# STIMULATION OF BEHAVIORAL FINANCE TOWARDS FUTURE INVESTMENT DECISION AMONG BANKING AND FINANCE UNDERGRADUATES

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A research project submitted in partial fulfilment of the requirement for the degree of

BACHELOR OF BUSINESS ADMINISTRATION (HONS)
BANKING AND FINANCE

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE
DEPARTMENT OF FINANCE

APRIL 2016

# DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

(4) The word count of this research report is 24,727.

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Date: 15th April 2016

# ACKNOWLEDGEMENTS

We would like to extend our utmost gratitude to each of the following party who has contributed in every way possible towards the completion of this research project. This completion of research paper would not have been possible without each of their great insights, participation, countless useful advice and most of all, support.

First and foremost, we would like to express our heartfelt appreciation to our research project supervisor, Ms. Wei Chooi Yi for always imparting her vast knowledge on this research and to constantly guiding our every step of conducting this research. Indeed, without her guidance, we would not have managed to conduct and complete our research project. On top of that, our sincere thanks towards her for readily providing us with many helpful research materials in terms of research books, websites and personal research papers to further enhance our understanding on the most suitable method to conduct our research. Also, we would thank her for patiently guiding us on the usage of the SPSS version 22.0 system for our data generation.

Furthermore, we also would like to express our gratitude towards our second examiner during our oral presentation of our research project (Viva), Ms. Chia Mei Si, for all her valuable feedback and constructive improvement ideas in relation to our research project. We are grateful for all the important key points that were being highlighted during our Viva, and especially coming from a reader's point of view of this research paper. Indeed, those feedbacks will play an important role for us to further improve our research paper towards a better one which will enhance the readability of this research paper.

Last but not least, we would like to thank all the 232 Banking and Finance undergraduates of UTAR Faculty of Business and Finance that has willingly spend their precious time to participate in our questionnaire survey in which has immensely provided us with valuable data for the purpose of our research.

# DEDICATION

We will like to dedicate this research project to all our group members, Megan Anne Pragasam, Queeny Lai Chen Yee, Tan Zhi Ying, Teh Wei Hau and Wong Lee Huei for all the steadfast efforts towards the completion of this research project. We believe our cohesiveness as group mates has brought us towards a constant understanding that each of us plays an important role and to always be proactive in our works.

Moving on, our sincere dedication of this research project goes to our supervisor for this research paper, Ms. Wei Chooi Yi. She has always been the pillar of support that guided us from the start till the end of this research project. Her countless advice and guidance are something our group is very thankful of. Hence, this research paper is dedicated to Ms. Wei Chooi Yi.

Furthermore, this research paper is also dedicated to our second examiner Ms. Chia Mei Si who has provided us with valuable feedback during our oral presentation, to further improve the quality of our research project. Thus, we would like to dedicate this research paper to Ms. Chia Mei Si.

Lastly, we also would like extend our dedication of the research paper to all our friends and family members for the constant moral support and motivation that has been given to us throughout the process of completing this research paper. Finally, we would like to thank the 232 respondents of Banking and Finance course that has participated by answering our questionnaire survey that has provided us with the data needed to complete this research project.

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| | |
|---|---|
| BPT | Behavioral Portfolio Theory |
| EMH | Efficient Market Hypothesis |
| EPS | Earnings per Share |
| OH | Overreaction Hypothesis |
| P/E ratio | Profit Earnings Ratio |
| SP/A theory | Security-potential/Aspiration Theory |
| SPSS | Statistical Package for the Social Sciences |
| UTAR | Universiti Tunku Abdul Rahman |

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# PREFACE

As the financial world place much emphasis on traditional finance theories like the efficient market hypothesis (EMH), the participants of the financial markets like firms, investors, the public or even the government seem to forgo the element of behavioral finance that places much emphasis on human psychology upon the financial decisions made by investors. In tertiary level education, specifically in the business field, the importance of understanding behavioral finance is yet to be highlighted to students. Hence, their thinking is only bounded to traditional theories that are not entirely applicable on a case-to-case basis.

Being a part of Banking and Finance course undergraduates in UTAR, we are keen to know how the factors of behavioral finance would affect the future investment decisions of our fellow course mates, who are also very much exposed only to traditional finance theories in the various subjects we undertake according to our course structure. With this in mind, it motivated our group to explore a different aspect by conducting this research which stimulates the future investment decision of UTAR Banking and Finance undergraduates based on the specific eight factors of behavioral finance.

For this research purpose, we applied various statistical methods in order to analyze and determine the relationship as well as significance between the eight factors of behavioral finance and the future investment decision of UTAR Banking and Finance undergraduates. The data needed for this research is obtained by primary data collection via questionnaire distribution to final year UTAR Banking and Finance undergraduates.

# ABSTRACT

The objective of this study is to determine to what extend the factors of behavioral finance that will affect the future investment decision of UTAR Banking and Finance undergraduates. There are various independent variables that we studied from past researches. Hence, this research is to study the relationship and level of significance of the independent variables towards the dependent variable. The independent variables are anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overconfidence, overreaction and availability bias and prospect theory. The dependent variable would be the future investment decision of the undergraduates. This research also examines the relationship between the independent variables with the dependent variable while taking into account the moderating variable. The moderating variable in this research is gender.

As this research utilizes primary data collection, the respondents of questionnaire distribution that is used to obtain the data needed are final year students of Banking and Finance course in the Faculty of Business and Finance of UTAR. The respondents aided this research to effectively perform the analysis needed to complete this research. A total of 232 surveys were distributed for this research purpose. Further step of data analysis is prepared using the SPSS software.

The results from SPSS have shown that only the factor of anchoring significantly affects the future investment decision of the undergraduates, however the other variables namely: mental accounting, confirmation and hindsight bias, gambler fallacy, herd behavior, overconfidence, overreaction and availability bias and prospect theory are not significant to the future investment decision made by the undergraduates. There is only one variable with a significant relationship between the independent variables and dependent variable based on gender. The variable meant here is overconfidence.

# CHAPTER 1: RESEARCH OVERVIEW

## 1.0 Introduction

This chapter will discuss on the background, history and principles of behavioral finance. Besides, the problem statement, research objective, research questions, hypotheses, significance, chapter layout and conclusion of the research will also be presented.

## 1.1 Research Background

Behavioral finance is the financial research of examining psychological factors that influencing investment decisions which is not explained by efficient market hypothesis (EMH). EMH states that market is rational as the share price is able to portray the information completely by the prices of stocks and the stock prices are able to adjust quickly according to the latest information (Latif, Arshad, Fatima, & Farooq, 2011; Yalçın, 2010). This traditional finance theory is based on the assumption which guided by a belief in efficiency market and return maximization. Therefore, EMH claimed that investors are unable to earn abnormal profit. However, EMH is inconsistent with the theory stated in market anomalies. It is the uncommon incidence or deviation in the pattern of share market (Latif et al., 2011), and it is the indicator of market inefficiency. While the new trend of theory, behavioral finance is in line with anomalies as in the research of behavioral finance, Adel and Mariem (2013) also showed that markets are not always efficient, and investors are not always rational, which eventually caused their investment decisions to be biased. According

to Adler (2004), behavioral finance takes into the account of psychological and economic variables into the research of human opinions and prejudices in decision making under uncertain condition.

There are many past researches of behavioral finance in foreign countries. For example, Shiller (2003) has conducted a research on how the behavioral finance is developed from EMH in the past. Kishore (n.d.) examined the impact of the behavioral finance in the New Zealand. Brown and Mitchell (2008) focused on The Peoples' Republic of China, as well as Oh, Parwada and Walter (2008) emphasize on Korea. Daniel, Hirshleifer and Subrahmanyam (1998) also did a research on the influence of the behavioral finance in the stock market. There are also some examples in Asian countries such as Kim and Nofsinger (2008) found out that the Asians suffer more from cognitive biases as compared to Western people. Different in culture, life experience and education may lead to a dissimilar behavior.

In Malaysia prospect, studies including Jahanzeb, Muneer and Rehman (2012) claimed that generally every investor tends to suffer from similar illusion which affecting investment decision-making process in financial market. Indeed, of the Malaysian population, with different races, religions and genders will perform dissimilar behavioral traits accordingly (Albaity & Rahman, 2012). They added that most of the Malaysian investors are in the centre range of risk tendency in investment securities and perpetual income. The investors tend to make investment with individual skills over luck, somewhat they are too confident in their selections with some extent to incur a significant remorse. Nonetheless, there is still lack of research in the principles of behavioral finance. Hence, it is crucial to study the effects of different principles of behavioral finance towards the investment decision in Malaysia context.

Young folks are leading the economic development in future and so, it is interesting to discover how the emotion affects their investment decision-making capacity.

Meanwhile, obtaining response from the youngsters with their existing financial literacy helps to determine the stimulation of eight principles of behavioral finance towards their future investment decisions. Thus, Banking and Finance course undergraduates will be targeted as the respondents in this research as they have financial and investment knowledge and background in which will provide a more oriented result.

Researches that were performed by Baker and Wurgler (2012); Barberis and Thaler (2003); Szyszka (2013) started researching and included the results related to psychology into corporate finance. The issue that triggered the research is due to the big gap between the returns received and the returns available. After that, investors started to look into this matter and realized that one of the main mistakes of decision making of investors is the psychological behavior. Hence, that was how the subject of behavioral finance got popular in the world of stock market and investment decision. Since then, more researchers started to gain interest on this field such as Byrne and Brooks (2008); Coval and Shumway (2005). Psychology has always been considered as an important factor for investors in decision making but formal studies of behavioral finance have only been carried out recent years (Jahanzeb, Muneer, & Rehman, 2012).

There are eight principles of behavioral finance will be presented including anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overconfidence, overreaction and availability of bias and lastly prospect theory.

The first principle is anchoring. Anchoring occurs when people's thoughts are glued to a certain point of reference, making it difficult to make a logical decision (Chaudhary, 2013). This opposes the assumption that people are rational where their thoughts and opinions should have a solid reason. The studies found that individual is likely to make large errors if they make decisions based on their estimations by

beginning at a starting value that is modified in attainment of ultimate result in attainment of the ultimate answer (Campbell & Sharpe, 2007).

Secondly, mental accounting is the mental processes in which one uses it to set up, analyse and trace their finance-related activities (Thaler, 1999). Mental accounting is observed in circumstances where people separate their money mentally into various "accounts" and where they presume these accounts contrarily (O'Neill, 2008).

The third principle is confirmation and hindsight bias. Confirmation bias is the concept where people are more inclined and influenced to place more faith in information that are in line with what people already believe in, disregarding any opinions and data that crosses their beliefs (Dooley, 2013). On the other hand, hindsight bias is the tendency of people to believe that after an event had happened, believing that they had already predicted it beforehand (Brigham & Houstan, 2012).

Gambler's fallacy is the illogical concept of investors who believe that an event (example: A) is affected by the other event (example: B), although in reality and fundamentally, event A does not affect the outcome or occurrence of event B (Amir, Shoukat & Khan, 2009). This fallacy is a bias where people tend to infer about a future random event based on the outcome of the event that happened previously (Oppenheimer & Monin, 2009).

Next, herd behavior indicates that an individual follow the action (rational or irrational) of the crowd in decision making by having a limited information review and trying to overlook the extremely relevant facts (Kukacka & Barunik, 2013). Basically, rational herding arises from following the decisions of portfolio managers and investment specialists due to these experts' reputational influence, as well as believing these specialists acquire different sets of information as compared to the public.

The sixth principle is overconfidence. This principle states that investors tend to overestimate towards their own skill, capabilities, and judgement, especially who personally put in effort for data gathering and analyzing over public signal (Kukacka & Barunik, 2013). They often overestimate the precision of their own information.

The seventh principle is the overreaction and availability of bias. This principle describes that investors do overreact towards certain information emotionally (Fama, 1998). Meanwhile, availability of bias means the investors tend to solely focus on the latest information and then come out with a new opinion biased.

The last principle is the prospect theory. Prospect theory indicates that investors have diverse perception on valuing gains and losses, which the term prospect referred to a lottery. Indeed, perceiving gains and losses instead of the final outcome are more accurate description of decision making (Kahneman & Tversky, 1979).

Due to all these studies and evidences, it is interesting to investigate the stimulation of behavioral finance towards future investment decision among Banking and Finance undergraduates.

## 1.2 Problem Statement

Recent researches show that the average investors make decisions based on emotion. Emotions such as fear and greed play an important role in investor's decision which causes irrational behaviour (Chaudhary, 2013). In Malaysia's context, the development of stock market is not well enough as market rumors, economic development, and speculative political issues can be easily overreact by the investors (Lai, Chong & Tan, 2010). Malaysian market force had drawn global attention, especially the way in which Southeast Asian financial crisis and stock market crash in 1997 to be tackled. Lai et al. (2010) added that rumors and strong herd mentality rules

drive Bursa Malaysia. This shows that behavioral finance did exert a significant impact in Malaysia stock market. Consequently, it is vital to determine which concepts in behavioral finance are affecting financial decisions of Malaysian investors, and which affecting the most. Besides, Statman (2014) found that the EMH is less likely to be applied and implemented in the real life because traditional finance always assume that a person is rational at all time. However, people are rarely rational and tend to be influenced by other factors, and this can be explained thoroughly by the behavioral finance, which assumes that people are not always rational. Hence, it proves that investors possess behavioural and psychological traits and factors that would lead them to make irrational decisions that can be harmful to the overall success when it comes to an investment. Another problem that will be solved is whether the EMH or behavioral finance is more applicable among UTAR Banking and Finance undergraduates.

Anchoring leads to prediction of consistent stock prices with the historical trends, and then possible of underreaction to trend changes (Subash, 2012). There are past researches on examining the impacts of anchoring upon investor decision making including Chaudhary (2013); Kengatharan and Kengatharan (2014); Stammers (2011); Subash (2012). Baker and Ricciardi (2014) found that many investors still anchor to the 2007 and 2008 financial crisis, causing them to have misinterpreted the financial information, resulting greater loss in investments. Anchoring arises when an investor's belief is fixated or anchored by the observation on the current trend especially when relying too heavily upon one piece of information (Brabazon, 2000; Simmons, LeBoeuf, & Nelson, 2010). When investors are exposed to new information, their mindset and behavior tend to be slow in adaption to changes even though the financial landscape has altered completely (Simmons et al., 2010; Stammers, 2011). Matsumoto, Fernandes, Ferreira and Chagas (2013) had studied the way anchoring affects the decision making of individual investors in Brazil by taking the gender factor into account, which resulting into significant difference between men and women with respect to being anchored towards their investments. Through

this study, the researchers will investigate the relationship between anchoring and future investor decision of Banking and Finance undergraduates.

According to Thaler (1999), mental accounting upsets the economic notion of fungibility (substitutable) because monetary resources in one particular category are not a substitute of another monetary resource in another category. As a result, an individual investor is discouraged to sell off any unprofitable securities, and probably losing another investment opportunity, even if its "account" is losing (Singh, 2012). Mental accounting can bring about a serious issue when investors place their investments into separate buckets without the concern if there are any correlations among the events (Pompian, 2012). Barberis and Huang (2001); Singh (2012) indicated that investors tend to place different judgement on their investment portfolio elements where there is a possibility of benefiting from portfolio diversification. As a result, an individual investor is discouraged to sell off any unprofitable securities, and probably losing another investment opportunity, even if its "account" is losing (Singh, 2012). This brings about an illogical and negative fear on the future consumption decisions as well as other behaviours because in the investor's mind, the same amount of money are being given different type of consideration. Thus, this research is essential in determining the effect of mental accounting towards the future investment decisions of Banking and Finance undergraduates.

Confirmation bias causes the investors to solely focus on information pertaining their favoured investment product, rather than to hunt for more related information to widen their options ("Are you biased," 2014). Many recent researches like Bashir, Javed and Tanveer (2013); Housel (2014); Onsomu (2014) studied the impact of confirmation bias upon investor behavior. These biases can possibly result in poor decision making because one-sided information will guide an investor's mindset to viewing an incomplete picture of a situation. This process of bias selection of information works by supporting investors' preconceptions, and avoiding further

clarifications which is contrary to previous beliefs (Bashir et al., 2013). Housel (2014) added that when the number of people who is having the same set of beliefs increases, investor will be more convinced that the selected information is the right one. Indeed, Jones and Sugden (2001) found that there may be an occurrence of systematic biases in economic learning as investors who always deal with identical sets of options will stand to believe that the option is the best, even after much rational interpretation backed with evidence which would ultimately indicate the total opposite. Besides, Monti and Legrenzi (n.d.) concluded a strong relationship between hindsight bias and investor's portfolio decisions, whereby it distorts the perceived portfolio allocation and eventually the risk that investors are being exposed to. These biases can possibly result in poor decision making because one-sided information will guide an investor's mindset to viewing an incomplete picture of a situation. Thus, this research helps to find out the implication of confirmation and hindsight bias on investment decision among Banking and Finance undergraduates.

Gambler's fallacy will lead investors to make wrong investment decision simply because past events certainly do not have the power or probability to change the chain of events that would happen in the future. A research undergone in Pakistan by Amin et al. (2009) on the relationship between gambler's fallacy and behavioral finance in the financial market has concluded that the investors are prone to decide their investing decisions based on a misinterpreted probability of a preferred trend. Subash (2012) described gambler's fallacy as the act of taking too much risk right after a lucky win in which would effect in a huge amount of loss. This fallacy though illogical, often happen because a similarity between more than one processes or events are wrongly interpreted by an investor as a predictive relationship between them (Amin et al., 2009). Therefore, through this study, the researchers will investigate till what extend does Banking and Finance undergraduates have gambler's fallacy related traits when stimulated to make investing decisions.

Herd behavior happens when a large number of people acting in the same way all at once which often lead to significant fluctuations in market prices of financial assets, and then impact negatively on average returns at once (Cont & Bouchaud, 2000). There are some previous researchers including Holmstrom (1999); Keynes (n.d.); Kukacka and Barunik (2013); Scharfstein and Stein (1990) had studied the relationship between herd behavior and investment from the manager's and market leaders' perspectives such as fund managers and money managers. Indeed, Keynes (n.d.) suggested that investment experts who worry too much on how the public evaluates their capability in making good decision will have the tendency to follow the crowd. However, Venezia, Nashikkar and Shapira (2011) had conducted research on both amateur investors, who are financial illiteracy and inexperience and professional investors, and they found out that there is a higher tendency to herd among amateurs. Hence, this research is essential in determining the constancy of relationship between herd behavior and investment decision towards Banking and Finance undergraduates.

Overconfidence can cause the decision-makers to overestimate on their skills, which resulted in too optimistic towards the outcomes of the decision made as they expect their behavior able to produce success (Malmendier & Tate, 2005). Sanders (2003) indicate the existence of relationship between trading activities and overconfidence. Baker and Ricciardi (2014) found that overconfidence will cause the investors overtrade. Besides, it will cause the investors to ignore the importance of keeping track of the mistakes. This will not be able to increase the investors' knowledge in investment. Previous studies including Chen and Lu (2015); Based on Kirchler and Maciejovsky (2002); Pietarinen (2014), investors are more likely to be overconfident early of their careers. Those fresh investors will only learn to adjust their behavior accordingly until they become more familiar with their own abilities by acquiring more experience in trading. Conversely, Lambert, Bessiere and N'Goala (2012) stated that the level of overconfidence is almost the same between bankers and students, yet the two groups make decision with different way. The experts hardly outperform

novices but emphasize on efficient information-processing (Andersson, 2004). Hence, this research helps to explore the impact of confidence level of fresh potential investors among Banking and Finance undergraduates on investment activities as compared to the previous researches.

Financial crisis and political crisis incurred a tremendous impact on a stock market. Meanwhile, overreaction leads to an overestimation on the probabilities of events associated with memorable or even dramatic occurrences. Baker and Ricciardi (2014) found that the overreaction is very disturbing for the investors as it will distort the investors judgement on certain securities, and cause the investors to keep changing their risk tolerance. The constant change of risk tolerance might confuse the investors, causing them to forgone the investments that suit them. There are studies, for example Maher and Parikh (2011); Ni, Liao and Huang (2015) on the overreaction and pricing effects in countries such as India and China. DeBondt and Thaler (1985) are the first to document the evidence of overreaction in the financial market. The overreaction hypothesis (OH) indicates that investors react too favorably to good news about securities or too pessimistic about bad news for a security (Erzurumlu & Ajayi, 2014). Hence, this research is to find out whether the impact of overreaction and availability of bias on the fresh potential investors within Malaysia is consistent to the impact for other countries.

Yao and Li (2013) claimed that prospect theory can cause the consumers to act in oppose to the ordinary trades in the market which results in significant loss. The prospect theory refers to a behavioral economic theory, highlighting that the irrational consumers usually act according to probability of gaining and losing instead of the ultimate outcomes (Zhou, Zhong, Ma, & Jia, 2014). Nevertheless, there is a limited amount of evidence for this particular principle focusing on the fresher investors in the previous researches. Therefore, this study used to determine whether this aspect is applicable to the fresh potential investors in Malaysia.

# 1.3 Research Objectives

## 1.3.1 General Objective

The primary objective of this research is to study how behavioral finance will influence the future investment decision among the Banking and Finance undergraduates.

## 1.3.2 Specific Objectives

1. To determine the stimulation of principle of anchoring towards the future investment decision among Banking and Finance undergraduates.

2. To determine the stimulation of principle of mental accounting towards the future investment decision among Banking and Finance undergraduates.

3. To determine the stimulation of principle of confirmation and hindsight bias towards the future investment decision among Banking and Finance undergraduates.

4. To determine the stimulation of principle of gambler's fallacy towards the future investment decision among Banking and Finance undergraduates.

5. To determine the stimulation of principle of herd behavior towards the future investment decision among Banking and Finance undergraduates.

6. To determine the stimulation of principle of overconfidence towards the future investment decision among Banking and Finance undergraduates.

