alpha of herding effect was 0.822 after a trail as stated in the table 4.5 below.

	α =0. 758		Trial 1, α = 0.822	
	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QHE1	.611	.670	.665	.768
QHE2	.739	.593	.720	.710
QHE3	.607	.674	.648	.783
QHE4	.296	.822		

Table 4.5: Corrected Item-Total Correlation and Cronbach's Alpha for Herding factor

All the variables of investment decisions were above 0.30 Corrected Item-Total Correlation hence there is no any items omitted for cronbach's alpha test and the total cronbach's alpha was 0.818 which is greater than 0.60. Have a look the result of cronbach's alpha test for investment decision variables in table 4.6 below.

	α =0. 758	
	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QID1	.677	.833
QID2	.742	.807
QID3	.663	.840
QID4	.746	.805

Table 4.6: Corrected Item-Total Correlation and Cronbach's Alpha for Investment decision factor

In summary, all the above total cranbach's alpha of the behavioral factors and investment decision variables are extracted based on the two criteria of cronbach's test: Cronbach's alpha ought to be above 0.60 (Heung and Chu (2000); Liu and Arnett (2000) and corrected item total correlation ought to be retained if the value is 0.3 or more (Shelby, 2011, p.143). Therefore, based on the above cronbach's test criteria the reliability of study is satisfied or confirmed.

4.4 Factor Analysis for Behavioral Variables and Investment Decisions Variables (Testing H1)

All the above mentioned tools such as outliers, normality, multi-collinearity and cronbach's alpha before factor analysis used to test the validity and reliability of the data. Whereas factor analysis model used test hypothesis 1 which stated that: *The behavioral variables that influence the investment decisions of individuals at the EPCB are grouped in four factors as the reviewed theories: Heuristics, Prospect, Market, and Herding.*

The questions from 11 to 32 of the questionnaire are designed to explore the levels of behavioral variables' impacts on the individual investment decisions at the Ethiopian private commercial banks. Questions from 33 to 36, are designed to measure investment decision of individual investors as stated in chapter 3 on page 39 and in appendix 3.1 .

The exploratory factor analysis (EFA) is used for the behavioral variables (QRp1 to QHE4) and investment decision (QID1 to QID4) to identify the factors which these variables belong to. The requirements of factor analysis, which are mentioned in chapter 3, are satisfied to reduce the variables. After some rounds of removing the unsuitable variables, the analysis results that the remaining variables are grouped into six factors (five factors of behavioral variables and one factor of investment decision), at the Eigen value = 1.111, KMO = 0.706 (sig. = 0.000), % of total variance explained = 68.80%, and all factors loadings are more than 0.5. A measure of sampling adequacy of 0.0706 with a value of Bartlett's test of Sphericity (1299.931) with a high significant level (P <0.000), indicates the suitability of factor analysis. These indexes prove that factor analysis for these variables is totally suitable and accepted. Eigen value greater than one suggests that the six factors explain a sizable variation contained in the data. Since these six factors have Eigen values greater than one, which together explains a variance of 68.80%; therefore, the factors confirm the factorial validity.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.706
Bartlett's Test of Sphericity	Approx. Chi-Square	1299.931
	df	153
	Sig.	.000

Table 4.7 KMO and Bartlett's Test(Source: Survey Data).

Factor loadings of the items on a factor are greater than 0.5 (with the sample size is 100) ensure that EFA has a practical significance to the analyzed data (Hair et al., 1998, p.111). Eigen value greater than one suggests that the five factors explain a sizable variation contained in the data. Since these six factors have Eigen values greater than one, which together explains a variance of 68.80%; therefore, the factors confirmed the factorial validity.

The result is presented in the *Table 4.7*, below and the more details of the analysis done by SPSS are shown in the *Appendix 4.1*

Factors	**Variables**	**Factor loadings**					
		F1	F2	F3	F4	F5	F6
Heuristics	QRp1: You buy well performing stocks and avoid stocks that have performed poorly in the recent past.				.653		
	QRp2:You use trend analysis of some representative stocks to make investment decisions for all securities that you invest in.				.812		
	QOc1:You believe that your skills and knowledge of the securities market can help you outperform the market				.661		
	QAv1:You prefer to buy your bank's stocks than other bank's stocks because the information of your bank is more available.						.754
	QAv2:You consider the information from your close friends and relatives as the reliable reference for your investment decisions.						.836
Prospect	QLA1: After a prior gain, you become more of a risk taker than usual					.887	
	QRA2:You feel more sorrow about holding losing stocks too long than about selling winning stocks too soon.					.871	

Facto	Variables	Factor loadings					
		F1	F2	F3	F4	F5	F6
Market factors	QMF1:You consider past trends of shares when making your investment decision			.711			
	QMF2:Market information is important for your stock investment			.738			
	QMF3: You consider carefully the price changes of stocks that you intend to invest in.			.754			
	QMF4: You analyze the companies' customer preference before you invest in their stocks.			.701			
Herding effects	QHE1: Other investors' decisions of buying and selling stocks have an impact on your investment decisions		.807				
	QHE2: Other investors' decisions of the stock volume have impact on your investment decisions		.875				
	QHE3: You usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market		.817				
Investment decision	QID1:The information structure of the bank (the market) influence your investment decision	.796					
	QID2: You are more risk taker for your investment decision outcome.	.869					
	QID3: Factors in the market(in the bank) have impact on your investment decision	.803					
	QID4: You feel satisfied with your investment decisions in the last year including selling, buying, choosing stocks, and deciding the stock volumes).	.868					

Table 4.8 Factor analysis for behavioral variables and investment decision (Source:The author)

The result of EFA factor analysis revealed that behavioral variables influencing individual investment decision makers at the EPCB are; representativeness, over-confidence, availability

bias belongs to heuristic, loss aversion and regret aversion belongs to prospect, past trends of stocks, market information, price changes of stocks, customers' preference belongs to market factors, and buying and selling stocks by others investors, stock volume bought by others investors and speed of herding belongs to herding effect.

As shown in the *Table 4.8*, the variables of prospect, market and herding are grouped into only one respectively related factor; whereas, the heuristic variables belong to two factors: representativeness-overconfidence and availability bias. As such, there are five behavioral factors that impact the investment decisions of individual investors at the Ethiopian private commercial banks.

In the prospect factor, two original variables from the questionnaire (questions from 19 & 22 which are coded as QLA1 &QRA2) are kept after the factor analysis. All four original market variables (questions from 25 to 28 which are coded as QMF1 to QMF4) and only three of four original herding variables (questions from 29 to 31 which are coded as QHE1 to QHE3) are accepted by factor analysis. Whereas, only five of eight initial variables of heuristic (questions from 11, 12, 13, 17 &18 that are coded as QRp1, QRp2, QOc1, QAv1 & QAv2) remain after the analysis and are divided into two groups: representativeness -overconfidence and availability bias as mentioned above. The Table 4.8 above also shows that all four original variables investment decision (questions from 33 to 36, which are coded as QID1 to QID4) are accepted by factor analysis and only belong to one dimension. This finding has just fit the previous model which states that the behavioral variables are theoretically formed into four groups: herding, prospect, market, and heuristic (Waweru et al., 2008, p.34-38) with a little difference of heuristic variables split in two namely representativeness-overconfidence and availability bias. *As a result H1 is supported.*

4.5 Measurement Reliability Test using Cronbach's Alpha After Factor analysis

Cronbach's alpha for each factor: factor 1(Investment decision), factor 2 (Herding), factor 3 (Market), factor 4&6(Heuristic) and factor 5 (Prospect) were 0.860, 0.822, 0.731, 0.628 and 0.756 respectively that is marginally acceptable reliability which should be above 0.60 that demonstrates reliability. Therefore, the results of reliability analysis confirmed that consistency is at an acceptable level for each factor. In this part, Cronbach's Alpha after factor analysis is used to test the reliability of items included in the factors, which are identified in the factor

analysis. This test is done to make sure that the measurements are reliable for further uses. The results of Cronbach's alpha test are shown in the *Table 4.9* below.

