GENDER DIFFERENCES? A STUDY ON FINANCIAL RISK TOLERANCE AMONG ACADEMIC STAFF OF UTAR, UTP, QIUP AND TARUC IN PERAK

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end of result of our own work and that due acknowledgement has been given in the reference 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 18,956 words.

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DEDICATION

Firstly, we would like to dedicate our research project to our beloved supervisor, Ms. Josephine Kuah Yoke Chin for her sincere guidance, advice, valuable supports throughout the completion of this research.

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LIST OF ABBREVIATIONS

FD	Fixed Deposit
FRT	Financial Risk Tolerance
GDP	Gross Domestic Products
GST	Goods and Services Tax
QIUP	Quest International University Perak
RM	Ringgit Malaysia
S&P	Standard & Poor's
SPSS	Statistical Package for the Social Sciences
TARUC	Tunku Abdul Rahman University College
UTAR	Universiti Tunku Abdul Rahman
UTP	Universiti Teknologi Petronas

ABSTRACT

This research will study the relationship between bio-psychological factors of academic staff and their financial risk tolerance (FRT). It will also focus on the moderating role of gender. The research placed a focal point onto the academic staff of UTAR, UTP, QIUP and TARUC in Perak. To execute reliability analysis and frequency analysis, explain the correlation coefficient analysis, and test on the hypothesis developed, the SPSS, Statistical Package for the Social Science of version 24.0 had been used in this research. The results of the analysis confirmed the positive and significant correlation existence between bio-psychological factors and FRT. Besides, the gender was able to moderate each of the tested independent variables with the dependent variable except financial literacy. This research is believed to contribute to the literature gap since only limited research emphasize on FRT moderated by gender on bio-psychological factors within Malaysian context.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This chapter firstly started on the discussion of the research's background. It then continues with the problem statements that raise the needs of conducting this research. Subsequently, the research objectives and research questions of this research is discussed. It then follows by discussing with the research hypotheses and significance. Moreover, a series of chapter layout is included as well. Lastly, the chapter sums up with a conclusion.

1.1 Research Background

The days before the year of 1960, investment was seen as the activity of wealthy people (Bodie & Crane, 1997). People would relate investment to the "high class" activity which involved only the rich people. Middle-class and low-class individuals felt far distance with the concept of investment.

However, according to Seow (1997), investment is wide spreading among Asian countries such as Republic of China, Vietnam, Singapore and Malaysia in the early 1990s. From the report Global Wealth Management Market 2015-2019, they predict there would be a 10 percent annual compound growth rate in the global wealth management market by 2019. In other words, there will be a big boom in the economy during this period. Therefore, financial planners, advisors and researchers play a very important role to facilitate this great economy recovery in the world (Nguyen, Gallery & Newton, 2016).

In 2017, Malaysians' saving behavior, at a percentage of 63%, is recognized within the top 10 globally, according to a global survey done by Nielsen (Chin, 2017). However, only about 25% of Malaysians involve in investment. Even in countries with high economic power and standard of living such as the US, most of the people do not invest. According to Anderson (2015), 54% of Americans do

not invest despite the bull market that remained for more than 7 years. On the other hand, millennials born in the 1980s and 1990s see themselves as conservative investors in which 40% of the millennials opt for keeping their savings in cash (Sun, 2015).

This is believed to be caused by a lack of financial knowledge and myths about the investment world. According to Yap (2014), it is common to hear cases of investors losing their whole capital while in reality, this rarely happens. This problem is mainly due to the misconception that the goal of investment is purely to maximize capital gains. Meanwhile in achieving this ultimate goal, people have to manage and minimize their risk as well (Yap, 2014).

When it comes to investing, people often observe the peers around them, watch the news and go through investment advice by investment bank researchers, but still puzzled with what exactly they have to do with their money. The types of investments available in the financial market are overwhelming, so as do the possible risks and returns involved. They could opt for keeping their money in the bank's savings account or putting them in a fixed deposit. Otherwise, they could involve themselves in the stock market by buying individual shares or mutual funds. Nonetheless, there are also other alternatives such as bonds, futures, real properties and annuities. By identifying what type of investor they are, they could save a lot of time when exploring and deciding on the suitable investment types that could make them feel comfortable and be confident with their investment allocations (Yap, 2017).

In the financial market, there are various types of investors. They can be categorized into aggressive or conservative. Aggressive investor emphasizes on return maximization while at the same time, willing to take considerable risk, implying a higher financial risk tolerance. On the other hand, conservative investor focuses on the protection of principal rather than capital appreciation. They prefer higher stability and are comfortable with lower returns, indicating lower financial risk tolerance ("Investment Strategy", 2017).