7. To determine the stimulation of principle of overreaction and availability of bias towards the future investment decision among Banking and Finance undergraduates.

8. To determine the stimulation of principle of prospect theory towards the future investment decision among Banking and Finance undergraduates.

9. To determine if there is a difference in the stimulation of principle of anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overconfidence, overreaction and availability of bias and prospect theory towards the future investment decision among Banking and Finance undergraduates based on gender.

## 1.4 Research Questions

1. Is there any stimulation in the principle of anchoring towards future investment decision among Banking and Finance undergraduates?

2. Is there any stimulation in the principle of mental accounting towards the future investment decision among Banking and Finance undergraduates?

3. Is there any stimulation in the principle of confirmation and hindsight bias towards the future investment decision among Banking and Finance undergraduates?

4. Is there any stimulation in the principle of gambler's fallacy towards the future investment decision among Banking and Finance undergraduates?

5. Is there any stimulation in the principle of herd behavior towards the future investment decision among Banking and Finance undergraduates?

6. Is there any stimulation in the principle of overconfidence towards the future investment decision among Banking and Finance undergraduates?

7. Is there any stimulation in the principle of overreaction and availability of bias towards the future investment decision among Banking and Finance undergraduates?

8. Is there any stimulation in the principle of prospect theory stimulate the future investment decision among Banking and Finance undergraduates?

9. Is there any stimulation in the principle of anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overconfidence, overreaction and availability of bias and prospect theory stimulate the future investment decision among Banking and Finance undergraduates based on gender?

## 1.5 Hypotheses of the Study

$H_0$ : Principle of "Anchoring" will not stimulate the future investment decision among Banking and Finance undergraduates.

$H_1$ : Principle of "Anchoring" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Mental Accounting" will not stimulate the future investment decision among Banking and Finance undergraduates.

$H_2$ : Principle of "Mental Accounting" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Confirmation and Hindsight Bias" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_3$ : Principle of "Confirmation and Hindsight Bias" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Gambler's Fallacy" will not stimulate the future investment decision among Banking and Finance undergraduates.

$H_4$ : Principle of "Gambler's Fallacy" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Herd Behavior" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_5$ : Principle of "Herd Behavior" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Overconfidence" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_6$ : Principle of "Overconfidence" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Overreaction and Availability of Bias" will not future investment decision among Banking and Finance undergraduates.

$H_7$ : Principle of "Overreaction and Availability of Bias" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Prospect Theory" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_8$ : Principle of "Prospect Theory" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : There is no difference in the stimulation of principle of "Anchoring, Mental Accounting, Confirmation and Hindsight Bias, Gambler's Fallacy, Herd Behavior, Overconfidence, Overreaction and Availability of Bias and Prospect Theory " on future investment decision among Banking and Finance undergraduates based on gender.

$H_9$ : There is difference in the stimulation of principle of "Anchoring, Mental Accounting, Confirmation and Hindsight Bias, Gambler's Fallacy, Herd Behavior, Overconfidence, Overreaction and Availability of Bias and Prospect Theory" on future investment decision among Banking and Finance undergraduates based on gender.

## 1.6 Significance of the Study

The concepts of behavioral finance are applied everywhere, at any time. It implies that the study of the behavioral finance is increasingly important. Hence, this research is significant as it can contribute to the effort in enhancing the study of behavioral finance.

By understanding the concepts of behavioral finance, one can enhance the financial performance. Besides, it is very important for a business advisor to be clear with this study as it can help to identify the biases as well as to become the behavioral coach to cope with client's biases. Since the undergraduates are probably the future investors and future business advisors, hence this study is very important as it can help to deepen the understanding towards behavioral finance.

The traditional economy concepts and principles are not always applicable. The efficient market hypothesis (EMH) does not work in the market every time. EMH assumes that the market is always efficient, and the prices of the assets traded will

always reflect all available information. However, the market is not always efficient in the real life because no one can ensure that all the investors can get the same information. Besides, some investors might be able to access to more information than the others. This will cause the market to be inefficient. Thus, this research is essential to the current and native investors as it can provide a different view on the finance field, allowing the investors to be conscious of other factors that may influence the investment performance and investment decision rather than only referring to the traditional economy theories.

This research is vital to the public as it allow them to realize that there are actually more concepts or practices being carried out in the market nowadays. There is a huge difference between behavioral finance and traditional finance. Traditional finance assumes that the investors are always rational, the market is always efficient, and the portfolio is often designed by using mean-variance portfolio theory. However, in the context of behavioral finance, it assumes that the investors are not always rational, the market is not always efficient and the portfolio is not designed by using mean-variance portfolio theory but the behavioral asset pricing theory. According to Shefrin (2007), behavioral finance approach which uses the behavioral asset pricing theory is clearly defined, quantifiable, and in which the impact can be obtained from market prices and risk premiums. The behavioral asset pricing theory is developed to take into account of a variety of issues, hence the items in this theory tend to be diverse. Issues including investor's errors in investment decision, however it varies from one model to another (Shefrin, 2007). Conversely, the mean-variance portfolio theory has major items to be considered. Firstly, the variance represents the spread or variability of returns that an investor obtains from the investment while the mean is the expected return which is subjected to a probability calculation upon the investment return. A portfolio means that an investor invests in a combination of investments where the mean and variances differ, in order to offset any price volatility from one stock to another, minimizing their risk while maximizing the possible returns.

## 1.7 Chapter Layout

This research report contains five chapters. The first chapter - research overview is an introductory chapter to provide an overview regarding the whole research and study. Chapter one includes the introduction, research background, problem statement, research objective, research question, hypotheses of study, significance of study, chapter layout as well as conclusion.

The second chapter - literature review consists of a report and documentation of different information retrieved from the source of secondary data which is related to the topic of the research. This chapter provides a clear idea and presentation of what research work has been done in behavioral finance thus far. This chapter includes a few sub-topics which are introduction, review of literature, review of relevant theoretical method, proposed theoretical or conceptual framework hypothesis development and conclusion.

The third chapter is methodology. This chapter explains about how this research was conducted and carried out in terms of the research design, data collection methods, sampling design, research instrument, construct measurement, method of data processing and data analysis.

The fourth chapter is data analysis and this chapter is mainly presenting about the results and analysis that have been obtained which are relevant to the hypotheses and research question. This chapter includes an introduction, descriptive analysis, scale measurement, inferential analyses and conclusion.

The fifth chapter consists of discussion followed by conclusion and implication. This is the concluding chapter of the whole research. In this chapter, the sub-topics that are included are introduction, summary of statistical analyses, discussion of major

findings, implications of the study, limitations of the study, recommendation for future research and also an overall conclusion for the whole research.

## 1.8 Conclusion

In conclusion, the importance of behavioral finance can be seen to grow especially after the financial crisis. Leading firms such as Merrill Lynch, Northern Trust and JP Morgan Chase have also take in consideration of behavioral finance in their day-to-day business such as helping clients to make better investment decision. Investors can change their behavior to achieve more profit maximizing results by understanding how people react. Hence, in this research, the researchers would like to determine the stimulation of behavioral finance towards future investment decision among Banking and Finance undergraduates.

In this chapter, the research background, problem statement, research objectives, research questions, hypotheses of this study, significance of the study and chapter layout are presented. The researchers have also found two theoretical frameworks that are related to this field which are Theory of Bounded Rationality and Behavioral Portfolio Theory (BPT). Further explanation will be done in next chapter.

# CHAPTER 2: LITERATURE REVIEW

## 2.0 Introduction

This chapter will cover a detailed discussion on the dependent variable, future investment decision among Banking and Finance undergraduates as well as the eight independent variables including, anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overconfidence, overreaction and availability of bias and prospect theory. Firstly, it will be the literature review that includes the definitions, discussions and findings on the dependent variable, independent variables and moderating variable in this study. Next, there are review on some relevant theoretical models, including Theory of Bounded Rationality (Simon, 1955) and Behavioral Portfolio Theory (BPT) (Kahneman & Tversky, 1979). These models had been applied for the proposed theoretical framework and then hypothesis development.

# 2.1 Review of the Literature

## 2.1.1 Future Investment Decision

Generally, a good investment decision enables the investors to accumulate wealth and to have sufficient cash flow in their future or for their life events. There are several factors influencing investment decision-making, which are behavioral factors, financial factors and demographic factors. Furthermore, the type of financial markets, which have different products, maturity period and risk level, could also affect the investment decision.

Fell (2000) stated that investment is the effort of a country in process of producing goods and services. The author also claimed that the act of forgoing consumption now and to purchase other instruments to increase one's value is also a form of investment. The example includes purchasing shares, bonds and other financial instruments. Dudley and Hubbard (2004); Fell (2000); Fischer (2003) indicated that the financial market is very important to the growth of the economy because it aids in channelling the funds from the surplus fund units to the deficit funds unit by providing a platform to the bodies who need the financial support to sell the financial instruments or securities to the counterparty.

Financial markets consist of money and capital market. Baker and Powell (2005); Dlabay and Scott (2011); Dodoo (2007) defined money market as the platform for the borrowing and the lending, in which its maturity will not be longer than a year. Dodoo (2007); Moles, Parrino and Kidwell (2011) stated that the examples of money market instruments such as treasury bills and commercial papers.

Dodoo (2007) claimed that the capital market is similar to money market. The author stated that the capital market is also served as a platform to aid in borrowing and lending. Maturity is the only difference between money market and capital market. Baker and Powell (2009); Dlabay and Scott (2011); Dodoo (2007); Gruttadaro (n.d.) found that capital market has maturity of more than one year. Dodoo (2007); Lapavitsas (1997); Moles et al. (2011) stated that the example of capital market instruments includes shares and long term bonds. The author added that the capital market is usually a platform for the government and firms to raise funds for furnishing finance and expenditures.

Agarwal and Mohtadi (2004); Dodoo (2007); Prowse (1998) stated that there are two types of securities market under capital market, which are the debt market and equity market. Dodoo (2007) mentioned that by buying a stock, the investor is said to enter the equity market as the investor owns a portion of the company. By buying a bond, the investor is said to enter the debt market as the investor becomes the creditor of the issuer, in which the investor will be entitled a principal plus interest paid by the issuer whether through fixed payment, variable payment or lump sum payment.

Financial market can also be broken down into primary and secondary market. Boehme and Colak (2012); Fell (2000); Handtke (2012) stated that the primary market is a place for the trading of new securities, such as newly-issued share. Arseneau, Rappoport and Vardoulais (2015); Fell (2000); Handtke (2012) stated that the secondary market deals in securities previously issued. It happened when the investors sell the shares owned to the public again.

Chance and Brooks (2009); Fell (2000) found that there is the derivative market which aimed of managing risk, instead of earning profit withholding the instruments like options and futures. Ahmad (2015); Chance and Brooks

(2009); Friedentag (2009); Hyman (2014) discovered that a holder of option contract has the right but not the obligation to exercise the contract, which protect the holder against the prices fluctuation of products and investments in the market. The only cost is the premium paid to the option seller.

There are a few factors that potentially influence the decision of the investors, which including risk profiles of investors, investment horizon, investible surplus, financial literacy and market outlook. Investment horizon refers to the length of period a sum of money is expected to be invested. It can be applied in determining the investor's income needs and desired risk exposure, and then security selection. Warren (2014) indicated a wide range of interrelated effects on investment horizon is depending on the situations, design of investment environment and the choices made.

Cederwall (2015) found that as the government imposes greater tax charged on the firm, the multinational companies tend to invest lesser since the tax burden is greater for the companies, making them to incur greater cost. McNichols and Stubben (2008) found that firms with greater cash flow, particularly those with greater external financing, tend to invest more compared to those with cash flow problem. Thus, it shows that investible surplus can affect one's investment decision.

Other than the factors discussed above, behavioral finance can also affect investor decision. Behavioral finance is introduced from the efficient market hypothesis due to the latter's weakness (Shiller, 2003). Oh et al. (2008) examined the way that behavioral finance can affect the investment decision in Korea. Besides that, Kim and Nofsinger (2008) found out that the Asians suffer more from cognitive biases when making the investment decision.

### 2.1.2 Anchoring

As a human being, it is almost impossible for one to always remain his or her conscious throughout the years. Even if one is a professional, he or she might end up being irrational some of the time. Campbell and Sharpe (2007); Cen, Hilary and Wei (2010); Johnson, Liu and Schnytzer (2009); Murithi (2014) have described even those finance experts are often affected by the anchoring effects as well. Campbell and Sharpe (2007); Cen et al. (2010); Murithi (2014) indicated even if many evidences prove that a company's earnings per share (EPS) is going to increase sharply in the future, the financial analysts will still insist to make the expected EPS of the particular company lower simply because they think that the EPS of the company should always follow the industry norm. Industry norm is referred to the average range of the EPS of the industry during the past. It is said that the finance experts or the financial analyst anchored the past EPS into the prediction of the future EPS, which is irrelevant. Due to this, the financial analysts will tend to underestimate the expected return of the company to the shareholders as the real EPS is way higher than what the finance experts have expected. By following the industry norm blindly, Campbell and Sharpe (2007); Cen et al. (2010); Murithi (2014) found that the financial analysts tend to overestimate the EPS of those underperformed companies even though the proofs and evidences are shown. As the financial analysts are affected by the anchoring effect, the analysis done will not be accurate and tends to be a biased one. Thus, as the potential are affected by the report, automatically there will be an anchoring bias in the investment choices of the investors.

The statement is also supported by a research which Liao, Chou and Chiu (2013) found that the professional investors also tend to invest based on irrational consideration. Andersson and Johansson (2013); Liao et al. (2013) indicated the former ownership has a significant impact towards the decision

to buy and sell and shares among the professionals. In another word, it means that if the investor has own a particular stock before, the decision to buy and sell the same stock in the future will be greatly influenced by the ownership now. If the investors find that they are holding winning stocks, they tend to buy the same shares in the future. In contrast, if they realize it is a losing stock, they will not trade the same stock in the future. This indicates that even the investor is a professional analyst, the investor will still "anchor" the past performance of the shares in consideration of the decision to buy or sell the shares now. However, it is known that the stocks follow a random move, in which if the stock was not performing well in the past does not mean that it cannot perform well in the future. Liao et al. (2013); Murithi (2014) found that those professionals that involve in the anchoring effect, which takes the past performance of the stocks as an indicator of future performance, often lose in the share market.

Fisher and Statman (2000) investigated the relationship between the past profit earnings (P/E) ratio and dividend yield and the investment choices. The researchers discovered that the investors are heavily affected by the P/E ratio and the dividend yield in the past in determining the future past P/E ratio and dividend yield. However, it is stated that the past P/E ratio and dividend yield should not be taken into the account as past information reflects what happened in the past and not relevant to the future. The research report indicated that the investors are "anchored" to the past values in determining a firm's future revenue.

### 2.1.3 Mental Accounting

Grinblatt and Han (2005) investigated the investment pattern of the investors in the equity market. The investors are found to be suffering from the effects of mental accounting. The researchers revealed that investors have a habit of opening different account in investing the shares in the equity market. After that, the investors will place the gambles based on the performance of the shares. Based on the research, the group of investors who are sharing the same practices are mostly the risk-averse one. The impact of the mental accounting ceases when an investor has great amount of capital in hand (Grinblatt & Han, 2005). Alternatively, the effects of mental accounting become greater if the investors do not have much capital in hand. This can be explained by generally the one with lesser amount of money tends to be more risk averse as there is only limited amount of money left in case of losses. Grinblatt and Han (2005) ascertained using different account in the investment will not reduce the risk as the investors treat the investment in shares as a gamble without the aid of financial knowledge and investment skills.

People do open a few saving account for different uses (Daxbury, Keasey, Zhang & Chow, 2005). It supported the findings of Grinblatt and Han (2005) in which the impact of mental accounting ceases when one has large amount of money in the bank account. This is because those who have large amount of money will no longer plan the spending well and deal with the money based on the intuitive. Indeed, the one with the very low value in the bank account will not be affected by mental accounting which might due to insufficient money to split one account to another.

### 2.1.4 Confirmation and Hindsight Bias

Confirmation and hindsight bias is the tendency to interpret information according to previously held beliefs (Koriat, Lichtenstein, & Fischhoff, 1980), and to perceive that the event is predictable. Confirmation bias can lead to higher perceived competence. The investors who tend to make investment mistakes and cause lower returns are those who think they are more competent in their investment-related knowledge and skill, as they are more likely to trade with their own beliefs (Park, Konana, Kumar & Raghunathan, n.d.). According to Hilton (2001); Weinstein (1980), confirmation bias and investors optimism has a positive relationship, while optimism indicates the decision maker tend to be overoptimistic towards outcome of the planned actions. For example, an optimistic manager believes that the company has a higher chance of success with a positive performance, compared to other companies in the same business industry. Hence, the researcher stated that confirmation bias will lead to optimism which eventually causes a significant effect on an investor's decision making across various contexts.

There are many research studied on hindsight bias, for instance, Buksar and Connolly (1988) stated that hindsight bias investors do not learn from past experiences. Biais and Weber (2008) claimed that hindsight bias lead to poor investment performance or decision due to underestimation of volatility. Hussain, Shah, Latif, Bashir and Yasir (2013) examined the effect of hindsight bias on three groups of people which are share market traders, bank financial managers and students. The result shows that share market trader is highly hindsight bias, for example, the share market bubble and crashes during 1990 and 1920 in American stock exchanges. The researchers also ascertained bank financial managers are less hindsight bias because they have higher level of experience and expertise in the banking sector, but students are more exposed to hindsight bias because they have less experience in the knowhow of

financial decisions. According to Goodwin (2010), the research also supports the statement in which students are highly hindsight bias. However, Goodwin (2010) stated that bankers displayed the same level of hindsight bias with students, which contradict with the research of Hussain et al. (2013). This statement is further supported by Cassar and Craig (2009), claiming that higher experience will not make someone to be immune from the bias.

### 2.1.5 Gambler's Fallacy

Any success from gambling activities is solely from luck instead of rational thinking. Gamblers themselves believe that there are some underlying events behind their success when they are gambling and certainly would not want to alter that believe ("HDFC Securities," n.d.). People in general, tend to have invalid intuitions regarding the laws of chance (Tversky & Kahneman, 1971). These people treat a randomly drawn sample from a population as a good measure of representation, which is the belief that the sample has similar overall characteristics as the population. This scenario is known as the 'law of small numbers' as proposed by Rabin (2000), which means that a small sample would effectively represent a large population.

Sharma (2012) added that when an outcome of a predicted event is not in line with the expectations of the investor (especially when these type of outcome happens repeatedly), the human mind tends to assume that the future result would be totally opposite. Consequently, they would be possibly biased when they predict reversals in the stock price (Subash, 2012). Subash (2012) further described gambler's fallacy takes its place when investors confidently, although inappropriate, predict a reversal trend and are attracted to the thinking where two events occurs in a contrary manner. In addition, this fallacy is prone to happen when investors make decision based on the opinion

that errors in random incidents are able to correct themselves (Mwaura, 2013). For example, if a coin lands on head when it is tossed every time, the investors predict the next outcome would be a tail.

Another viewpoint on the gambler's fallacy is when investors illogically believes that some random event (example A) will be affected by a subsequent event (example B) when in reality, these two events are unrelated and does not affect the outcomes of each other (Uzar & Akkaya, 2013). This illogical mental connection of events happen when investors assume that there are similarities between random processes and are interpreted by the investor that the events possess a predictive relationship among one another (Amin et al., 2009).

In China cases where a stock price is continuously rising and looking into the duration of time that the stock price raises continuously, investors may presume high chances that the stock price would go down ("Hot-hand effect," 2006). Due to this, investors are prone to sell off their stocks to protect themselves from the perceived future losses. This scenario applies on the opposite dimension too. If there are cases when the stock prices experience a fall for a long period of time, the investors believe that there is a higher chance that the stock price will eventually raise. With this, the investors are more likely to buy the stock to take advantage of capital gain.

Lin et al. (2006) proved in situations where the share prices increase or decrease in a continuous manner, the investors will exhibit a higher level of gambler's fallacy. All in all, the researchers learnt that investors are using their intuitive belief that a stock will experience a decline after a long rise, and will experience a rise after a long decline.

### 2.1.6 Herd Behavior

Herd behavior is lined with psychological factors and many theoretical models have been built to quantitatively evaluate herding, including Hwang and Salmon (2003); Xie, Xu and Zhang (2015). Theoretically, herding indicates the tendency of copying the things that others are performing, buying and selling like the others doing as well as owning what others owning which happen among the investors. Indeed, as an example, based on the Health and Retirement Study data, social interaction is essential to promote the participation in stock market (Hong, Kubik & Stein, 2004). The "social" investors will find the market to be more attractive, if the amount of peer participate increases.

Herding will be the most pronounced when market returns are extreme. Goyal and Santa-Clara (2003); Manahov and Hudson (2013) stated when investors forgone their personal share price estimation in favour of the market behavior, which is herding "towards the market portfolio", their return somehow will be almost the same as the market return as a whole. According to Hwang and Salmon (2003); Manahov and Hudson (2013), there are more herding to be found in a group of shares rather than individual shares.

There are some reasons for the presence of herd behavior, for example, the professional money managers adhere to herding due to reputational concerns and "share-the-blame" effect (Scharfstein & Stein, 1990). Herding is a consequence of rational attempts by an individual manager to enhance their reputations as a decision maker. Meanwhile, there are some commonly unpredictable components to investment outcomes, whereby the correlated prediction errors that causing the "sharing-the-blame" effect, then lead to herding among managers.

Herding could have altered the magnitude of trading activity but the impact of herding will not cause over value or under value of the securities in the long run. In fact, there are also researchers indicate that herding behaviour will lead to fluctuation, financial markets instability and increases the probability of systematic risk. In this sense, in order to minimize the effect of this principle, there is the enforcement of regulatory (Manahov & Hudson, 2013). However, according to Chang (2007), it is an evolutionary adaptation that being created in a natural way in a cost-effective manner of information processing.