Factors	Variables	Cronbach's alpha	Corrected Item-total Correlation	Cronbach's alpha if Item deleted	F (sig.)
Heuristic	QRp1	.628	.378	.577	2.690 (0.030)
	QRp2		.399	.568	
	QOc1		.415	.562	
	QAv1		.399	.566	
	QAv2		.333	.599	
Prospect	QLA1	.756	.608	.686	4.649 (0.032)
	QRA2		.608	.675	
Market	QMF1	.731	.512	.677	.846 (0.046)
	QMF2		.536	.661	
	QMF3		.567	.645	
	QMF5		.474	.696	
Herding	QHE1	.822	.665	.768	6.982(0.001)
	QHE2		.720	.710	
	QHE3		.648	.783	
Investment decision	QID1	.860	.677	.833	5.869(0.001)
	QID2		.742	.807	
	QID3		.663	.840	
	QID4		.746	.805	

Table 4.9. Cronbach's Alpha Test for items of factors (Source: The author)

Table 4.9 presents that Cronbach's Alpha indexes of all factors are greater than 0.6, and the corrected item-total correlation of all items are more than 0.30. Besides, Cronbach's alpha of each factor if any item is deleted is less than the factor's Cronbach's Alpha, as well as the significant of F test for each factor, a kind of test to make sure the suitability of using Cronbach's Alpha technique for the data, is less than 0.05. These indexes show that items included in the factors: herding, prospect, market, heuristic (representativeness-overconfidence and availability bias), and investment decision are reliable enough to follow further analysis.(See appendix4.1).

4.6 Impact Levels of Behavioral Factors on the Individual Investment Decisions (Testing H2).

In this section of data analysis, the researcher has tested hypothesis 2 which stated that: *The behavioral factors have Moderate levels impact on the investment decisions of individual investors at the Ethiopian Private Commercial Banks*, by using the models used to determine the impact levels of behavioral variables on individuals' investment decision used by other researchers such as *Douglas I.*(2011), *Le Phuoc and Doan (2011),* E.Vijaya ,(2014) and Navaneethakrishnan ,(2014).

The impact levels of behavioral variables on the investment decisions are identified by calculating the values of sample mean of each variable (*Douglas I. Ndungu*(2011 and E.Vijaya ,(2014). Similarly, the variables of investment decision or performance are computed by identifying the mean values of the respondents' evaluations for each variable (*Le Phuoc and Doan (2011)*. In this part, only variables, which meet the requirements of above factor analysis and Cronbach's alpha test, are chosen to demonstrate their scores. Because 5-point scales are used to measure the impact levels of these variables, the mean values of these variables can decide their impact levels on the investment decision making based on the following criteria as stated by *Douglas I. Ndungu* (2011) and Navaneethakrishnan K,(2014).

No.	**Mean Values Range**	**Interpretation**
a	< 2	shows that the variables have very low impacts
b	2 to 3	shows that the variables have low impacts
c	3 to 4	shows that the variables have moderate impacts
d	4 to 5	shows that the variables have high impacts
e	> 5	shows that the variables have very high impacts

Table 4.10: Mean Values Range of Factor Variables and their Interpretation (Source: Douglas I. Ndungu,2011, Le Phuoc Luong and Doan Thi Thu Ha,2011 and N. Kengatharan,(2014).

4.6.1 Impacts of Heuristic Variables on the investment decision making

As mentioned above, the heuristic variables are grouped into two factors: Representativeness Overconfidence and Availability bias. The impacts of these factors are shown in the table below:

Factors	Variables	Mean	Std. Deviation
Representativeness-Overconfidence	QRp1: You buy well performing stocks and avoid stocks that have performed poorly in the recent past.	3.33	1.246
	QRp2:You use trend analysis of some representative stocks to make investment decisions for all securities that you invest in.	3.44	1.019
	QOc1:You believe that your skills and knowledge of the securities market can help you outperform the market	3.48	1.010
Availability bias	QAv1:You prefer to buy your bank's stocks than other bank's stocks because the information of your bank is more available.	3.41	1.280
	QAv2:You consider the information from your close friends and relatives as the reliable reference for your investment decisions.	3.53	1.185

Table 4.11. Impacts of Heuristic Variables on the investment decision-making (Source: The author).

As discussed in the literature review, behavioral variables of heuristic dimension that impact the investment decisions consist of representativeness, overconfidence, gamble's fallacy, anchoring, and availability bias. However, in this research, the variables of anchoring and gamble's fallacy are not reliable enough to be considered as the behavioral variables influencing the decisions of individual investors at the Ethiopian private commercial banks. The variables of representativeness (QRp1&QRp2),overconfidence (QOc1),and availability bias (QAv1&QAv2) have moderate impacts on the decision making of individual investors with mean values of 3.33, 3.44 and 3.62, 3.41, and 3.53 respectively. As such, among the heuristic variables, overconfidence and availability bias have relatively high impact on the investors' decision when they decide to trade stocks.

This means individual investors at the Ethiopian private commercial banks tend to rely on the familiar and available sources of information for their stock investment decision, for example,

the information supplied by their relatives or friends and coming from their bank rather than others bank sources. The investors also have a moderate tendency of relying on their skills and previous experiences in making investment decisions (as evidenced from QOc1, with mean of 3.48). The investors also do appear to be able to buy well performing stocks and avoid stocks that have performed poorly in the recent past at the EPCB as evidenced by QR1, with a low moderate mean of 3.33 in comparing to others heuristic variables. The above findings confirms the study of *Le Phuoc and Doan (2011.p.52-53).* over confidence and availability bias are behavioral factors that have a moderate impact on investment decision at Ho Chi Minh Stock Exchange.

4.6.2 Impacts of Prospect Variables on the investment decision making

Factors	Variables	Mean	Std. Deviation
Prospect	QLA1: After a prior gain, you become more of a risk taker than usual	3.29	1.155
	QRA2:You feel more sorrow about holding losing stocks too long than about selling winning stocks too soon.	3.14	1.126

Table 4.12. Impacts of Prospect Variables on the investment decision-making (Source: The author)

In the dimension of Prospect, among its three kinds of behavior: loss aversion, regret aversion, and metal accounting, both loss aversion and regret aversion have their representative variables influencing the decision making of investors' stock investment at the EPCB, loss aversion (QLA1), regret aversion (QRA2) at moderate impact, with the means of each variable of 3.29 and 3.14 respectively. This confirms the studies of Navaneethakrishnan K,(2014,p.16), Loss aversion and regret aversion are the variables of prospect factor. Those variables have a moderate impact on investment decision making at the Colombo Stock Exchange. E.Vijaya, (2014,p.305) also found that the variables of Loss Aversion has moderate impact on individual investment decisions. The results shows that to some extent, after a gain, the investors at EPCB become more risk seeking. This is normal reactions of investors because the previous investment success encourage them so much. However, loss aversion is not always a good strategy because of the principle "high risk-high return". Odean (1998, p.1899) also argue that loss aversion may

produce bad decisions, which may influences investors' wealth. Investors of EPCB feel more sorrow about holding losing stocks too long than about selling winning stocks too soon as per the findings of the study.