It is found that often, investors would see themselves as aggressive when the market is performing well but switch quickly to conservative when the market begins to fall (Updegrave, 2017). This is regarded as a normal emotional response since the investors aim to earn as much as possible and lose as little as possible. However, this can result in a poor short-term outcome. If investors understand their own financial risk tolerance (FRT), they can adjust and ensure that their current investment allocation lines up with their investment goals.

To make better investment decisions, identifying and understanding one's investment personality is crucial. Whether an investor is conservative or aggressive does not matter much. What matters is to understand their own personality type and to complement their investment personality with their investment decisions.

1.1.1 Definition of Investment

Lathif and Aktharsha (2016) define investment as a conscious act of a person or a group of people putting a portion of money into securities or assets which offered by any financial organizations to achieve certain planned return for a period of time. During this period, the commitment of fund could obtain extra value of money. Investors place their fund into securities or assets as an investment fund and expect to have an increase in value for the money they have invested such as an increase in stock price or dividend payment if investors purchase stocks, coupon payment for bonds or rental for property investments. They also listed three basic features in order to identify an asset or security as investment, which are 1) Commitment of present fund, 2) Expectation of additional value or advantage for the fund invested, and 3) Involvement of risk in both expected return and initial capital.

According to Goel and Srivastava (2016), investment can be in the form of purchasing capital stock such as plant and machinery, property, furniture,

or any equipment that allows investor to generate future income or appreciation in value in the future. They also define investment in the view point of economic, where it is the purchase of goods that is not used today but is to create a higher value for the goods in the future.

1.1.2 Types of Investments

There are many investment products that can be purchased by the investors to own the ownership in order to gain extra value or profit from the investment. The major type of investment products includes property, stocks and fixed deposit. In Malaysia, most of the investment products including the major type of investments aforementioned and others such as insurance, bond and futures are available for investors to invest and trade easily in the market without any strict rule being implied. However, each type of investment carries different degree of risk as well as potential return. Thus, for the reason of determining the most suitable investment type, one must first understand the risk and returns of each investment type and their own FRT.

1.1.2.1 Property

Property investment refers to the investment in which the investors purchase the real estate property or building in order to earn return from the investment either by rental income, resale profit of the building or both (Isaac, 1998). Isaac (1998) also mentioned that normally, property investment is a long-term investment where the investors should hold at least ten years to gain favorable profit for the investment.

Property investment may include a high investment cost including the sunk cost (value of the building), lawyer's fees in handling transfer of ownership and stamp duty. However, it yields potentially high return and low risk. Hence, it is among the popular investment types. In a research

done by Tan and Ting (2004) proved that property investment is the largest investment in most of the individual portfolio. Tracy, Schneider and Chan (1999) also said that property investment for most of the people occupy two-third of the household's total assets.

1.1.2.2 Stock

Stock investment is an equity investment that allows investors to hold part of the ownership in a corporation and entitles them the assets and earning of the corporation (Tokuoka, 2017). In Malaysia, most of the stock trading between the investors is occurred on the Malaysia Exchange - Bursa Malaysia. Only companies that went listed could be traded on Bursa Malaysia. There is an alternative way to buy shares in a listed company, which can be done by corporation or group investor, which is private placement. The shares of the non-listed company or insider negotiation of listed company will use private placement to transfer the ownership of the corporation. All private placements should be registered in Securities Commission Malaysia.

Investors expect return from the stock investment in two forms of earning, which are dividend payment and capital gain. Dividend payment is the amount of money that is paid to the investors from the net income that is generated by the company from the business activities or other investment activities performed by the corporation, while capital gain refers to the gain from the increase in the price of shares (Han, Subrahmanyam & Zhou, 2017).

The stock market can be volatile. The return from investing in stock is not guaranteed. No one can forecast exactly if the share price of a particular company will go up or down. Dividend income is not guaranteed as well since the dividend payment is voluntary. Hence, stock investment is categorized as a high risk and high return investment type.

1.1.2.3 Fixed Deposit

Fixed deposit (FD) is the investment preferred by most of the people who have limited knowledge in investment. FD is the financial instrument that requires depositors to put a portion of money into the financial institution for a period of time, either a lump sum of money or consistent deposit of money (Soni, 2017). FD provides a higher interest rate than savings account. The FD rate range in Malaysia is around 3.0% to 3.2% per annum.