### 2.1.7 Overconfidence

Majority of the psychological studies show that people are overconfident. And it is highly related to financial market (Kukacka & Barunik, 2013). Generally, overconfidence can be defined as overestimating the accuracy of information. People usually infer their ability from their successes and failures. Investors tend to be overconfidence when the past realized success, for instance high returns and they will usually takes too much credit for their success. This kind of success is a way of confirming the investor's' private information (Jlassi, Naoui & Mansour, 2014). On the other hand, Barberis and Thaler (2003) found that overconfidence can be portrayed as an underestimation of changes.

The average levels of overconfidence not only changes dynamically with the investors' successes and failures but also depends on the trading period. The overconfidence level is expected to increase over the first few years of the beginning trading periods and then declines gradually (Pietarinen, 2014). One will able to build up better self-assessments, and they age by accumulating and gaining more experience.

Overconfidence is relevant and consistent with the dynamic model by Gervais and Odean (2001). Overconfident traders generally pursue excessive trading activities (Barber & Odean, 2002; Glaser & Weber, 2007; Ritter, 2003), keep under-diversified portfolios, or even underestimate risk (Ben-David, Graham & Harvey, 2007) as compared to rational investors. They tend to mainly invest in the field that one is familiar with.

Meanwhile, Jlassi et al. (2013) indicated it will accelerate stock mispricing and stimulate market bubble by forming an autocorrelation in those investors' errors belief regarding the stocks' intrinsic values. People poorly predict likelihoods of future incidents and are too confident about future achievements and end up with high transaction costs with lower returns. In a more serious situation that overconfidence might become the focal bias that lead to global financial crisis.

Overconfident minimizes the tendency of herd behavior (Bernardo & Welch, 2001). Overconfident traders usually do not adjust their private information signals to a common decision by the crowd because they put their own judgement as the priority. In contrast, in the concept of herding, investors just follow the market views regarding the market index and particular sectors or style for their personal investment purposes.

### 2.1.8 Overreaction and Availability of Bias

A psychology experiment has proven that most people tend to overreact or show excessive reaction to sudden and dramatic events or new information. It has come to a conclusion that by observing the previous positive returns, the negative returns can be predicted (De Bondt & Thaler, 1985). Seyhun (1990) examined the hypothesis of overreaction in terms of insider trading prior to the market crash of 1987. Before the crash, there was no net increase in insider selling. However, insiders started buying the firm stocks in a large number after the crash. This shows that the market has overreacted and the firms are priced below its underlying value. Firms with the largest decline were bought in a greater number and also exhibit more positive returns.

Availability of bias is also proven to have the tendency to affect investment decision. An investor who is biased might just assume that a firm with positive earnings would be a promising one. They will tend to purchase the company stock and looking forward that the return would be positive as well. Though, the fact is that the positive earnings of the firm may not be representing how the firm is performing (Frieder, 2004). According to Tversky and Kahneman (1974), individuals tend to be more biased towards details and particulars that they are readily recall.

Meanwhile, based on a study on behavioral biases, Coval and Shumway (2005) stated that traders behave differently in the afternoon after experiencing a loss in the morning trade. They will tend to take higher risk in the afternoon than traders who gained in the morning. The study was conducted based on the assumption that they begin each day without position and the trader closes out his position at the end of every day.

### 2.1.9 Prospect Theory

This theory proposed that after periods of losses, individuals will behave differently compared to period of gains. Investors usually fear losses more than they like gains. Hence, individual investor will usually avoid losses instead of achieving a gain (Ricciardi, 2008). For example, in a situation where investors have 80% chances to win $2000 or gain $1700 for certain, the latter one will usually be the choice of investors. Investors usually have an aversion towards uncertainty.

Consider another situation where investor will face a certain loss of $1000 or a 20% chance of winning $3000, the latter would usually be the choice of individual investors. This is because people are afraid of losses more than the aversion of risk. They are willing to take the risk even though it is a bad risk (Kahneman & Tversky, 1979).

After a gain, a loss minimizing investor may be more risk averse. When facing losses, the investor will try to increase the probability to stop the wealth exceeding his desired level. Thus, the investor may tend to engage in activities such as window dressing, averaging down or any other types of action (Butchey, 2005). Naughton (2002) has given his perspective that in risky situations, prospect theory is a better explanation on how decisions are made. Ricciardi (2008) stated that investors refer to a specific reference point to assess the gains or losses of an investment instead of the final value of the investment portfolio.

### 2.1.10Gender

Many research stated that male and female shows different investment behaviour and decision. In general, women are believed to be more risk averse as compared to males. According to Albaity and Rahman (2012); Liersch (2014), female are found to have greater risk aversion compared to male in investment decision-making. This might due to males, in general, have higher knowledge and skill in investment and also greater wealth, so they are more confident in their investment decision and are more willing to take higher risks (Bruce, 1995). This statement is further supported by Berggren and Gonzalez (2010), which claimed that male are more often to invest in financial market compared to female, this indicates that male have more experience with investment decision while female are not that familiar with the investment decision like male do, hence, the researchers conclude that male are risk-takers whereas female are risk-avoiders.

In New (2015), the findings are that women's financial behaviour are more towards being conservative as well as maintaining a gradual and steady financial position compared to men. There are three general findings regarding the study on the difference between men and women in terms of investment behaviour by (New, 2015) which are women takes on lesser risk as compared to men, women trade less often as compared to men, and women tend to stay positive when there are market swings.

Also, Fish (2012) discovered that there is a distinct way when comparing how males and females make their investing decision. Males are seen to be more risk-prone towards profits while females are seen to be more risk prone towards losses. For instance, men will be sure that a bad stock will revive towards a good stock, even after the sinking (Carden, 2013). According to Carden (2013), women are more unattached emotionally and are more

proactive in terms of eliminating a losing stock directly, adding that men will not admit that they are wrong due to egocentrism. Liersch (2014) discovered that investing traits and habits of both men and women are closely significant, an opposite of what most people would assume.

Conversely, there are also researches proving the otherwise. With the data obtained from the sample of mutual fund managers, Atkinson, Baird, and Frye (2003) indicated female managers have the same performance and risk tolerance level with male managers in controlling their financial knowledge and wealth. When there is a difference in the investing behaviour of men and women, it tends to be formed by demographic factors such as employment stability, education level and financial status (Liersch, 2014). In the same study, it is said that both genders are prone to intense emotional influence that may positively or negatively impact their respective investing behaviour, whereby the emotions are not a prediction of an investment success or failure.

## 2.2 Review of Relevant Theoretical Models

### 2.2.1 Theory of Bounded Rationality (Simon, 1955)

One important question is do people make rational decisions when it comes to matters relating to their political stand and even their economics or financial decisions in life. In terms of financial decisions on whether or not the financial markets (stock markets in particular) are truly efficient or are the players in it are rational, it comes down to a great scope on how individuals perceive the market (Tseng, 2006). Everyone in this world are different from one another, differently created in terms of biological features, genetics, level of education, experiences and how they view opportunities in their life. Therefore, this

indicates that every individual investor have very diverse backgrounds which further include their investment goals, how they react to readily available information, time management, the ability in examining and interpreting information, and the capacity to forecast the future events that are uncertain (Tseng, 2006). Jones (1999) highlighted that people who makes choices are notably rational as humans are goal-oriented and can adapt well to different situations, but when it comes to making rational decisions, it is not guaranteed that the person can make the best decision. The researcher further explained that this happen because of the unique human cognitive structure, where humans are hardwired to be connected to their emotions.

Investors tend to believe that they behave rationally when making decisions on whether to purchase or to sell off a stock. These investors are assumed to utilize readily available information to form an overall rational forecast about the future in terms of determining the value of a company and the general health of the economy (Muhammad, n.d.). The roots and basic concepts of the behavioural finance field are closely related to the concept of bounded rationality. This term was figured out by researcher Simon (1955) where due to the psychological limitations of an individual have in decision making, the actual human rationality can be awfully false. Simon (1955) has quoted in his research that the attempt to predict and determine the economic behavior of individuals through deductive inference from a small amount unrelated events must fail and has failed.

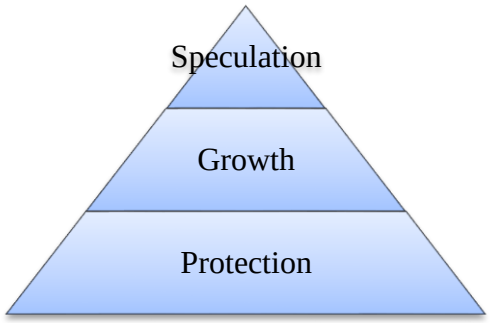
Bounded rationality demonstrates the constrained cognitive abilities that limit problem solving (Mullainathan & Thaler, 2000). Albaity and Rahman (2012) defined bounded rationality as the manner of human behaviour with certain limitations on their rationality. He added that an individual's decision in financial related matters are formed not solely on knowledge and rational thinking but also values upheld, past experiences, beliefs, and emotions.

Organized anomalies(something that digresses from the norm) from the guidelines of traditional finance and investor behaviour are commonly linked to bounded rationality, which is human failure to logically analyze decisions under situations that has uncertainty (Chira, Adams & Thornton, 2008).

As a result of bounded rationality, investors financial decisions are done based on their beliefs on the likelihood of uncertain events such as the outcome of an event that clearly has not happened but deemed predictable by investors (Tversky & Kahneman, 1974). The authors proved that people rely on a small number of simplified procedures to cut the amount of difficult duties like thorough mathematical analysis or even estimating probabilities of the likelihood of an event occurrence. The investors take the simplified way of predicting outcomes by using simpler mental judgment. This mental judgement may be quite useful depending on situation, but usually they lead to wrong decisions and systematic errors (Tversky & Kahneman, 1974).

### 2.2.2 Behavioral Portfolio Theory (BPT) (Kahneman & Tversky, 1979)

Figure 2.1: Behavioral Portfolio Theory




Adapted from: Shefrin and Statman (1997); Shefrin and Statman (2000)

Behavioral portfolio theory (BPT) was published by Shefrin and Statman. This theory is developed as a positive theory on the foundation of prospect theory which introduced by Kahneman and Tversky in 1979, and also security-potential/ aspiration (SP/A) theory, which introduced by Lopes in 1987. BPT is explained in two types, which are single mental account and multiple mental accounts. BPT single mental account traders tend to combine a group of investments into a single mental account whereas BPT multiple mental account traders tend to divide their group of investments into different account.

Shefrin and Statman (2000) also claimed that behavioral portfolios are formed as layered pyramids, where each layers are associated with a goal or an aspiration. A base layer in the pyramid is developed to get rid of poorness, while a higher layer is developed to get wealthy. Statman (2008) further supported the statement by stating that the main feature of BPT is that traders do not view the group of investments on hand in aggregate but another level in

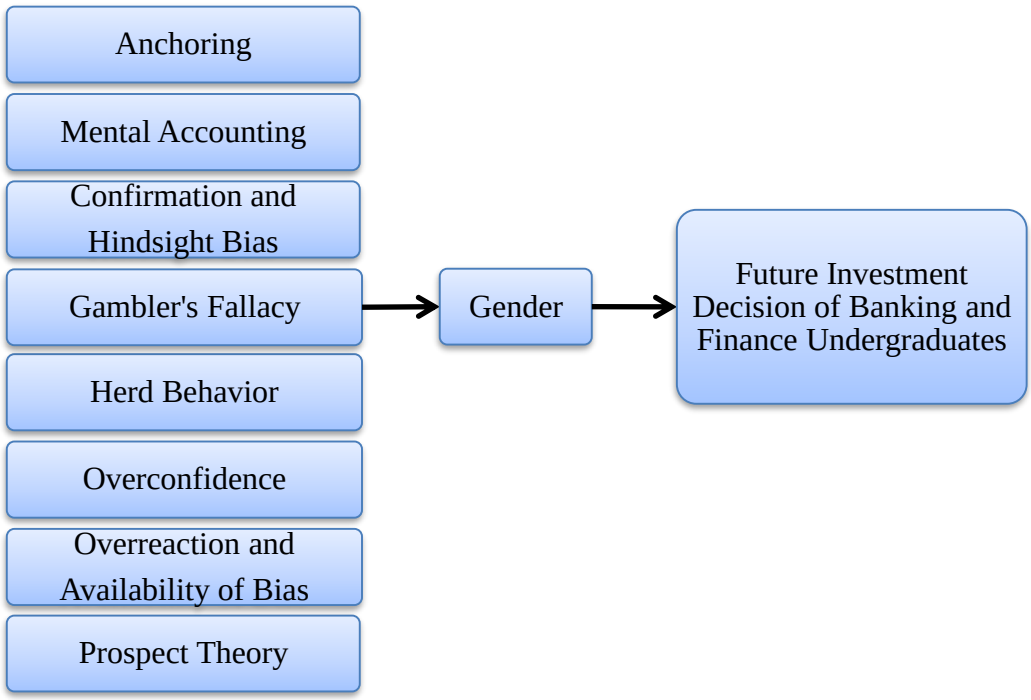
the pyramid of securities, and their attitude towards risk is varied across the layers. Base layer indicates the investors who are risk-averse (low aspiration), while upper layer indicates investors who are risk-seeking (high aspiration). For instance, risk-free bonds are under low aspiration mental account whereas speculative bonds are under high aspiration mental account.

BPT multiple mental account investors do not consider the covariance between the layers, therefore, they might tend to integrate a decision to buy the securities in one level with a decision to sell securities in different level of pyramid (Shefrin & Statman, 2000). Byrne and Brooks (2008) explained observed features by using layered approach, for instance, the undiversified stock portfolios in the hope for riches (higher layer), and the unwillingness to invest in foreign stocks even though they can be diversified to avoid poverty (base layer).

The contents of behavioral portfolios depend on five determinants (Shefrin & Statman, 1997). Firstly, investor goals which a higher upside potential goal will be accompanied by a greater proportion of wealth assigned to the upside potential layer. Secondly, the reference point of the layers in the pyramid. The higher the reference point for the upside potential layer, the more the speculative for the securities will be chosen. Third is the shape of utility function. The concavity in the area of profit indicates the satisfaction with a given security. This will eventually affect the number of securities in a layer. Fourth is the degree of internal information. Traders with more information on hand will tend to take more extreme position. Last is the degree of loss aversion. Investors who are loss-averse tend to hold more money to avoid illiquidity results from losses.

## 2.3 Proposed Theoretical Framework

Figure 2.2: Proposed Theoretical Framework




Modified from: Byrne and Brooks (2008); Chaudhary (2013); Kahneman and Tversky (1979); Kukacka and Barunik (2013)

The theoretical framework is developed based on the foundation of Behavioral Portfolio Theory (BPT) and Bounded Rationality. The presence of behavioral finance is broken down into eight elements, the impact of the eight elements will then be separated based on gender. Lastly, the influence of behavioral finance in the future investment decision will be clarified.

The first element to be tested on the participants is anchoring. This element will be broken down into a few questions to test its presence on the participants. The

questions include influence of past performance of the stock, history of the industry, dependence on the expertise, presence of the target price and tendency to hold a losing stock.

Next, mental accounting indicates the act of dividing money for different uses. The survey questions related to the mental accounting are of opening different bank accounts and investment accounts, investing in different investment for different objectives and tendency of investing the capital and surplus.

The third element is confirmation and hindsight bias. For confirmation bias, the questions are related to what is the decision-making and opinion of the respondents when the situations given are their first impressions and own expectations. Hindsight bias tends to draw people's posterior estimates closer to previous occurrence or correct answer.

The fourth element is gambler's fallacy, where investors believe that future events are greatly affected by the outcome of past events. The questions forwarded to them are closely related to how future investors perceive chances of event occurrences. They will be asked simulated questions related to their future investment behavior.

Furthermore, herding that can be reflected through the presence of parental, close friends' or even relatives' influence in investment preference. The viewpoints and reactions toward the other investors' decision are also taken into consideration in this element.

The sixth element is overconfidence. There are some questions, including in general situation, in investment performance related with peers and in investment performance related with market as a whole, in order to test the overconfidence level in investment among the undergraduates.

The seventh element is overreaction and availability of bias. Investors tend to be bias towards new information or latest news and they will overreact sometimes. Hence, the questions are related to how the investors react to new announcements in order to test whether the behavior of overreaction or bias is present.

The last element is prospect theory. Investors are usually more afraid of losses. They would think that losses have more impact that gains even if they have the equivalent value in the end. The questions are to test on how investors perceive and react to gains and losses. Investor's risk tolerance level is also taken into consideration.

## 2.4 Hypotheses Development

The hypotheses developed are based on the Buksar and Conolly (1988); Campbell and Sharpe (2007); Cen et al. (2010); Grinblatt and Han (2005); Jlassi et al. (2013); Manahov and Hudson (2013); Murithi (2014); Ricciardi (2008); Tversky and Kahneman (1974).

Campbell and Sharpe (2007); Cen et al. (2010); Johnson et al. (2009); Murithi (2014) studied the impact of anchoring effects on financial experts. Grinblatt and Han (2005) focused on the impact of mental accounting on investors. Hussain et al. (2013) examined the impact of hindsight bias on investors' stock performance. Manahov and Hudson (2013) emphasized on the impact of crowd on investors' investment decisions. Jlassi et al. (2013) examined the influence of overconfidence on investment performance. Tversky and Kahneman (1974) studied the availability of bias on investment decision. Ricciardi (2008) examined the relationship between the fear of loss and the investment decision.

As this study aims to study the stimulation of the behavioral finance towards future investment decision among Banking and Finance undergraduates, hence similar hypothesis is developed as shown:

$H_0$ : Principle of "Anchoring" will not stimulate the future investment decision among Banking and Finance undergraduates.

$H_1$ : Principle of "Anchoring" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Mental Accounting" will not stimulate the future investment decision among Banking and Finance undergraduates.

$H_2$ : Principle of "Mental Accounting" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Confirmation and Hindsight Bias" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_3$ : Principle of "Confirmation and Hindsight Bias" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Gambler's Fallacy" will not stimulate the future investment decision among Banking and Finance undergraduates.

$H_4$ : Principle of "Gambler's Fallacy" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Herd Behavior" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_5$ : Principle of "Herd Behavior" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Overconfidence" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_6$ : Principle of "Overconfidence" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Overreaction and Availability of Bias" will not future investment decision among Banking and Finance undergraduates.

$H_7$ : Principle of "Overreaction and Availability of Bias" will stimulate the future investment decision among Banking and Finance undergraduates.

$H_0$ : Principle of "Prospect Theory" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_8$ : Principle of "Prospect Theory" will stimulate future investment decision among Banking and Finance undergraduates.

$H_0$ : There is no significant difference between the independent variables (Anchoring, Mental Accounting, Confirmation and Hindsight Bias, Gambler's Fallacy, Herd Behavior, Overconfidence, Overreaction and Availability of Bias and Prospect Theory) based on gender.

$H_9$ : There is significant difference between the independent variables (Anchoring, Mental Accounting, Confirmation and Hindsight Bias, Gambler's Fallacy, Herd Behavior, Overconfidence, Overreaction and Availability of Bias and Prospect Theory) based on gender.

## 2.5 Conclusion

In conclusion, this chapter provides a better insight and understanding about behavioral finance and investment decision. Each of the variables are being discussed and reviewed based on the previous studies by other researchers.

Besides that, the relevant theoretical models have been discussed and a theoretical framework has been proposed according to the literature review in the earlier part of this chapter. Last but not least, the hypotheses are developed. The following chapter will be discussing about the methodologies that are used to conduct this research.

# CHAPTER 3: METHODOLOGY

## 3.0 Introduction

The research methodology used for this research will be presented in a detailed manner in this chapter. Primary data is used to further elaborate and to describe how this research is undergone. This chapter has been divided into a few segments: research design, data collection methods, sampling design, operational definitions of constructs, measurement scales, and methods of data analysis.

## 3.1 Research Design

In this study, quantitative research method is adopted. Quantitative research is used to test the objective theories by studying the relationship among the variables (Creswell, 2009). It is constructed in a way where it allows the researchers to repeat the experiment and get similar result. Properly designed, quantitative design methods help to filter external factors which allow the results to be more accurate and unbiased (Shuttleworth, 2008).

The research design chosen in this study is causal research. Causal research tests whether does one variable causes a change to another variable (Sekaran & Bougie, 2013). The purpose of study is to find out how behavioral finance will affect the future investment decision among Banking and Finance undergraduates.

## 3.2 Data Collection Methods

Primary data collection method is applied for conducting this research. Meanwhile, questionnaire is chosen as the main source of data collection. This method enables researchers to receive proprietary information where others do not know by creating own questionnaire that applied for specific issue (Sekaran & Bougie, 2013). The questions are set specifically to fulfil the research question and distributed to the targeted respondents. With this, the high accuracy and oriented information can be obtained to meet the objective of the research. The form of predictive questionnaire is used to collect a broader range of state-of-mind and state-of-intention data. By collecting raw data, the design of predictive questionnaire enables the predictions of the changes in attitudes and behaviours of the respondents (Hair, Bush & Ortinau, 2002).

## 3.3 Sampling Design

### 3.3.1 Target Population

The purpose of this research is to determine the stimulation of behavioral finance towards the future investment decision among banking and finance undergraduates. Hence, the targeted population will be the final year students who are currently taking the course of Bachelor of Business Administration (Hons) Banking and Finance at Universiti Tunku Abdul Rahman (UTAR) of about 525 number of students.

### 3.3.2 Sampling Location

The chosen sampling location for this study is UTAR, Kampar Campus as it is one of the good private universities for Banking and Finance degree course which has shown an increasing student enrolment over the years.

### 3.3.3 Sampling Elements

The sampling elements are taken from final year students majoring in Bachelor of Business Administration (Hons) Banking and Finance at UTAR, Kampar Campus.