4.6.3 Impacts of Market Variables on the investment decision making

Factors	Variables	Mean	Std. Deviation
Market	QMF1:You consider past trends of shares when making your investment decision	3.67	1.141
	QMF2:Market information is important for your stock investment	3.71	1.138
	QMF3: You consider carefully the price changes of stocks that you intend to invest in.	3.79	1.011
	QMF4: You analyze the companies' customer preference before you invest in their stocks.	3.73	1.022

Table 4.13. Impacts of Market Variables on the investment decision-making(Source: The author).

The Market analysis reveals that the underlying variables impact on the decision making of the investors at the EPCB have a relatively moderate impact on their investment decision (QMF1) with a mean of 3.67, implying that investors consider past trends of shares when making investment decisions; Furthermore, investors of EPCB making investment decisions by consider (QMF2) market information; (QMF3) price changes of stocks and (QMF4) companies' customer preference before they invest in the given bank with a mean of 3.71, 3.79, and 3.73 respectively. This findings in line with E.Vijaya (2014) Variables of market factor have moderate impact on individual investment decisions at Indian stock Market. But, contrary to the study of Douglas I. Ndungu (2012,p.47), Individual investors at the NSE have a relatively very high market impact on their investment decision.

4.6.4 Impacts of Herding Variables on the investment decision making

Factors	Variables	Mean	Std. Deviation
Herding	QHE1: Other investors' decisions of buying and selling stocks have an impact on your investment decisions.	3.31	1.229
	QHE2: Other investors' decisions of the stock volume have impact on your investment decisions.	3.19	1.164
	QHE3: You usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market.	3.05	1.113

Table 4.14 Impacts of Herding Variables on the investment decision-making(Source: The Researcher).

As shown in the *Table 4.14*, individual investors at the EPCB follow moderately the other investors' trading decisions. They more or less tend to consider the others' behaviors of buying and selling stocks(QHE1, mean = 3.31), stock volume for trading (QHE2, mean = 3.19), and as well as they are quickly change their decision following others decisions to make their own decisions. This findings confirms the study of (Navaneethakrishnan K,2014,p.16), variables of herding factor which are volume of stock, buying and selling and speed of herding have a moderate impact on individual investment decision making at the Colombo Stock Exchange. However *Douglas I. Ndungu,(2011)* found that in the herding dimension, the impact on investors‟ decision making is evidenced to be relatively very low at Nairobi Securities Exchange.

In general all of the behavioral variables of four factors: heuristic (divided into two sub factors), prospect, market and herding have moderate impacts on individual investors' decision making at EPCB. The overall findings of impact levels of behavioral variables on investment decisions above confirms the study of *Le Phuoc Doan (2011) and* E.Vijaya (2014**)** most of the mentioned behavioral variables of four factors: heuristic (including two sub factors), prospect, market and herding have moderate impacts on individual investors' decision making at HOSE. As such *the findings* ***support the Hypothesis2 (H2)*** *which proposes* that, *the behavioral factors have moderate levels impact on the investment decisions of individual investors at the Ethiopian Private Commercial Banks. When we see the above findings the Ethiopian private commercial*

banks shareholders (investors) don't more influence by any behavioral factors nor less influenced by any behavioral factors on their investment decision.

4.6.5 Investment Decision

The results from the appraisal of the investment decision, indicate that the investors at the EPCB are influenced by information structure of the bank; their risk profile; market factors as well as satisfaction with the investment decisions during the last year at a moderate impact with a mean of . (QID1, mean 4.44, QID2, mean 3.57, QID3:, mean 3.43 and QID4, mean=3.55) respectively for the consecutive variables of investment decision which comes from literature review. Among the variables of investment decision, the risk profile has relatively high moderate impact on Ethiopian private commercial banks. The results from the Investment decision appraisal are as shown on *table 4.15* below:

Factors	**Variables**	**Mean**	**Std. Deviation**
Investment Decision	QID1:The information structure of the bank (the market) influence your investment decision	3.44	.719
	QID2: You are more risk taker for your investment decision outcome.	3.57	.664
	QID3: Factors in the market(in the bank) have impact on your investment decision	3.43	.750
	QID4: You feel satisfied with your investment decisions in the last year including selling, buying, choosing stocks, and deciding the stock volumes).	3.55	.687

Table 4.15 Investment Decision Appraisal (Source: The Researcher).

4.7 The Relationship of behavioral factors and investment decision(Testing H3).

In this the researcher used to Pearson's Correlation Coefficient Analysis to *test hypothesis 3* which proposes that: *There is positive and significant relationship between Individual equity investor's decision making and behavioral Variables at the Ethiopian private commercial banks.*

Pearson's Correlation Coefficient used to measure the degree of association between dependent variables and independent variables. Therefore, In this section, the researcher has measured the degree of association between the investment decision variables and behavioral factors influencing individual investors' decision making. From the prior, a positive relationship is expected between the measures of investment decision and behavioral factors. Having such concepts the researcher has tested the hypotheses mentioned in chapter one by using Pearson's Correlation Coefficient Analysis on all the variables considered in this study after removing unsuitable variables that can not fit the factors loadings greater than 0.5 and which cannot pass the reliability test of the study. The results of Pearson's Correlation Coefficient Analysis is presented in the table 4.16 below.

Correlations

		RP	MOC	MAV	MLA	RA	MAK1	MAK2	MAK3	MAK4	HER1	HER2	HER3	**MID**
MRP	PC	1	.412**	.257**	.133*	.107	.135*	.195**	.188**	.083	.160**	.159**	.129*	**.200***
	Sig.(1-t)		.000	.000	.025	.059	.024	.002	.003	.111	.009	.010	.030	**.002**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MOC	PC	.412**	1	.253**	.037	.065	.203**	.254**	.331**	.129*	.327**	.399**	.224**	**.139****
	Sig.(1-t)	.000		.000	.296	.170	.001	.000	.000	.029	.000	.000	.000	**.021**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MAV	PC	.257**	.253**	1	.069	-.029	.202**	.181**	.164**	.099	.158*	.132*	.119*	**.099***
	Sig.(1-t)	.000	.000		.155	.338	.001	.004	.008	.074	.010	.026	.041	**.074**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MLA	P C	.133*	.037	.069	1	.608**	.124*	.086	.060	.146*	.089	.004	.043	**.023**
	Sig.(1-t)	.025	.296	.155		.000	.035	.103	.189	.016	.096	.479	.266	**.368**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MRA	PC	.107	.065	-.029	.608**	1	.023	.022	.165**	.220**	.246**	.160**	.124*	**.067**
	Sig.(1-t)	.059	.170	.338	.000		.369	.374	.007	.001	.000	.009	.034	**.164**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**

