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# Behavioral Factors That Influence Investment Decision of Individual Investors In Case of Bahirdar City

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BEHAVIORAL FACTORS THAT INFLUENCE INVESTMENT DECISION OF  
INDIVIDUAL INVESTORS IN CASE OF BAHIRDAR CITY



A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENT FOR THE DEGREE OF MASTER IN ACCOUNTING AND  
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## Thesis Approval

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## **Declaration**

I declare that behavioral factors that influence investment decision of individual investors in case of Bahirdar city (thesis title) is my own original work and that all source that I used have been acknowledged in reference.

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## **Acronym/Abbreviation**

DV----- Dependent variable

IV -----Independent variable

MNL ----- Multinomial logistic regression

SPSS ----- Statistical package for social science

## **Abstract**

*The study was aim to examine behavioral factors that influence investment decision of individual investors in Bahirdar city namely availability bias, representativeness bias, overconfidence, loss aversion, regret aversion mental accounting and herding behavior. The study employed explanatory research design. Target population of the study were individual investors invested their money in manufacturing sector, trade sector and service sector. The data for the study was collected through closed ended questionnaire from 266 individual investors. The study used descriptive statistics and multinomial logistic regression model to analyze collected data. The finding of the study revealed that behavioral factors namely representativeness bias, mental accounting, loss aversion bias, regret aversion bias and herding behavior has significant influence on investment decision of individual investors in Bahirdar city. Whereas, availability bias and overconfidence bias has an insignificant influence on investment decision of individual investors. Limited studies on issue of behavioral finance was important for existing as well as potential investors, government and subsequent researcher. Government should give attention and formulate and, implement better policies to minimize negative impact of behavioral factors on investment decision and investors should evaluate information objectively and independently before they rely on others investor's action.*

**Key words:** Earlier finance theory, Behavioral finance, Psychological factor, Individual investors, Multinomial logistic regression

# CHAPTER ONE

## INTRODUCTION

This chapter deals about background of the study, statement of the problem, objectives of the study, research hypothesis, significance of the study, scope of the study, limitation of the study and finally organization of the paper.

### 1.1 Background of the Study

In earlier finance theory, investor's psychology and feeling is not considered as influencing factor of investment decision and it assumes that investors are rational and make investment decision based on fundamental factor particularly on risk –return trade off model. However, the modern theory of finance known as behavioral finance theory is emerged which oppose the assumption of earlier finance theory. behavioral finance assumes that investors are irrational and their investment decision was influenced by different psychological and cognitive bias Kahneman & Tversky (1979);Kahneman&Tversky (1974) and other factors beyond fundamental factors influence investment decision of investors and it also assumes that investors make investment decision based on the way of mental factor and rule of thumb not only directed by traditional finance rule of risk-return tradeoff model (Budhiraja et al., 2018).

The father of behavioral finance Kahneman & Tversky(1979) suggests that psychological factors affect investment decision making process of investors in general. Behavioral finance find out psychological and sociological bias that affect investment decision of individual investors (Subrahmanyam, 2007). Many behavioral finance theories were developed by different scholars among those the most popular theories and concerns of this study are; prospect theory, heuristic theory and herding theory. Heuristics are the rules of thumb which aid investors to make investment decisions by simplifying complex and uncertain situation (Ritter, 2003). Prospect theory explains states of mind that influence investment decision making processes of investors (Kahneman & Tversky, 1979). Herding explained that imitation behavior originated from individual factor and often leads to unsuccessful investment decision (Shiller, 2000).

Sometimes behavioral factors may help individual investors during investment decision making. But, they are not right way of investment decision making process because such investment decision making mechanism not include important fundamental factors which guide rational investment decision making process and leads bias on investment decision and make market inefficient (Budhiraja et al.,2018).

Investment decision is an important part in investment activities. It is a process of selecting particular investment alternatives among available alternative to invest money with objective of maximizing return and minimizing risk. When large number of investment opportunities are available, selecting best investment option in order to invest capital with the intention of future return is not an easy task, Rather it need careful evaluation and analysis of each investment alternative in order to decide investment mix, time horizon and amount of fund to invest in each investment alternatives and to select single investment alternatives. Investors should give more attention on their investment decision making especially amount of fund invested and type of investment selected to invest money since wrong investment decision may leads huge loss (Subramaniam, 2017). The investment decision making require searching information in different direction regarding investment alternatives, analysis of investment alternatives independently, opportunities and threats and future perspective of each investment alternative and previous performance as well as the nature of the market as a whole (Wamea, 2013). This basic investment decision which is selecting best investment alternative is very challenging task and take time to analysis and evaluate each investment alternatives objectively.

Due to many investment alternatives available, time to analysis, lack of knowledge about valuation system and other constraints investors influenced by short cut method which is called behavioral factors (Karanja, 2017). This factors may lead bias on investment decision consequently bias investment decision leads huge financial loss and make investor out of competitor and make market inefficient. As many documented literature suggests most of the time investors in their choice of investment alternatives is not rational instead use their mental short cut methods rather than the looking the nature of the market meaning that investor not evaluate information objectively. With this knowledge of influence of behavioral factors on investment decision in general and investment alternatives available in Bahirdar city. The study aimed to examine the behavioral factors that influence investment decision of individual

investors in Bahirdar city. Therefore, the main objective of the study was to examine behavioral factors that influence investment decision of individual investor in Bahirdar city.

## **1.2 Statement of the Problem**

Due to positive link between investment and economic growth, increase in investment activity positively affects the development of the economy (Waruing, 2011). Strong investment activity has great role on countries economy by creating employment opportunity, generate production, improve living standard of individuals and facilitate international transaction. Subsequently, investment decision of investors in different investment activity plays an important role on profitability of investment which in turn has influence on the economy.

Within this regard, challenging activity for investors are selection of investment alternatives that provide high profit among given alternatives, it needs careful and proper analysis of each investment alternatives objectively (subrahanim , 2017). Behavioral finance recognized many psychological bias which influence investment decision of investors and causes investment decision irrational. Many theoretical as well as empirical literature concern to behavioral finance shows that investor make fault in the way consider and make decision; they are overconfident, put excessive weight in recent and past experience, put much weight only in available information and follow the action of other investor without objective evaluation of information.

Behavioral finance assumes that not only fundamental factors but also behavioral factors affect investment decision Kahneman & Tversky (1979); Ritter (2003); Tversky & Khaneman (1974) and other scholars suggests that investor are irrational and influenced by varies psychological bias.

Many scholars undertaken research on issue of behavioral finance and its impact on investment decision in different country. Some of researcher's empirical finding was discussed as follows. Bakar & Chui (2016) examined the impact of psychological factors on investors decision making in case of Malaysian stock market, Kengatharan & Kengatharan (2014) studied the influence of behavioral factors on individual investor's decision making in case of Colombia stock exchange, Mahnthe & Sugathandasa (2018) investigated the impact of behavioral factor on investment decision making in Colombia stock exchange, Onsomo (2014) examined the impact of behavioral factor on investors decision in security exchange, Rekik & Boujelbene(2013) studied

determinants of individual investors behavior in Tunisian stock market and Subramaniam (2017) investigated the role of behavioral factor on the investment decision of household investors in the northern province of Sri Lanka. All studies undertaken by different scholars were focused on examined the influence of behavioral factors on investment decision of individual investors and generally their research finding implied that behavioral factor are influencing factor in any financial investment decision and the research finding also support the behavioral finance theories.

Nevertheless, different empirical studies has been evaluated, assessed, and examined in relation to influence of behavioral factors on investment decision. So far, it is possible to find out certain gap. Aforementioned researchers studied issue related to behavioral finance on organized stock market. Thus, the majority of the target groups were individual investors in stock market, with little attention to individual investor's investment decision in real investment alternatives.

As far as the researcher's knowledge, there is little information concerning behavioral factors influence on investment decision of individual investors in Bahirdar city. Hence, this study fill the gap and would add knowledge to existing literature from point view of the economic policy government followed in Ethiopia take investment as one of the core issue to facilitate economic growth. Therefore, the finding of this study could play important role in filling existing knowledge gap, providing information on influence of behavioral factors on the investment decision in the study area as well. So, this research fills the gap by addressing the question what behavioral factors influence investment decision of individual investor in Bahirdar city?

### **1.3 Research Questions**

- Are heuristic factors influence investment decision of individual investors?
- Are prospect factors influence investment decision of individual investors?
- Is herding behavior influence investment decision of individual investors?



## **1.4 Objective of the Study**

### **1.4.1 General Objective**

The general objective of the study was

- To examine the behavioral factors that influence investment decision of individual investors in Bahirdar city.

### **1.4.2 Specific Objective**

Based on general objective of the study, the Specific objective of the study was attempted

- To examine the influence of heuristic factors on investment decision of individual investors in Bahirdar city.
- To examine the influence of prospect factors on investment decision of individual investors in Bahirdar city.
- To examine the influence of herding behavior on investment decision of individual investors in Bahirdar city.

## **1.5 Hypothesis of the Study**

**H1:** Availability bias has significant influence on the investment decision of individual investor decision at Bahirdar city.

**H:** Representativeness bias has significant influence on investment decision of individual investors at Bahirdar city.

**H1:** Overconfidence bias has significant influence on investment decision of individual investors at Bahirdar city.

**H1:** Loss aversion bias has significant influence on investment decision of individual investors at Bahirdar city.

**H1:** Regret aversion bias has significant influence on investment decision of individual investors at Bahirdar city.

**H1:** Mental accounting bias has significant influence on investment decision of individual investors at Bahirdar city.

**H1:** Herding behavior has significant influence on the investment decision of individual investors at Bahirdar city.

## **1.6 Significance of the Study**

Research is process in which engage and solve practical problem. Hence, it adds knowledge, improve practice and provide information for policy makers. So, investigation of behavioral factors that affect investment decision of individual investors is important for policy makers, investors and future researchers.

First, this study will provide information for local governments that up on to facilitate investment activities and the finding of the study aid governments to formulate and implement better policies to remove the negative effect of the behavioral factors on investment decision and to facilitate rational investment decision.

Moreover, Studying behavioral factors influence on investment decision will help existing as well as potential investors to minimize negative impact of psychological factor on their

investment decision which leads them wrong investment decision, low investment return and avoid repeating the error in the future. Again, the finding of the study important for Future researchers it might also give hint to the next work for coming researchers who would like to investigate detailed and comprehensive studies on the study area concerning to behavioral factors and its impact on investment decision.

### **1.7 Scope of the Study**

The study was limited in terms of geography, target group and issue. The scope of the study was delimited to examine the influence of behavioral factors on investment decision of individual investors in Bahirdar city. Accordingly, this study was geographically delimited only investors in Bahirdar city specifically individual investors in manufacturing sector , service sector and trade sector and concerning target group, the study was delimited to individual investors only participated in the three sector. In fact there are different factors that influence investment decision of individual investors in the study area. But, for the sake of managing concerned issue profoundly and different constraints, the focus of the researcher was only to examine three behavioral factors that affect investment decision of individual investor's specifically heuristic factor, prospect factor and herding factors.

### **1.8 Limitation of the Study**

This research has limitations due to the data collection method used. Using questionnaire to collect data has its own drawback. Since, responses could be biased because of unwillingness, carelessness of respondents to fill questioners due to fearing that it affects their privacy. In order to minimize this limitation care has been taken when designing the questionnaire and research assistant help and control respondents during data collection period. Problem of this method cannot avoided it have to take in to account. The finding would only constrain to answering the question raised in paper and questioner only is not enough to explain these behavioral factors. Secondly, the very big challenge faced in this study is awareness problem about behavioral factors and its variable and most of individual investor not has awareness that they are being affected by them when making investment decision.