### 3.3.4 Sampling Technique

The sampling technique used is known as Simple Random Sampling (SRS). It is the common sampling technique and is classified under the probability sampling. According to Black (1999), SRS is convenient and easy to use for a small population. Besides that, the population is highly represented as all individuals are expected to participate. More specifically, simple random sampling (SRS) without replacement is applied in this research whereby every student possesses the equal chance to be randomly selected from the population (Rao, 2013). For SRS without replacement, the list of final year students in Bachelor of Business Administration (Hons) Banking and Finance of around 525 number of students is collected. Each student is to be assigned with a random number accordingly. The simple random sample of students required is then sorted by the random numbers. Once an individual is sampled, that particular will not be placed back for re-sampling.

### 3.3.5 Sampling Size

The appropriate sample size of this research is 232 people of students. By referring to Krejcie and Morgan (1970), the population size of approximately 525 people should have approximately 222 people as the sample size. However, there are extra 10 students to be taken into account in order to prevent some incomplete survey forms collected from the respondents. Hence, the total number of 232 students in the sample size will be the total number of respondents for this research.

## 3.4 Research Instrument

Questionnaires are used to gather the information for research purposes. Mcleod (2014) stated that the researchers can save a lot of time and effort by using questionnaires because large amount of information can be collected at one point of time. The researcher also indicated that the questionnaires can help to capture the opinions of the people in a cheaper as compared to phone interview. The questions are created by referring to the previous studies and researches.

Section A consists of the demographic data of the respondents. Section B, C, D, E, F, G, H, and I then used to collect information of the eight independent variables which are "Anchoring, Mental Accounting, Confirmation and Hindsight Bias, Gambler's Fallacy, Herd Behavior, Overconfidence, Overreaction and Availability of Bias as well as Prospect Theory".

The targeted respondents are the final year Banking and Finance students at UTAR. The questionnaires will be distributed via Google Forms or in the form of hard copy during the weekdays. The estimated time taken for answering the questionnaires is around 15 minutes.

There were 30 respondents selected for pilot test to obtain the reliability of the overall items. Firstly, the survey questions are created and drafted. The questionnaires are then distributed among the selected respondents. After that, the completed surveys will be summarized and analyzed accordingly. The questions are also adjusted and amended with focus on ensuring an easy understanding questionnaire.

Table 3.1: Sections in Questionnaire

| Sections | Constructs | Items |
|---|---|---|
| A | Demographic data | Age, Gender, interest/ involvement in investment |
| B | Anchoring | Q1, 2, 3, 4, 5 |
| C | Mental Accounting | Q6, 7, 8, 9 |
| D | Confirmation and Hindsight Bias | Q10, 11, 12, 13 |
| E | Gambler's Fallacy | Q14, 15, 16, 17, 18 |
| F | Herd Behaviour | Q19, 20, 21, 22 |
| G | Overconfidence | Q23, 24, 25, 26, 27 |
| H | Overreaction and Availability of Bias | Q28, 29, 30, 31 |
| I | Prospect Theory | Q32, 33, 34, 35, 36 |

### 3.4.1 Pilot Test (Cronbach's Alpha Test)

According to "SPSS FAQ" (n.d.); Raykov (1997); Santos (1999), the Cronbach's alpha test developed by Cronbach (1951) is used to measure the internal consistency which means on how a set of a grouped items are closely related to each other. In brief, this test is used to test the scale of reliability. However, it is not considered as a statistical test but a coefficient of reliability. According to Santos (1999), the Cronbach's alpha test works in a way where it would effectively determine the average correlation of the items in the research instrument (questionnaire) to test its reliability. According to Yurdugül (2008), the overall view on how to determine the sample size for the Cronbach's alpha testis to obtain from the larger sample. By doing so, it will enable to attain a more precise estimate of the population reliability. According to Bonett (2002), if the sample obtained for this test is too small, it would lack power when the test is done, and if the sample is too big, it is a waste of resources.

The group's sample size of this research is 232 respondents, and there will be a total of 30 respondents involved in the Pilot test. The percentage here is about 13%. According to George and Mallery (2003); Wells and Wollack (2003), an alpha value that is closer to 1 means that there is a higher correlation between the items in the questionnaire and a value of 0.7 is sufficient in most researches. For this research, in overall, the Cronbach's alpha test shows that it is 0.809, which concludes that the questionnaires are reliable.

## 3.5 Constructs Measurement

The hypothesized relationships between dependent variable and the eight elements including anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overconfidence, overreaction and availability of bias and prospect theory are determined by the original sources and operational definitions of constructs which applied in questionnaire.

Table 3.2: Questionnaire

| No. | Items | Authors and year |
|---|---|---|
| | **Anchoring** | |
| 1. | Past performance of the stock can influence my decision to buy or sell of the stock today. | (Murithi, 2014) |
| 2. | Past history will affect my investment decision. | (Murithi, 2014) |
| 3. | If the famous analyst has different view with mine in investing, I will change my mind immediately. | (Murithi, 2014) |
| 4. | I have a target price for a share or other securities in arrear before I start trading. | (Murithi, 2014) |
| 5. | I will still hold a blue-chip stock (giant company with strong reputation) even if it is losing now. | (Murithi, 2014) |

| | | |
|---|---|---|
| | **Mental Accounting** | |
| 6. | I will open different accounts in banks for different objectives. | ("Mental Accounting," n.d.) |
| 7. | I will open different accounts in the same type of investment for different objectives. | ("Mental Accounting," n.d.) |
| 8. | I will invest your funds in different type of investment for different objectives. | ("Mental Accounting," n.d.) |
| 9. | I will feel safer to invest by using the funds earned from previous investment rather than funds from my capital. | ("Mental Accounting," n.d.) |
| | **Confirmation and Hindsight Bias** | |
| 10. | When I receive the news regarding the United States is chaos due to some political issues, I will immediately sell off my stocks. | (Pohi, 2013) |
| 11. | If I expect the share price of company X will raise, therefore, I will find more information regarding the share price's performance of that company. | (Rabin, 2000) |
| 12. | A week before, the share price of company X was RM2.50. Therefore, I will forecast the share price is in between RM2.20 and RM2.80 rather than in between RM1.80 and RM3.20. | (Goodwin, 2010) |

| | | |
|---|---|---|
| 13. | "Increase in company's earnings will increase the return on investment in the company."<br>Therefore, when Company X's earnings rise, I will predict that the return on their investment must have risen as well. | (Goodwin, 2010) |
| | **Gambler's Fallacy** | |
| 14. | I will get a 'head' when you flip a coin. | (Amin et al., 2009) |
| 15. | The stock price currently at RM100 will experience a 10% increase the following week. | (Amin et al., 2009) |
| 16. | After flipping a coin for 5 times with all 5 flips resulting 'head', the next flip would result a 'tail'. | (Amin et al., 2009) |
| 17. | A stock that has been rising at 5% per week for the past 3 weeks, I predict it will also experience a 5% rise the following week. | (Malkiel, 2003) |
| 18. | I will follow my friend's advice when I plan to invest in a stock. | (Amin et al., 2009) |
| | **Herd behaviour** | |
| 19. | Other investors' decision will be taken as an important source of information. | (Bikhchandani, Hirshleifer, & Welch, 1992) |
| 20. | I tend to track other investors' investment strategies and apply in my investment for stock selection. | (Kengatharan, & Kengatharan, 2014) |

| | | |
|---|---|---|
| 21. | I always follow other investors' decisions to sell off my stocks in the stock market. | (Choi, & Skiba, 2015) |
| 22. | I invest because my close family and friends had involved in investment activities. | (Khan, 2014) |
| | **Overconfidence** | |
| 23. | I will most probably feel that I am better compared with a group of people who have a similar background and social status. | (Zaiane, & Abaoub, 2010) |
| 24. | I believe my investment performance is better than other investors in the same market. | (Reidsma, 2015) |
| 25. | I believe that I have expertise in selecting stocks which will outperform the market. | (Abreu, & Mendes, 2011) |
| 26. | I obtained private investment information through studying finance literature. | (Guiso, & Jappelli, 2005) |
| 27. | I prefer my own investment decision as compared to the financial advice that obtained from financial experts. | (Guiso, & Jappelli, 2005) |
| | **Overreaction and Availability Bias** | |
| 28. | I will put off an investment decision when negative information is released on the stock. | (Johnsson, Lindblom, & Platan, 2002) |

| | | |
|---|---|---|
| 29. | I will buy the stock of the company if I receive the information that the stock price has risen 70% in recent years. | (Johnsson et al., 2002) |
| 30. | I will make changes to my portfolio when receiving consistent new announcement or insider information from the companies. | (Stipp, 2013) |
| 31. | I am more likely to buy the company's stock if I think the company is a potential company to success. | (Stipp, 2013) |
| | **Prospect Theory** | |
| 32. | I will sell off the stock immediately once I have gained the profit from that stock. | (Pett, 2013) |
| 33. | I will hold on to the losing stock hoping that it will get back in track. | (Coffie, 2013) |
| 34. | I prefer to invest in a stock where I have a high chance to gain in the future even though the current profit is lower. | (Kamran, Karl, & Thom, 2008) |
| 35. | I prefer not to invest in stocks with high price volatility. | (Kamran et al., 2008) |
| 36. | I prefer a 50% chance of a RM 2500 loss versus a certain loss of RM1000 from an investment. | (Kamran et al., 2008) |

## 3.6 Data Processing

The raw data obtained through questionnaire should be precise and consistent in order to draw the research's conclusions and it is a vital step to warrant the inferences made based on the data (Kalla, 2009). The ultimate goal of data processing is to transform the obtained raw data into computer-readable format that would generate useful information for the research (Hair et al., 2002). This data processing techniques undertaken will be presented in four steps, starting with the validation of data; data editing and coding; entry of data; and lastly, tabulation of data.

### 3.6.1 Validation of Data

This step is carried out to determine whether the observation done by questionnaire method is performed appropriately and does not display any biasness (Hair et al., 2002). According to Guba and Lincoln (1994), there are two principles for the validation of a qualitative study. The two principles are credibility, meaning is whether the outcome is credible and transferability whereby it is the question whether the outcome would be applicable to others. One step this research takes to control the accuracy of the data collected is to record the demographic data (gender and age) of the targeted respondents in the first section of the questionnaire itself. A proofread is done to ensure that the questionnaire is easily apprehended, grammatically correct and does not contain any jargons which may lead the respondents into confusion.

### 3.6.2 Editing and Coding

Editing is defined as the process of looking out for any mistakes in the raw data that are obtained from the respondents who answered the questionnaire (Hair et al., 2002). The research applied the method of statistical edits as suggested by Ferguson (n.d.), whereby it uses the distribution of data to spot any possible errors. A viable limit of the questionnaire response would be generated in order to track down outliers. Any extraordinary responses that contain blank response on specific questions, using the wrong codes even though were specified or illogical responses would be discarded by the researchers. The purpose of editing is to guarantee a complete, consistent and readable data that are to be generated using the Statistical Package for the Social Sciences (SPSS) version 22.0.

Coding of data is the process of delegating and allocating quantifiable value to each of the individual responses obtained from the questionnaire (Hair et al., 2002). The responses in this research as based on the Likert scale as follows:

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

### 3.6.3 Entry of Data

After the first two steps of validating, editing and coding of data are achieved, the following step to be taken is to input the data acquired from the questionnaire responses into a computer (precisely a software system) for further actions of precise analysis of the raw data to take place (Hair et al., 2002). The researchers used the services provided by the Statistical Package for the Social Sciences (SPSS) to aid in the generation of data. The steps taken before this process like editing would greatly ease the process when correctly done.

### 3.6.4 Tabulation of data

Tabulation of data is the process of computing the quantity of responses that can be categorized into certain categories (Hair et al., 2002). There are two types of data tabulations namely: one-way tabulation and cross-tabulation. Since this research focuses only one target group which is UTAR Banking and Finance undergraduates, a one way tabulation method would be used. This method requires the researchers to categorize every variable in the study to display the exact number of respondents who made their specific choices of answer towards the question provided in the questionnaire. The total value of the one way tabulation is in line with the total variables that are stated in the questionnaire.

## 3.7 Data Analysis

Data analysis is conducted to evaluate the data and findings collected by the researchers. In this study, the researchers have adopted primary data collection where questionnaires were being distributed to final year students of Bachelor of Business Administration (Hons) Banking and Finance. Statistical Package for the Social Sciences (SPSS) is then used to analyze the data collected. This program allows generation of result on descriptive analyses as well as inferential analyses, for instance Pearson's Linear Correlation Coefficient and Independent Sample T-test. Besides that, reliability test is conducted to ascertain the consistency of the results.

### 3.7.1 Descriptive Analysis

Descriptive analysis is applied to explain or summarize the data in a study. The result of descriptive analysis helps researchers to organize and describe the data in a more meaningful way which allows reader to understand easily (Best & Kahn, 1998). There may be various measures being used in a research study and descriptive analysis helps to simplify the huge amount of data in a simpler summary or transforming raw data into a more complex and compound structure (Hair et al., 2002).

Some of the examples of descriptive analysis are measures of central tendency (mean, median, mode), frequency distribution or any graphs as well as charts that describe the data (Creswell, 2009). This provides the researchers a faster way to make comparisons between different data. In addition, it is easier to evaluate the changes or trends of the collected data over a period of time. Researches are also able to spot the smallest and largest value of the data.

### 3.7.2 Reliability Test

Reliability test is of use to quantify the consistency of the results that are derived from the same test (Wells & Wollack, 2003). The researchers further described that there will definitely no same or identical results received because of surrounding factors such as error in responding. It is also stated that the results are more reliable when they are more comparable.

The reliability test is vital to detect respondents' measurement error and to find the domain of interest (Wells & Wollack, 2003). Measurement errors can be classified into respondent's specific error, test specific factors and scoring specific factor. Respondent's specific error for example, lack of motivation and carelessness. Examples of test specific factor are poor questions quality and lack of directions. The scoring specific factors include non-uniformed scoring methods and errors in computations.

The method of internal consistency will be used to test for reliability of a test or questionnaire answered by many students at the same time (Wells & Wollack, 2003). Cronbach's alpha is the fundamental index used for this method. The range of Cronbach's alpha is 0 to 1. The closer the figure to 1, the more consistent or more reliable to result is. The researchers also found that the minimum value of Cronbach's alpha is 0.9, 0.8 and 0.7 for professional high-stakes test, lower-stakes test and student's test respectively.

### 3.7.3 Pearson's Linear Correlation Coefficient, *r*

Falk and Well (1997); Gujarati and Porter (2009) claimed that Pearson's *r* determines the degree or strength of linear association between two variables. Rodgers and Nicewander (1988) added correlation coefficient is the first formal correlation measures and it has been commonly used in measuring relationship. It is defined as a measure of fit to the regression line. The value of *r* varies from 0 to + 1 and - 1. When *r* is close to 0 shows little relationship between two variables. Conversely, when *r* is far from 0, either positive or negative direction, it implied a greater relationship between two variables.

Generally, *r* is categorized into positive correlation, negative correlation and no correlation. Positive correlation indicates that the increment of one variable will cause another variable to increase as well. Conversely, negative correlation implies the increment on one variable will lead to a reduction in the other variable. Meanwhile, no correlation indicates that when one variable increases, there will be no effect caused either increase or decrease.

Table 3.3: Rules of Thumb for Pearson's *r*

| Value of $r_{xy}$ | Degree of Correlation |
|---|---|
| +1 | Perfectly positive correlation |
| $0.75 \leq \mathbf{r_{xy}} \leq 1$ | High degree positive correlation |
| $0.50 \leq \mathbf{r_{xy}} \leq 0.75$ | Moderate degree positive correlation |
| $0.00 < \mathbf{r_{xy}} < 0.50$ | Low degree positive correlation |
| 0 | No correlation |
| $-0.50 < \mathbf{r_{xy}} < 0.00$ | Low degree negative correlation |
| $-0.75 < \mathbf{r_{xy}} \leq -0.50$ | Moderate degree negative correlation |
| $-1.00 < \mathbf{r_{xy}} \leq -0.75$ | High degree negative correlation |
| -1 | Perfect negative correlation |

Source: Bali, Gupta, and Gandhi (2008)

### 3.7.4 Independent Sample T-Test

The independent sample t-test helps to compare the mean values from two samples, and to test how likely there is mean difference between two independent groups from distinct populations. The purpose of independent sample t-test is to examine whether the difference in sample mean obtained in the research shows a real mean difference between the two populations. According to Price (2000), there are four assumptions for the test. The first

assumption is that all observations obtained must be independent to each other. The second presumption is that the dependent variable must be presented in interval or ratio scale. The third assumption is that the dependent variable must be normally distributed in the population. Furthermore, the last assumption is that the differences of the dependent variable in the two populations are same (homogeneity of variance). In this research, independent sample t-test is applied for the gender test in order to know the difference between male and female on the intention which affected by behavioral finance.

Significance level is the probability that the sample chosen is not representative of the population. The most common significance level used in educational research is 0.05% (Fisher, 1956). Researchers could interpret the result by comparing p-value and significance level. It shows difference between the two samples when p-value is less than the significance level. Indeed, reject null hypothesis and accept alternative hypothesis in this case.

### 3.7.5 Regression

Regression analysis is a statistical technique for examining the relationship between independent and dependent variables (Sykes, 1993). It is also a tool that used to predict the effect of explanatory variable on dependent variable. There are two types of regression analysis, including simple linear regression and multiple linear regressions. In this research, multiple regression analysis will be used as there is more than one independent variable in the research.

R-squared is one of the major outputs of regression analysis that the researchers may need to concern, as it indicates how well the model predicts the dependent variable (Nguyen, 2013). The higher the R-squared, the higher

the percentage of variation in dependent variable is attributed to the variation in independent variables.

## 3.8 Conclusion

To conclude, this chapter has included the methodologies applied to carry out the research in terms of the research design, data collection method, sampling design, research instrument, constructs measurement, data processing method and data analysis. The information reflects the way of researchers sample, collect and analyze the data.

For the following chapter, the collected data will be analyzed and interpreted by using Statistical Package for the Social Sciences (SPSS). A detailed discussion and analysis will be made based on the results generated in order to bring significance to the readers.

# CHAPTER 4: DATA ANALYSIS

## 4.0 Introduction

In chapter 3, various methods have been introduced to test for the result of the questionnaires distributed. In this chapter, the results obtained from the questionnaires are analyzed. This chapter will start with descriptive analysis (age, gender, interest/involvement in investment, type of investment involved and reason not interested in investment), scale measurement, inferential analyses including Pearson's Correlation and Independent Sample T-test, then followed by conclusion.

## 4.1 Descriptive Analysis

### 4.1.1 Respondent Demographic Profile

Table 4.1: Demographic Profile of the Respondents

| | | Frequency | Percentage (%) |
|---|---|---|---|
| Gender | Male | 66 | 28.4 |
| | Female | 166 | 71.6 |
| Age | 20 | 2 | 0.9 |

| | | | |
|---|---|---|---|
| | 21 | 88 | 38.4 |
| | 22 | 77 | 33.2 |
| | 23 | 60 | 25.9 |
| | 24 | 4 | 1.7 |
| Interested in investment | Yes | 175 | 75.4 |
| | No | 57 | 24.6 |
| Type of investment interested/involved | Stocks | 55 | 31.4 |
| | Bonds | 11 | 6.3 |
| | Currencies | 49 | 28.0 |
| | Mutual Funds | 37 | 21.1 |
| | Others | 20 | 11.4 |
| | Stocks, Bonds, Currencies | 1 | 0.6 |
| | Currencies, Mutual Funds | 1 | 0.6 |
| | All | 1 | 0.6 |
| Reason not interested in investment | Investment is too risky | 11 | 19.3 |
| | Saving is the best way | 5 | 8.8 |
| | Insufficient knowledge | 36 | 63.1 |
| | Able to achieve financial goals without investment | 5 | 8.8 |

Source: Developed for the research

Table 4.1 shows the demographic profile of the respondents. There are 232 respondents in total. The targeted respondents are final year students of Banking and Finance course at UTAR, Kampar Campus. Out of the 232 respondents, there are 66 male respondents (28.4%) and 166 female respondents (71.6%).

Besides that, as of the respondents are all final year students, their age range is between 20 to 24 years old. Out of the 232 respondents, there are two respondents (0.9%) with the age of 20, 88 respondents (38.4%) with the age of 21, 77 respondents (33.2%) with the age of 22, 60 respondents (25.9%) with the age of 23 and four respondents (1.7%) with the age of 24.

Furthermore, 175 out of 232 respondents (75.4%) are interested in investment while the remaining 57 respondents (24.6%) are not interested in investment. Indeed, majority of the respondents are interested in investment. Out of the 175 respondents who are interested in investment, 58 (33.1%) are male while 117 (66.9%) are female. As for the 57 respondents who are not interested in investment, eight (14.0 %) are male while 49 (86.0%) are female. For respondents who are not interested in investment, majority of them are from the age range of 21-22 years old.

Respondents who are interested in investment will proceed to the next question on type of investment interested or involved. Out of the 175 respondents who are interested in investment, 55 respondents (31.4%) are interested in stocks. 49 respondents (28%) are interested in currencies, 37 respondents (21.1%) are interested in mutual funds while only 11 respondents (6.3%) are interested in bonds. 20 respondents (11.4%) are interested in other investments such as savings, unit trust and properties. There are also respondents who are interested in one or more types of investment. One respondent (0.6%) is interested in stocks, bonds and currencies, one

respondent (0.6%) is interested in currencies and mutual funds while another one respondent (0.6%) is interested in all investment.

Lastly, respondents that are not interested in investment will proceed to the question on the reason why they are not interested in investment. Out of the 57 respondents, majority of them (63.1%) do not have sufficient knowledge in investment. This consists of 36 respondents. Furthermore, 11 respondents (19.3%) say investment is too risky. The remaining two reasons: saving is the best way and able to achieve financial goals without investment, both have five respondents (8.8%) respectively who agree with it.