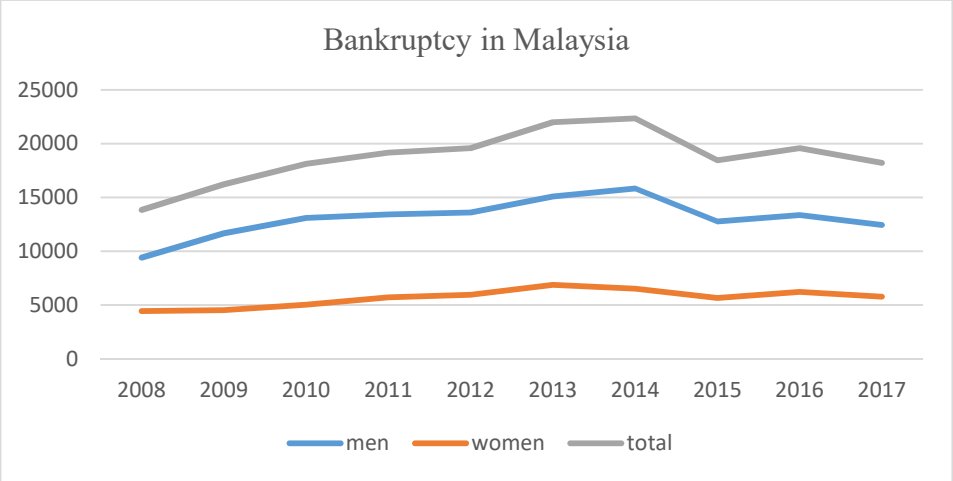
The reason that most of the people engage in FD is that there is a guaranteed return on the principle that is being deposited. Depositors would not have to keep tracking the movement of the stock price and the market condition. Fixed rate of interest will be paid and given to the investors when the FD is matured. Hence, FD is considered a low risk investment type that is suitable for relatively conservative investors.

1.1.3 Importance of Investment

From the research that was conducted by Hambali and Kamaluddin (2017), the living cost of Malaysians have risen after implementing the 6% Goods and Services Tax (GST) from the government of Malaysia. People's purchasing power has declined and subsequently burdened their living.

Since 1997, there is a 45% increase in Malaysian household debt as percentage of GDP. The percentage doubled from 43% to 89% and is the highest among the other countries in Asia region (Settlements, Bank for International, Financial Systems and the Real Economy, 2017).

Figure 1.1: Bankruptcy in Malaysia from year 2008 to 2017



Adapted from: Malaysia Department of Insolvency Official Portal, 2017

According to the statistic of bankruptcy from the Malaysia Department of Insolvency (Bankruptcy Statistic December, 2017), the received bankruptcy order is on the rise. In year 2008, there were 9,421 males ordered to register as bankrupt while 4,434 for female. During year 2017, the number of bankruptcy order for both male and female had increased to 12, 452 (32.17 %) and 5, 775 (30.24%) respectively. The total bankruptcy for both male and female has increased from 13,855 to 18, 337 cases, an increase of 31.56%.

Investment is one of the significant ways to avoid staying poor and to start getting a better standard of living (Elkins, 2015). Malaysians have to start investing to have a secure and stable income for their life. To avoid burning hands in the financial market, they must be mindful with the investment decisions they make, considering their own FRT.

1.1.4 Important Factors that Influence Investment Decision

One of the significant factors that will influence the investment decision is FRT. Harlow and Brown (1990) and Horswill and Coster (2001) give meaning to FRT as an investor's degree of willingness and capability to

take the possibility of an unreliable consequence to any economic decision. Risk tolerance can be seen as the trade-off between compensation and risk bearing. Agreeableness to take negative change in the investment portfolio of retail investors refer to FRT (Kannadhasan, Aramvalarthan, Mitra, & Goyal, 2016). Mishra and Mishra (2016) stated that risk tolerance for an individual investor is evaluated by the socioeconomic particulars and personality trait of materialism.

Investors with high FRT are able to tolerate more risk for higher returns. They are said to be aggressive investors. When it comes to making investment decision, they can opt for relatively higher risk investment types such as stocks and futures. On the other hand, investors with low FRT prefer low risk and low returns investments. They are considered as the more conservative types. When it comes to making investment decision, they should choose lower risk investment such as fixed deposit or property investment.

After realizing the importance of FRT in making an appropriate investment decision that is customized towards oneself, this research aims toward identifying the potential factors contributing to one's FRT. The effects of demographics toward FRT are well-established and widely tested. However, demographics alone could not be used to explain fully the FRT in an investor (Grable, 1997). Hence, this research would study the bio-psychological factors. The bio-psychological factors such as self-esteem and sensation seeking have been widely studied and found significant on daily risk taking behaviors such as drug taking and alcohol abuse. However, there were little studies on financial risk taking which is deemed to have a significant relationship as well.