## **1.9 Organization of the Paper**

This thesis was organized in to five chapters. Accordingly, the first chapter deals with introduction of the study, statement of the problem, research objective, research hypothesis. Additionally it discussed on significance of the study, scope of the study, limitation of the study and finally, organization of the research report. The second chapter briefly described about the concept of behavioral finance, the theories of behavioral finance and factors and review empirical literatures and conceptual framework of the study. Under this chapter, basic concept related to topic under study definition, theories under the topic studied. The third chapter research method (research design, sample size, sampling technique, data collection method, data analysis method and description and measurement of study variables and description of regression model employed. Moreover, this chapter also consists all about presentation, analysis and discussion. Final chapter, chapter five present conclusion of the study, recommendation of the study and suggestion for future studies.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **Introduction**

The main purpose of this chapter is to review concept of behavioral finance, theories of behavioral finance and empirical finding regarding behavioral factors and its influence on investment decision in different countries. In the first section, concept of behavioral finance briefly explained, theories of behavioral finance and factors influencing investment decisions was discussed. In the second section, empirical finding of behavioral factors and its effect on investment decision of individual investors was discussed. Finally, summarize the literature and identify the gap of the study, develop conceptual framework of the study.

#### **2.1 Concept of Behavioral Finance**

Behavioral finance is discipline that deals about the influence of emotional, social and mental bias on the investment decision of investors and consequence of behavioral bias on the market. The discipline deals with the reason behind investors forget fundamental factor to make investment decision and its consequence when investors make investment decision based on behavioral bias rather than fundamental factors (Sewell, 2010).

According to Berberis & Thaler (2003) Behavioral finance is the new field of the study which oppose traditional finance theories assumptions that are; investors are rational, markets are efficient. While, this new field of finance assume that investor are irrational, market are inefficient and investors make investment decision based on emotional and psychological preference than fundamental factors such as risk-return trade of model. Shikuku (2010) defined that behavioral finance is a field of study that tries to explore the psychological and sociological factor that influence investment decision of individual investors and institutional investor in general. Behavioral finance is discipline that try to find how investor's emotion and psychology affect investment decisions. According to Ritter (2003) behavioral finance emphasis on psychological factors which guide investment decision of investors(irrationally)subjected to mental misunderstanding which departure investor from rationality cognitive illusion which affect investor decision are preference, emotion and feeling.

## **2.2 Behavioral Finance Theories**

Psychological bias which influence investment decision of individual as well as institutional investors are categorized into three theory; That are heuristic theory encompasses representativeness, availability bias, overconfidence and anchoring, gambler fallacy, over optimism, self-attribution. Prospect theory includes mental accounting, regret aversion, loss aversion and self-control. Herding theory includes herd effect. Behavioral bias are human factor that influence investment decision process of investors and affect choice on how ,when and where to put money for future return without careful analysis and evaluation of each investment options objectively (Ojwang, 2011).

This thesis focus on dealing with the influence of behavioral factors on investment decision of individual investor's in Bahirdar city. Hence, this thesis focus only on seven behavioral factors that influence investment decision specifically heuristic factors overconfidence, representative bias, availability bias, prospect factor developed by Kahneman & Tversky (1979) mental accounting, regret aversion and loss aversion and herding factor and their influence of the investment decision of individual investors particularly in Bahirdar city. Therefore, the following section will deal each of behavioral finance theories with definition given by different scholars and each behavioral factors with in different theories and Behavioral factors and empirical finding of each variables relation with investment decision in different countries were discussed in relate with selected theories.

### **2.2.1 Heuristic Theory**

According to Ritter (2003) heuristic are defined as shortcut method, which makes investment decision making process easier in unusual and in uncertain environment by reducing the difficulty of situation by judging possibilities and anticipating values to simpler subjective judgment. It ignores the possibilities something happened and investor make investment decision according to their own subjective prediction and evaluation. In Limited time and complex situation heuristic method is sometimes useful method to make investment decision but it leads to bias on investment decision (Tversky & Khaneman, 1974). It involves simple experience based technique for investment decision called rule of thumb which explain how investor make investment decision during the period when investor access less information regarding each

investment alternatives, in complex investing condition and when there is no stable market. Heuristic approach might be good for investment decision making especially, by simplify investment decision in complex condition to decide which investment alternatives best to invest money and also to decide the amount of fund invested in each investment alternative (Ritter ,2003). But, it is not right mechanism for investment decision making. Meanwhile they ignore important fundamental factors that affect investment decision rationally and create bias on individual investors investment decision (Budhiraja et al.,2018).

Many scholars' develop behavioral factors that influence investment decision categorized under heuristic bias among many scholars developed and explained Tversky & Khaneman (1974) the first psychologist who develop heuristic factors namely representativeness bias, availability bias and anchoring bias and other scholar also add gambler fallacy, overconfidence under this category. But, this study focus only on representativeness bias, availability bias and overconfidence bias and their effect on investment decision in selected study area.

### **2.2.1.1 Overconfidence Bias**

Overconfidence is defined as overestimating the reliability of their knowledge and skill than other (Debondt & Thaler, 1995). Overconfidence bias causes individual as well as institutional investor to overrate their knowledge, underrate uncertainty and overestimate their ability to control events which is actually unable to control and investors who had such bias trust their own valuation system only themselves but less about the trust of others valuation, skill, knowledge and ability even if others are correct (Odean, 1998). He also noted that overconfident investor think themselves they are cleverer and more knowledgeable than they actually are and from others. Over confidence makes an individual investors overestimate their abilities or an outcome of an event and make investor tend to inflate their talent and understanding the likelihood of the bad out come over which, they have no control actually. Overconfidence is misunderstanding that makes individual investors belief on their knowledge only as true, their skill and ability overly, and ignores the threat related with investing activities (Khalid et al.,2018).

However, confidence specifically self-confidence for their own activities is supposed as positive quality. Even if it is not only factor to achieve target objective it is base to achieve target objective, investor who are careful and reasonable to decide about something can achieve target

objective. Making investment decision depending only on their subjective judgment and knowledge may cause bias and makes individual out of the market and competitor.

Most of the time the people overvalue the predictive skill or assuming themselves more knowledgeable than others and then actually they have. This confidence leads to excess investment in single and familiar investment alternatives, this reduces diversified investment activities and pushes investment in risky options due to their confidence about the nature of the future environment. This may lead to less return. While, overconfidence comes from having enough knowledge and skill regarding a particular area helps to improve performance and improve others' opinion of one's abilities and help for greater achievement and improve their investment decision process and increase rationalities of the investors (Lad & Taylor, 2018).

In parallel concept, extent of overconfidence depends on situation i.e. ambiguity of information and difficulty of task. When available information concerns each investment alternative and nature of market is unclear and ambiguous, in such case investor is highly affected by overconfidence bias and tends to use short cut method to make investment decision. Moreover, challenging situation also affects the level of overconfidence (Tversky & Kahneman, 1996). Overconfidence bias not only reduces diversification of investment but also leads to poor return. This implies that, overconfident investors invest large amount of money in single investment alternatives and are not interested to diversify their investment into different portfolios, this is raised due to trust in them highly as skillful and treat them as capable to predict the future investment environments (Hirshleifer, 2015). Additionally, Ritter, (2003) noted that overconfident investors are less interested to diversify their investment activities because of tendency to invest too much fund in what one is familiar with and better skilled than others and on average this leads to less return.

Likewise, Odean (1999) clearly elucidated that overconfidence bias leads to excessive investment in particular investment alternatives and he also found that overconfident investors invest excess amount of funds than less confident investors. Besides, he found that the investor who invests huge amount of funds on average gets less return. The extent of overconfidence may be affected by demographic factors i.e. sex, age and educational background. The study by Odean (1999) also found that men are more overconfident than women. This turns out to invest excess amount of funds and invest in risky investments than women. However, in contradiction with the findings of Odean (1999), Kartasova (2013) found that women are more overconfident than men.



and additionally He conclude that the more experienced investor are the more confident than inexperienced investor but examining the relation of overconfidence and demographic factor not concern of this study. Empirical finding shows that overconfidence increase volume of fund invested of individual investors Barberis & Huang (2001);Berberis & Thaler (2003); Odean (1998). When investor invest excessively the investor performance (profitability) may be reduced. Overconfidence bias leads not only increase investing activities but also increase probability of making wrong investment decision (Odean, 1999).

When investors failed to analysis past trend of market, present and future expectation objectively and instead excessively depend on their personal capability, skill, knowledge generally depends on personal judgment (subjective evaluation) the outcome from investment may be unfair ( Budhiraja et al., 2018). Overconfidence has their own indicator such as less intention to diversify their investment to invest too much fund in what one is familiar and focus only in local investment option and in familiar investment this may be lead financial loss (Ritter ,2003).

Hypothesis; overconfidence bias have significant influence on investment decision of individual investors in Bahirdar city.

### **2.2.1.2 Representativeness Bias**

Representativeness refers to the extent to which an event looks like its population or the degree of similarity of the event with population (Tversky & Khaneman, 1974). According to Ritter (2003) representativeness may cause bias such as investor put too much weight on recent experience and forget the average long term experience and future event. It also leads to the sample size neglect which occurs when investors try to simplify and make conclusion of population based on too few sample (Debondt & Thaler, 1995). Investors have tendency to categorize event as typical representative of the distinguished class and then making probability and overstress the importance of the categorization without the fundamental justification (Tversky & Khaneman, 1974). Representativeness is short cut technique used by investor mind for classifying things easily and relating one thing with another without logical reason and creating short cut in order to make investment decision by subjective judgments. It involves approaching to conclusion and making conclusion based on categorize that classified before regardless of justification. Such bias leads investors tend to generalize and make conclusion on

the basis of less information and may create bias on investment decision especially to decide which investment alternative is best to put capital in order to generate high return in the future.

Due to misunderstanding of investors, investment area that have been good performance in the past influence the future investment decision of investors and they tend to see which actually not happened (Budhiraja et al.,2018). In fact past performance not direct indicator of the future performance instead use past performance as a base to evaluate present as well as to predict future perspective of that investment areas objectively. When investors are under influence of the representativeness bias, events are categorized subjectively as being representative of familiar class. The result of such bias is that probability estimates are made in a way that exaggerates the significance of the classification without reason to the evidence about the underlying probabilities mostly investor fully predict future event based on past activities ( Budhiraja et al., 2018).

Representativeness bias causes individual investor fail to consider current situation of each investment alternatives, nature of the market particularly the demand and supply of each investment option instead individual investor make investment decision based on past experience not consider current as well as future condition of the market and evaluate objectively. Representativeness is the trend of investors making investment decision based on past experience, past price. Investor do not analysis nature of market reasonably and carefully rather use past event and available information as reference point that is familiar to them to make current investment decision and to expect the nature of the market in the future (Ojwang, 2011).

Empirical literature shows that representativeness bias occur because of individual trying to develop meaning from their experience and trend to categorize things and understood into subjective categorize. Even if new information contrasting with previous categorize, they use those categorize even if the new information does not necessarily fit to past category. This shows that investor tend to relate two different events and consider this as identical in fact future and past event two different things and may different in any respect but appear to be artificial (Obera, 2015).

Representativeness bias can notice itself when investor seek to avoid those investment option which have poorly performed in the past period and seek to invest in the investment option which have performed well in the past period. Investor may form personal judgment based on

past pattern that are unrelated data and not representative of the real environment and make investment decision based on their subjective judgment.

Hypothesis: Representativeness bias has significant influence on investment decision of individual investors in Bahirdar city.