### 4.1.2 Central Tendencies Measurement of Constructs

Table 4.2: Mean and Standard Deviation of Anchoring

| No. | Anchoring | N | Mean | Standard Deviation |
|---|---|---|---|---|
| 1. | Past performance of the stock can influence my decision to buy or sell of the stock today. | 232 | 3.85 | 0.845 |
| 2. | Past history will affect my investment decision. | 232 | 3.77 | 0.810 |
| 3. | If the famous analyst has different view with mine in investing, I will change my mind immediately. | 232 | 3.22 | 0.826 |
| 4. | I have a target price for a share or other securities in arrear before I start trading. | 232 | 3.64 | 0.815 |

| | | | | |
|---|---|---|---|---|
| 5. | I will still hold a blue-chip stock (giant company with strong reputation) even if it is losing now. | 232 | 3.33 | 0.901 |

Source: Developed for the research

Table 4.3: Mean and Standard Deviation of Mental Accounting

| No. | Mental Accounting | N | Mean | Standard Deviation |
|---|---|---|---|---|
| 1. | I will open different accounts in banks for different objectives. | 232 | 3.69 | 0.919 |
| 2. | I will open different accounts in the same type of investment for different objectives. | 232 | 3.15 | 0.885 |
| 3. | I will invest my funds in different type of investment for different objectives. | 232 | 3.86 | 0.737 |
| 4. | I will feel safer to invest by using the funds earned from previous investment rather than funds from my capital. | 232 | 3.87 | 0.902 |

Source: Developed for the research

Table 4.4: Mean and Standard Deviation of Confirmation and Hindsight Bias

| No. | Confirmation and Hindsight Bias | N | Mean | Standard Deviation |
|---|---|---|---|---|
| 1. | When I receive the news regarding the United States is chaos due to some political issues, I will immediately sell off my stocks. | 232 | 3.24 | 0.898 |
| 2. | If I expect the share price of Company X will rise, therefore, I will find more information regarding the share price's performance of that company. | 232 | 3.99 | 0.738 |
| 3. | A week before, the share price of Company X was RM2.50. Therefore, I will forecast the share price is in between RM2.20 and RM2.80 rather than in between RM1.80 and RM3.20. | 232 | 3.44 | 0.840 |
| 4. | "Increase in company's earnings will increase the return on investment in the company."Therefore, when Company X's earnings rise, I will predict that the return on their investment must have risen as well. | 232 | 3.49 | 0.822 |

Source: Developed for the research

Table 4.5: Mean and Standard Deviation of Gambler's Fallacy

| No. | Gambler's Fallacy | N | Mean | Standard Deviation |
|---|---|---|---|---|
| 1. | I will get a 'head' when you flip a coin. | 232 | 2.64 | 0.810 |
| 2. | The stock price currently at RM100 will experience a 10% increase the following week. | 232 | 2.71 | 0.732 |
| 3. | After flipping a coin for 5 times with all 5 flips resulting 'head', the next flip would result a 'tail'. | 232 | 2.56 | 0.938 |
| 4. | A stock that has been rising at 5% per week for the past 3 weeks, I predict it will also experience a 5% rise the following week. | 232 | 2.65 | 0.870 |
| 5. | I will follow my friend's advice when I plan to invest in a stock. | 232 | 2.72 | 0.927 |

Source: Developed for the research

Table 4.6: Mean and Standard Deviation of Herd Behavior

| No. | Herd Behavior | N | Mean | Standard Deviation |
|---|---|---|---|---|
| 1. | Other investors' decision will be taken as an important source of information. | 232 | 3.67 | 0.700 |

| | | | | |
|---|---|---|---|---|
| 2. | I tend to track other investors' investment strategies and apply in my investment for stock selection. | 232 | 3.61 | 0.718 |
| 3. | I always follow other investors' decisions to sell off my stocks in the stock market. | 232 | 2.97 | 0.860 |
| 4. | I invest because my close family and friends had involved in investment activities. | 232 | 3.06 | 0.950 |

Source: Developed for the research

Table 4.7: Mean and Standard Deviation of Overconfidence

| No. | Overconfidence | N | Mean | Standard Deviation |
|---|---|---|---|---|
| 1. | I will most probably feel that I am better compared with a group of people who have a similar background and social status. | 232 | 2.90 | 0.889 |
| 2. | I believe my investment performance is better than other investors in the same market. | 232 | 2.75 | 0.848 |
| 3. | I believe that I have expertise in selecting stocks which will outperform in the market. | 232 | 2.75 | 0.909 |
| 4. | I obtained private investment information through studying finance literature. | 232 | 3.20 | 0.815 |

| | | | | |
|---|---|---|---|---|
| 5. | I prefer my own investment decision as compared to the financial advice that obtained from financial experts. | 232 | 3.00 | 0.890 |

Source: Developed for the research

Table 4.8: Mean and Standard Deviation of Overreaction and Availability Bias

| No. | Overreaction and Availability Bias | N | Mean | Standard Deviation |
|---|---|---|---|---|
| 1. | I will put off an investment decision when negative information is released on the stock. | 232 | 3.27 | 0.856 |
| 2. | I will buy the stock of the company if I receive the information that the stock price has risen 70% in recent years. | 232 | 3.56 | 0.748 |
| 3. | I will make changes to my portfolio when receiving consistent new announcement or insider information from the companies. | 232 | 3.58 | 0.722 |
| 4. | I am more likely to buy the company's stock if I think the company is a potential company to success. | 232 | 3.91 | 0.768 |

Source: Developed for the research

Table 4.9: Mean and Standard Deviation of Prospect Theory

| No. | Prospect Theory | N | Mean | Standard Deviation |
|---|---|---|---|---|
| 1. | I will sell off the stock immediately once I have gained the profit from that stock. | 232 | 3.11 | 1.022 |
| 2. | I will hold on to the losing stock hoping that it will get back in track. | 232 | 3.97 | 0.920 |
| 3. | I prefer to invest in stock where I have a high chance to gain in the future even though the current profit is lower. | 232 | 3.68 | 0.746 |
| 4. | I prefer not to invest in stocks with high price volatility. | 232 | 3.22 | 0.979 |
| 5. | I prefer a 50% chance of a RM 2500 loss versus a certain loss of RM1000 from an investment. | 232 | 3.13 | 0.861 |

Source: Developed for the research

Table 4.10: Mean of Items for Anchoring

| No. | Constructs | 1 | 2 | 3 | 4 | 5 | Mean |
|---|---|---|---|---|---|---|---|
| 1. | Past performance of the stock can influence my decision to buy or sell of the stock today. | 7 (3.0%) | 7 (3.0%) | 39 (16.8%) | 139 (59.9%) | 40 (17.2%) | 3.85 |
| 2. | Past history will affect my investment decision. | 5 (2.2%) | 11 (4.7%) | 46 (19.8%) | 141 (60.8%) | 29 (12.5%) | 3.77 |
| 3. | If the famous analyst has different view with mine in investing, I will change my mind immediately. | 2 (0.9%) | 39 (16.8%) | 111 (47.8%) | 66 (28.4%) | 14 (6.0%) | 3.22 |
| 4. | I have a target price for a share or other securities in arrear before I start trading. | 3 (1.3%) | 18 (7.8%) | 62 (26.7%) | 126 (54.3%) | 23 (9.9%) | 3.64 |
| 5. | I will still hold a blue-chip stock (giant company with strong reputation) even if it is losing now. | 5 (2.2%) | 33 (14.2%) | 94 (40.5%) | 80 (34.5%) | 20 (8.6%) | 3.33 |

Source: Developed for the research

Table 4.2 to Table 4.9 presented the sample size, mean and standard deviation for each question in the questionnaire. Table 4.10 states the frequency and percentage for the options of each question for "Anchoring". Based on the table, the highest mean, 3.85 (refer to item 1) shows that past performance of the stock can influence respondent's decision to buy or sell the stock today. 139 respondents (59.9%) agree with this statement while only seven respondents (3.0%) strongly disagree with this statement. The lowest mean, 3.22 (refer to item 3) shows that respondents will change their mind immediately if they have different view with the famous analyst. 111 respondents (47.8%) are neutral with this statement while two respondents (0.9%) strongly disagree with this statement.

Table 4.11: Mean of Items for Mental Accounting

| No. | Constructs | 1 | 2 | 3 | 4 | 5 | Mean |
|---|---|---|---|---|---|---|---|
| 1. | I will open different accounts in banks for different objectives. | 6 (2.6%) | 17 (7.3%) | 57 (24.6%) | 114 (49.1%) | 38 (16.4%) | 3.69 |
| 2. | I will open different accounts in the same type of investment for different objectives. | 4 (1.7%) | 51 (22.0 %) | 97 (41.8%) | 67 (28.9%) | 13 (5.6%) | 3.15 |
| 3. | I will invest my funds in different type of investment for different objectives. | 1 (0.4%) | 9 (3.9%) | 48 (20.7%) | 137 (59.1%) | 37 (15.9%) | 3.86 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4. | I will feel safer to invest by using the funds earned from previous investment rather than funds from my capital. | 2 (0.9%) | 18 (7.8%) | 45 (19.4%) | 110 (47.4%) | 57 (24.6%) | 3.87 |

Source: Developed for the research

Table 4.11 shows the frequency and percentage for options of each question for "Mental Accounting". Based on the table, the highest mean, 3.87 (refer to item 4) shows that respondents feel safer to invest with the funds earned from previous investment rather than funds from their capital. 110 respondents (47.4%) agree with this statement while only two respondents (0.9%) strongly disagree with this statement. The lowest mean, 3.15 (refer to item 2) shows that respondents will open different accounts in the same type of investment for different objectives. 97 respondents (41.8%) are neutral with this statement while four respondents (1.7%) strongly disagree with this statement.

Table 4.12: Mean of Items for Confirmation and Hindsight Bias

| No. | Constructs | 1 | 2 | 3 | 4 | 5 | Mean |
|---|---|---|---|---|---|---|---|
| 1. | When I receive the news regarding the United States is chaos due to some political issues, I will immediately sell off my stocks. | 10 (4.3%) | 31 (13.4%) | 95 (40.9%) | 85 (36.6%) | 11 (4.7%) | 3.24 |
| 2. | If I expect the share price of Company X | 2 (0.9%) | 7 (3.0%) | 31 (13.4%) | 143 (61.6%) | 49 (21.1%) | 3.99 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | will rise, I will find more information regarding the share price's performance of that company. | | | | | | |
| 3. | A week before, the share price of Company X was RM2.50. Therefore, I will forecast the share price is in between RM2.20 to RM2.80 rather than in between RM1.80 to RM3.20. | 4 (1.7%) | 21 (9.1%) | 96 (41.4%) | 91 (39.2%) | 20 (8.6%) | 3.44 |
| 4. | "Increase in company's earnings will increase the return on investment in the company." Therefore, when Company X's earnings rise, I will predict that the return on their investment must have risen as well. | 3 (1.3%) | 24 (10.3%) | 78 (33.6%) | 111 (47.8%) | 16 (6.9%) | 3.49 |

Source: Developed for the research

Table 4.12 states the frequency and percentage for the options of each question for "Confirmation and Hindsight Bias". Based on the table, the highest mean, 3.99 (refer to item 2) shows that respondents will find more information regarding the share price's performance of that company if they expect the share price of Company X will rise. 143 respondents (61.6%) agree

with this statement while only two respondents (0.9%) strongly disagree with this statement. The lowest mean, 3.24 (refer to item 1) shows that respondents will immediately sell off their stocks when they receive the news regarding the United States are chaos due to some political issues. 95 respondents (40.9%) are neutral with this statement while 10 respondents (4.3%) strongly disagree with this statement.

Table 4.13: Mean of Items for Gambler's Fallacy

| No. | Constructs | 1 | 2 | 3 | 4 | 5 | Mean |
|---|---|---|---|---|---|---|---|
| 1. | I will get a 'head' when you flip a coin. | 25 (10.8%) | 56 (24.1%) | 131 (56.5%) | 18 (7.8%) | 2 (0.9%) | 2.64 |
| 2. | The stock price currently at RM100 will experience a 10% increase the following week. | 10 (4.3%) | 75 (32.3%) | 119 (51.3%) | 28 (12.1%) | 0 (0%) | 2.71 |
| 3. | After flipping a coin for 5 times with all 5 flips resulting 'head', the next flip would result a 'tail'. | 34 (14.7%) | 68 (29.3%) | 101 (43.5%) | 24 (10.3%) | 5 (2.2%) | 2.56 |
| 4. | A stock that has been rising at 5% per week for the past 3 weeks, I will also experience a 5% rise the following week. | 20 (8.6%) | 82 (35.3%) | 89 (38.4%) | 41 (17.7%) | 0 (0%) | 2.65 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5. | I will follow my friend's advice when I plan to invest in a stock. | 21 (9.1%) | 75 (32.3%) | 85 (36.6%) | 49 (21.1%) | 2 (0.9%) | 2.72 |

Source: Developed for the research

Table 4.13 states the frequency and percentage for the options of each question for "Gambler's Fallacy". Based on the table, the highest mean, 2.72 (refer to item 5) shows that respondents will follow their friend's advice when they plan to invest in a stock. 85 respondents (36.6%) are neutral with this statement while only two respondents (0.9%) strongly agree with this statement. The lowest mean, 2.56 (refer to item 3) shows that respondents think that after flipping a coin for five times with all five flips resulting 'head', the next flip would result a 'tail'. 101 respondents (43.5%) are neutral with this statement while five respondents (2.2%) strongly agree with this statement.

Table 4.14: Mean of Items for Herd Behavior

| No. | Constructs | 1 | 2 | 3 | 4 | 5 | Mean |
|---|---|---|---|---|---|---|---|
| 1. | Other investors' decision will be taken as an important source of information. | 0 (0%) | 15 (6.5%) | 62 (26.7%) | 139 (59.9%) | 16 (6.9%) | 3.67 |
| 2. | I tend to track other investors' investment strategies and apply in my investment for | 1 (0.4%) | 14 (6.0%) | 74 (31.9%) | 128 (55.2%) | 15 (6.5%) | 3.61 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | stock selection. | | | | | | |
| 3. | I always follow other investors' decisions to sell off my stocks in the stock market. | 8 (3.4%) | 61 (26.3%) | 97 (41.8%) | 62 (26.7%) | 4 (1.7%) | 2.97 |
| 4. | I invest because my close family and friends had involved in investment activities. | 8 (3.4%) | 65 (28.0%) | 74 (31.9%) | 76 (32.8%) | 9 (3.9%) | 3.06 |

Source: Developed for the research

Table 4.14 states the frequency and percentage for the options of each question for "Herd Behavior". Based on the table, the highest mean, 3.67 (refer to item 1) shows that respondents will take other investors' decision as an important source of information. 139 respondents (59.9%) agree with this statement while none of the respondents strongly disagree with this statement. The lowest mean, 2.97 (refer to item 3) shows that respondents always follow other investors' decisions to sell off their stocks in the stock market. 97 respondents (41.8%) are neutral with this statement while four respondents (1.7%) strongly agree with this statement.

Table 4.15: Mean of Items for Overconfidence

| No. | Constructs | 1 | 2 | 3 | 4 | 5 | Mean |
|---|---|---|---|---|---|---|---|
| 1. | I will most probably feel that I am better compared with a group of people who have a similar background and social status. | 13 (5.6%) | 59 (25.4%) | 104 (44.8%) | 50 (21.6%) | 6 (2.6%) | 2.90 |
| 2. | I believe my investment performance is better than other investors in the same market. | 14 (6.0%) | 75 (32.3%) | 102 (44.0%) | 38 (16.4%) | 3 (1.3%) | 2.75 |
| 3. | I believe that I have expertise in selecting stocks which will outperform in the market. | 14 (6.0%) | 80 (34.5%) | 96 (41.4%) | 33 (14.2%) | 9 (3.9%) | 2.75 |
| 4. | I obtained private investment information through studying finance literature. | 6 (2.6%) | 32 (13.8%) | 111 (47.8%) | 75 (32.3%) | 8 (3.4%) | 3.20 |
| 5. | I prefer my own investment decision as compared to the financial advice that obtained from financial experts. | 6 (2.6%) | 66 (28.4%) | 91 (39.2%) | 61 (26.3%) | 8 (3.4%) | 3.00 |

Source: Developed for the research

Table 4.15 states the frequency and percentage for the options of each question for "Overconfidence". Based on the table, the highest mean, 3.20 (refer to item 4) shows that respondents obtained private investment information through studying finance literature. 111 respondents (47.8%) are neutral with this statement while six of the respondents (2.6%) strongly disagree with this statement. There are two lowest mean, which are 2.75 (refer to item 2 and 3). Item 2 shows that respondents believe their investment performance is better than other investors in the same market. 102 respondents (44.0%) are neutral with this statement while three respondents (1.3%) strongly agree with this statement. Item 3 shows that respondents believe that they have expertise in selecting stocks which will outperform in the market. 96 respondents (41.4%) are neutral with this statement while nine respondents (3.9%) strongly agree with this statement.

Table 4.16: Mean of Items for Overreaction and Availability Bias

| No. | Constructs | 1 | 2 | 3 | 4 | 5 | Mean |
|---|---|---|---|---|---|---|---|
| 1. | I will put off an investment decision when negative information is released on the stock. | 4 (1.7%) | 40 (17.2%) | 88 (37.9%) | 90 (38.8%) | 10 (4.3%) | 3.27 |
| 2. | I will buy the stock of the company if I receive the information that the stock price has risen 70% in recent years. | 4 (1.7%) | 13 (5.6%) | 76 (32.8%) | 128 (55.2%) | 11 (4.7%) | 3.56 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3. | I will make changes to my portfolio when receiving consistent new announcement or insider information from the companies. | 2 (0.9%) | 13 (5.6%) | 78 (33.6%) | 126 (54.3%) | 13 (5.6%) | 3.58 |
| 4. | I am more likely to buy the company's stock if I think the company is a potential company to success. | 2 (0.9%) | 10 (4.3%) | 37 (15.9%) | 140 (60.3%) | 43 (18.5%) | 3.91 |

Source: Developed for the research

Table 4.16 states the frequency and percentage for the options of each question for "Overreaction and Availability Bias". Based on the table, the highest mean, 3.91 (refer to item 4) shows that respondents will more likely to buy the company's stock if they think the company is a potential company to success. 140 respondents (60.3%) agree with this statement but only two of the respondents strongly disagree with this statement. The lowest mean, 3.27 (refer to item 1) shows that respondents will put off an investment decision when a negative information is released on the stock. 90 respondents (38.8%) agree with this statement while four respondents (1.7%) strongly disagree with this statement.

Table 4.17: Mean of Items for Prospect Theory

| No. | Constructs | 1 | 2 | 3 | 4 | 5 | Mean |
|---|---|---|---|---|---|---|---|
| 1. | I will sell off the stock immediately once I have gained the profit from that stock. | 9 (3.9%) | 61 (26.3%) | 78 (33.6%) | 63 (27.2%) | 21 (9.1%) | 3.11 |
| 2. | I will hold on to the losing stock hoping that it will get back in track. | 12 (5.2%) | 56 (24.1%) | 102 (44.0%) | 52 (22.4%) | 10 (4.3%) | 3.97 |
| 3. | I prefer to invest in stock where I have a high chance to gain in the future even though the current profit is lower. | 1 (0.4%) | 12 (5.2%) | 71 (30.6%) | 124 (53.4%) | 24 (10.3 %) | 3.68 |
| 4. | I prefer not to invest in stocks with high price volatility. | 12 (5.2%) | 35 (15.1%) | 96 (41.4%) | 69 (29.7%) | 20 (8.6%) | 3.22 |
| 5. | I prefer a 50% chance of a RM 2500 loss versus a certain loss of RM1000 from an investment. | 9 (3.9%) | 39 (16.8%) | 105 (45.3%) | 72 (31.0%) | 7 (3.0%) | 3.13 |

Source: Developed for the research

Table 4.17 states the frequency and percentage for the options of each question for "Prospect Theory". Based on the table, the highest mean, 3.97

(refer to item 2) shows that respondents will hold on to the losing stock hoping that it will get back in track. 102 respondents (44.0%) are neutral with this statement while 10 of the respondents strongly agree with this statement. The lowest mean, 3.11 (refer to item 1) shows that respondents will sell off the stock immediately once they have gained the profit from that stock. 78 respondents (33.6%) are neutral with this statement while nine respondents (3.9%) strongly disagree with this statement.

## 4.2 Scale Measurement

### 4.2.1 Reliability Test

Table 4.18: Reliability Test (Cronbach's Alpha)

| | Cronbach's Alpha | |
|---|---|---|
| | Pilot Test | Actual Test |
| Overall | 0.809 | 0.785 |

Source: Developed for the research

Reliability test is a measure of internal consistency of an overall scale. It is used to ensure validity before a test is applied for a research purpose (Tavakol & Dennick, 2011). Different set of rule of thumb had been developed by different researchers. According to George and Mallery (2003); Wells and Wollack (2003), an alpha value of 0.7 is an acceptable level for the reliability test. However, Kumar and Shah (2015) claimed that an acceptable level of Cronbach's alpha value can be at least 0.6.

In this research, the Cronbach's alpha of the actual test which based on 232 respondents is 0.785, while the pilot test based on 30 respondents is 0.809. This shows that the overall reliability has experienced a slight decrease but it is still more than both acceptable levels that stated by above researchers, which are 0.6 and 0.7.