MAK1	PC	.135*	.203**	.202**	.124*	.023	1	.412**	.371**	.414**	.178**	.114*	.127*	**.078**
	Sig.(1-t)	.024	.001	.001	.035	.369		.000	.000	.000	.004	.047	.031	**.127**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MAK2	PC	.195**	.254**	.181**	.086	.022	.412**	1	.525**	.308**	.149*	.056	.056	**.161***
	Sig.(1-t)	.002	.000	.004	.103	.374	.000		.000	.000	.014	.206	.207	**.009**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MAK3	PC	.188**	.331**	.164**	.060	.165**	.371**	.525**	1	.405**	.315**	.164**	.100	**.073**
	Sig.(1-t)	.003	.000	.008	.189	.007	.000	.000		.000	.000	.008	.071	**.143**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MAK4	PC	.083	.129*	.099	.146*	.220**	.414**	.308**	.405**	1	.368**	.157*	.069	**.059**
	Sig.(1-t)	.111	.029	.074	.016	.001	.000	.000	.000		.000	.011	.155	**.196**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MHER1	PC	.160**	.327**	.158*	.089	.246**	.178**	.149*	.315**	.368**	1	.644**	.553**	**.100***
	Sig.(1-t)	.009	.000	.010	.096	.000	.004	.014	.000	.000		.000	.000	**.071**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MHER2	PC	.159**	.399**	.132*	.004	.160**	.114*	.056	.164**	.157*	.644**	1	.624**	**.109***
	Sig.(1-t)	.010	.000	.026	.479	.009	.047	.206	.008	.011	.000		.000	**.056**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MHER3	P C	.129*	.224**	.119*	.043	.124*	.127*	.056	.100	.069	.553**	.624**	1	**.148****
	Sig. (1-t)	.030	.000	.041	.266	.034	.031	.207	.071	.155	.000	.000		**.015**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MID	P C	.200**	.139*	.099	.023	.067	.078	.161**	.073	.059	.100	.109	.148*	**1**
	Sig. (1-t)	.002	.021	.074	.368	.164	.127	.009	.143	.196	.071	.056	.015	
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**

Table4.16 : Pearson's Correlation Coefficients Matrix(Source: Survey data)

Note: PC. is Pearson's Correlation Coefficients Analysis , MID is mean of investment decision variables, MRP. is mean of representativeness , MOC . is mean of Overconfidence, MAV. is mean of availability bias, MLA . is mean of loss aversion, MRA. is mean of regret aversion, MAK1. is mean of past trends of stocks, MAK2. is mean of market information, MAK3. is mean of the price changes of stocks, MAK4. is mean of companies' customer preference, MHER1. is mean of Other investors' decisions of buying and selling stocks, MHER2. is mean of Other investors' decisions of buying amount of stocks, and MHER3. is the mean of speed of herding and all the above variables of behavioral factors are accepted for Pearson's correlation coefficient after testing by EFA and Cronbach's test and they are significant as follows: ***. Correlation is significant at the 0.01 level (1-tailed), **. Correlation is significant at the 0.05 level (1-tailed) and *. Correlation is significant at the 0.1 level (1-tailed).

The interpretation of the relationship of between variables is follow Jacob Cohen (1988), guidelines his classification of correlation coefficient is as follows: r = 0.1 to 0.23 small correlation, r= 0.24 to 0.36 medium and 0.37 or more large correlation. From the correlation result above, representativeness has positive and significant relationship to individual investor's decision making at low correlation coefficient of 0.20 which is significant at 1% (P=0.002). This implies that representativeness has positive and significant relationship to the investment decision of investors at EPCB. *This finding* ***support the Hypothesis H3:1a*** *which proposes that there is positive and significant relationship between Individual equity investor's decision making and representativeness.*

Similar trend is observed from the correlation result above that Over-confidence also has a positive and significant relationship with investment decision of investors at EPCB with a low correlation coefficient of 0.139 which is significant at 5% (p=0.021). *This finding* ***support the Hypothesis H3:1b*** *which proposes that there is positive and significant relationship between Individual equity investor's decision making and over-confidence.*

In chapter one there is proposal that proposed on ***H3:1d,****which states that there is positive and significant relationship between Individual investor's decision making and Availability bias.* From the above Pearson's correlation coefficient analysis output H3:1d has supported, because there is positive and significant relationship between individual investors' decision making and availability bias at low correlation coefficient of 0.099 significant at 10% (P=0.074).

Generally table 4.18 above, Pearson's correlation coefficients result shows that heuristic variables: representativeness, over-confidence and availability bias are positively and significantly related to investment decision of individual investors at EPCB after removing unsuitable variables which cannot pass the EFA and Cronbach's alpha. As such *hypothesis 3:1 is supported by findings.*

Investment decision and prospect variables were subjected to correlational analysis to determine relationships that exist if any among the variables see table 4.18.abve, and the result is revealed that the prospect variables(loss aversion and regret aversion) have positive and insignificant relationship to investment decision at low (0.023) and strong (0.67) correlation coefficient for loss aversion and regret aversion respectively. *As such hypothesis3:2 is not supported by the findings.*

All market factors have positive relationship to investment decision of individual investors, at a low correlation coefficient of 0.078, 0.168, 0.073 and 0.059 for variables of Past trends of stocks, market information, price changes of stocks. and company's customer preferences respectively. But the variable that has a significant relationship is market information which is significant at1%.(P=0.009). Therefore, *Hypothesis3:3:is partially confirmed by the findings.*

The herding effects is another behavioral factors that the researcher has seen its relationship with investment decision of shareholders at EPCB. The findings reported that the three herding variables have positive and significant relationship to investment decision at low correlation coefficient (r) of 0.100 for buying and selling decisions of other investors significant at 10% (p=0.071), 0.109 for stock volume bought by other investors significant at 5% (p=0.056), 0.148 for speed of herding significant at 5% (p=0.015). *As such Hypothesis3:4:is accepted.*

4.8 Summary of Hypotheses tested

In summary, three hypotheses proposed in chapter 1 are tested. The results of these hypothesis tests once again are stated in the following table:

Hypotheses	***Contents of Hypotheses***	***Contents of findings***	***Findings***
H1	*The behavioral variables that influence the investment decisions of individuals at the EPCB are grouped in four factors as the reviewed theories: Heuristics, Prospect, Market, and Herding.*	*The behavioral variables are grouped into five factors: Heuristics (divided into two factors), Prospect, Market, and Herding*	*The findings support H1*
H2	*The behavioral factors have Moderate levels impact on the investment decisions of individual investors at the Ethiopian Private*	*All of behavioral Factors have moderate impacts on the investment decisions at*	*The findings Support H2*

	Commercial Banks.	*EPCB.*	
H3	*There is positive and significant relationship between Individual equity investor's decision making and behavioral Variables at the Ethiopian private commercial banks.*	*Most of behavioral Variables have significant and positive relationship to investment decision at EPCB.*	*The findings support H3*
H3:1	*There is positive and significant relationship between Individual equity investor's decision making and heuristic factors*	*Representativeness, overconfidence and availability bias*	*Supported*
H3:2	*There is positive and significant relationship between Individual equity investor's decision making and prospect factors.*	*Loss-aversion and regret-aversion positive but not significant.*	*Not Supported*
H3:3	*There is positive and significant relationship between Individual equity investor's decision making and Market factors*	*Past trends of stocks, market information, price changes of stocks and company's customer preferences.*	*Partially Supported*
H3:4	*There is positive and significant relationship between Individual equity investor's decision making and herding effects*	*Buying and Selling decisions of other investors, Stock volume bought by other investors, Speed of herding.*	*Supported*

Table 4.17. The results of hypotheses tested (Source: The Author).