### **2.2.1.3 Availability Bias**

Tversky & Khaneman(1973) noted that individual said to use the heuristic method which is called availability bias when he/she guess the occurrence or possibility of something by the ease with which occasion could be brought to mind and easily remembered. Availability bias happens when individual investors use easily accessible information excessively to make investment decision and forget hidden information. The main manifestation of availability bias is through the preference of investing in locally available investment alternatives which investors are familiar with or obtain information easily (Tversky & Khaneman,1974). Investors tend to make investment decision based on information that has been recently available in the news or has been heard from peers such as family, friend but ignore invisible (hidden) information that may be very essential to investment decision making (Suzaida & Chui, 2016). Information that can be easily remembered and recalled was not enough to make investment decision objectively and used only available information to make investment decision may leads to wrong investment decision making (Budhiraja et al.,2018). But, it is not mean that easily available information is not important for investment decision making and meaning that simply make investment decision depend on only easily accessible information causes bias on investment decision consequently leads to incorrect investment decision. Availability bias tends to influence certain investment decision. The more recent and significant information has great possibility of influencing investment decision. So, individual investor may select investment alternatives based on media exposure rather than their own careful analysis of each option available to put their own fund may lead bias investment decision. As difficulty situation occurs investors simplify the task by using short cut method to make investment decision. This short cut method expects the probability of outcome based on how easily they remembered in to mind easily. Most of the time investor simplify complicated judgment or decision by depending or short cut method Ojwang (2011); Odean (1998). This cause investor to crate bias in their different investment decision and

investors may choose an investment area based on advertising rather than through careful analysis of each alternatives.

Hypothesis: Availability bias has significant influence on investment decision of individual investors.

### **2.2.2 Prospect Theory**

Prospect theory developed by Kahneman & Tversky(1979) states that there are persistent bias motivated by psychological factor that influence investors choice under condition of uncertainty and they states that investor have irrational propensity to less willing to gamble with profit than loss. Prospect theory noted that value is assigned to gain and loss rather than to final asset and probabilities are replaced by decision weight. Prospect theory suggest that investors are more worried about loss as compared to the level of pleasure derived from an equal amount. Investors take more effort on avoiding loss as compared to making gain. Investors invest on investment alternative that generate less return and in order to keep safety of principal amount of capital invested and investors hold on to losing asset hoping that they will increase value in the future and selling assets increase in value due to the fear of loss if price decrease.

Investment decision will be attached to how much gain or loss derived from investment rather than final asset (Kahneman & Tversky, 1979). Additionally Prospect theory developed by Kahneman & Tversky (1979) stress over the subjective decision of investor which are influenced by investors system of valuation and perception and also found that investor underweight outcome that are probable in comparison with certain.

This scholar also found that investor act differently to the same situation based on context of loss and gain. Tversky & Khaneman (1979) found that investors attitude toward gain is completely different from their attitude towards loss. He also illustrate the nature of investor by the following question; when He/she give alternative between getting \$500 with certainty or having 50% choice of getting \$1250 they may select the certain \$500 in preference to uncertain chance of getting \$1250. Even though, the outcome of uncertain choice is greater than certain due to fear of loss people not select uncertain probabilities. Similar to this concept, investors select investment alternatives with less probability of risk even if other investment alternatives return is high. In contrary to expected utility theory, the degree of positive and negative payoff is

not equal. The negative portion of the slope is steeper than the positive portion. The absolute value of equivalent win is less than the absolute value of loss. again he ask the following questions; in the case of guaranteed 200 versus,50% chance of winning 800 and 50% chance of losing 300,the possibility of losing 300 might overweight the potential gain of 800, therefore investor could strongly prefer the certain outcome 200.

Another important finding of Tversky & Khaneman (1979) with regard to prospect theory is that investors have misunderstanding on meaning of probabilities. The weight function describes the possibility investor use in decision weight for each level of stated possibility. Investors treat small probabilities as zero, treat large probability as certainties. Subsequently, investor made mistake they are create bias when make investment decision. Prospect theories explain how investor manages risk and uncertainty and describe the variation of human behavior in assessing risk and uncertainty. The theory also notes those investors are not always risk averse rather they are risk taker in losses and risk averse in gain. Prospect theory described that of investors subjectively frame out come on their mind affect the pleasure derived from investment return and in general. Under prospect theory three factors namely regret aversion, loss aversion and mental accounting are discussed as follows.

### **2.2.2.1 Loss Aversion Bias**

Prospect theory developed by Kahneman & Tversky(1979) identify loss aversion to explain how people gauge decision under uncertainty. Loss aversion is mental penalty associated with loss is greater than reward from equal amount of gain. Naturally, individual dislikes lose than they enjoy winning. The degree of pain of loss and joy of gain depend on their prior loss and gain, loss that come after prior gain is less painful than usual, because it is balanced by former gain, in other hand loss that comes after other loss is more painful than usual: after burned by the first loss, people become more sensitive to additional setback offset (Barberis & Huang, 2001). Loss are weighted about twice as heavily than gain, losing \$1 is about twice painful than happiness of gaining \$1 (Kahneman & Tversky, 1991).

As prospect theory explained loss aversion happens when individuals tend to strongly prefer avoiding losses as opposed to achieving gains. Loss aversion leads people to hold their losers assets even if asset has slight or no chance of going back (Kahneman & Tversky, 1979). Risk

averse investors intention is most of the time in less risky investments this is due to that the pain of loss is more than the satisfaction from gain ( Kahnemam, Knetsch, & Thaler, 1991). Loss aversion results investor will be slow to invest in risky investment alternatives that generate high return to avoid loss mostly invest in less risky investment alternatives that generate less return (ND, 2017).

Assume the first case when your manager call and tells you are going to get increase of your salary birr 300 per month and the second case your manager call to you and tells that you are going to get decrease of your salary birr 300 per month. For every one the negative feeling that comes from decrease of salary would be much stronger than positive feeling comes from increase of salary. Research by different scholars repetitively shows that loss aversion has strong influence on investment decision. Loss aversion causes investors to retain from investing in risky investment alternatives. Loss aversion implies an individual utility is concave for gain and convex for loss which indicates that gain contribute less joy than an equal amount loss subtract from joy (Kahneman & Tversky, 1979). figure 2.1 show value function of prospect theory .

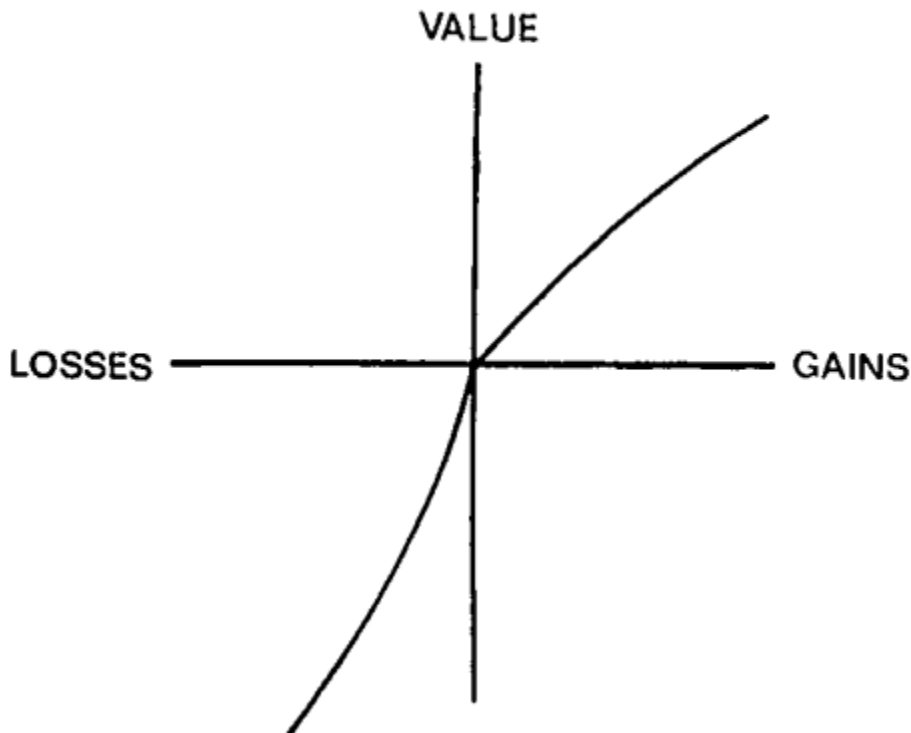


Figure 2.1: value function in prospect theory

Source: Kahneman & Tversky (1979).

Hypothesis: loss aversion bias has significant influence on investment decision of individual investors.

### **2.2.2.2 Mental Accounting Bias**

Mental accounting is the process by which investor analyzes and evaluates the business transaction regarding their investment activities and account separately and differently (Barberis & Huang, 2001).

In parallel concept, Shiller (1999) Suggest that investor place their investment in to subjectively separate mental account and respond separately and in different ways to the investment based on which compartment they are in. Thaler (1999) noted that mental accounting include three components; the first components capture how outcome are perceived and experienced, how decision made and how evaluated, the second component the how activities assigned and allocated to specific account. Which implies that monitoring in flow and out flow of money from each specific mental account separately and differently, and the third component concerns with the frequency with which account evaluated meaning that which account assigned frequent activities. Account may be evaluated daily, weekly, and monthly or yearly depend on the nature of the activities assigned to specific mental account.

Mental accounting bias cause's investors manage and organize their investment activities in different accounts (Ritter, 2003). Mental accounting explains that investor/individuals allocation different amount of fund to each investment account and monitor them differently with the intention of assigning different objectives to each, which affects their investment decision specifically the investment alternatives to invest specific amount of money to future return depend on the purposes of mental account assigned and mental accounting causes individual to divide their capital in to separate account and separate investment alternative based on subjective factor and assign different task to each account. Ignoring interaction of each mental account each other affect investment decision of individual's investors. Some asset are allocated as current wealth need for consumption (to run day to day activities) and other aside as future wealth that are not need for consumption. For example investor may prefer companies that pay dividend in regular basis because they want spending the income for consumption and investor prefer investment alternatives that generate return in short period of time than investment

alternatives generating high return in long period of time if the investors objective is receiving return with in short period for consumption purpose. In similar way, investor's intention is to become wealthy in the future, investor select investment alternatives that give high return after a period of time. As result, mental accounting influence investors to divide their investment decision in short term and long-term investment alternatives which are aimed to get income for consumption purpose and getting in the future when relation among capital in different account ignored, this mental process can unfavorably affect investment decision.

Hypothesis: mental accounting bias has significant impact on investment decision of individual investor.

### **2.2.2.3 Regret Aversion Bias**

Regret is a negative feeling occur after individual made error, even small error (shriller, 1997). Investor refuse regret by delay selling asset that have gone down in value and accelerate the selling of the asset that have risen in value and investor tend to be more regretful about holding losing asset too long than selling winning ones too soon (Kahneman & Tversky, 1979).

Regret-aversion bias described as an emotion in which people tend to avoid making decisions that will result in action out of fear that the decision will turn out poor outcome (pompains, 2012). That is, individual's wants to avoid the feeling of regret associated with bad decisions. This bias can either make a person to be unwilling to sell because they fear that the position will increase in value and then they will regret having sold it, or, it can keep investors out of a market that has recently generated sharp losses or gains. Regret is negative emotion caused by comparing actual outcome with the state of forgotten alternatives. Example, when two option are given to select better, one option is familiar and the another investment option is unfamiliar or new investment option, investor consider the regret of the finding that new investment option perform poorly than familiar investment option thus investors are less likely to choose the unfamiliar investment option in order to minimize pain of regret comes from mistake (Bell, 1982).

Regret is fear of bad out come and wish to escape blaming one's self for poor outcome and it affects individual investor's investment decision. Regret aversion may result an investor to taking or failing the action for instance investor may prefer to not invest in investment area



that generate less return in order to avoid regret that arise from decision they should decrease in return. Consequently, investor may choose investment alternative that generate high profit currently to avoid regret of missing out high return. Regret aversion bias may cause several investment decision mistake it makes investor to be more conservative in their investment choice. Regret aversion leads investors to prefer investment alternatives designed to good sector even when other investment alternatives has equal or higher expected return and also herd behavior because of some investor invest in particular investment alternative follow them in order to minimize regret.

Hypothesis: regret aversion have significant influence on investment decision of individual investors.