### 4.2.2 Types of Scale-used

Table 4.19: Types of Scale-used

| No. | Items | Scale-used |
|---|---|---|
| 1. | Age | Ratio |
| 2. | Gender | Nominal |
| 3. | Are you interested in investment | Nominal |
| 4. | What are the types of investment you interested/involved? | Nominal |
| 5. | Why are you not interested in investment? | Nominal |
| 6. | Past performance of the stock can influence my decision to buy or sell of the stock today. | Interval (Likert scale) |
| 7. | Past history will affect my investment decision. | Interval (Likert scale) |

| | | |
|---|---|---|
| 8. | If the famous analyst has different view with mine in investing, I will change my mind immediately. | Interval (Likert scale) |
| 9. | I have a target price for a share or other securities in arrear before I start trading. | Interval (Likert scale) |
| 10. | I will still hold a blue-chip stock (giant company with strong reputation) even if it is losing now. | Interval (Likert scale) |
| 11. | I will open different accounts in banks for different objectives. | Interval (Likert scale) |
| 12. | I will open different accounts in the same type of investment for different objectives. | Interval (Likert scale) |
| 13. | I will invest my funds in different type of investment for different objectives. | Interval (Likert scale) |
| 14. | I will feel safer to invest by using the funds earned from previous investment rather than funds from my capital. | Interval (Likert scale) |
| 15. | When I receive the news regarding the United States is chaos due to some political issues, I will immediately sell off my stocks. | Interval (Likert scale) |
| 16. | If I expect the share price of Company X will rise, I will find more information regarding the share price's performance of that company. | Interval (Likert scale) |
| 17. | A week before, the share price of Company X was RM2.50. Therefore, I will forecast the share price is in between RM2.20 and RM2.80 rather than in between RM1.80 and RM3.20. | Interval (Likert scale) |

| | | |
|---|---|---|
| 18. | "Increase in company's earnings will increase the return on investment in the company." Therefore, when Company X's earnings rise, I will predict that the return on their investment must have risen as well. | Interval (Likert scale) |
| 19. | I will get a 'head' when I flip a coin. | Interval (Likert scale) |
| 20. | The stock price currently at RM100 will experience a 10% increase the following week. | Interval (Likert scale) |
| 21. | After flipping a coin for 5 times with all 5 flips resulting 'head', the next flip would result a 'tail'. | Interval (Likert scale) |
| 22. | A stock that has been rising at 5% per week for the past 3 weeks, I predict itwill also experience a 5% rise the following week. | Interval (Likert scale) |
| 23. | I will follow my friend's advice when I plan to invest in a stock. | Interval (Likert scale) |
| 24. | Other investors' decision will be taken as an important source of information. | Interval (Likert scale) |
| 25. | I tend to track other investors' investment strategies and apply in my investment for stock selection. | Interval (Likert scale) |
| 26. | I always follow other investors' decisions to sell off my stocks in the stock market. | Interval (Likert scale) |
| 27. | I invest because my close family and friends had involved in investment activities. | Interval (Likert scale) |

| | | |
|---|---|---|
| 28. | I will most probably feel that I am better compared with a group of people who have a similar background and social status. | Interval (Likert scale) |
| 29. | I believe my investment performance is better than other investors in the same market. | Interval (Likert scale) |
| 30. | I believe that I have expertise in selecting stocks which will outperform in the market. | Interval (Likert scale) |
| 31. | I obtained private investment information through studying finance literature. | Interval (Likert scale) |
| 32. | I prefer my own investment decision as compared to the financial advice that obtained from financial experts. | Interval (Likert scale) |
| 33. | I will put off an investment decision when negative information is released on the stock. | Interval (Likert scale) |
| 34. | I will buy the stock of the company if I receive the information that the stock price has risen 70% in recent years. | Interval (Likert scale) |
| 35. | I will make changes to my portfolio when receiving consistent new announcement or insider information from the companies. | Interval (Likert scale) |
| 36. | I am more likely to buy the company's stock if I think the company is a potential company to success. | Interval (Likert scale) |
| 37. | I will sell off the stock immediately once I have gained the profit from that stock. | Interval (Likert scale) |

| | | |
|---|---|---|
| 38. | I will hold on to the losing stock hoping that it will get back in track. | Interval (Likert scale) |
| 39. | I prefer to invest in stock where I have a high chance to gain in the future even though the current profit is lower. | Interval (Likert scale) |
| 40. | I prefer not to invest in stocks with high price volatility. | Interval (Likert scale) |
| 41. | I prefer a 50% chance of a RM 2500 loss versus a certain loss of RM1000 from an investment. | Interval (Likert scale) |

## 4.3 Inferential Analyses

### 4.3.1 Pearson's Correlation Analysis

Table 4.20: Pearson's Correlation of Anchoring

| Future Investment Decision | Significance | Pearson's Correlation |
|---|---|---|
| Anchoring | 0.008* | -0.173 |

Source: Developed for the research

$H_0$ : Principle of "Anchoring" will not stimulate the future investment decision among Banking and Finance undergraduates.

$H_1$ : Principle of "Anchoring" will stimulate the future investment decision among Banking and Finance undergraduates.

Based on the Table 4.20, the significant value of anchoring is 0.008 which is lower than p-value ($p<0.05$). Therefore, reject $H_0$. This indicates that anchoring will stimulate future investment decision among Banking and Finance undergraduates.

Table 4.21: Pearson's Correlation of Mental Accounting

| Future Investment Decision | Significance | Pearson's Correlation |
|---|---|---|
| Mental Accounting | 0.068 | -0.120 |

Source: Developed for the research

$H_0$ : Principle of "Mental Accounting" will not stimulate the future investment decision among Banking and Finance undergraduates.

$H_2$ : Principle of "Mental Accounting" will stimulate the future investment decision among Banking and Finance undergraduates.

Based on the Table 4.21, the significant value of mental accounting is 0.068 which is higher than p-value ($p>0.05$). Therefore, do not reject $H_0$. This indicates that mental accounting will not stimulate future investment decision among Banking and Finance undergraduates.

Table 4.22: Pearson's Correlation of Confirmation and Hindsight Bias

| Future Investment Decision | Significance | Pearson's Correlation |
|---|---|---|
| Confirmation and Hindsight Bias | 0.732 | 0.023 |

Source: Developed for the research

$H_0$ : Principle of "Confirmation and Hindsight Bias" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_3$ : Principle of "Confirmation and Hindsight Bias" will stimulate the future investment decision among Banking and Finance undergraduates.

Based on the Table 4.22, the significant value of confirmation and hindsight bias is 0.732 which is higher than p-value ($p>0.05$). Therefore, do not reject $H_0$. This indicates that confirmation and hindsight bias will not stimulate future investment decision among Banking and Finance undergraduates.

Table 4.23: Pearson's Correlation of Gambler's Fallacy

| Future Investment Decision | Significance | Pearson's Correlation |
|---|---|---|
| Gambler's Fallacy | 0.269 | 0.073 |

Source: Developed for the research

$H_0$ : Principle of "Gambler's Fallacy" will not stimulate the future investment decision among Banking and Finance undergraduates.

$H_4$ : Principle of "Gambler's Fallacy" will stimulate the future investment decision among Banking and Finance undergraduates.

Based on the Table 4.23, the significant value of gambler's fallacy is 0.269 which is higher than p-value ($p>0.05$). Therefore, do not reject $H_0$. This indicates that gambler's fallacy will not stimulate future investment decision among Banking and Finance undergraduates.

Table 4.24: Pearson's Correlation of Herd Behaviour

| Future Investment Decision | Significance | Pearson's Correlation |
|---|---|---|
| Herd Behaviour | 0.309 | 0.067 |

Source: Developed for the research

$H_0$ : Principle of "Herd Behavior" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_5$ : Principle of "Herd Behavior" will stimulate the future investment decision among Banking and Finance undergraduates.

Based on the Table 4.24, the significant value of herd behaviour is 0.309 which is higher than p-value ($p>0.05$). Therefore, do not reject $H_0$. This indicates that herd behaviour will not stimulate future investment decision among Banking and Finance undergraduates.

Table 4.25: Pearson's Correlation of Overconfidence

| Future Investment Decision | Significance | Pearson's Correlation |
|---|---|---|
| Overconfidence | 0.084 | -0.114 |

Source: Developed for the research

$H_0$ : Principle of "Overconfidence" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_6$ : Principle of "Overconfidence" will stimulate the future investment decision among Banking and Finance undergraduates.

Based on the Table 4.25, the significant value of overconfidence is 0.084 which is higher than p-value ($p>0.05$). Therefore, do not reject $H_0$. This indicates that overconfidence will not stimulate future investment decision among Banking and Finance undergraduates.

Table 4.26: Pearson's Correlation of Overreaction and Availability of Bias

| Future Investment Decision | Significance | Pearson's Correlation |
|---|---|---|
| Overreaction and Availability of Bias | 0.932 | -0.006 |

Source: Developed for the research

$H_0$ : Principle of "Overreaction and Availability of Bias" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_7$ : Principle of "Overreaction and Availability of Bias" will stimulate the future investment decision among Banking and Finance undergraduates.

Based on the Table 4.26, the significant value of overreaction and availability of bias is 0.932 which is higher than p-value ($p>0.05$). Therefore, do not reject $H_0$. This indicates that overreaction and availability of bias will not stimulate future investment decision among Banking and Finance undergraduates.

Table 4.27: Pearson's Correlation of Prospect Theory

| Future Investment Decision | Significance | Pearson's Correlation |
|---|---|---|
| Prospect Theory | 0.935 | -0.005 |

Source: Developed for the research

$H_0$ : Principle of "Prospect Theory" will not stimulate future investment decision among Banking and Finance undergraduates.

$H_8$ : Principle of "Prospect Theory" will stimulate future investment decision among Banking and Finance undergraduates.

Based on the Table 4.27, the significant value of prospect theory is 0.935 which is higher than p-value ($p>0.05$). Therefore, do not reject $H_0$. This

indicates that prospect theory will not stimulate future investment decision among Banking and Finance undergraduates.

Based on Table 4.20 to Table 4.27, we can conclude that there is only anchoring will stimulate future financial investment decision among Banking and Finance undergraduates. Another seven constructs which are mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behaviour, overconfidence, overreaction and availability of bias and prospect theory will not stimulate future investment decision among Banking and Finance undergraduates.

### 4.3.2 Independent Sample T-Test

$H_0$ : There is no difference in the stimulation of principle of "Anchoring, Mental Accounting, Confirmation and Hindsight Bias, Gambler's Fallacy, Herd Behavior, Overconfidence, Overreaction and Availability of Bias and Prospect Theory" on future investment decision among Banking and Finance undergraduates based on gender.

H9 : There is difference in the stimulation of principle of "Anchoring, Mental Accounting, Confirmation and Hindsight Bias, Gambler's Fallacy, Herd Behavior, Overconfidence, Overreaction and Availability of Bias and Prospect Theory" on future investment decision among Banking and Finance undergraduates based on gender.

The hypothesis above regards whether there is a significant difference in the stimulation of principles on future investment decision among Banking and Finance undergraduates based on gender. There are 232 respondents in total which consists of 166 people of female respondents and 66 people of male

respondents. Meanwhile, there are 175 people of respondents are interested in investment, and 57 of them are not interested in investment.

The means for male and female respondents to the eight variables are as shown:

Table 4.28: Independent Sample T-Test for Gender

| Principles | Gender | N | Mean | Standard Deviation | t-value | Significance level |
|---|---|---|---|---|---|---|
| Anchoring | Male | 66 | 3.6030 | 0.57378 | 0.786 | 0.433 |
| | Female | 166 | 3.5458 | 0.46886 | | |
| Mental Accounting | Male | 66 | 3.6553 | 0.61514 | 0.226 | 0.821 |
| | Female | 166 | 3.6370 | 0.52840 | | |
| Confirmation and Hindsight Bias | Male | 66 | 3.4432 | 0.61830 | -1.710 | 0.089 |
| | Female | 166 | 3.5783 | 0.51039 | | |
| Gambler's Fallacy | Male | 66 | 2.5848 | 0.58946 | -1.209 | 0.228 |
| | Female | 166 | 2.6855 | 0.56539 | | |
| Herd behaviour | Male | 66 | 3.3674 | 0.59682 | 0.714 | 0.476 |
| | Female | 166 | 3.3117 | 0.50933 | | |
| Overconfidence | Male | 66 | 3.0879 | 0.61282 | 2.638 | 0.009 |
| | Female | 166 | 2.8530 | 0.61147 | | |
| Overreaction and Availability Bias | Male | 66 | 3.5530 | 0.54687 | -0.489 | 0.625 |
| | Female | 166 | 3.5904 | 0.51504 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Prospect Theory | Male | 66 | 3.1333 | 0.53012 | -1.661 | 0.098 |
| | Female | 166 | 3.2542 | 0.48762 | | |

$P < 0.05$*

Source: Developed for the research

Furthermore, the t-value and significant level are used to quantify the results under null hypothesis. The higher the t-value, the lower the p-value and hence, the more likely the proof against the null hypothesis. When the p-value is less than 0.05, we reject $H_0$, vice versa. As referring to the significant level in Table 4.28, the p-values for anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overreaction and availability of bias as well as prospect theory are greater than 0.05, except overconfidence.

In brief, there is a significant difference in the stimulation of overconfidence on future investment decision among Banking and Finance undergraduates based on gender. However, there is no significant difference in the stimulation of anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overreaction and availability of bias and prospect theory on future investment decision among Banking and Finance undergraduates based on gender.

## 4.4 Conclusion

In this chapter, 232 sets of questionnaires are being tested based on the response from the Banking and Finance students at UTAR, Kampar campus. Descriptive analysis, Pearson's correlation analysis and independent t-test have been used to run the test. The results are obtained after performing the test and will be discussed further in Chapter 5.

# CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

## 5.0 Introduction

In the previous chapter, the results of the statistical tests had been run and presented. In this chapter, there are the descriptive analysis of respondents' demographic profile and central tendencies measurements of constructs as well as the justification of inferential analyses including, Pearson's correlation analysis and independent sample t-test. The detailed discussion for the research results on the eight principles are stated as discussion of major findings in this chapter. Moreover, the implications and limitations of this study will be explained. The conclusion of the research is also included as the last part of this chapter.

# 5.1 Summary of Statistical Analyses

## 5.1.1 Descriptive Analysis

### 5.1.1.1 Respondents' Demographic Profile

In the previous chapter, the demographic profile of the respondents was discussed and presented. There are 232 respondents in total for this study. 28.4% are male while 71.6% are female.

The targeted respondents for this study are final year students who are taking Banking and Finance course at UTAR, Kampar Campus. Since all of the respondents are final year students, hence the age range is in between 20-24 years old. 38.4% of the respondents are 21 years old while only 0.9% is 20 years old.

Interest of respondents in investment is included in the questionnaire as well. The descriptive analysis shows that 75.4% respondents are interested in investment while there are 24.6% respondents who are not interested in investment.

Respondents who are interested in investment will proceed to the question on what types of investment are they interested or involved in. Based on the analysis, 31.4% of respondents are interest in stocks, which consists the highest percentage. This is followed by currencies (28.0%), mutual funds (21.1%) and bonds (6.3%). There are also respondents who are interested in more than one investment or other types of investments.

Lastly, respondents are questioned on the reason why are they not interested in investment. Among the 57 respondents who are not interested in investment, 63.1% of them think that they do not have sufficient knowledge in investment. 19.3% respondents think that investment is too risky for them while 8.8% think that saving is the best way. The remaining 8.8% respondents think they are able to achieve their financial goals even without investment.

#### 5.1.1.2 Central Tendencies Measurement of Constructs

The mean of each question for the independent variables is measured in the central tendencies measurement of construct. Besides that, the frequency and percentage for the Likert scale 1-5 for each question are being presented as well. This is able to provide details on which answer is the most favorable among the respondents.

For the independent variable "Anchoring", the question "Past performance of the stock can influence my decision to buy or sell of the stock today" has the highest mean, which is 3.85. 139 respondents (59.9%) agree that their investment decision will be influenced by the past performance of the stock.

For "Mental Accounting", the question "I will feel safer to invest by using the funds earned from previous investment rather than funds from my capital" has the highest mean of 3.87. 110 respondents (47.4%) agree that they feel safer to use the funds earned from previous investment instead of from their capital.

Besides that, for "Confirmation and Hindsight Bias", the question "If I expect the share price of Company X will rise, I will find more information regarding the share price's performance of that company" has the highest mean of 3.99. 143 respondents (61.6%) agree that they will look for more information of the company if they expect the share price will rise.

Next, for "Gambler's Fallacy", the question with highest mean of 2.72, is "I will follow my friend's advice when I plan to invest in a stock". However, for this result, majority of the respondents which consist of 85 respondents (36.6%) are neutral with this question.

As for "Herd Behavior", the highest mean, 3.67 is the question "Other investors" decision will be taken as an important source of information". 139 respondents (59.9%) agree that they will take other investors' decision as major source of information.

Furthermore, for "Overconfidence", the question "I obtained private investment information through studying finance literature." has the highest mean of 3.20. However, based on the result, majority of the respondents (47.8%) are neutral with this question.

For the independent variable "Overreaction and Availability Bias", the question with the highest mean of 3.91 is "I am more likely to buy the company's stock if I think the company is a potential company to success". 140 respondents (60.3%) agree that if the company is a potential company, they will more likely to buy the company's stock.

Lastly, for "Prospect Theory", the question "I will hold on to the losing stock hoping that it will get back in track" has the highest mean

of 3.97. However, majority of the respondents (44.0%) are neutral with this question.

## 5.1.2 Inferential Analyses

### 5.1.2.1 Pearson's Correlation Analysis

Table 5.1: Pearson's Correlation Analysis

| Principles | Significance level | $H_0$: Accept/Reject |
|---|---|---|
| Anchoring | 0.008 | Reject |
| Mental Accounting | 0.068 | Accept |
| Confirmation and Hindsight Bias | 0.732 | Accept |
| Gambler's Fallacy | 0.269 | Accept |
| Herd Behaviour | 0.309 | Accept |
| Overconfidence | 0.084 | Accept |
| Overreaction and Availability Bias | 0.932 | Accept |
| Prospect Theory | 0.935 | Accept |

$P < 0.05$*

Source: Developed for the research

The Pearson's correlation analysis is mainly used to determine whether there is stimulation between the eight principles and the future investment decision among Banking and Finance undergraduates. Table 5.1 shows that null hypothesis of anchoring is rejected ($p < 0.05$), therefore, anchoring will stimulate the future investment decision among Banking and Finance undergraduates.

The other seven principles, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overconfidence, overreaction and availability of bias and prospect theory will not stimulate the future investment decision among Banking and Finance undergraduates, since their null hypotheses are accepted ($p > 0.05$).

#### 5.1.2.2 Independent Sample T-Test

Table 5.2: Independent Sample T-Test for Gender

| Principles | Gender | N | Significance level | $H_0$: Accept / Reject |
|---|---|---|---|---|
| Anchoring | Male | 66 | 0.433 | Accept |
| | Female | 166 | | |
| Mental Accounting | Male | 66 | 0.821 | Accept |
| | Female | 166 | | |
| Confirmation and Hindsight Bias | Male | 66 | 0.089 | Accept |
| | Female | 166 | | |

| | | | | |
|---|---|---|---|---|
| Gambler's Fallacy | Male | 66 | 0.228 | Accept |
| | Female | 166 | | |
| Herd behaviour | Male | 66 | 0.476 | Accept |
| | Female | 166 | | |
| Overconfidence | Male | 66 | 0.009 | Reject |
| | Female | 166 | | |
| Overreaction and Availability Bias | Male | 66 | 0.625 | Accept |
| | Female | 166 | | |
| Prospect Theory | Male | 66 | 0.098 | Accept |
| | Female | 166 | | |

$P < 0.05$*

Source: Developed for the research

The independent sample t-test is important to determine whether there is a difference in the stimulation of the eight principles on future investment decision among Banking and Finance undergraduates based on gender. The significant level for overconfidence construct is 0.009, which is less than 0.05. Hence, $H_0$ is rejected. The results indicate a significant difference in the stimulation of overconfidence on future investment decision among Banking and Finance undergraduates based on gender.

Meanwhile, there is no significant difference in the stimulation of anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overreaction and availability of bias and prospect theory on future investment decision among Banking and Finance undergraduates based on gender. Indeed, it can be proved, as

the significant level for these seven principles are more than 0.05. Thus, the $H_0$ are accepted.

## 5.2 Discussions of Major Findings

### 5.2.1 Pearson's Correlation Analysis

Based on the findings in Chapter 4, anchoring will stimulate future investment decision among Banking and Finance undergraduates. The result is consistent with previous studies from the researchers such as Cen et al. (2010); Liao et al. (2013), which stating that professional or experienced investors will be affected by the past performance or any news from famous and reliable sources. This shows that the findings from previous studies are also applicable to the Banking and Finance undergraduates. This can also be supported by the result in Table 4.10, the mean that showing the decision of students which would be affected by the past performance of the stock is the highest.

However, the findings also indicates that mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behaviour, overconfidence, overreaction and availability of bias and prospect theory will not stimulate future investment decision among Banking and Finance undergraduates. Specifically, mental accounting is found to be insignificant in influencing the investment decisions of the undergraduates. This result is consistent with the findings conducted by Daxbury et al. (2005) where the researchers found that the effect of mental accounting will be getting smaller if one has less amount of money in the bank account. Due to this, there is not enough money to split one account to another. Generally, students will not have much money in the

bank account and therefore, the effect of mental accounting is insignificant in influencing their decision.

Confirmation and hindsight bias is found to be insignificant in stimulating the investment decisions of the undergraduates. The result shown is not consistent with the previous studies of Hilton (2001); Weinstein (1980) stated that confirmation bias which lead to optimism is affecting the investment decision. Besides that, the result is also inconsistent with the research of Goodwin (2010); Hussain et al. (2013). As these researchers claiming that students have higher level of hindsight bias due to lesser experiences in making financial decisions compared to bankers which have higher level of experiences and expertise.