According to Jawaheer and Manual (2016), gender differences are evolving since both male and female are nearly equivalent in the financial decision making involvement. By comparison, the past decades displayed gender gap in a lot of countries, in which men were likely to be the

dominant in the financial sector, while in the recent era, there is nearly gender equality in a large part of the world due to both men and women are involved in the labour force. Hence, it would be reasonable to examine their inner prompt when making investment choices, considering their own FRT.

1.2 Problem Statement

Malaysia as a nation aiming to become high-income nation by the year 2020, is seeing an expansion in the quantity of citizen pondering higher debt obligations than they can deal with. According to Standard & Poor's August report, households are incurring and accumulating more debts faster than their incomes growth. When credit cycle turns, this will probably prompt repayment challenges. As indicated by S&P, Malaysia has the most noteworthy individual debt obligation among 14 Asian economies. This is due to factors such as lack of alternative income from investments to support their daily living and in case of emergency and also inefficient financial management. Thus, this would eventually lead to bankruptcy. According to Zamzamir, Jaini and Zaib (2015), a growing concern that increment in the rate of Malaysians who declare bankruptcy every year should be taken seriously in order to accomplish economic stability of a nation.

Today, the financial wealth of an individual for the most part will be affected because of the expanded standard of living, increasing inflation and huge amount of commitments (Mokhtar, Husniyah, Sabri, & Talib, 2015). The factors such as expanded standard of living and increasing inflation tend to reduce the purchasing power of financial wealth possessed by them. Individuals, particularly employees are unaware that they ought not to be spending more than what they earned and do not have passive income as they are afraid of investing. In the present society, they generally wind up in troublesome circumstance because of the way that they have a tendency to overspend as they stick to the idea in which credit is so easily accessible.

The reason people avoid investment is due to constantly occurrence of mismanagement of individual financial environment by financial advisor/investor which eventually leads to shrinkage of their wealth. By overestimating or underestimating an investor's risk tolerance, financial advisor may suggest a portfolio that might be too aggressive to the investor. One's who invest in a portfolio that is inconsistent with his or her FRT may lead to disappointment and avoid from it in future (Droms, 1987).

Next, there is still an existence of gap between rich and poor in Malaysia, which means that there is an inequality in the wealth possession and growth of individuals. As stated by Kaur (2016), the gap between wealth and poor in Malaysia is contracting. Most of those from lower-class or even middle-class income group are afraid of making financial investments and they aim for a steady pay check only. They escape from making financial investment because of some factors such as "not having enough money, not having any knowledge about investment, investing is too risky and also they think they can invest later when they are older" (Folger, 2012). This eventually causes them to struggle when cost of living rise beyond than their expectation and force them to incur additional borrowing to make end meets. Kiyosaki (2016) stated rich are getting richer because they aim for making financial investment and business that provide a steady cash flow each month. From here, it is obvious that there is different mind-set between poor and rich and that does why exist the saying "why poor are staying poor, why rich are getting richer?"

Thus, if people can understand well their own risk tolerance, it can warn them to keep themselves away from "fast money schemes" and help them to make consort financial investment decision and management which will best suit their goals and provide them passive income which best suit their risk tolerance. Also, understanding and assessing FRT would help the financial advisor to develop a single optimal portfolio that maximises the return at the given level of risk by pooling together investors with different levels of FRT. Risk tolerance likewise shifts as indicated by the unique situation: individuals may appreciate risk in their recreation exercises yet escape from it when making financial investment

decisions because of some factors such as personality. Therefore, the factors affect risk tolerance and ultimately in turn affect financial investment decision should be investigated in Malaysia context. Since there is less study on the effect of bio-psychological factors on FRT, so this research seeks to expand the study of Kannadhasan et al. (2016) by including gender as the moderating variable and financial literacy variable, which in turn can provide a much more comprehensive result of the significant factors.

1.3 Research Objectives

1.3.1 General Objective

The aim of this research is to investigate the relationship between bio-psychological variables (self-esteem, sensation seeking and financial literacy) and FRT among academic staff of UTAR, UTP, QIUP and TARUC in Perak, and when moderated by gender.

1.3.2 Specific Objectives

1. To study the relationship between self-esteem and FRT of academic staff in UTAR, UTP, QIUP and TARUC in Perak.

2. To study the relationship between sensation-seeking and FRT of academic staff in UTAR, UTP, QIUP and TARUC in Perak.

3. To study the relationship between financial literacy and FRT of academic staff in UTAR, UTP, QIUP and TARUC in Perak.

4. To determine the moderating effects of gender in the relationship between the bio-psychological factors and FRT of academic staff in UTAR, UTP, QIUP and TARUC in Perak.