### **2.2.3 Herding Theory**

Shiller (2000), state that in everyday life we have learned that when large group of people is common in its judgment they are certainly right. People are influenced by their social and environment interaction they are often pressured to follow others action. Lifestyle and fashion are good example of herd behavior that people are always pressured to copy. Psychologically, imitation has often been assumed to be derived by behavioral bias of human nature itself (Hirshleifer, 2001).

Many scholars manifest the bias of herd behavior by considering different illustrations. Shiller(2000) take the following example in order to get brief understanding of herding behavior, to decide in which hotel to make reservation or to decide in which college is better to attend, people mostly copy the action their antecedent. Hotel with large number of customer or college with many students tends to seem more interesting to the viewer. Mostly investor follow large group of individual as they beliefs the group individual are own more information than individuals.

There are many important factors that force the increase extent of herding behavior such as, amount of fund invested, type of investor and experience of investor. When the investors want to invest large amount of money into their investment, they tend to follow the others' actions in order to reduce the fear of losing money. Individual investors have tendency to follow the others in making investment decision more than institutional investors. In uncertain situation herd

behavior exaggerated because investor want to feel as part of group rather than isolated from group (Debondt & Thaler, 1995). This implied that herding behavior affects investment decision of individuals. Herding can be either irrational or irrational; irrational herding defines the tendency of investor ignore their belief and analytical skill and make their investment decision based on the action of the market and others. Even if observe the market prediction and others investors action to be wrong. On the other hand, the rational herding can occur as the result of the principle of agency problem. In which the manager follow the action of the other manger particularly low performed manager follow well performed managers. Rational herding may also happen among individual investor. They may rationally follow the action of the other investor whom they perceive to have access to unpublished or hidden information in the market than individual. Both irrational and irrational herding explain investors do not make their investment decision based on careful analysis and evaluation of information objectively Christie-Huang (1995) as cited in (D.Bui et al., 2015).

Herding behavior is tendency of the individual as well as institutional investor follow the others action to make their own investment decision specifically to decide investment alternatives. Investor prefer herding than their own information because they belief that herding can support them to dig out relevant and reliable formation. Most of the time herding behavior causes bias on the investment decision of individual investor (D.Bui et al., 2015).

Herding behavior force investors to depend on collective information than private information this can cause irrational price variation of financial and real asset from true value (intrinsic value). Due to this bias many good opportunity of investment affected (Luong & Ha, 2011). For example investor X invest in particular investment option type and he perform well and get high return, immediately another investor Y look the investor return and immediately decide to invest in this investment type. This action create bias and affect investor return because investment decision is not an easy task instead it need careful analysis in their own way and it require investment advisee to guide how much fund needs, how to invest where to invest. However, as discussed in above paragraph rational herding may help investor to analysis in logical way. In fact, investment decision needs careful analysis and evaluation of available investment avenues in order to select best investment alternatives.

Hypothesis: herd behaviors has significant influence on investment decision of individual investors.

## **2.3 Empirical Literature**

As discussed above, behavioral finance is a new issue and which contradicts the assumption of traditional finance theories. After detailed understanding of the concept of behavioral finance and behavioral factors, next sections focus on empirical findings of behavioral factors and their influence on investment decisions of individual investors in different countries, focusing on three basic behavioral finance factors categories.

### **2.3.1 Behavioral Factors and its Influence on Investment Decision**

Baker & Amlia (2015) examined the impact of the psychological factor on investor's decision making in the Malaysian stock market in the case of Kelang Valley and Pahang. Data was collected through questionnaires from 200 respondents sampled by using convenience, quota sampling and snowball sampling including finance students, lecturers, bank officers, managers and executives who are participated in the Malaysian stock exchange. Author analyzed data by using SPSS version 22 software and used multiple regression model in order to identify the extent of the behavioral factor influence on the investment decision and he found that overconfidence has significant influence on individual investment decision. However, herding behavior has no significant influence on individual investment decision in the Malaysian stock exchange.

Javed & Marghob (2017) studied the impact of behavioral factors on investment decision making in the Colombia stock exchange. The author collected primary data through structured questionnaire from 75 respondents selected by convenient sampling technique and used multiple regression analysis to draw conclusion and to test hypothesis. The author found that overconfidence bias, availability bias and herding behavior have significant effect on investment decision-making in the Colombia stock exchange.

Onsomo (2014) investigated the impact of behavioral factor on investor's decision in Kenya: male versus female. Target populations of the study were all individual investors firm listed in Nairobi security exchange. Necessary data were collected through questionnaire from 58 investors in Nairobi stock exchange. Random sampling technique was employed to select target respondents and collected data were analyzed by using descriptive statistics and Pearson chi-

square test and also Pearson chi-square test was used to test relationship between demographic factor and behavioral factors. The research finding revealed that availability bias, representativeness bias have significant impact and overconfidence have no significant impact on individual investor decision in Nairobi security.

Rekik & Boujelbene (2013) studied determinants of individual investor's behavior in Tunisian stock market. Questionnaire were used to collect data from 300 investor found in Tunisia. In order to identify the determinants of investor behavior the author used descriptive and factor analysis and also used multivariate method which consist of combing all psychological factors considered in the survey questionnaire in order to reduce in too few behavioral factors that should explain Tunisian investors behavior and chi-square test to assess the influence of demographic factors. The finding of the studies shown that Tunisian investor are influenced by behavioral factors namely representativeness bias, herding behavior, mental accounting bias and loss aversion bias.

Dao & Huetone (2014) explored the effect of psychology on individual investor's behavior. Data were collected by using questionnaire from individual investors and snow ball sampling technique was used to select target respondents. The researcher found that overconfidence and herd behavior are the most influencing factors of individual investor behavior.

Subramaniam (2017) studied the role of behavioral factor on the investment decision of household investors in the northern province of Sri Lakna. Data were collected through structured and closed ended questionnaire from 1810 household investor which is selected by proportionate stratified random sampling technique and the author used exploratory and confirmatory analysis method. The finding of the study implied that representativeness bias, overconfidence bias, availability bias, loss aversion bias, regret aversion bias and herding behavior have significant influence on investment decision of house hold investor in Northern Province of Sri Lakna.

Usman (2018) Investigate influence of cognitive bias on investment decision making in property market in plateau state: Nigeria by using descriptive research design. Necessary data were collected from 312 registered property individual investor market using structured open ended and closed ended questionnaire. He found overconfidence and representativeness has significant

and positive and linear relationship with investor decision making. He also conclude that more experienced investor used more subjective judgment in decision making.

Priyanka & Singh (2015) examined behavioral factor that influence the investment decision of the investors in the real asset. The author used structured questionnaire and collect necessary data from 200 individual investor and he author identifies seven factors which affect investment decision which are regret aversion, herding bias and over expectation. He concludes that individual investor in real estate influenced by behavioral factor.

Ojwang (2011) investigated behavioral factor that influence investment decision of individual investors trading in kibuye market. The researcher employed stratified random sampling method to select respondents and needed data was collected by questionnaire from 196 individual investors and collected data was analyzed by SPSS version 20. The result of the study revealed that that overconfidence at the mean 4.01, availability bias at the mean 3.72, loss aversion at the mean and mental accounting 3.6, representativeness bias 3.36, risk aversion 3.06, and herd behavior at the mean 3.0 influence investment decision of the kibuye market.

Alquraam et al., (2016) explored the influence of the behavioral factor on the stock investment decision of individual investors. Target population of the study was all individual investors in Saudi Arabia stock market. Data were collected via structured and closed ended questionnaire from 140 individual investors randomly and multiple regression method and ANOVA was used to test hypothesis and to make conclusion. The author found that behavioral factor such as loss aversion and over confidence have significant impact on the stock decision of individual investor and he also conclude the demographic factors such as gender, age and experience do not make any significant difference in the investment decision.

Kartasova (2013) Conducted research on factors forming irrational individual investors behavior on the Lithuanian stock market. Author first identified factors forming irrational behavior from past research and existing theory regarding behavioral finance, prepare questionnaire and distribute prepared questionnaire to individual investor of the Lithuanian. He found that individual investor in Lithuanian are influenced by psychological bias. Mostly, overconfidence, mental accounting and herd behavior influence financial decision making process. He also found that demographic characteristic such as age, status gender, education, and experience and profession influence individual investment decision. He found that women are overconfident

investor than men, experienced investor more overconfident, unmarried investor more risky than married and investor with in age level of 30 to 45 are most risky investor( invest in risky investment alternatives than others.

Kengatharan & Kengatharan (2014) explored the influence of behavioral factors on individual investor decision making in Colombia stock exchange, Sri Lanka. Primary data were collected by using questionnaire and distributed to respondent by using stratified random sampling technique and used SPSS to analysis collected data. His finding shows that four categorized behavioral factor have influence on individual investment decision at Colombia stock exchange. Among categorized behavioral factor, overconfidence from heuristic, regret and loss aversion from prospect factor and herding behavior influence individual investor's investment decision. The result shows that most of behavioral factor had moderate influence on the investment decision.

Chaudhary & Kumar (2017) investigated the impact of behavioral finance on investment decision of small investors. Primary data were collected through questionnaire from respondent (individual investors) selected by random sampling technique from urban investors of branch district of Jharkhand. The result of the study designated that behavioral factors have impact on investment decision of individual investors.

Shabgou & Mousavi (2016) examined behavioral factors influence on investor's decision. He conduct the study depends on three theories of behavioral finance namely heuristic, prospect and herding theory. The author collects data from 385 investors by using questionnaire. Cronbach alpha was used to measure internal consistency of questionnaire. He found that heuristic factor (overconfidence bias, representativeness bias, availability bias), prospect factor (mental accounting, loss aversion and regret aversion, herding factor had influence investment decision making process of investors.

Boda et al., (2016) explored the behavioral aspect of retail investors for investment decision making. Data were collected from 200 retail investor through structured questionnaire and author used factor analysis in order to identify the behavioral pattern of retail investors. His finding shown that the two factors prospect and heuristic have significant influence on investment decision attitude of retail investors.

Pile et al., (2013) examined the impact of mental accounting on the investment decision in the Tehran stock exchange. Target population of the study was all the company listed in Tehran stock exchange and individual who bought share on it and data were collected from 126 investors via questionnaire, respondents were selected by random sampling techniques and questionnaire reliability was checked by using Cronbach alpha. In order to examine the relationship between dependent and independent variable the author used spearman correlation coefficient. His finding indicates that mental accounting and investment decision have significant relationship.

Khalid et al.,(2018) Examined impact of behavioral bias on investment decision making specifically overconfidence bias and herding bias. Target population the study includes investors, employees and graduate students who invested in Islamabad stock exchange. Data were collected via questionnaire from 200 respondent selected by convenience sampling technique. Correlation and regression analysis were employed in order to examine the relation of investment decision and behavioral factors. The result of the study implied that over confidence and herding behavior has significant influence on investment decision.

Irshad et al.,(2016) examined the effect of representativeness bias on investment decision in Islamabad stock exchange. Data were collected through self-administered questionnaire from 160 investors invested in Islamabad stock exchange. The author used Cronbach's alpha to measure the internal consistency of questionnaires and five point Likert scales was used to measure the effect of representativeness bias on investment decision and used multiple linear regression analysis. Author found that representativeness bias affect investment decision of investors in Istablad stock exchange.

## **2.4 Summary of Literature Review**

Theoretical as well as empirical literature has reviewed, revealed that individual investors are affected by psychological bias when making investment decision. The existing theory and empirical investigation categorize this psychological factor into three main categories which are heuristic (representativeness, availability bias, overconfidence bias) factors, prospect (mental accounting. Loss aversion and regret aversion) and herding behavior. Individual investors are irrational and their investment decision influenced by varies psychological factors. They use rule

of thumb to made investments decision due to different constraint such as time, knowledge in analyzing investment related information objectively. When investors challenged by difficulties in investment decision they simplify the task by relaying on shortcut method. Hence, they respondent differently to the same situation based on perspective of loss or gain in which they are offered. Problem of individual investors influenced by behavioral factors come when investor face difficulties in processing all the information due to different constraints and causes them to make investment decision based on less and unsophisticated information.