CHAPTER V

SUMMARY, CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

5.1 Introduction

This chapter presents the summary and conclusions from the research findings as per the objective of the study. Based on the findings of this study, suggestions for future research have been given on the factors influencing individual investment performance in Ethiopian private commercial banks.

5.2 Summary of Findings

The study was conducted on the 252 investors out of 69,229 investors that constituted the sample size. To collect data the researcher used a structured questionnaire that was personally administered to the respondents. The questionnaire constituted 36 items. The respondents were the individual investors. To Assess the quality of data, researcher used Cronbach's alpha test and to test the hypotheses of the study, the researcher used the tools Factor analsis, frequencies, mean scores, standard deviations, percentages, F test, and Pearson's correlation coefficient analysis were used. Results of factor analysis revealed that : representativeness, over confidence, availability bias, loss aversion, regret aversion, past trends of stocks, market information, price changes of stocks, customers' preference, other investors' decisions of buying and selling of stock, amount of stock bought by others and speed of herding are behavioral variables influence the investment decision of Ethiopian private commercial banks' shareholders.

After testing reliability and validity of the study by Cronbach's alpha test and applied factor analysis to know what behavioral factors influence the decision shareholders of EPCBs, mean score and F test were used to determine the impact levels of behavioral variables on investment decision of individual investors' at Ethiopian private commercial banks and the result of mean score and F test revealed that all the behavioral variables impact the investment decision of investors at moderate levels.

The Pearson's correlation coefficient analysis was used to know whether the there is positive and significant relationship between behavioral variables and investment decisions and result revealed that most of the behavioral variables heuristic: representativeness, over-confidence and availability bias have positive and significant relationship to investment decision. The prospect variables: loss aversion and regret aversion have positive and insignificant relationship to

investment decision. Market factors: the only variable that has positive and significant relationship to investment decision is market information and others have positive and insignificant relationship to investment decision. Among the herding variables following the decisions of the other investors buying and selling; (choice of trading stocks; volume of trading stocks, speed of herding) have positive and significant relationship to investment decision.

5.3 Conclusions

The study has successfully been completed by achieving the research objective and answering the research questions: There are five behavioral factors that impact the investment decisions of individual investors at the Ethiopian private commercial banks: Herding, Market, Prospect, Representativeness-Overconfidence and availability bias. The herding factor includes three behavioral variables: following the decisions of the other investors (buying and selling; volume of trading stocks; speed of herding). The market factor consists of four variables: price changes, market information, past trends of stocks and customer preferences. The prospect factor possesses two variables that have significant impacts on the investment decision making: loss aversion, and regret aversion. Whereas, the heuristic variables are grouped into two factors: representativeness-overconfidence and availability bias as mentioned above. The findings suggest that the Hypothesis H1 is almost supported.

All of the mentioned behavioral variables of four factors: Herding (amount of stocks, buying and selling and speed of herding), heuristics (representativeness, over confidence and availability bias), Prospect (loss aversion and regret aversion) and market (past trends of stocks, market information, changes of stock price and customer preferences) have moderate impacts on individual investors' decision making at Ethiopian private commercial banks. These findings support the Hypothesis2, which proposes that all factors of behavior variables have moderate impacts on individuals' investment decision at Ethiopian private commercial banks.

The Ethiopian private commercial banks shareholders (investors) more influence by market factors than others behavioral factors that influence individual investors' investment decisions whereas they are less influenced by herding factors at a range of moderate level. Finally most of behavioral variables have positive and significant relationship to investment decisions.

5.4 Suggestions for Future Research

This study examined the impact levels of behavioral factors on individuals' investment decision at Ethiopian private commercial banks that did not investigated by previous studies which derived from prevailing behavioral finance theories. From the findings of the above analysis the researcher has found most of the behavioral variables have positive and significant relationship to individuals' investment decision and these behavioral variables have also impact on investment decision at EPCB . Therefore, the researcher recommend to apply a research on behavioral factors influence investment performance by introducing additional factors generated through personal interviews that have not been covered by this study. Besides since the study was conducted in Addis Ababa it is suggested to conduct the same study in the rest of the country. Finally although the present study chose a relatively high sample size randomly (N=252) for specific region; however, it is suggested to have further research studies to confirm the findings of this research with large sample size and more diversity of respondents.

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APPENDIX(A)

APPENDIX 3.1. Questionnaire (English version)

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF ACCOUNTING AND FINANCE

Questionnaires for Shareholders of Ethiopian Private Commercial Banks in Addis Ababa.

Dear Respondents:- The general objective of the study is to identify *determinants of behavioral factors influencing individual investors' decisions making in Addis Ababa" in the Ethiopian private commercial banks* and to recommend both present and potential investors (shareholders) the way to promote their attitudes towards investment in stocks and to help them to understand common behaviors of investors', from which justify their reactions for better returns and to consider and analyze the stock market trend before making investment decisions. For this reason the trustworthiness of the study is based on the accuracy of the information that you provide which is required for academic purposes for the awards of Masters of Science in accounting and finance from Addis Ababa University.

Dear respondents, you are kindly requested to respond the following questionnaires with due care and with all professional courtesy which has two parts (the personal background and the behavioral factors influencing individual investors' decision making. Taking into consideration wasting of your time the researcher has designed all the questions be closed ended questions which can be answer easily by ticking (putting) "Ĕ" in the box to provide ones responses on appropriate place. I would like to appreciate and to thank you in advance as I await your positive response and cooperation.

Kind regards

Yoseph Tadesse

AAU,MSs in ACFN

Part I: Background information /Personal details/ Demographic factors

1. Gender:
   - Male ☐
   - Female ☐

2. Please choose your age interval (in years):
   - 18 - 25 ☐
   - 26 – 35 ☐
   - 36 – 45 ☐
   - 46 – 55 ☐
   - above 55 ☐
3. Marital status:
   - Unmarried ☐
   - Married ☐
4. Which level of Education relates to you?
   - Less than high school ☐
   - High school ☐
   - Certificate ☐
   - Diploma ☐
   - Degree ☐
   - Masters and above ☐
5. Please name the bank that you are holding an account for stock investment.
   - Abay Bank S.C ☐
   - Addis International Bank S.C ☐
   - Awash international Bank S.C ☐
   - Bank of Abyssinia S.C ☐
   - Berhan International Bank ☐
   - Buna International Bank S.C ☐
   - Cooperative Bank of OromiaS ☐
   - Dashen Bank S.C ☐
   - Debub Global Bank S.C ☐
   - Enat Bank S.C ☐
   - Lion International Bank S.C ☐
   - Nib International Bank S.C ☐
   - Oromia International Bank S.C ☐
   - United Bank S.C ☐
   - Wegagen Bank S.C ☐
   - Zemen Bank S.C ☐
6. Have you attended any training on securities investment:
   - Yes ☐
   - No ☐