The factor of gambler's fallacy is also found to be insignificant in affecting the future investment decision of Banking and Finance undergraduates. However, the results obtained contradicts with previous researches by Amir et al. (2009) which claimed that investors are more likely to make investment decisions based on a misinterpreted probability of a preferred trend. Subash (2012) has described investors that tends to portray gambler's fallacy as the act of undertaking too much risk after he has experienced a lucky win in which would affect the investment decision bearing a huge amount of loss.

Furthermore, herd behavior is insignificant in bringing impact on investment decisions of undergraduates. Nonetheless, it is contradict with the past researches as Venezia et al. (2011) found out that there is a higher tendency to herd among amateurs, who are financial illiteracy and inexperience as compared to professional investors because they believe that herding allow them the acquire reliable and useful information. Hong et al. (2004) further described that the "social" investors will find the market to be more attractive, if the amount of peer participate increases. Keynes (n.d.) suggested that

investment experts who worry too much on how the public evaluates their capability in making good decision will have the tendency to follow the crowd.

Overconfidence is also insignificant in affecting the investment decisions of undergraduates. The result is incompatible with previous studies, as Kirchler and Maciejovsky (2002); Pietarinen (2014) indicated that fresh investors often found to be overconfident and only learn to adjust their behavior accordingly until they become more familiar with their own abilities by acquiring more experience in trading. Lambert, Bessiere and N'Goala (2012) found out that bankers and students actually possess the similar overconfidence level of investment wise but having different decision making styles. Andersson (2004) added that the experts seldom outperform novices but more focus on efficient information-processing with experience gained.

Besides that, overreaction and availability of bias is found to be insignificant in influencing the investment decisions of undergraduates. However, this result is inconsistent with the previous research by Seyhun (1990), which examined the hypothesis of overreaction in terms of insider trading during the market crash in 1987. It has proven that overreaction occurred and the firms are price below its underlying value. In addition, the result also contradicts with Frieder (2004), where the researcher has proven that investors tend to be biased and assume a firm with positive earnings can generate positive returns. The truth is positive earnings may not be representing how the firm is really performing.

Lastly, as shown in the results, prospect theory is found to be insignificant in affecting investment decision of undergraduates. The result shows contradiction with Naughton (2002); Ricciardi (2008). Both the researchers have mentioned that prospect theory will affect one's investment decision as investors usually are afraid of losses more than they like gains. They will

avoid losses instead of achieving a gain. Investors may not make decision based on the final value of the investment but they refer to a specific reference point to assess the gains and losses of an investment.

The other reason which causes insignificant of most of the principles that is affecting investment decisions among undergraduates might be due to that most of the undergraduates have yet to experience real life investment scenarios. Hence, they do not know how exactly their emotion and belief will be affecting their investment decision. Following with that, the data obtained for the research is imbalanced between the genders. As shown in Table 4.1, the percentage of male respondents only has 28.4 % if compared to 71.6% of female respondents, therefore, this might be affecting the accuracy of the result.

### 5.2.2 Independent Sample T-Test

Based on the independent sample t-test, there is a significant difference in the stimulation of overconfidence on future investment decision among Banking and Finance undergraduates based on gender. It is tally with the research of Bruce (1995), as it examined that males are generally more confident in investment decision with higher knowledge, skill, wealth and willingness to take higher risk.

However, there is no significant difference in the stimulation of anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overreaction and availability of bias and prospect theory on future investment decision among Banking and Finance undergraduates based on gender. This is consistent with Atkinson et al. (2003), they found out that male and female have the same performance and risk tolerance level in controlling

the financial knowledge and wealth. Nonetheless, Albaity and Rahman (2012); Berggren and Gonzalez (2010) clarified that female are found to have greater risk aversion in investment decision making as comparing to male. In fact, it could be due to males in general having higher financial knowledge and knowledge. Liersch (2014) mentioned that the difference in the investing behavior of male and female could be caused by demographic factors, for example, employment stability, and education level.

In short, the 232 respondents in this research are commonly chosen from a group of students who believe to have worriless on the employment stability at the moment and possess the similar financial background as of the same education level. They tend to acquire the comparable financial knowledge, and hence the stimulation of behavioral finance towards future investment decision for both male and female is same.

## 5.3 Implications of the Study

### 5.3.1 Managerial Implications

Although many researches of behavioral finance are still at the budding stage, the concept of behavioral finance is capturing more attention in order to enhance the understanding of human behaviour when it comes to financial behaviours like investing. As there are many gaps in theories such as the modern portfolio theory or even the efficient market hypothesis (EMH) theory which highly rely on the major assumption that all investors behaves rationally. In behavioral finance, it believes that there is an element of human emotion and human psychology when it comes to making an investment decision, whereby it could lead to an irrational investment decision. This

research has managed to prove that there are elements of behavioural finance that vastly affects the future investment decision of our respondents. However, the study is conducted on both male and female respondents and it is proven that the difference in gender has no significant effect on the future investment decisions of the respondents.

On a broader perspective, if the concepts of behavioral finance are widely understood, it would have positive impact on the overall economy. Investors would be more aware of their behaviour in regards to investing decisions and would take extra precautionary steps to thoroughly understand their emotional state of mind before making a final investment decision. With investors having a better understanding of their mental well-being while making a much more realistic investment decision, it would cause lesser behaviours such as panic selling or even over optimism. With lesser occurrences of decisions made based on emotions, it would lead to an avoidance of stock market crashes towards the overall economy.

As towards the government and policy makers, an understanding of the concepts of behavioral finance would enhance the quality of the policy made. With behavioral finance concepts in mind, the government and policy makers will be able to deal with the stock market system that is very complex and is always vulnerable to unpredictable shocks by investors, whereby previous theories do not cover. These random shocks are caused by human behaviour thinking that they can successfully predict the future or they could be strongly influenced by unprecedented forecasts made by others. Therefore, the government and policy makers should create policies which consider all possible shocks that are caused by investors' emotions and also to take into account that investors will not be rational all the time.

Next, on the education sector precisely towards the Business and Finance field, the subject of behavioral finance should be taught to undergraduates who are the future investors in order to bring about a broader coverage of knowledge regarding the topic of investment instead of merely covering the theories and topics that only emphasizes on the market operations that generally forgo the element of human behavior in investment. With a better understanding of how the human mind works, a more thorough and effective investment decisions could be made.

## 5.4 Limitations of the Study

There are some limitations in this study. Firstly, the number of samples taken for the research is too small. There are only 232 of questionnaires to be distributed. The population of the Banking and Finance students is about 525 number of students. Thus, the results of this study might not be very accurate as it is unable to represent all Banking and Finance students in UTAR.

In addition, the imbalance number of male and female among the Banking and Finance students can bring disadvantages to this research also. This is because there are about 166 female respondents but only 66 male respondents. Hence, the imbalance of number of male and female respondents may distort the result, causing the result to be inaccurate.

Although the researchers targeted the final year Banking and Finance students to be the respondents, there may have some first or second year students or students from other courses of study who answer the questionnaires. Thus, the reliability of the results might be affected. Moreover, the questionnaires are distributed in the lecture hall. The students may answer the questionnaires simply as they do not want to miss any lecture class. This can cause the result to be inaccurate.

Lastly, there are a lot of factors other than the independent factors mentioned in the study can affect the investment decision of a student. Hence, the result is not accurate enough to represent how a Banking and Finance student's financial decision is affected by the behavioral finance.

## 5.5 Recommendations for Future Research

The future researchers should include a greater sample size in order to enhance the reliability of the result. The greater the sample size, the nearer the result to the population mean, the more accurate the result.

Since the number of male and female students in Banking and Finance program is very different, it is suggested that the future researchers to do a cross program study where the researchers take samples of students from different degree programs. By doing so, the problem arose from the imbalance of male and female students can be overcome.

The future researchers should only distribute the questionnaires in suitable time, for instance, distributing the questionnaires to the students who are having their lunch. By doing so, the students will not answer the survey simply as they are not rushing for classes. Thus, the reliability of the research can be greatly increased.

Moreover, other independent variable such as regret aversion should be taken in the research. Regret aversion refers to the act of making investment decision that allows the investor to avoid psychological pain if the performance of the investment turns bad. By including more relevant independent variable, the results of the study can be more accurate.

## 5.6 Conclusion

In a nutshell, this research is being conducted to gain better insights regarding how the various factors of behavioral finance has an impact on the future investment decision of current Banking and Finance course undergraduates. This research takes an unconventional approach of utilizing the factors of behavioural finance such as anchoring, mental accounting, confirmation and hindsight bias, gambler's fallacy, herd behavior, overconfidence, overreaction and availability bias and prospect theory whereby one binding characteristic of all factors is that it takes account on human psychology instead of the conventional belief of efficient market hypothesis (EMH) which assumes that all investors are rational when making investment decision. Hence, this research aids to have a better understanding on the mentality and psychology of the future generation of investors in the context of behavioural finance.

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# Appendices

## Appendix 3.1: Research Questionnaire Sample

Dear respondents,

We are a group of Year Three Trimester One students from Universiti Tunku Abdul Rahman, pursuing our Bachelor of Business Administration (Hons) Banking and Finance.

As a requirement of our course structure, we are currently in the process of conducting a research project with the topic 'Investor Behavior.' With this, we need your collaboration in completing this questionnaire. The objective of this research is to study the factors of behavioral finance that affect the future investment decisions among final year students of UTAR Banking and Finance course.

The collection of data from this survey will be reported cumulatively. Hence, your responses are assured by us to be strictly confidential and are only for academic and research purpose. This questionnaire will take you approximately 10-15 minutes to complete it.

Your kind participation is greatly appreciated and thank you for your precious time.

| No. | Student ID | Name |
|---|---|---|
| 1 | 1205195 | Megan Anne Pragasam |
| 2 | 1203613 | Queeny Lai Chen Yee |

| | | |
|---|---|---|
| 3 | 1201092 | Tan Zhi Ying |
| 4 | 1202300 | Teh Wei Hau |
| 5 | 1205049 | Wong Lee Huei |

**Section A: Demographic Profile**

1) Age :

2) Gender : Male / Female

Note : Investment refers to any form of assets and securities that can help to generate the revenue for us. It can be shares, bonds, mutual funds and others.

3) Are you interested in investment (Yes/ No)
If yes, proceed to question 4. If no, proceed to question 5.

4) What are the types of investment you interested/involved?

A. Stocks
B. Bonds
C. Currencies
D. Mutual funds.
E. Others : _____

5) Why are you not interested in investment?

A. Investment is too risky.
B. Saving is the best way to accumulate wealth.
C. Insufficient knowledge in investment.
D. I can still achieve my financial goals without any investment.
E. Others : _____

Please rate the following on the scale of 1-5.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly disagree | Disagree | Neutral | Agree | Strongly Agree |

| No. | Question | Answer | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| **Section B: Anchoring** | | | | | | |
| 1. | Past performance of the stock can influence my decision to buy or sell of the stock today. | | | | | |
| 2. | Past history will affect my investment decision. | | | | | |
| 3. | If the famous analyst has different view with mine in investing, I will change my mind immediately. | | | | | |
| 4. | I have a target price for a share or other securities in arrear before I start trading. | | | | | |
| 5. | I will still hold a blue-chip stock (giant company with strong reputation) even if it is losing now. | | | | | |
| **Section C: Mental Accounting** | | | | | | |
| 6. | I will open different accounts in banks for different objectives. | | | | | |
| 7. | I will open different accounts in the same type of investment for different objectives. | | | | | |
| 8. | I will invest my funds in different type of investment for different objectives | | | | | |
| 9. | I will feel safer to invest by using the funds earned from previous investment rather than funds from my capital | | | | | |
| **Section D: Confirmation and Hindsight Bias** | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10. | When I receive the news regarding the United States is chaos due to some political issues, I will immediately sell off my stocks. | | | | | |
| 11. | If I expect the share price of Company X will rise, I will find more information regarding the share price's performance of that company. | | | | | |
| 12. | A week before, the share price of Company X was RM2.50. Therefore, I will forecast the share price is in between RM2.20 to RM2.80 rather than in between RM1.80 to RM3.20. | | | | | |
| 13. | "Increase in company's earnings will increase the return on investment in the company." Therefore, when Company X's earnings rise, I will predict that the return on their investment must have risen as well. | | | | | |
| **Section E: Gambler's Fallacy** | | | | | | |
| 14. | I will get a 'head' when I flip a coin. | | | | | |
| 15. | The stock price currently at RM100 will experience a 10% increase the following week | | | | | |
| 16. | After flipping a coin for 5 times with all 5 flips resulting 'head', the next flip would result a 'tail'. | | | | | |
| 17. | A stock that has been rising at 5% per week for the past 3 weeks, will also experience a 5% rise the following week. | | | | | |
| 18. | I will follow my friend's advice when I plan to invest in a stock. | | | | | |
| **Section F: Herd Behavior** | | | | | | |
| 19. | Other investors' decision will be taken as an important source of information. | | | | | |
| 20. | I tend to track other investors' investment strategies and apply in my investment for stock selection. | | | | | |
| 21. | I always follow other investors' decisions to sell off my stocks in the stock market. | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 22. | I invest because my close family and friends had involved in investment activities. | | | | | |
| **Section G: Overconfidence** | | | | | | |
| 23. | I will most probably feel that I am better compared with a group of people who have a similar background and social status. | | | | | |
| 24. | I believe my investment performance is better than other investors in the same market. | | | | | |
| 25. | I believe that I have expertise in selecting stocks which will outperform in the market. | | | | | |
| 26. | I obtained private investment information through studying finance literature. | | | | | |
| 27. | I prefer my own investment decision as compared to the financial advice that obtained from financial experts. | | | | | |
| **Section H: Overreaction and Availability Bias** | | | | | | |
| 28. | I will put off an investment decision when negative information is released on the stock. | | | | | |
| 29. | I will buy the stock of the company if I receive the information that the stock price has risen 70% in recent years. | | | | | |
| 30. | I will make changes to my portfolio when receiving consistent new announcement or insider information from the companies. | | | | | |
| 31. | I am more likely to buy the company's stock if I think the company is a potential company to success. | | | | | |
| **Section I: Prospect Theory** | | | | | | |
| 32. | I will sell off the stock immediately once I have gained the profit from that stock. | | | | | |
| 33. | I will hold on to the losing stock hoping that it will get back in track. | | | | | |

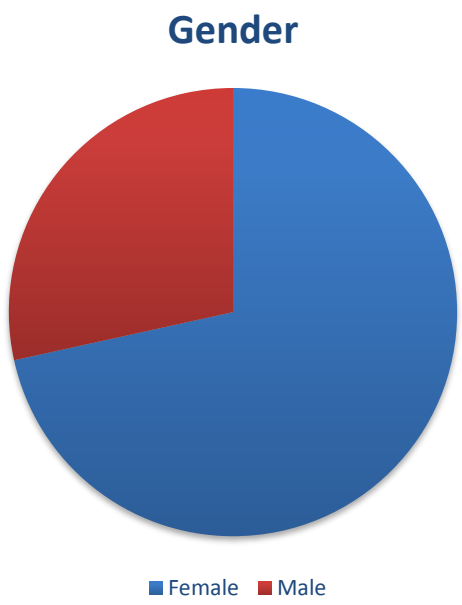
| | | | | | | |
|---|---|---|---|---|---|---|
| 34. | I prefer to invest in stock where I have a high chance to gain in the future even though the current profit is lower. | | | | | |
| 35. | I prefer not to invest in stocks with high price volatility. | | | | | |
| 36. | I prefer a 50% chance of a RM 2500 loss versus a certain loss of RM1000 from an investment. | | | | | |

# Appendix 4.1: The Frequencies of Demographic

## 1. Gender

**Gender**

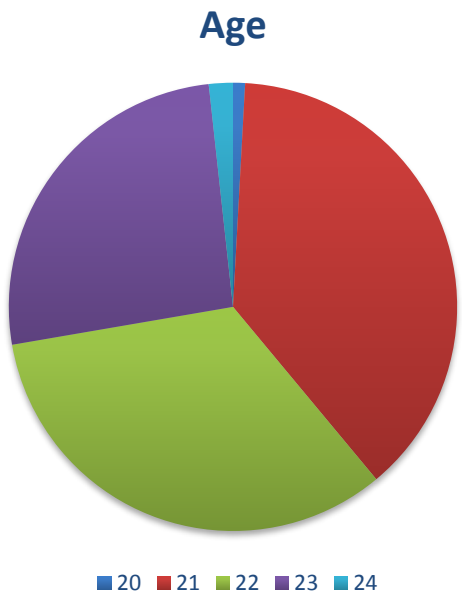
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Male | 66 | 28.4 | 28.4 | 28.4 |
| | Female | 166 | 71.6 | 71.6 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |



## 2. Age

**Age**

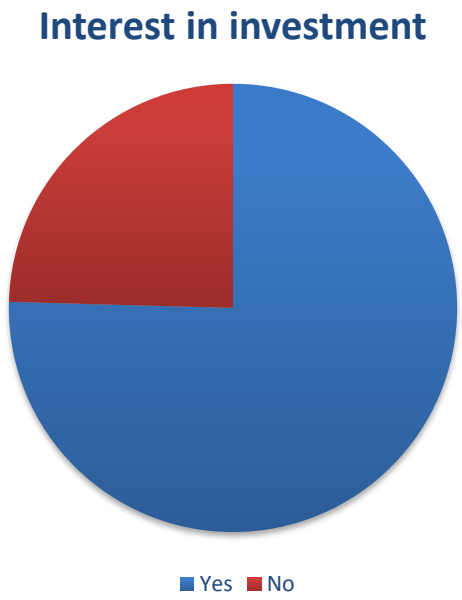
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 20 | 2 | .9 | .9 | .9 |
| | 21 | 89 | 38.4 | 38.4 | 39.2 |
| | 22 | 77 | 33.2 | 33.2 | 72.4 |
| | 23 | 60 | 25.9 | 25.9 | 98.3 |
| | 24 | 4 | 1.7 | 1.7 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |



## 3. Interest in Investment

**Are you interested in investment**

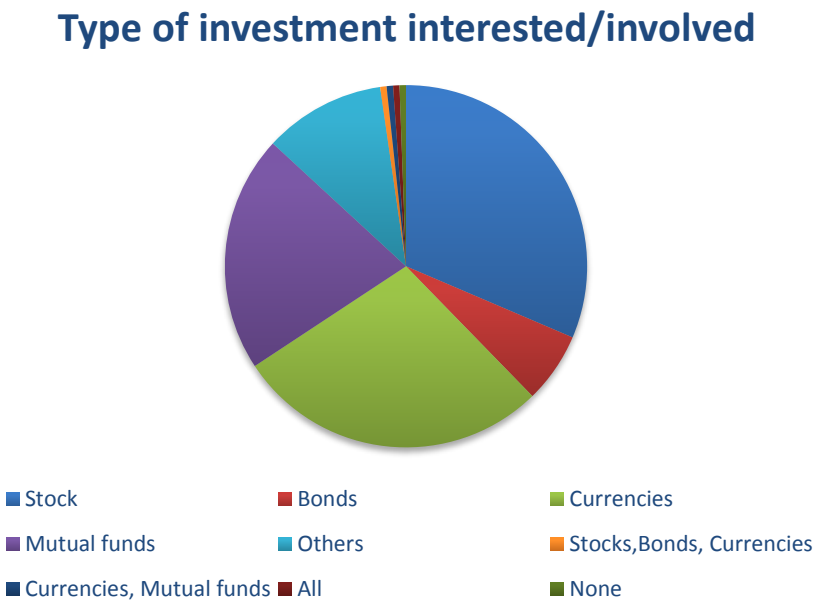
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Yes | 175 | 75.4 | 75.4 | 75.4 |
| | No | 57 | 24.6 | 24.6 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |



# 4. Types of Investment Interested/ Involved

**What are the types of investment you interested/involved?**

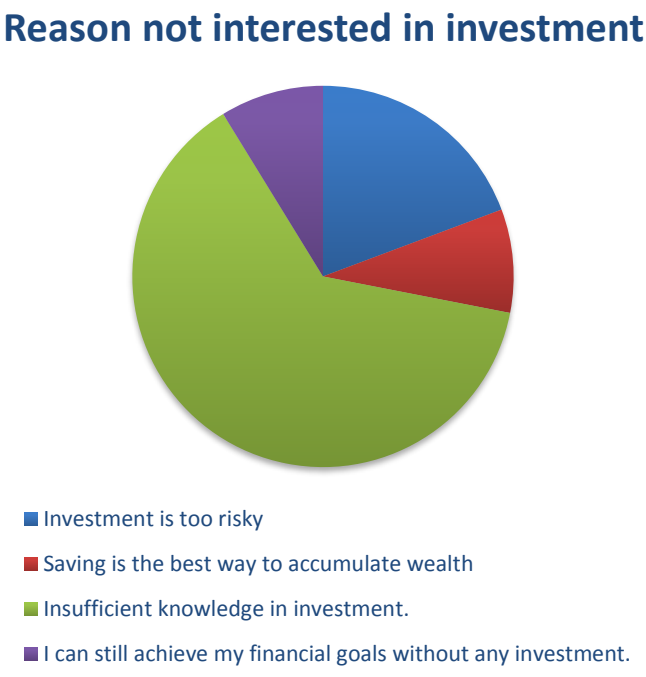
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Stock | 55 | 23.7 | 31.4 | 31.4 |
| | Bonds | 11 | 4.7 | 6.3 | 37.7 |
| | Currencies | 49 | 21.1 | 28.0 | 65.7 |
| | Mutual funds | 37 | 15.9 | 21.1 | 86.9 |
| | Others | 19 | 8.2 | 10.9 | 97.7 |
| | Stocks, Bonds, Currencies | 1 | .4 | .6 | 98.3 |
| | Currencies, Mutual funds | 1 | .4 | .6 | 98.9 |
| | All | 1 | .4 | .6 | 99.4 |
| | None | 1 | .4 | .6 | 100.0 |
| | Total | 175 | 75.4 | 100.0 | |
| Missing | System | 57 | 24.6 | | |
| Total | | 232 | 100.0 | | |