Accordingly, Most of the studies were done on financial market and real estate market. No much local studies have addressed the behavioral factors influencing individual investment decision. Therefore, the research fill the gap by investigating the influence of behavioral factors on investment decision of individual investors in case of Bahirdar city by employing multinomial logistic regression model. The study also sought to find out how behavioral factors would influence investment decision on investing in manufacturing sector, service sector and trade sector investment alternatives.

## **2.5 Conceptual Framework of the Study**

Followed behavioral factors identified by previous scholars that provided and briefly discussed in the above review of related literature and empirical finding, attempt has made to develop conceptual framework of the study. Thus, this study gave emphasis on prospect factor, prospect factor and herding behavior. The figure below shows that behavioral factors that influence investment decision. The author identify seven behavioral factor categorized under heuristic, prospect and herding behavior that are expected to affect investment decision of individual investors namely availability bias, representativeness bias, overconfidence bias, loss aversion, regret aversion, mental accounting and herding behavior. All of behavioral factor listed above are found to be have influence on investment decision of individual investors based on past studies in different countries.



Independent variable

Dependent variable

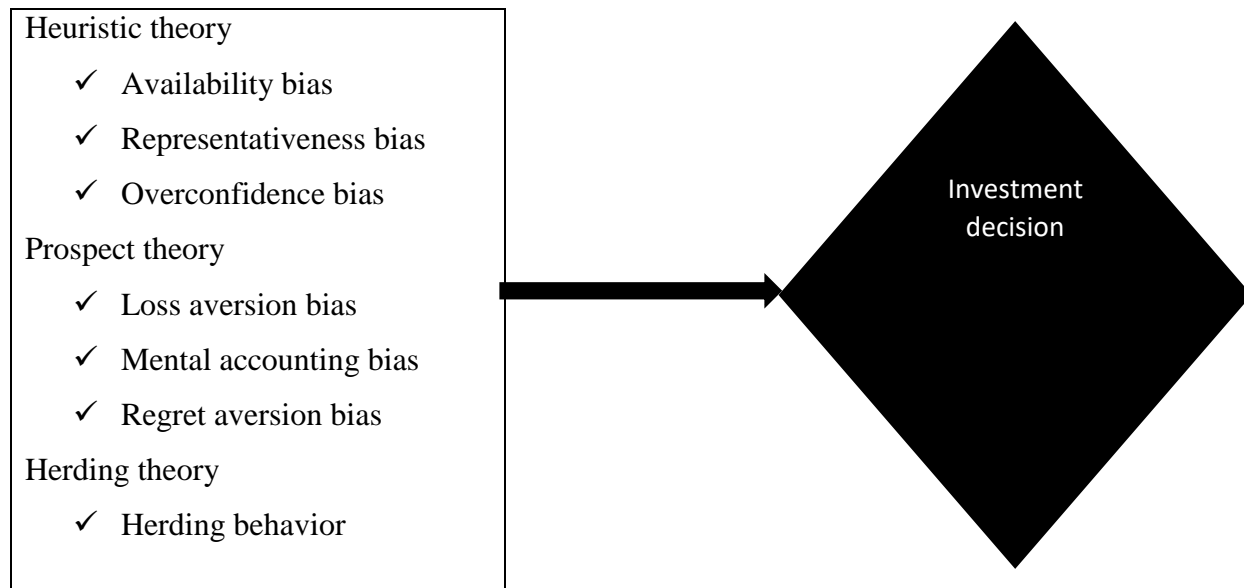


Figure 2.2: Relationship between independent variable and independent variable

Source; Kengatharan & Kengatharan (2014)

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **Introduction**

The purpose of this chapter was to describe what procedure is followed to gather necessary data to achieve ultimate objective of the study. This chapter consist five sections. First section, deals with the research approach followed research design of the study, population, sample technique and sample size, data collection method and data analysis method, description of variables and its measurement and regression model used.

#### **3.1 Research Approach**

There are two basic research approaches; quantitative and qualitative. The quantitative approach involves generalization of data in quantitative form. Qualitative approach is concerned with subjective assessment of attitude, opinion and behavior of research in such situation is function researchers new insight Kothari (2004). Therefore appropriate research for this study was quantitative approach.

#### **3.2 Research Design**

The ultimate objective of the study was to examine behavioral factors that influence investment decision of individual investors in Bahirdar city. Therefore, the researcher was considered this in mind and recognizes the nature of research design of the study. In parallel concept, Kothari (2004) defined research design as it is arrangement of condition for collecting and analyzing data in a way that find to combine relevance of research purpose to the economy in the procedure. Additionally, he noted that research design is conceptual structure or the blueprint for collecting, measuring and analyzing relevant data for the study. In this study explanatory research design was employed. Explanatory research design was used to offer insight the research objective and test behavioral finance theory by collecting data and made conclusion based on collected data regard to impact of behavioral factors on investment decision (causal relationship between behavioral factors and investment decision) of individual investors by selecting a cross sectional sample of population at single point on time April 5-12, 2019 G.C in Bahirdar city.

### **3.3 Population**

Population is the collection of elements or object that possesses the information sought by the researcher and about which conclusion to be made. Study was conducted in Bahir city's individual investors and target population of this study were 792 individual investors found in Bahirdar city that are invested their money in three investment alternatives particularly in manufacturing sector, service sector and trade sector. The reason behind the selection of only three specific sectors individual investors is that, this three basic sectors need careful investment decision making this is due to that this sectors core for economic development of the country and different constraints (time, resource) to include all sectors on in the study. Individual investors in Bahirdar city are many in number it is difficult to study all target population due to different constraints mentioned earlier.

### **3.4 Sampling Technique and Sample Size**

There are certain reasons why the researcher has selected the focus area of this study. First, the observation and experience of researcher particularly regard to nature of investment activities and investment decision around Bahirdar city helped as reference of to choose the study area. Hence, comfortable geographical setting for investment activities and different investment avenues with suitable environment. Second, the policies the country follows in general and the activities of investment. For this reason, researcher was very interested to examine the impact of behavioral factors on investment decision of individual investors measured by selection of investment alternatives. However, researchers, academicians as well as government are given less attention to assess this new issue. Hence, researcher was encouraged to undertake the research on this issue and study area as entitled to influence of behavioral factors on investment decision in case of Bahirdar city's investors. Therefore, list of individual investors from three investment alternatives namely manufacturing sector, service sector and trade sector was obtained from investment commission office of Bahirdar city (2018). Proportionate Stratified random sampling technique was used to determine required sample size from each sector meaning that three sectors considered as stratum because investors with in each sector has homogenous feature.

There are number of methods in determining sample size including census in small number of population, mimicking a sample size of similar studies and formula to calculate sample size that are recommend by previous researchers and developed by different authors. There are number of factors to be considered to determine appropriate sample size include level of accuracy, representativeness of sample size, margin of error term and population size. The researcher used sample size formulae of Yamane (1967) cited in Isreal, (1992)

$$n = \frac{N}{1+N(Ne)^2} = \frac{792}{1+792(0.05)^2} = 266$$

Where

n= required sample size,

N= total population,

Ne= margin of error

Therefore, the required sample size of the study was 266.

In order to determine sample size in each stratum (in each sector), the researcher employed the following formula.  $n_i = (S_i/N) * n$  where  $n_i$  = the sample size of the each stratum,  $S_i$ = population size of each stratum,  $n$ = desired sample size of the study and  $N$ = accessible population

Table 3.1: Sample size from each stratum

Sector	Number of investor	Sample size
Manufacturing	266	90
Service	264	89
Trade	262	87
Total	792	266

### 3.5 Method of Data Collection

Kothari (2004) noted that problem definition and research design are followed by the selection of the data collection technique. For this study primary data were collected through structured and closed ended questionnaire. The researcher adapted prepared structured questionnaires concerned with heuristic factor, prospect factor and herding factors which basically focus on three behavioral finance theories which identify behavioral factors that influence investment decision of individual investors. Prepared questionnaire were provided for 266 sampled individual investors consisted 28 closed ended questionnaires. This data collection method was common in big investigations. Mostly it is considered as heart of survey operation. The same with this concept, Kothari(2004) suggested those structured questionnaires are those questionnaires in which there are definite, concert and predetermined questions. The questions are distributed with exactly with the same phrasing and in the same order for all respondents. Additionally, in order to make assure questions quality and to ensure quality of data collected by questionnaire, the researcher should pay attention to the questionnaires sequence to prepare questionnaires. Accordingly, the research assistants were first trained by researcher how to explain each question to respondents. There were also advised to inform each respondent about the purpose of the study before starting actual survey. A total of 266 questionnaires were

distributed to respondents at work place. The questionnaires were distributed in the form of Amharic version. This was in order to include illiterate and literate investors.

### **3.6 Method of Data Analysis**

In this study, quantitative data analysis technique was used. Quantitative data analysis is a process of tabulating, interpreting and summarizing numerical data for the purpose of explaining population from the sample. Descriptive and inferential statistics tools were used. Descriptive statistics is tool in any research that describes events in numerical term for the sake of quantifying data in order to organize, summarize and to understand information easily. Hence, up on completion of data collection, data were edited, coded and entered into SPSS (statistical package for social science) version 20 then the data was analyzed using both descriptive and inferential statistics. The influence of behavioral factors on investment decision of individual investor was assessed by using five point Likert scale namely strongly disagree, agree ,neutral ,agree and strongly agree which was signed score 1, 2,3,4 and 5 respectively, In doing so, there are 28 series of Likert type question that measure behavioral factors influence on investment decision. The series of question were distributed for respondents. A series of Likert type item that represent similar feature were combined into single composite variable by using mean index. Question were distributed to respondents to indicate their influence on investment decision measured by investment alternatives, in order to identify the level of behavioral influence on investment decision, researcher used tables, frequency and percentage to run descriptive statistics and multinomial logistic regression model was used to identify the significant factors that affect investment decision of individual investors in study area. MNLM is statistics tool as to determine the effect of independent variable on dependent variable with holding other variables constant by using probability. Categorical variable independent variables in the form five point Likert was combined into two categories as 1 stands for (Yes) and 0 stands for (no).

### **3.7 Description of Variables and Its Measurement**

#### **Dependent variable**

**Investment decision:** as it has observed different empirical as well as theoretical literature, the nature of this variable (investment decision) is measured in different dimension, in this study

researcher measured investment decision by investment choice. This was categorized in to three. Hence, multinomial logistic regression model was employed to analyze this outcome variable, it had three categories, 0 investment in manufacturing sector , 1 investment in service sector and 2 investment in trade sector.

### **Independent variable**

At this point, the independent variable hypothesized as those explanatory variable (behavioral factors) affect response variable (investment decision) in the study area. Accordingly, based on review of different literature and research finding, seven potential explanatory variables were explained.

1. **Availability bias:** this was an explanatory variables identified in the study that expected to influence investment decision of individual investors. As shown in literature if investors focus on available information only may create bias on investment decision.
2. **Representativeness bias:** this was predictor variable that expected to influence investment decision of individual investors in study area. As investors predict future performance based on previous activities, the investment decision is affected by this bias.
3. **Overconfidence bias:** this variable referred as overestimate them than other. As investors become overconfident, investment decision may be biased therefore, it was independent variable expected to influence investment decision in study area.
4. **Loss aversion bias:** this predictor variable referred fear of lose originated from investment activities. As investors focus to minimize loss than joy of gain, investment decision was affected by this bias. So, it was expected as this explanatory variable that influence investment decision.
5. **Regret aversion bias:** this explanatory variable explained as mental penalty originated from mistake. As investors affected regret aversion bias investment decision may be biased. This was predictor variables that was expected to affect investment decision
6. **Mental accounting bias:** explanatory variable described as separating of each investment activities in mental compartment, it was expected to influence investment decision in study area.