7. Please tick the category of income(in Ethiopian Birr) that best approximates your monthly average income:
   - Below 10,000 ☐
   - 10,001-25,000 ☐
   - 25,001-50,000 ☐
   - 50,001-100,000 ☐
   - 100,001-200,000 ☐
   - Above 200,000 ☐
8. When did you start investing in the bank?
   - Less than one year ago ☐
   - 1-5 years ago ☐
   - 6-10 years ago ☐
   - 11-20 years ago ☐
   - More than 20 years ago ☐
9. Please tick your total amount of investment /average capital (in Ethiopian Birr) that you have at the bank currently**.**
   - Below 50,000 ☐
   - 50,001-500,000 ☐
   - 500,001-1,000,000 ☐
   - 1000,001-10,000,000 ☐
   - 10,000,001-35,000,000 ☐
   - 35,000,001-70,000,000 ☐
   - above 70,000,000 ☐
10. What is your main reason that leads you to prefer your bank to other banks?
- Its reputation(accounting information) ☐
- Its principal place of operations ☐
- Advocate recommendation (advice from the brokers, friends and stock holders). ☐
- Its easily access information than the others ☐
- Personal Values (Socially and religiously expressive characteristics) ☐
- Personal financial needs(Diversification needs, Easy availability of the funds whenever) ☐
- Others ☐

Part II: Behavioral Factors Influencing Investment Decisions

Please evaluate and indicate the degree of your agreement with the following behavioral factors influenced your investment decisions by using the following five likert scales:

(1=Strongly Disagree; 2=Disagree; 3=Neutral; 4= Agree and 5= Strongly Agree)

	S.N0	Symbol	Statement related to behavioral factors influencing investment decision making	1	2	3	4	5
Representativeness	11	QRp1	You buy well performing stocks and avoid stocks that have performed poorly in the recent past					
	12	QRp2	You use trend analysis of some representative stocks to make investment decisions for all stocks that you invest in					
Overcon& GamF	13	QOc1	You believe that your skills and knowledge of the securities market can help you outperform the market					
	14	QGf1	You are normally able to anticipate the end of good or poor market returns at your bank					
Anchoring	15	QAn1	You rely on your previous experiences in the market(bank) for your next investment.					
	16	QAn2	You can forecast the change in stock prices in the future based on the recent stock prices					
Availability bias	17	QAv1	You prefer to buy your bank's stocks than other bank's stocks because the information of your bank is more available.					
	18	QAv2	You consider the information from your close friends and relatives as the reliable reference for your investment decisions.					
Loss	19	QLA1	After a prior gain, you become more of a risk taker than usual					
	20	QLA2	After a prior loss, you become more risk averse than before					
Regret aversion	21	QRA1	You avoid selling shares that have decreased in value and readily sell shares that have increased in value.					
	22	QRA2	You feel more sorrow about holding losing stocks too long than about selling winning stocks too soon.					

Mental Acct	23	QMA1	You tend to treat each element of your investment portfolio separately.						
	24	QMA2	You ignore the connection between different investment possibilities.						
Market factors	25	QMF1	You consider past trends of shares when making your investment decision						
	26	QMF2	Market information is important for your stock investment.						
	27	QMF3	You consider carefully the price changes of stocks that you intend to invest in.						
	28	QMF4	You analyze the companies' customer preference before you invest in their stocks.						
Herding Effects	29	QHE1	Other investors' decisions of buying and selling stocks have an impact on your investment decisions						
	30	QHE2	Other investors' decisions of the stock volume have impact on your investment decisions						
	31	QHE3	You usually react quickly to change your investment decision following the other investors' decision						
	32	QHE4	Other investors' decisions of choosing stock types have impact on your investment decisions.						
Investment decisions	33	QID1	The information structure of the bank (the market) influence your investment decision						
	34	QID2	You are more risk taker for your investment decision outcome.						
	35	QID3	Factors in the market(in the bank) have impact on your investment decision						
	36	QID4	You feel satisfied with your investment decisions in the last year including selling, buying, choosing stocks, and deciding the stock volumes.						

APPENDIX 3.2. Questionnaire (Amharic version)

ከዚህ በታች የቀረቡትን መጠይቆች የሚስማማዎትን መልስ (1=በጣም አልስማማም 2=አልስማማም 3=አላውቅም 4=እስማማለሁ 5=በጣም እስማማለሁ) በማለት "✓" በቀረቡት ሰንጠረዥ ውስጥ ምልክት ያድርጉ።

ተ.ቁ	የኢንቨስትመንት ውሳኔ ተፅዕኖ ሊያሳድሩ የሚችሉ ዝርዝር መጠይቆች	1	2	3	4	5
11	በቅርቡ በዝቅተኛ ደረጃ የሰሩ አክስዮኖችን በማስወገድ በጥሩ ሁኔታ የሚሰሩ አክስዮኖችን ይገዛሉ።					
12	የባለፈውን ተከታታይ የወሳይ አክስዮኖች ሁኔታን ለአሁኑ ለሁሉም የአክሲዮኖች ኢንቨስትመንት ውሳኔ ይጠቀሙበታል።					
13	የእርስዎ ክህሎትና ዕውቀትዎ በገበያ ጥሩ እንድትሰሩ ያግዘኛል ብለው ያምናሉ/እንደሚያግዝዎት ያምናሉ።					
14	በባንክህ ውስጥ ከተሻለ ወይም ደካማ ገበያ/ግብይት/ መጨረሻ ትርፍን መገመት ይችላሉ።					
15	ወደፊት ኢንቨስት ለማድረግ ያለፈውን ልምድዎትን መነሻ ያደርጋሉ?					
16	የዛሬውን የአክሲዮን ዋጋ መሠረት በማድረግ የወደፊቱን የአክስዮን የዋጋ ለውጥ መተንበይ ይችላሉ።					
17	የአካባቢዎትን/የባንክዎትን አክስዮኖች ከሌሎች ባንኮች አክሲዮኖች የበለጠ ይመርጣሉ ምክንያቱም የባንክዎ የመረጃ በቀላሉ የሚገኝ ስለሆነ።					
18	ከቅርብ ጓደኛዎና ከዘመዶችዎ የሚያገኙት መረጃ ለኢንቨስትመንት ውሳኔዎ እንደመነሻ ይጠቀሙበታል።					
19	ከትርፍ በኋላ ከድሮው /ከበፊቱ/ በተሻለ ኪሳራን ለመቀበል ዝግጁ ይሆናሉ።					
20	ከኪሳራ በኋላ ከበፊቱ በበለጠ ኪሳራ ይፈራሉ።					
21	እሴትን የሚቀንሱ የአድሲዮን ሽያጭ በማስቀረት እሴትን የሚጨምሩ አክሲዮኖች ለመሸጥ ይነሳሳሉ።					
22	ትርፋማ አክሲዮኖችን ከመሸጥ ትርፋማ ያልሆነ አክስዮንን ለረጅምጊዜ በማቆየትዎ ይፀፀታሉ።					
23	እያንዳንዱን የኢንቨስትመንት ማህደር ለየብቻ በመያዝ ይከታተላሉ።					
24	የተለያዩ የኢንቨስትመንት አማራጮችን ግንኙነቶች ችላ ይላሉ።					
25	የባለፈው የአክሲዮኖችን ሁኔታ ለኢንቨስትመንት ውሳኔዎ ያጤኑታል።					
26	የኢንቨስትመንት ውሳኔዎ በፊት የወሳኝ አክሲዮኖችን ገበያ ያጠናሉ።					
27	ኢንቨስት ለማድረግ ያዘነበሉበት/ያሰቡበትን/ የአክስዮን የዋጋ ለውጥ ግምት ውስጥ ያስገባሉ።					
28	በአክስዮኖቻቸው ላይ ኢንቨስት ከማድረግዎ በፊት የኩባንያዎቹን የደንበኞች ምርጫ ያጠናሉ።					
29	የሌሎች ባለሀብቶች አክስዮን የመግዛትና የመሸጥ ውሳኔ በእርስዎ የኢንቨስትመንት ውሳኔ ላይ ተጽዕኖ አለው።					
30	የሌሎቹ ባለሀብቶች የአክስዮን ብዛት ምርጫ በእርስዎ የኢንቨስትመንት ውሳኔ ላይ ተጽዕኖ አለው።					
31	የሌሎቹ ባለሀብቶች ውሳኔን በመከተል ፈጥነው የኢንቨስትመንት ውሳኔዎትን ይለውጣሉ።					
32	የሌሎቹ ባለሀብቶች የአክስዮን የምርጫ ዓይነት በእርስዎ የኢንቨስትመንት ውሳኔ ላይ ተጽዕኖ አለው።					
33	የባንክዎ መረጃ ሁኒታ የኢንቨስትመንትዎ ውሳኔ ላይ ተጽዕኖ አለው።					
34	ለማንኛዉም የኢንቨስትመንት ውሳኔ ዉጤት ኃላፊነትን ተሸካሚ ነዎት					
35	የ ገበያ ሁኔታዎች ለኢንቨስትመንት ውሳኔዎ ተፅዕኖ አላቸው					
36	በባለፈዉ የኢንቨስትመንት ውሳኔዎ ደስተኛ ነወት					