## 5. Reason not Interested in Investment

**Why are you not interested in investment?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Investment is too risky | 11 | 4.7 | 19.3 | 19.3 |
| | Saving is the best way to accumulate wealth | 5 | 2.2 | 8.8 | 28.1 |
| | Insufficient knowledge in investment. | 36 | 15.5 | 63.2 | 91.2 |
| | I can still achieve my financial goals without any investment. | 5 | 2.2 | 8.8 | 100.0 |
| | Total | 57 | 24.6 | 100.0 | |
| Missing | System | 175 | 75.4 | | |
| Total | | 232 | 100.0 | | |



# Appendix 4.2: Mean of Variables

## i) Anchoring

**Statistics**

| | | ANC1 | ANC2 | ANC3 | ANC4 | ANC5 |
|---|---|---|---|---|---|---|
| N | Valid | 232 | 232 | 232 | 232 | 232 |
| | Missing | 0 | 0 | 0 | 0 | 0 |
| Mean | | 3.85 | 3.77 | 3.22 | 3.64 | 3.33 |

**ANC1**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 7 | 3.0 | 3.0 | 3.0 |
| | 2 | 7 | 3.0 | 3.0 | 6.0 |
| | 3 | 39 | 16.8 | 16.8 | 22.8 |
| | 4 | 139 | 59.9 | 59.9 | 82.8 |
| | 5 | 40 | 17.2 | 17.2 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**ANC2**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 5 | 2.2 | 2.2 | 2.2 |
| | 2 | 11 | 4.7 | 4.7 | 6.9 |
| | 3 | 46 | 19.8 | 19.8 | 26.7 |
| | 4 | 141 | 60.8 | 60.8 | 87.5 |
| | 5 | 29 | 12.5 | 12.5 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**ANC3**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 2 | .9 | .9 | .9 |
| | 2 | 39 | 16.8 | 16.8 | 17.7 |
| | 3 | 111 | 47.8 | 47.8 | 65.5 |
| | 4 | 66 | 28.4 | 28.4 | 94.0 |
| | 5 | 14 | 6.0 | 6.0 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**ANC4**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 3 | 1.3 | 1.3 | 1.3 |
| | 2 | 18 | 7.8 | 7.8 | 9.1 |
| | 3 | 62 | 26.7 | 26.7 | 35.8 |
| | 4 | 126 | 54.3 | 54.3 | 90.1 |
| | 5 | 23 | 9.9 | 9.9 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**ANC5**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 5 | 2.2 | 2.2 | 2.2 |
| | 2 | 33 | 14.2 | 14.2 | 16.4 |
| | 3 | 94 | 40.5 | 40.5 | 56.9 |
| | 4 | 80 | 34.5 | 34.5 | 91.4 |
| | 5 | 20 | 8.6 | 8.6 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

## ii) Mental Accounting

| | | MA1 | MA2 | MA3 | MA4 |
|---|---|---|---|---|---|
| N | Valid | 232 | 232 | 232 | 232 |
| | Missing | 0 | 0 | 0 | 0 |
| Mean | | 3.69 | 3.15 | 3.86 | 3.87 |

**MA1**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 6 | 2.6 | 2.6 | 2.6 |
| | 2 | 17 | 7.3 | 7.3 | 9.9 |
| | 3 | 57 | 24.6 | 24.6 | 34.5 |
| | 4 | 114 | 49.1 | 49.1 | 83.6 |
| | 5 | 38 | 16.4 | 16.4 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**MA2**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 4 | 1.7 | 1.7 | 1.7 |
| | 2 | 51 | 22.0 | 22.0 | 23.7 |
| | 3 | 97 | 41.8 | 41.8 | 65.5 |
| | 4 | 67 | 28.9 | 28.9 | 94.4 |
| | 5 | 13 | 5.6 | 5.6 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**MA3**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 1 | .4 | .4 | .4 |
| | 2 | 9 | 3.9 | 3.9 | 4.3 |
| | 3 | 48 | 20.7 | 20.7 | 25.0 |
| | 4 | 137 | 59.1 | 59.1 | 84.1 |
| | 5 | 37 | 15.9 | 15.9 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**MA4**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 2 | .9 | .9 | .9 |
| | 2 | 18 | 7.8 | 7.8 | 8.6 |
| | 3 | 45 | 19.4 | 19.4 | 28.0 |
| | 4 | 110 | 47.4 | 47.4 | 75.4 |
| | 5 | 57 | 24.6 | 24.6 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

## iii) Confirmation and Hindsight Bias

| | | CHB1 | CHB2 | CHB3 | CHB4 |
|---|---|---|---|---|---|
| N | Valid | 232 | 232 | 232 | 232 |
| | Missing | 0 | 0 | 0 | 0 |
| Mean | | 3.24 | 3.99 | 3.44 | 3.49 |

**CHB1**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 10 | 4.3 | 4.3 | 4.3 |
| | 2 | 31 | 13.4 | 13.4 | 17.7 |
| | 3 | 95 | 40.9 | 40.9 | 58.6 |
| | 4 | 85 | 36.6 | 36.6 | 95.3 |
| | 5 | 11 | 4.7 | 4.7 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**CHB2**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 2 | .9 | .9 | .9 |
| | 2 | 7 | 3.0 | 3.0 | 3.9 |
| | 3 | 31 | 13.4 | 13.4 | 17.2 |
| | 4 | 143 | 61.6 | 61.6 | 78.9 |
| | 5 | 49 | 21.1 | 21.1 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**CHB3**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 4 | 1.7 | 1.7 | 1.7 |
| | 2 | 21 | 9.1 | 9.1 | 10.8 |
| | 3 | 96 | 41.4 | 41.4 | 52.2 |
| | 4 | 91 | 39.2 | 39.2 | 91.4 |
| | 5 | 20 | 8.6 | 8.6 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**CHB4**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 3 | 1.3 | 1.3 | 1.3 |
| | 2 | 24 | 10.3 | 10.3 | 11.6 |
| | 3 | 78 | 33.6 | 33.6 | 45.3 |
| | 4 | 111 | 47.8 | 47.8 | 93.1 |
| | 5 | 16 | 6.9 | 6.9 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

## iv) Gambler's Fallacy

| | | GF1 | GF2 | GF3 | GF4 | GF5 |
|---|---|---|---|---|---|---|
| N | Valid | 232 | 232 | 232 | 232 | 232 |
| | Missing | 0 | 0 | 0 | 0 | 0 |
| Mean | | 2.64 | 2.71 | 2.56 | 2.65 | 2.72 |

**GF1**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 25 | 10.8 | 10.8 | 10.8 |
| | 2 | 56 | 24.1 | 24.1 | 34.9 |
| | 3 | 131 | 56.5 | 56.5 | 91.4 |
| | 4 | 18 | 7.8 | 7.8 | 99.1 |
| | 5 | 2 | .9 | .9 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**GF2**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 10 | 4.3 | 4.3 | 4.3 |
| | 2 | 75 | 32.3 | 32.3 | 36.6 |
| | 3 | 119 | 51.3 | 51.3 | 87.9 |
| | 4 | 28 | 12.1 | 12.1 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**GF3**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 34 | 14.7 | 14.7 | 14.7 |
| | 2 | 68 | 29.3 | 29.3 | 44.0 |
| | 3 | 101 | 43.5 | 43.5 | 87.5 |
| | 4 | 24 | 10.3 | 10.3 | 97.8 |
| | 5 | 5 | 2.2 | 2.2 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**GF4**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 20 | 8.6 | 8.6 | 8.6 |
| | 2 | 82 | 35.3 | 35.3 | 44.0 |
| | 3 | 89 | 38.4 | 38.4 | 82.3 |
| | 4 | 41 | 17.7 | 17.7 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**GF5**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 21 | 9.1 | 9.1 | 9.1 |
| | 2 | 75 | 32.3 | 32.3 | 41.4 |
| | 3 | 85 | 36.6 | 36.6 | 78.0 |
| | 4 | 49 | 21.1 | 21.1 | 99.1 |
| | 5 | 2 | .9 | .9 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

## v) Herd Behavior

| | | HB1 | HB2 | HB3 | HB4 |
|---|---|---|---|---|---|
| N | Valid | 232 | 232 | 232 | 232 |
| | Missing | 0 | 0 | 0 | 0 |
| Mean | | 3.67 | 3.61 | 2.97 | 3.06 |

**HB1**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 2 | 15 | 6.5 | 6.5 | 6.5 |
| | 3 | 62 | 26.7 | 26.7 | 33.2 |
| | 4 | 139 | 59.9 | 59.9 | 93.1 |
| | 5 | 16 | 6.9 | 6.9 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**HB2**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 1 | .4 | .4 | .4 |
| | 2 | 14 | 6.0 | 6.0 | 6.5 |
| | 3 | 74 | 31.9 | 31.9 | 38.4 |
| | 4 | 128 | 55.2 | 55.2 | 93.5 |
| | 5 | 15 | 6.5 | 6.5 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**HB3**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 8 | 3.4 | 3.4 | 3.4 |
| | 2 | 61 | 26.3 | 26.3 | 29.7 |
| | 3 | 97 | 41.8 | 41.8 | 71.6 |
| | 4 | 62 | 26.7 | 26.7 | 98.3 |
| | 5 | 4 | 1.7 | 1.7 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**HB4**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 8 | 3.4 | 3.4 | 3.4 |
| | 2 | 65 | 28.0 | 28.0 | 31.5 |
| | 3 | 74 | 31.9 | 31.9 | 63.4 |
| | 4 | 76 | 32.8 | 32.8 | 96.1 |
| | 5 | 9 | 3.9 | 3.9 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

## vi) Overconfidence

| | | OC1 | OC2 | OC3 | OC4 | OC5 |
|---|---|---|---|---|---|---|
| N | Valid | 232 | 232 | 232 | 232 | 232 |
| | Missing | 0 | 0 | 0 | 0 | 0 |
| Mean | | 2.90 | 2.75 | 2.75 | 3.20 | 3.00 |

**OC1**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 13 | 5.6 | 5.6 | 5.6 |
| | 2 | 59 | 25.4 | 25.4 | 31.0 |
| | 3 | 104 | 44.8 | 44.8 | 75.9 |
| | 4 | 50 | 21.6 | 21.6 | 97.4 |
| | 5 | 6 | 2.6 | 2.6 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**OC2**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 14 | 6.0 | 6.0 | 6.0 |
| | 2 | 75 | 32.3 | 32.3 | 38.4 |
| | 3 | 102 | 44.0 | 44.0 | 82.3 |
| | 4 | 38 | 16.4 | 16.4 | 98.7 |
| | 5 | 3 | 1.3 | 1.3 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**OC3**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 14 | 6.0 | 6.0 | 6.0 |
| | 2 | 80 | 34.5 | 34.5 | 40.5 |
| | 3 | 96 | 41.4 | 41.4 | 81.9 |
| | 4 | 33 | 14.2 | 14.2 | 96.1 |
| | 5 | 9 | 3.9 | 3.9 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**OC4**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 6 | 2.6 | 2.6 | 2.6 |
| | 2 | 32 | 13.8 | 13.8 | 16.4 |
| | 3 | 111 | 47.8 | 47.8 | 64.2 |
| | 4 | 75 | 32.3 | 32.3 | 96.6 |
| | 5 | 8 | 3.4 | 3.4 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**OC5**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 6 | 2.6 | 2.6 | 2.6 |
| | 2 | 66 | 28.4 | 28.4 | 31.0 |
| | 3 | 91 | 39.2 | 39.2 | 70.3 |
| | 4 | 61 | 26.3 | 26.3 | 96.6 |
| | 5 | 8 | 3.4 | 3.4 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

## vii) Overreaction and Availability Bias

| | | OAB1 | OAB2 | OAB3 | OAB4 |
|---|---|---|---|---|---|
| N | Valid | 232 | 232 | 232 | 232 |
| | Missing | 0 | 0 | 0 | 0 |
| Mean | | 3.27 | 3.56 | 2.58 | 3.91 |

**OAB1**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 4 | 1.7 | 1.7 | 1.7 |
| | 2 | 40 | 17.2 | 17.2 | 19.0 |
| | 3 | 88 | 37.9 | 37.9 | 56.9 |
| | 4 | 90 | 38.8 | 38.8 | 95.7 |
| | 5 | 10 | 4.3 | 4.3 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**OAB2**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 4 | 1.7 | 1.7 | 1.7 |
| | 2 | 13 | 5.6 | 5.6 | 7.3 |
| | 3 | 76 | 32.8 | 32.8 | 40.1 |
| | 4 | 128 | 55.2 | 55.2 | 95.3 |
| | 5 | 11 | 4.7 | 4.7 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**OAB3**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 2 | .9 | .9 | .9 |
| | 2 | 13 | 5.6 | 5.6 | 6.5 |
| | 3 | 78 | 33.6 | 33.6 | 40.1 |
| | 4 | 126 | 54.3 | 54.3 | 94.4 |
| | 5 | 13 | 5.6 | 5.6 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**OAB4**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 2 | .9 | .9 | .9 |
| | 2 | 10 | 4.3 | 4.3 | 5.2 |
| | 3 | 37 | 15.9 | 15.9 | 21.1 |
| | 4 | 140 | 60.3 | 60.3 | 81.5 |
| | 5 | 43 | 18.5 | 18.5 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

## viii) Prospect Theory

| | | PT1 | PT2 | PT3 | PT4 | PT5 |
|---|---|---|---|---|---|---|
| N | Valid | 232 | 232 | 232 | 232 | 232 |
| | Missing | 0 | 0 | 0 | 0 | 0 |
| Mean | | 3.11 | 2.97 | 3.68 | 3.22 | 3.13 |

**PT1**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 9 | 3.9 | 3.9 | 3.9 |
| | 2 | 61 | 26.3 | 26.3 | 30.2 |
| | 3 | 78 | 33.6 | 33.6 | 63.8 |
| | 4 | 63 | 27.2 | 27.2 | 90.9 |
| | 5 | 21 | 9.1 | 9.1 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**PT2**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 12 | 5.2 | 5.2 | 5.2 |
| | 2 | 56 | 24.1 | 24.1 | 29.3 |
| | 3 | 102 | 44.0 | 44.0 | 73.3 |
| | 4 | 52 | 22.4 | 22.4 | 95.7 |
| | 5 | 10 | 4.3 | 4.3 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**PT3**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 1 | .4 | .4 | .4 |
| | 2 | 12 | 5.2 | 5.2 | 5.6 |
| | 3 | 71 | 30.6 | 30.6 | 36.2 |
| | 4 | 124 | 53.4 | 53.4 | 89.7 |
| | 5 | 24 | 10.3 | 10.3 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**PT4**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 12 | 5.2 | 5.2 | 5.2 |
| | 2 | 35 | 15.1 | 15.1 | 20.3 |
| | 3 | 96 | 41.4 | 41.4 | 61.6 |
| | 4 | 69 | 29.7 | 29.7 | 91.4 |
| | 5 | 20 | 8.6 | 8.6 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

**PT5**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 9 | 3.9 | 3.9 | 3.9 |
| | 2 | 39 | 16.8 | 16.8 | 20.7 |
| | 3 | 105 | 45.3 | 45.3 | 65.9 |
| | 4 | 72 | 31.0 | 31.0 | 97.0 |
| | 5 | 7 | 3.0 | 3.0 | 100.0 |
| | Total | 232 | 100.0 | 100.0 | |

# Appendix 4.3: Reliability Test Result of Pilot Test

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 30 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 30 | 100.0 |

a. List wise deletion based on all variables in the procedure.

## Overall

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .809 | 36 |

# Appendix 4.4: Reliability Test Result of Actual Test

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 232 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 232 | 100.0 |

a. List wise deletion based on all variables in the procedure.

## Overall

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .785 | 36 |

# Appendix 4.5: Pearson's Correlation Analysis

**Correlations**

| | | Are you interested in investment | Anchoring | Mental_ Accounting | Confirmation | Gambler | Herd | Overconfidence | Overreaction | Prospect |
|---|---|---|---|---|---|---|---|---|---|---|
| Are you interested in investment | Pearson Correlation | 1 | -.173** | -.120 | .023 | .073 | .067 | -.114 | -.006 | .005 |
| | Sig. (2-tailed) | | .008 | .068 | .732 | .269 | .309 | .084 | .932 | .935 |
| | N | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 |
| Anchoring | Pearson Correlation | -.173** | 1 | .260** | .370** | .066 | .261** | .091 | .393** | .213** |
| | Sig. (2-tailed) | .008 | | .000 | .000 | .316 | .000 | .166 | .000 | .001 |
| | N | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 |
| Mental_Accounting | Pearson Correlation | -.120 | .260** | 1 | .266** | -.032 | .132* | .100 | .219** | .219** |
| | Sig. (2-tailed) | .068 | .000 | | .000 | .623 | .045 | .130 | .001 | .001 |
| | N | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 |
| Confirmation | Pearson Correlation | .023 | .370** | .266** | 1 | .095 | .295** | .167* | .415** | .249** |
| | Sig. (2-tailed) | .732 | .000 | .000 | | .148 | .000 | .011 | .000 | .000 |
| | N | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 |
| Gambler | Pearson Correlation | .073 | .066 | -.032 | .095 | 1 | .282** | .226** | .117 | .011 |
| | Sig. (2-tailed) | .269 | .316 | .623 | .148 | | .000 | .001 | .076 | .866 |
| | N | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 |
| Herd | Pearson Correlation | .067 | .261** | .132* | .295** | .282** | 1 | .148* | .332** | .184** |
| | Sig. (2-tailed) | .309 | .000 | .045 | .000 | .000 | | .024 | .000 | .005 |
| | N | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 |
| Overconfidence | Pearson Correlation | -.114 | .091 | .100 | .167* | .226** | .148* | 1 | .136* | -.036 |
| | Sig. (2-tailed) | .084 | .166 | .130 | .011 | .001 | .024 | | .039 | .585 |
| | N | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Overreaction | Pearson Correlation | -.006 | .393** | .219** | .415** | .117 | .332** | .136* | 1 | .230** |
| | Sig. (2-tailed) | .932 | .000 | .001 | .000 | .076 | .000 | .039 | | .000 |
| | N | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 |
| Prospect | Pearson Correlation | .005 | .213** | .219** | .249** | .011 | .184** | -.036 | .230** | 1 |
| | Sig. (2-tailed) | .935 | .001 | .001 | .000 | .866 | .005 | .585 | .000 | |
| | N | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 | 232 |

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

# Appendix 4.6: Independent Sample T-Test

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| Anchoring | Equal variances assumed | 2.780 | .097 | .786 | 230 | .433 | .05725 | .07287 | -.08633 | .20082 |
| | Equal variances not assumed | | | .721 | 101.282 | .473 | .05725 | .07945 | -.10036 | .21485 |
| Mental_Accounting | Equal variances assumed | 1.739 | .189 | .226 | 230 | .821 | .01825 | .08066 | -.14067 | .17718 |
| | Equal variances not assumed | | | .212 | 105.167 | .833 | .01825 | .08611 | -.15249 | .18900 |
| Confirmation | Equal variances assumed | 3.882 | .050 | -1.710 | 230 | .089 | -.13513 | .07903 | -.29084 | .02058 |
| | Equal variances not assumed | | | -1.575 | 102.039 | .118 | -.13513 | .08580 | -.30531 | .03505 |
| Gambler | Equal variances assumed | .003 | .959 | -1.209 | 230 | .228 | -.10069 | .08328 | -.26478 | .06339 |
| | Equal variances not assumed | | | -1.187 | 115.179 | .237 | -.10069 | .08480 | -.26865 | .06727 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Herd | Equal variances assumed | .906 | .342 | .714 | 230 | .476 | .05568 | .07793 | -.09786 | .20922 |
| | Equal variances not assumed | | | .667 | 104.638 | .506 | .05568 | .08342 | -.10974 | .22110 |
| Overconfidence | Equal variances assumed | .003 | .953 | 2.638 | 230 | .009 | .23487 | .08904 | .05944 | .41030 |
| | Equal variances not assumed | | | 2.635 | 119.283 | .010 | .23487 | .08912 | .05840 | .41133 |
| Overreaction | Equal variances assumed | 1.616 | .205 | -.489 | 230 | .625 | -.03733 | .07629 | -.18764 | .11298 |
| | Equal variances not assumed | | | -.477 | 113.375 | .634 | -.03733 | .07829 | -.19243 | .11777 |
| Prospect | Equal variances assumed | .728 | .394 | -1.661 | 230 | .098 | -.12088 | .07276 | -.26424 | .02247 |
| | Equal variances not assumed | | | -1.603 | 111.132 | .112 | -.12088 | .07543 | -.27036 | .02859 |

# Appendix 4.7: T-Test for Gender

**Group Statistics**

| | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Anchoring | Male | 66 | 3.6030 | .57378 | .07063 |
| | Female | 166 | 3.5458 | .46886 | .03639 |
| Mental_Accounting | Male | 66 | 3.6553 | .61514 | .07572 |
| | Female | 166 | 3.6370 | .52840 | .04101 |
| Confirmation | Male | 66 | 3.4432 | .61830 | .07611 |
| | Female | 166 | 3.5783 | .51039 | .03961 |
| Gambler | Male | 66 | 2.5848 | .58946 | .07256 |
| | Female | 166 | 2.6855 | .56539 | .04388 |
| Herd | Male | 66 | 3.3674 | .59682 | .07346 |
| | Female | 166 | 3.3117 | .50933 | .03953 |
| Overconfidence | Male | 66 | 3.0879 | .61282 | .07543 |
| | Female | 166 | 2.8530 | .61147 | .04746 |
| Overreaction | Male | 66 | 3.5530 | .54687 | .06732 |
| | Female | 166 | 3.5904 | .51504 | .03998 |
| Prospect | Male | 66 | 3.1333 | .53012 | .06525 |
| | Female | 166 | 3.2542 | .48762 | .03785 |