7. **Herd behavior:** explained as following other individuals activities.as investors imitate others action their investment decision may be biased. It was independent variable expected to influence investment decision of individual investors in study area.

Table 3.2: Description of variables used in multinomial logistic regression

Variables	Variable description	Measurement scale
<b>Investment decision</b>	Categorical variable: 0 if investment in manufacturing,1 investment in service and 3 investment in trade	Nominal
Availability bias	Categorical:1 strongly agree,2 disagree,3 neutral ,4 agree and 5 strongly agree	Ordinal
Representativeness bias	Categorical: 1 strongly agree,2 disagree,3 neutral ,4 agree and 5 strongly agree	Ordinal
Overconfidence bias	Categorical: 1strongly agree,2 disagree,3 neutral ,4 agree and 5 strongly agree	Ordinal
Loss aversion bias	Categorical:1 strongly agree,2 disagree,3 neutral ,4 agree and 5 strongly agree	Ordinal
Regret aversion bias	Categorical:1 strongly agree,2 disagree,3 neutral ,4 agree and 5 strongly agree	Ordinal
Mental accounting bias	Categorical:1 strongly agree,2 disagree,3 neutral ,4 agree and 5 strongly agree	Ordinal
Herd behavior	Categorical:1 strongly agree,2 disagree,3 neutral ,4 agree and 5 strongly agree	Ordinal

### 3.8 Regression Model

In this study regression model used to analysis data was multinomial logistic regression model. Multinomial logistic regression was used when dependent (response) variable has more than two nominal or unordered categories. The researcher used multinomial logistic regression model to



identify factors that affect investment decision in study area. Like that of binominal logistic regression model, multinomial logistic regression model uses maximum likelihood estimation to analysis the probability of categorical membership. Unlike that of linear regression model, logistic regression model not assume normality, linearity and homoscedastic. In this study dependent variable (investment decision is measured by investment alternative) is categorized in to three, 0, 1, and 2. This number is simply nominal that implies 0 stands for manufacturing, 1 stands for service and 2 stands for trade. Among categorized dependent variable 0 (manufacturing sector) was used as reference category. The likelihood of membership in other category is compared with the likelihood of membership in reference category to explain relationship between dependent variables and independent variables.

$$\ln \left( \frac{p(y=1)}{p(y=0)} \right) = \beta_0 + \beta_1 AB + \beta_2 OB + \beta_3 RP + \beta_4 LA + \beta_5 RA + \beta_6 MA + \beta_7 HB + \varepsilon$$

$$\ln \left( \frac{p(y=2)}{p(y=0)} \right) = \beta_0 + \beta_1 AB + \beta_2 OB + \beta_3 RP + \beta_5 LA + \beta_6 RA + \beta_7 MA + \beta_8 HB + \varepsilon$$

Where

Y is dependent variable, investment decision measured by investment alternative (manufacturing, service and trade) which manufacturing is reference category

AB, RP, OB, LA, RA, MA, HB are independent variable (behavioral factor)

Where:

AB= Availability Bias

RP= Representativeness bias

OB= Overconfidence bias

LA= loss aversion bias

RA=regret aversion bias

MA =mental accounting bias

HB =Herd behavior

$\varepsilon$ = error term

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$  in first regression equation is regression coefficient representing the change in probability of investing in service as compared to manufacturing resulting due to X.  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ , in second regression equation is regression coefficient representing the change in probability of investing in trade as compared to manufacturing resulting due to X.

### 3.8 Measurement of Reliability and Internal Consistency

Reliability refers to the consistency, stability repeatability of the result. The researcher has undertaken preliminary test to assure the reliability of the questions before implement actual study. This helps to avoid the doubt of questions and to know understanding of respondents. Besides, Cronbach's Alpha was used to measure internal consistency of the instrument or reliability of the study included in questionnaires. This measure is performed to make sure that reliability of measurement for further analysis. Therefore, The Cronbach Alpha value shows the reliability of measurement is 0.79 which implies acceptable level of internal consistency for the scale.

Table 3.3 : Reliability Statistics(Alpha)

Cronbach's Alpha	N of Items
0.79	27

Source: survey data (2019)

## **CHAPTER FOUR**

### **RESULT AND DISCUSSION**

#### **Introduction**

This chapter presents analysis, interpretation and discussion of the results obtained from the sample survey through questionnaires. Total of 266 questionnaires were distributed to respondents (individual investors) out of total only 235 questionnaires were returned back and completed for further analysis. Accordingly, the first section of this chapter present descriptive statistical; analysis of respondents specifically response returned rate, frequency of respondents feeling on behavioral factors. Second part, present detail analysis of behavioral factors influence on investment decision of individual investors in study area based on regression output (model summary, goodness of fit. over all test of model, likelihood ratio test and parameter estimate), testing hypothesis proposed in chapter one and final section, present discussion by comparing research result with previous researchers finding.

#### **4.1 Questionnaires Returned Rate**

The study administered 266 questionnaires and distributed to respondents (individual investors in three sectors). Out of 266 questionnaires provided 235 questionnaire were returned back and used for further analysis. The response returned rate computed by total number of questionnaires returned back divided by total number of questionnaire distributed to respondents times 100 was 88%. Mugenda & Megenda(1999) suggested that questionnaires returned rate of 50% is sufficient for analysis and, the response returned rate of 60% is good and response returned rate greater than 70% very good and representative for analysis. Therefore, questionnaire returned rate with 88% is very good and representative for further analysis. Questionnaires were distributed to three different stratum, the response returned rate for each stratum is varies. But, for all stratum response rate is greater than 70%.

Table 4.1: Questionnaires returned rate per stratum

Sector	Sample	Reponses	Questionnaire returned rate
Manufacturing	90	81	90%
Service	89	79	88%
Trade	87	75	87%
Total	266	235	88%

Source: survey data (2019)

## 4.2 Descriptive Statistics Result

Descriptive statistics method used in this study was frequency and percent that are important to show the respondents feeling on behavioral factors and investment decision relation in the study area.

### 4.2.1 Heuristic Factors

Table 4.2: Frequency table of heuristic factors

Variable				
Availability bias	Valid	Frequency	Percent	Cumulative percent
	Yes	139	59.1	59.1
	No	96	40.9	100
Representativeness bias	Yes	194	82.6	82.6
	No	41	17.4	100
Overconfidence	Yes	144	61.3	63.3
	No	91	38.7	100

Source: survey data (2019)

As clearly demonstrated in table 4.2: 59.1% of respondents (individual investors) agree about availability bias. Whereas, 40.9% of respondent disagree about availability bias. Out of 235 questionnaires distributed to individual investor 82.6% of respondents (individual investor) agree about representativeness bias. While, 17.4% of respondents disagree about the representativeness

bias. Out of 235 questionnaires distributed to individual investors 61.3% of respondents agree about overconfidence bias. Where, 38.7% of respondents disagree about overconfidence bias.

### 4.2.2 Prospect Factors

Table 4.3: Frequency table of prospect factors

Variable				
Loss aversion	Valid	Frequency	Percent	Cumulative percent
	Yes	153	65.1	65.1
	No	82	34.9	100
Regret aversion	Yes	159	67.7	67.7
	No	76	32.3	100
Mental accounting	Yes	148	63	67
	No	87	37	100

Source: survey data (2019)

As summarized in table 4.3: Out of 235 respondents, 65.1% of respondents agree about loss aversion bias. However, 34.9% of respondents were disagree about the loss aversion. Out of 235 respondents, 67.7% of respondents agree that regret aversion bias. But, 32.3% of respondents disagree about the regret aversion. Out of 235 respondents, 63% of respondents agree mental accounting bias. Whereas, 37% of respondents disagree about mental accounting individual investors.

### 4.2.3 Herding Behavior

Table 4.4: Frequency of herd behavior factor influence on investment decision

variables				
Herding behavior	Valid	Frequency	Percent	Cumulative percent
	Yes	163	69.4	69.4
	No	72	30.6	100

Source: survey data (2019)

As clearly elucidated in table 4.4; Out of 235, 69.4% of respondent agree about herd behavior. While, 30.6% of respondent were disagree about herding behavior.

### 4.3 Correlation Analysis of Behavioral Factors and Investment Decision

Table 4.5: Spearman correlation analysis

	<b>ID</b>	<b>AB</b>	<b>RB</b>	<b>OB</b>	<b>LA</b>	<b>RA</b>	<b>MA</b>	<b>HB</b>
<b>ID</b>	1.00							
<b>AB</b>	0.038	1.00						
<b>RB</b>	0.085	0.051	1.00					
<b>OB</b>	0.013	0.104	0.187	1.00				
<b>LA</b>	0.056	0.045	0.322	0.480	1.00			
<b>RA</b>	0.201	0.055	0.183	0.261	0.219	1.00		
<b>MA</b>	-0.081	0.044	-0.097	0.042	-0.044	0.148	1.00	
<b>HB</b>	-0.011	0.161	0.157	0.249	0.249	0.211	0.064	1.00

Correlation is significant at 0.05 level

Source: Survey data (2019)

Correlation analysis demonstrates the relationship between behavioral factors and investment decision and result of analysis summarized in table 4.5: below. The finding of correlation analysis implied that availability bias, representativeness bias, overconfidence loss aversion, and regret aversion has a positive correlation with investment decision measured by investment choice. However, mental accounting and herding behavior has a negative correlation with investment decision.

#### 4.4 Inferential Statistics Result

Under this section, selected explanatory variables that affect investment decision of individual investors in study area were presented briefly. Furthermore, this section concerned brief analysis of the multinomial logistic regression output, interpretation and detail discussion of study result related with previous researchers finding. Thus, to achieve the ultimate objective of the study, multinomial logistic regression model was used. For this reason, seven behavioral factors were selected to explain effect on dependent variables (investment decision) namely under heuristic: availability bias, representativeness bias and overconfidence bias under prospect: loss aversion, regret aversion and mental accounting and herding behavior. Significant influence of variables was identified at 5% significance level.

##### Model goodness-of-fit

Once model has developed, it is necessary to how well the model is in explaining the explanatory variables identified have combined effect on the dependent variables. In this study, deviance and Pearson chi square tests show the model was fitted data well or not. Accept  $H_0$  if p-value greater than 0.05 and reject  $H_0$  if p-value less than 0.05. The result from deviance and Pearson test table 4.6: displayed that data at chi-square of 180.443 and 175.196 at degree of freedom 158 and at P-value greater than 0.05 the model is good fit that is not significant at 5% significance level.

Table 4.6: Goodness-of-Fit

	Chi-Square	Df	Sig.
Pearson	180.443	158	0.107
Deviance	175.196	158	0.166

$H_0$ : model is good fit data

$H_1$ : model is not good fit data

**Over all test of relationship between dependent variable and independent variable**

After goodness of fit model is measured it is better to test over all relationship of independent variable and response variable. Multinomial logistic regression model result fitting information implied that over all relationship of dependent variable and predictor variables as shown in table 4.7: model fitting information had a chi-square value of 249.711 with degree of freedom 14 and statistically significant at 5% significance level. Meaning that the explanatory variable identified (behavioral factors) has combined effect on predicting dependent variable (investment decision) of individual investors in study area.

Table 4.7 : model fitting information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	311.920			
Final	249.711	62.209	14	0.000

Source: Survey data (2019)

After overall relationship of dependent variables and independent variables was statistically significant, the next step is evaluating the strength of multinomial logistic regression relationship by using pseudo R- square such as cox - Snell R -square and Nagerlkere R square value, which explained the amount of variation of dependent variable by predicted independent variable. There are many R -square calculation method especially in multinomial logistic regression model the SPSS output shows three R square. Until know no agreement on which is best measure of model. Table 4.8: pseudo Square value of Nagerlkere R-square 26.2% variation of investment decision is explained by behavioral factors. The remaining percent of investment decision was explained by other variables that are not included in this model.