APPENDIX (B)

Appendix 4.1 ***Factor analysis for behavioral variables and investment decisions***

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.706
Bartlett's Test of Sphericity	Approx. Chi-Square	1299.931
	df	153
	Sig.	.000

Communalities

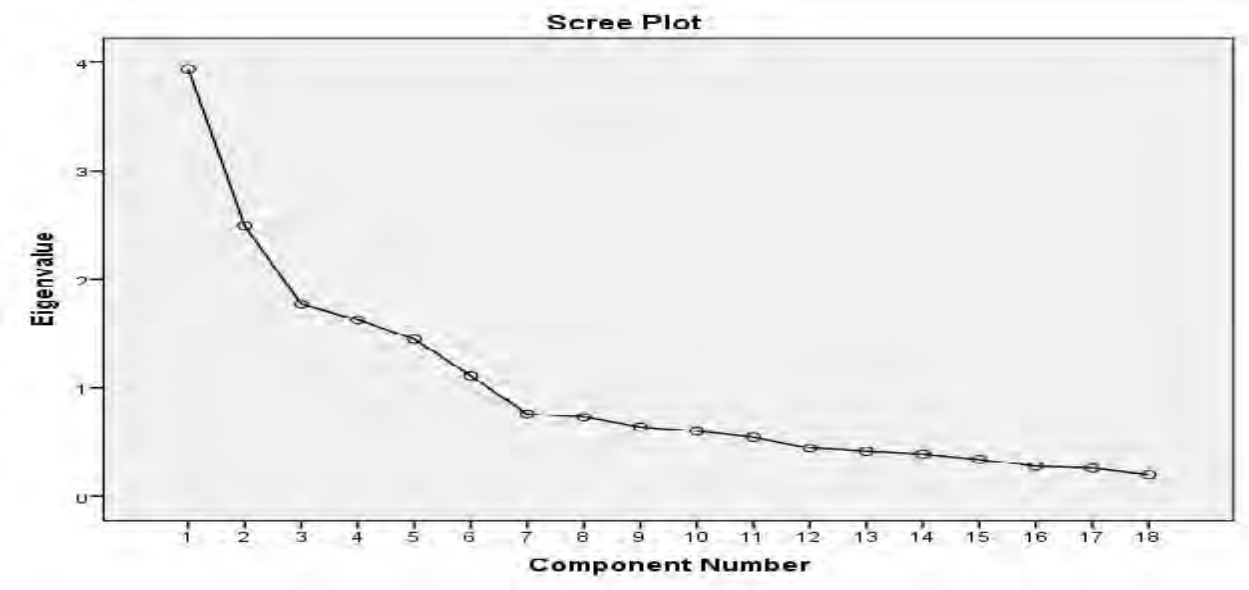
	Initial	Extraction
You buy well performing stocks and avoid stocks that have performed poorly in the recent past	1.000	.576
You use trend analysis of some representative stocks to make investment decisions for all securities that you invest in	1.000	.707
You believe that your skills and knowledge of the securities market can help you outperform the market	1.000	.624
You prefer to buy your bank's stocks than other bank's stocks because the information of your bank is more available.	1.000	.631
You consider the information from your close friends and relatives as the reliable reference for your investment decisions.	1.000	.723
After a prior gain, you become more of a risk taker than usual	1.000	.806
You feel more sorrow about holding losing stocks too long than about selling winning stocks too soon.	1.000	.809
You consider past trends of shares when making your investment decision	1.000	.554
Market information is important for your stock investment	1.000	.613
You consider carefully the price changes of stocks that you intend to invest in.	1.000	.622
You analyze the companies' customer preference before you invest in their stocks.	1.000	.568
Other investors' decisions of buying and selling stocks have an impact on your investment decisions.	1.000	.749
Other investors' decisions of the stock volume have impact on your investment decisions	1.000	.799
You usually react quickly to the changes of other investors' decisions and follow their reaction to the stock market	1.000	.690
The information structure of the bank (the market) influence your investment decision	1.000	.688
You are more risk taker for your investment decision outcome.	1.000	.786
Factors in the market(in the bank) have impact on your investment decision	1.000	.672
You feel satisfied with your investment decisions in the last year	1.000	.768

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.936	21.868	21.868	3.936	21.868	21.868	2.849	15.830	15.830
2	2.491	13.836	35.704	2.491	13.836	35.704	2.351	13.062	28.893
3	1.772	9.842	45.546	1.772	9.842	45.546	2.325	12.917	41.810
4	1.626	9.033	54.579	1.626	9.033	54.579	1.730	9.614	51.423
5	1.449	8.052	62.631	1.449	8.052	62.631	1.652	9.177	60.600
6	1.111	6.172	68.803	1.111	6.172	68.803	1.477	8.203	68.803
7	.759	4.216	73.019						
8	.732	4.068	77.087						
9	.640	3.555	80.642						
10	.603	3.350	83.992						
11	.546	3.032	87.024						
12	.447	2.482	89.506						
13	.415	2.305	91.812						
14	.389	2.163	93.974						
15	.340	1.891	95.866						
16	.278	1.547	97.413						
17	.263	1.461	98.874						
18	.203	1.126	100.000						

Extraction Method: Principal Component Analysis.



Rotated factors

	Component					
	1	2	3	4	5	6
QRp1:You buy well performing stocks and avoid stocks that have performed poorly in the recent past				.653		
QRp2: You use trend analysis of some representative stocks to make investment decisions for all securities that you invest in				.812		
QOc1: You believe that your skills and knowledge of the securities market can help you outperform the market				.661		
QAv1: You prefer to buy your bank's stocks than other bank's stocks because the information of your bank is more available.						.754
QAv2: You consider the information from your close friends and relatives as the reliable reference for your investment decisions.						.836
QLA1:After a prior gain, you become more of a risk taker than usual					.887	
QRA2: You feel more sorrow about holding losing stocks too long than about selling winning stocks too soon.					.871	
QMF1: You consider past trends of shares when making your investment decision			.711			
QMF2: Market information is important for your stock investment			.738			
QMF3: You consider carefully the price changes of stocks that you intend to invest in.			.754			
QMF4: You analyze the companies' customer preference before you invest in their stocks.			.701			
QHE1: Other investors' decisions of buying and selling stocks have an impact on your investment decisions.		.807				
QHE2: Other investors' decisions of the stock volume have impact on your investment decisions		.875				
QH3: You usually react quickly to the changes of other investors' decisions and follow their reaction to the stock market		.817				
QID1: The information structure of the bank (the market) influence your investment decision	.796					
QID2; You are more risk taker for your investment decision outcome.	.869					
QID3: Factors in the market(in the bank) have impact on your investment decision	.803					
QID4: You feel satisfied with your investment decisions in the last year	.868					

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Appendix 4.3 Cronbachs alpha after factor Analysis

Cronbach;s alpha after factor Analysis for Heuristic dimension

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.628	.634	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
QRp1	14.00	8.991	.378	.172	.577
QRp2	13.89	9.783	.399	.290	.568
QOc1	13.71	9.733	.415	.257	.562
QAv1	13.91	8.713	.399	.205	.566
QAv2	13.79	9.524	.333	.178	.599

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		574.663	215	2.673		
	Between Items	10.700	4	2.675	2.690	.030
Within People	Residual	855.300	860	.995		
	Total	866.000	864	1.002		
Total		1440.663	1079	1.335		

Grand Mean = 3.46

Cronbach;s alpha after factor Analysis for Prospect dimension

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.756	.756	2

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
QLA1	3.14	1.268	.608	.370	.
QRA2	3.29	1.333	.608	.370	.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		449.546	215	2.091		
	Between Items	2.370	1	2.370	4.649	.032
Within People	Residual	109.630	215	.510		
	Total	112.000	216	.519		
Total		561.546	431	1.303		

Grand Mean = 3.22

Cronbach;s alpha after factor Analysis for Market dimension

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.731	.732	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
QMF1	11.23	6.123	.512	.269	.677
QMF2	11.19	6.024	.536	.331	.661
QMF3	11.11	6.393	.567	.349	.645
QMF4	11.17	6.753	.474	.246	.696

ANOVA

Between People		554.440	215	2.579		
		Sum of Squares	df	Mean Square	F	Sig
	Between Items	1.764	3	.588	8.460	.0469
Within People	Residual	448.236	645	.695		
	Total	450.000	648	.694		
Total		1004.440	863	1.164		

Grand Mean = 3.72

Cronbach;s alpha after factor Analysis for Herding dimension

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.822	.823	3

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
QHE1	6.24	4.212	.665	.452	.768
QHE2	6.37	4.261	.720	.519	.710
QHE3	6.50	4.707	.648	.428	.783

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		650.444	215	3.025		
	Between Items	7.528	2	3.764	6.982	.001
Within People	Residual	231.806	430	.539		
	Total	239.333	432	.554		
Total		889.778	647	1.375		

Grand Mean = 3.19

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.860	.862	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
QID1	10.55	3.318	.677	.465	.833
QID2	10.42	3.360	.742	.589	.807
QID3	10.56	3.252	.663	.447	.840
QID4	10.44	3.281	.746	.597	.805

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		301.495	215	1.402		
	Between Items	3.468	3	1.156	5.869	.001
Within People	Residual	127.032	645	.197		
	Total	130.500	648	.201		
Total		431.995	863	.501		

Grand Mean = 3.50

Appendix 4.3.The Relationship of Behavioral Factors and Individual Investment Decisions

Correlations

		RP	OC	AV	LA	RA	MAK1	MAK2	MAK3	MAK4	HER1	HER2	HER3	**MID**
	PC	1	.412**	.257**	.133*	.107	.135*	.195**	.188**	.083	.160**	.159**	.129*	**.200***
MRP	Sig.(1-t)		.000	.000	.025	.059	.024	.002	.003	.111	.009	.010	.030	**.002**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
	PC	.412**	1	.253**	.037	.065	.203**	.254**	.331**	.129*	.327**	.399**	.224**	**.139****
MOC	Sig.(1-t)	.000		.000	.296	.170	.001	.000	.000	.029	.000	.000	.000	**.021**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
	PC	.257**	.253**	1	.069	-.029	.202**	.181**	.164**	.099	.158*	.132*	.119*	**.099***
MAV	Sig.(1-t)	.000	.000		.155	.338	.001	.004	.008	.074	.010	.026	.041	**.074**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
	P C	.133*	.037	.069	1	.608**	.124*	.086	.060	.146*	.089	.004	.043	**.023**
MLA	Sig.(1-t)	.025	.296	.155		.000	.035	.103	.189	.016	.096	.479	.266	**.368**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
	PC	.107	.065	-.029	.608**	1	.023	.022	.165**	.220**	.246**	.160**	.124*	**.067**
MRA	Sig.(1-t)	.059	.170	.338	.000		.369	.374	.007	.001	.000	.009	.034	**.164**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
	PC	.135*	.203**	.202**	.124*	.023	1	.412**	.371**	.414**	.178**	.114*	.127*	**.078**
MAK1	Sig.(1-t)	.024	.001	.001	.035	.369		.000	.000	.000	.004	.047	.031	**.127**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
	PC	.195**	.254**	.181**	.086	.022	.412**	1	.525**	.308**	.149*	.056	.056	**.161***
MAK2	Sig.(1-t)	.002	.000	.004	.103	.374	.000		.000	.000	.014	.206	.207	**.009**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
	PC	.188**	.331**	.164**	.060	.165**	.371**	.525**	1	.405**	.315**	.164**	.100	**.073**
MAK3	Sig.(1-t)	.003	.000	.008	.189	.007	.000	.000		.000	.000	.008	.071	**.143**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
	PC	.083	.129*	.099	.146*	.220**	.414**	.308**	.405**	1	.368**	.157*	.069	**.059**
MAK4	Sig.(1-t)	.111	.029	.074	.016	.001	.000	.000	.000		.000	.011	.155	**.196**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**

MHER1	PC	.160**	.327**	.158*	.089	.246**	.178**	.149*	.315**	.368**	1	.644**	.553**	**.100***
	Sig.(1-t)	.009	.000	.010	.096	.000	.004	.014	.000	.000		.000	.000	**.071**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MHER2	PC	.159**	.399**	.132*	.004	.160**	.114*	.056	.164**	.157*	.644**	1	.624**	**.109***
	Sig.(1-t)	.010	.000	.026	.479	.009	.047	.206	.008	.011	.000		.000	**.056**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MHER3	P C	.129*	.224**	.119*	.043	.124*	.127*	.056	.100	.069	.553**	.624**	1	**.148****
	Sig. (1-t)	.030	.000	.041	.266	.034	.031	.207	.071	.155	.000	.000		**.015**
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**
MID	P C	.200**	.139*	.099	.023	.067	.078	.161**	.073	.059	.100	.109	.148*	**1**
	Sig. (1-t)	.002	.021	.074	.368	.164	.127	.009	.143	.196	.071	.056	.015	
	N	216	216	216	216	216	216	216	216	216	216	216	216	**216**

Pearson's correlation coefficient matrix

**. Correlation is significant at the 0.001 level (1-tailed).

**. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.1 level (1-tailed).