Table 4.8: Pseudo R-square

Cox and Snell	.233
Nagerlkere	.262
McFadden	.121

Source: Survey data (2019)

The predictive accuracy of the model shown that from investment alternative included in the cell in the diagonal were correctly predicted. Cell in diagonal 51.9% manufacturing. 62.0% service and 50.7% trade were correctly predicted. Likewise. Overall classification accuracy 54.9% case was correctly predicted.

Table 4.9: Classification accuracy table

Observed	Predicted			
	Manufacturing	service	Trade	Percent Correct
Manufacturing	42	13	26	51.9%
Service	13	49	17	62.0%
Trade	19	19	38	50.7%
Overall				
Percentage	31.1%	34.5%	34.5%	54.9%

Source: Survey data (2019)

### **Relationship of individual independent variables and dependent variable**

There are two types of tests to identify significant individual independent variables i.e. Likelihood ratio test and Wald test. Likelihood ratio test determines the overall relationship between each independent variables and dependent variable. While, Wald test determine significant independent variables differentiated between each categories of dependent variables. Thus, multinomial logistic regression output of likelihood ratio test result in table 4.10:established that representativeness bias ,loss aversion bias, regret aversion bias, mental accounting bias and herd behavior work together to explain 26.2% of investment decision variation. Representativeness bias is statistically significant since P- values are 0.003. Loss aversion variable is significant since P-value is 0.033. Regret aversion variable is significant since P-value is 0.005. Mental accounting also significant since P-value is 0.000. Likelihood ratio test showed that herding behavior variable is significant since P-value is 0.004. However,

multinomial logistic regression result of two predictor variable availability bias and overconfidence bias identified not statistically significant since P-value is 0.798 and 0.546 respectively in the study. Over all model fit was good as discussed above since overall tests p - value is less than 0.05 which is 0.000.

Table 4.10: likelihood ratio test

Effect	Model fitting criteria		Likelihood ratio test		
	-2log likelihood of reduced model	of	Chi-Square	DF	Sig.
Intercept	249.711 <sup>a</sup>		0.000	0	.
AB	250.161		0.450	2	0.798
RP	261.193		11.483	2	0.003
OB	250.919		1.209	2	0.546
LA	256.516		6.805	2	0.033
RA	260.507		10.796	2	0.005
MA	265.673		15.962	2	0.000
HB	260.756		11.046	2	0.004

Source: survey data (2019)

### Parameter estimate

In this study, the first category of the dependent variable manufacturing was taken as reference category and category (yes) in independent variable was taken as reference category and result interpreted accordingly. The validity of the model was measured by p- value, the model was found to be significant at 5% significance level. In MNL beta coefficient taken different value for each category of dependent variable. Therefore, the odd ratio for each category independent and dependent variable varies. The influence of each independent variable on dependent variable in MNL regression model is varies from each other for each dependent and independent category; this is due to the nature of Likert scale data which is not treated as continuous and nature of the model. Whereas, the influence of independent variable in the logit that compares

first category (reference) category and second category was denoted by  $\beta_2$ . The intercept in the MNL regression constructed was different for each category. The result is shown below.

Table 4.11: coefficient, standard deviation, probability estimates, and P-value of MNL regression

Reference category		B	Stand Error	Wald	Df	Sig	Exp(B)	95 confidence interval of exp(B)	
Manufacturing								Lower	Upper
Service	Intercept	-0.086	0.310	0.077	1	0.782	.	.	.
	AB=(no)	-0.223	0.366	0.371	1	0.542	0.800	0.391	1.639
	RP=(no)	-1.866	0.619	9.097	1	0.003	0.155	0.046	0.520
	OB=(no)	-0.327	0.391	0.697	1	0.404	0.721	0.336	1.553
	LA=(no)	-0.928	0.431	4.630	1	0.031	0.395	0.170	0.921
	RA=(no)	-0.439	0.392	1.250	1	0.264	0.645	0.299	1.391
	MA=(no)	1.451	0.379	14.621	1	0.000	4.268	2.028	8.978
	HB=(no)	1.352	0.437	9.573	1	0.002	3.864	1.641	9.098
Trade	Intercept	0.151	0.293	0.268	1	0.603	.	.	.
	AB=(no)	-0.184	0.342	0.288	1	0.591	0.832	0.426	1.627
	RP=(no)	-0.403	0.418	0.931	1	0.335	0.668	0.295	1.516
	OB=(no)	0.079	0.358	0.049	1	0.825	1.083	0.537	2.184
	LA=(no)	0.092	0.383	0.057	1	0.811	1.096	0.517	2.324
	RA=(no)	-1.261	0.401	9.870	1	0.002	0.283	0.129	0.622
	MA=(no)	0.608	0.382	2.529	1	0.112	1.836	0.868	3.883
	HB=(no)	0.301	0.412	0.534	1	0.465	1.351	0.603	3.027

Reference category is manufacturing. Source: Survey data (2019)

### Categorical comparison of service versus manufacturing

**Representativeness bias;** Based on multinomial logistic regression result, representativeness bias variable has significant influence among behavioral factors that affect investment decision of individual investors measured by investment choice in the study area. To mean that being

other variable constant, the probability of individual investors who have no representativeness bias to invest in service sector as compared with invest in manufacturing sector was 0.155 times lower than that of individual investors who have representativeness bias. This implied that individual investors who have representativeness bias had more probability of investing in service sector than manufacturing sector. This was statistically significant at 5% significance level (table: 4.11).

**Loss aversion bias:** as multinomial logistic regression result shown that, loss aversion variable has significant influence on investment decision of individual investors measured by investment choice in the study area. To mean that being other variables constant in model, the probability of individual investors who have no loss aversion bias to invest in service sector as compared with invest in manufacturing sector was 0.395 times lower than that of individual investors who have loss aversion bias. In other ward individual investors who have loss aversion bias had more probability of investing in service sector than manufacturing sector. This was statistically significant at 5% significance level (table: 4.11)

**Mental accounting bias:** Mental accounting variable has significant influence among behavioral factors that influence investment decision of individual investors measured by investment choice in the study area. To mean that being other variable constant, the probability of individual investors who have no mental accounting bias to invest in service sector as compared with invest in manufacturing sector was 4.268 times higher than that of investors who have mental accounting bias. This implied that individual investors who has mental accounting bias had less probability of investing in service than manufacturing. This was statistically significant at 5% significance level (table: 4.11)

**Herding behavior:** Herding behavior variable has significant influence among behavioral factors that influence investment decision of individual investors in the study area. To mean that being other variable constant, the probability of individual investors who have no herding behavior to invest in service sector as compared with invest in manufacturing sector was 3.864 times higher than that of individual investors who have herd behavior. This implied that individual investors who has herding behavior had more probability of investing in manufacturing. This was statistically significant at 5% significance level (table: 4.11).

### **Categorical comparison of trade versus manufacturing**

**Regret aversion bias:** regret aversion variable has significant influence among behavioral factors that has influence on investment decision of individual investors measured by investment choice in study area. To mean that being other variable constant, the probability of individual investors who have no regret aversion bias to invest in trade sector as compared with invest in manufacturing sector was 0.128 times lower than that of investors who have loss aversion bias. This implied that the individual investors who had regret aversion bias had more probability of investing in trade than manufacturing. This was statistically significant at 5% significance level (table: 4.11).

### **Hypothesis testing**

After testing significant variables which influence investment decision of individual investors, p value of from likelihood ratio test was used to test hypothesis. According to 5% of level of significance the p value could be more than 0.05 or less than 0.05. P-value is a cut point to test proposed hypothesis in multinomial logistic regression. Null hypothesis stands for availability bias, representativeness bias, overconfidence bias, loss aversion bias, regret aversion bias, mental accounting bias and herd behavior have no significant impact on investment decision which means investment decision is not affected by behavioral factors and alternative hypothesis stands for beta value of all factor different from zero which means investment decision is affected by behavioral factors. Therefore, significance of this variable was tested by P- value

The first hypothesis implied that availability bias have significant influence on investment decision of individual investors in Bahirdar city. From likelihood ratio test the P- value of availability bias factor is greater than 0.05 which is 0.798. This shows that availability factor have insignificant impact on investment decision of individual investors. Fail to reject null hypothesis means reject alternative hypothesis. Which means availability bias is not significant factor in this study area. This implied that individual investors in the study area was not affected by availability bias factor on their investment decision.

The second hypothesis: representativeness bias has significant influence on investment decision of individual investors in study area. As shown in likelihood ratio test representativeness bias of P- value is less than 0.05. This indicated that representativeness bias has significant influence on investment decision of individual investors in study area. This designates that reject null hypothesis in other word accept alternative hypothesis this empirical studies finding implied that individual investor in study area were affected by representativeness bias.

The third hypothesis: overconfidence has significant influence on investment decision of individual investors. As shown in likelihood ratio test table the P- value of overconfidence is greater than p-value 0.05. This indicates that fail to reject null hypothesis means reject alternative hypothesis. Meaning that individual investor in study area was not influenced by overconfidence in their investment decision making process.

The fourth hypothesis: loss aversion bias has significant influence on investment decision of individual investor in study area. As revealed in likelihood ratio test table loss aversion p-value is less than p value of 0.05. This denotes that loss aversion has significant influence on investment decision of individual investors. Hence, reject null hypothesis implies accept alternative hypothesis. The studies finding implied that individual investor were affected by loss aversion bias in their investment decision process.

The fifth hypothesis: regret aversion bias have significant influence on investment decision of individual investor in the study area. Likelihood ratio test table demonstrated that loss aversion's p-value is less than p value of 0.05. This infers that regret aversion had significant influence on investment decision of individual investors. Therefore, reject null hypothesis implies accept alternative hypothesis. The finding of the study designates individual investor in the study area were affected by regret aversion.

The sixth hypothesis: mental accounting has significant influence on investment decision of individual investors in study area. As shown in likelihood ratio test mental accounting variable' p-value is less than p value of 0.05. This proposes that mental accounting has significant influence on investment decision of individual investors. This directs to reject null hypothesis in other word accept alternative hypothesis. The finding of the study suggests individual investor in study area were influenced by mental accounting during their investment decision period.

The last hypothesis: herd behavior has significant influence on investment decision of individual investor. As shown in likelihood ratio test table illustrates loss aversions p-value is less than p-value of 0.05. This implies that herd behavior has significant influence on investment decision of individual investors. Therefore, reject null hypothesis implies accept alternative hypothesis. The finding of the studies implied that Individual investors in study area were affected by herding behavior bias. furthermore, among seven behavioral factors proposed as influencing factor of investment decision in the study area, five behavioral factors i.e. representativeness, loss

aversion, regret aversion, mental accounting and herding behavior has significant influence on investment decision of individual investors based on multinomial logistic regression result.

## **4.5 Discussion**

The main objective of the study was to examine behavioral factors that influence individual investment decision of individual investors in Bahirdar city. In order to achieve objective of the study, researcher collect primary data through closed ended questionnaire from individual investors and used descriptive and inferential statistical analysis methods. Among identified factors which influence investment decision of individual investor; availability bias, representativeness bias, overconfidence bias, loss aversion bias, regret aversion bias, mental accounting bias and herd behaviors, inferential statistics result revealed that representativeness bias, loss aversion bias, regret aversion bias, mental accounting bias and herding behavior variables are statistically significant at 5% significance level that has influence on investment decision of individual investors. The study finding supports that behavioral finance theories and studies undertaken in this issue. The following section focus on discussion of research finding comparing with previous researchers' finding in behavioral finance issues.

### **4.5.1 Influence of heuristic factors on investment decision**

The first objective of the study was to examine the influence of availability bias on investment decision of individual investor in study area. In order to achieve the objective, the individual investors were required to rate availability bias's impact on their investment decision by employing 5 point Likert scale through closed ended questions. Multinomial logistic regression model result revealed that availability bias has an insignificant influence on investment decision of individual investors in the study area. But, the finding of the study is inconsistent with Subramanian (2017) who investigated the role of behavioral factors on investment decision of house hold investors in Northern Province of Sri Lanka, Suzaid et al.,( 2016) who examined the impact of psychological factor on investors decision making in Malaysian stock market and Javed & Marghob (2017) who explored the impact of behavioral factor on investment decision making in Colombia stock exchange. The finding inconsistency with previous researchers

happened may be due to environmental difference, investors sentiment difference. Most of previous studies conducted in developed countries with organized stock market.

The second objective of the study was to examine the influence of representativeness bias on investment decision of individual investors in study area. In order to achieve the objective the study, individual investor required to rate the influence level of representativeness bias on their investment decision by employing 5 point Likert scale via closed ended questioners. The regression output presented that representativeness bias factor has significant influence on investment decision of individual investors in study area. The finding of the study agree with Subramaniam (2017) who investigate the role of behavioral finance on investment decision of house hold investor , Suzaid et al.,( 2016) who examined the impact of psychological factor on investors decision making in Malaysian stock market, Rekik & Boujelbene (2013) studied determinants of individual investors' behavior evidence from tunisian stock market & Irshad, et.al.,(2016) who examined the effect of representativeness bias on investment decision. All of researcher listed above found that individual investors were affected by representativeness bias when making investment decision. meaning that individual investors excessively rely on past performance as well as investors consider past information as representative of future performance and made decision based on previous performance. Infact past performance is an indicator of future. But, future is uncertain it is consider past performance as perfect indicator of future and this leads bias on investment decision.

The third specific objective of the study was to examine the influence of overconfidence bias on investment decision of individual investor in Bahirdar city. In order to achieve the objective the individual investor required to rate the level of influence of overconfidence on investment decision by employing 5 point Likert scale. However, regression outcome indicates that overconfidence bias has insignificant influence on investment decision of individual investors in Bahirdar city. In line with this finding Onsono (2014) investigate the impact of behavioral bias on investors decision in kenya, Rekik & Boujelbene (2013) investigated determinants of individual investor's behavior:evidence from tunisian stock market, found that overconfidence has an insignificant influence on investment decision of individual investors. However, the finding is inconsistent with Subramaniam (2017) who investigate the role of behavioral finance in investment decision of house hold investor, Suzaid et al.,( 2016); Alquraam et al.,(2016) who studied influence of behavioral finance factors on stock investment decision of individual



investor, found that overconfidence has significant impact on investment decision. As discussed above empirical evidence regarding effect overconfidence bias on investment decision is still contradicted.

#### **4.5.2 Influence of prospect factors on investment decision**

The fourth specific objective of the study was to examine the influence of loss aversion on investment decision of individual investors in Bahirdar city. In order to achieve the objective of the study, individual investors were required to rate the level of influence of loss aversion on investment decision by employing 5 point Likert scale. Multinomial logistic regression model result indicated that loss aversion bias factor has significant influence on investment decision of individual investors in Bahirdar city. The finding of the study matches with Subramaniam (2017) who investigated the role of behavioral finance in investment decision of house hold investor, Suzaida et al., (2016) examined the impact of psychological factor on investors decision making in Malaysian stock market, Rekik & Boujelbene (2013) who investigated determinants of individual investor's behavior: evidence from tunisian stock market.

The fifth specific objective of the study was to examine the influence of regret aversion bias on investment decision of individual investor in Bahirdar city. In order to achieve the objective the individual investor required to rate the level of influence of loss aversion on investment decision by employing 5 point Likert scale. Upon fitting multinomial logistic regression model the result of the model indicates that regret aversion factor has significant influence on investment decision of individual investors in Bahirdar city. The finding is in line with Alquraam et al., (2016) who studied influence of behavioral finance factors on stock investment decision of individual investors evidence from Saudi stock market, Subramaniam (2017) who investigate the role of behavioral finance in investment decision of house hold investor in , Priyanka & Singh (2015) who studied behavioral factors influencing investment decision in real estate :A case study of udham singe Nageand .

The sixth specific objective of the study was to examine the influence of mental accounting on investment decision of individual investors in Bahirdar city. In order to achieve the objective the individual investor required to rate the level of influence of mental accounting on investment decision by employing 5 point Likert scale. Multinomial logistic regression model the result of

the model indicates that mental accounting factor has significant influence on investment decision of individual investors in Bahirdar city. The finding of the study was consistent with Rekik & Boujelbene(2013) who investigated determinants of individual investor's behaviour:evidence from tunisian stock market and Kartasova (2013) who studied factors forming irrational lithuanian individual investors' behaviour mental accounting had influence on investment decision and Pileroad, Barandagh, & Hasanzadeh (2013) examined the impact of mental accounting on the investment decision in the Tehran stock exchange.

#### **4.5.3 Influence of herding behavior on investment decision**

The seventh specific objective of the study was to examine the influence of herd behavior on investment decision of individual investors in Bahirdar city. In order to achieve the objective, the individual investors were required to rate the level of influence of herd behavior on investment decision by employing 5 point Likert scale. As inferential statistics result showed herding behavior had significant influence on investment decision of individual investors in Bahirdar city. The result of the finding similar with Huetone & Doa (2014) who studied the effect of psychological on individual investors' behavior evidence from Vietnam stock exchange, Rekik & Boujelbene (2013) who examined determinants of individual investors' behavior: evidence from Tunisian stock market Kartasova (2013) who explore factors forming irrational Lithuanian individual investors' behavior, Priyanka & Singh( 2015)who investigated behavioral factors influencing on investment decision in real estate :A case study of udhamsinhg Nager ,Subramaniam (2017)who examined the role of behavioral finance in investment decision of household investor. All researchers listed above found that herding behavior had significant influence on investment decision.

## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATION**

#### **Introduction**

This chapter concludes the finding of the study about behavioral factors influences on investment decision of individual investors in Bahirdar city. In this chapter the researcher also forwards some recommendation for local government and individual investors. Moreover, further directions for subsequent researchers are also suggested in this chapter.

#### **5.1 Conclusion**

The researcher has successfully achieve the objective of the study and answer research question raised on chapter one and hypothesis was tested. The following section draw conclusion for the study by presenting the main point to answer the research question; what behavioral factors that influence investment decision of individual investors in case of Bahirdar city?

The combinations of behavioral factors was influence investment decision of individual investors. The result of the study shown that individual investors in Bahirdar city were not rational investor.

The study concluded that representativeness bias, loss aversion bias, regret aversion bias, mental accounting bias and herding behavior influence investment decision of individual investors in Bahirdar city. However, availability bias and overconfidence has no influence on investment decision of individual investors in Bahirdar city.

The study concludes that investors are irrational in their investment decision making process, they are affected by different psychological bias and the study result support behavioral finance theories.

## **5.2 Recommendation**

The finding of the study shown that individual investors found in Bahirdar city were affected by behavioral factors during their investment decision. Hence, based on finding of the study, the researcher forwarded the following recommendation by assuming they could be important input for local government to minimize negative effect of behavioral factors on investment decision and for existing and potential investors.

- The study has identified that representativeness bias has influence on investment decision. So, government should establish training program that create awareness regard to investment valuation system and ability to identify behavioral factors that lead bias on investment decision and to improve the rationality of individual investors.
- The study has examined that prospect factors affect investment decision of individual investors. Therefore ,in order to minimize negative effect of prospect factors on investment decision, local government should establish accounting and finance seminars which improve accounting skill and the way how investor minimize the risk. Hence, to improve rationality of investors.
- Local government should establish body or authority which provide investment advice independently and officially for investors.
- Lastly the study revealed that herding behavior influence investment decision of individual investors. In order to minimize negative effect of herding behavior, investors should analyses past events and anticipate future events objectively and investors should only select reliable peoples (experts) to use as reference when making investment decision.

### **5.3 Suggestion for Further Studies**

As this was examine influence of behavioral factors on investment decision of individual investors in case of Bahirdar city with some delimitation. Subsequent researchers should investigate:

Further researchers should study with larger sample size and diversified respondents because of this study limited to only investors from three sectors.

Further researchers also suggest to investigate behavioral factors influence on investment decision of institutional investors as well as retail investors in Bahirdar city as well as outside Bahirdar city.

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## Appendix

### Questionnaire

**BAHIR DAR UNIVERSITY**  
**COLLEGE OF BUSINESS AND ECONOMICS**  
**DEPARTMENT OF ACCOUNTING AND ECONOMICS**

**Questionnaires for individual investors**

I am accounting and finance student at Bahirdar University, am currently conduct research on behavioral factors that influence investment decision of individual investors in Bahirdar city. I kindly request you to fill questionnaires for the purpose of the current study then return it to me. The information collected here in used for the study. Please respond each question carefully and in light of as investors. Your cooperation has great contribution for the success of study.

1. Indicate your investment alternative you invest

Manufacturing

Service

Trade

2. State the extent to which the following statement explain your behavior and action when making investment decision to invest in given alternatives. Where 1-Strongly Disagree, 2-Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree

	Influencing factors	Level of influence				
<b>Heuristic factor</b>						
<b>Availability bias</b>						
1	I make my investment decision based on information which are frequently advertised in media( Radio, Television)	1	2	3	4	5
2	I make my investment decision based on information easily accessible and recalled	1	2	3	4	5
3	I tend to rely more on recent information that I get easily and consider it as reliable reference to make my investment decisions	1	2	3	4	5
4	familiar and well known investment alternatives are less risky than unfamiliar investment alternatives	1	2	3	4	5
<b>Representativeness bias</b>						
1	I consider past trends of cost of products or service to make my investment decision	1	2	3	4	5
2	I am consistent with the thinking that the past price trend of products or service is representative of the future price	1	2	3	4	5
3	I forecast changes in product and service prices in the future based on the recent prices	1	2	3	4	5
4	I rely on previous experiences of the market to make my investment decision	1	2	3	4	5
5	I can forecast the change in asset prices in the future based on the recent asset prices	1	2	3	4	5
<b>Overconfidence bias</b>						
1	My knowledge regard to each investment alternatives guide my investment decision	1	2	3	4	5
2	I certainly capable to expect the end of good or bad	1	2	3	4	5

	about the future					
3	I have ability to choose the investment option which its performance will be better than market performance	1	2	3	4	5
4	I feel more confident in my investment decision opinion over opinion of my colleagues or friends	1	2	3	4	5
5	I use my predictive skills to time the market and to make my investment decision	1	2	3	4	5
<b>Prospect factor</b>						
<b>Loss aversion bias</b>						
1	After a prior loss, I become more risk averse than usual	1	2	3	4	5
2	After a prior gain, I become more of a risk taker than usual	1	2	3	4	5
3	I stressed more about losses as compared to the happiness you derive from gain of equal amount from investment	1	2	3	4	5
<b>Regret aversion bias</b>						
1	I readily sell assets that have increased in value and those that have been performing well	1	2	3	4	5
2	I avoid selling assets that have decreased in value and hold on to them	1	2	3	4	5
3	I feel more sorrow when my investment alternative selected is less profitable than forgotten investment alternatives	1	2	3	4	5
<b>Mental accounting bias</b>						
1	I separate my finance in to different mental account based on content and time	1	2	3	4	5
2	I assign different task to each account	1	2	3	4	5
3	I monitor them separately and differently	1	2	3	4	5
4	I ignore the connection between each account	1	2	3	4	5
<b>Herd behavior</b>						

1	Other investors' decisions of choosing certain investment types influence my investment decisions	1	2	3	4	5
2	Other investors' decisions of the amount of fund invested have impact on my investment decisions	1	2	3	4	5
3	I consider information from my close friend and relatives as reliable reference to my investment decision	1	2	3	4	5
4	I usually react quickly to the changes of other investors' decisions and follow their reactions.	1	2	3	4	5