1.4 Research Questions

Several research questions are proposed by this research and they are as follows:

1. What is the relationship between self-esteem and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak?

2. What is the relationship between sensation-seeking and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak?

3. What is the relationship between financial literacy and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak?

4. Does gender moderate the relationship between the bio-psychological factors and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak?

1.5 Research Hypotheses

H_1: There is a significant relationship between self-esteem and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_2: There is a significant relationship between sensation seeking and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_3: There is a significant relationship between financial literacy and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_4: Gender moderates the relationship between self-esteem and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_5: Gender moderates the relationship between sensation-seeking and FRT among

academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_6: Gender moderates the relationship between financial literacy and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

1.6 Significance of Study

This research intends towards contributing to advantage of the society considering that investment plays a vital role in building wealth and reaching one's financial goals. It is important to note that investment is not only about analysing numbers but also involving psychological considerations. Without knowing oneself and realizing one's FRT, the investment goal is unlikely to be met and further investment may be discouraged. Hence, this research would be a good source of reference for the potential and existing investors. It serves as a basis to help individuals understand their own risk tolerance level before making any investment decision.

The increasing demand for financial advisors and financial planners in Malaysia justifies the need for professional advices on portfolio allocations in accordance with the investor's financial goal and FRT ("Malaysia Needs", 2017). Financial companies can benefit from this research by knowing how to effectively market their products of different riskiness to individuals with different risk tolerance level.

Investment managers have a general consensus in which demographics alone can be used to accurately classify clients into different risk tolerance level. This consensus is worrying because evidence suggests that classifying investors into their respective risk tolerance categories based predominantly on demographics may cause failure in achieving the client's investment goals.

This research contributes an estimate of risk appetite of individual investors, given their bio-psychological factors. Investment managers can then utilize these estimates to manage their clients' funds by keeping their investment within the

acceptable risk limits. Financial consultants can also use this additional source of data in order to understand their clients.

This research contributes to the investor behaviour literature by investigating how bio-psychological factors can affect FRT and how gender can moderate their relationship. For the researcher, this research helps in adding to the literature and reaching on a consensus on the tested variables on the FRT. A new sample of respondents have been tested that may help the researchers in uncovering critical areas that were not previously investigated. Hence, a new factor may be arrived at. Furthermore, this research's findings are able to help policymakers in taking the necessary steps to provide training as well as education to future investors.

1.7 Chapter Layout

As a whole, this research presents five chapters. Research overview as Chapter 1, literature review as Chapter 2, methodology as Chapter 3, data analysis as Chapter 4, and Chapter 5 is discussion, conclusion and implications. The overview of each chapter is listed as below:

Chapter 1 which serves as an introduction to this research, consists of the background of this research and problems statement. It consists of research objectives, research questions, and hypothesis of the study as well. The significance of the study will be identified, and the chapter layout will be listed. Lastly, this chapter sums up with a conclusion.

Chapter 2, literature review comprises of the past research studies associate with this research. The variables of the research, associated theoretical model, suggested theoretical framework, and also the evolution of hypotheses are covered. After all, Chapter 2 will be concluded.

Chapter 3 illustrates an overview of the methodology, where the research design and data collection method are described in detail. Sampling design such as the targeted population and sampling frame, would be indicated. Follow by describing

the research instrument and construct measurement, the working and analysis of data is included. Finally, it concludes with the chapter's summary.

Chapter 4 deals with the interpretation and the analysis of the data collected. Furthermore, descriptive analysis, and scale measurement, along with the inferential analysis will also be covered in this chapter. It then includes a summary as the conclusion of the chapter.

Chapter 5 as the ending section of this research summarizes the statistical analysis. Subsequently, there is an inclusion of discussion on the major findings and its implications. At the same time, this research will provide the limitations encountered while recommending any improvement for future research. Finally, this chapter concludes the entire research as overall in accordance to the previously set research objectives.

1.8 Conclusion

In a nutshell, this research discusses about how various factors indicate the risk tolerance of people with stable income. Assessing one's FRT is important for them before making investment choices. However, there are still a limited number of researches that are able to fully cover the topic, yet still with different views on the factors affecting risk tolerance. Apart from studying the effect of sensation seeking, self-esteem and financial literacy on an individual's FRT, this research also attempt to examine the moderating effect of gender on aforementioned relationships.

This chapter has provided the readers with the big picture of the topic that will be carried out including some basic knowledge and explanation about the topic. In the next topic, literature review and some theories in supporting the variables will be provided.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter focuses on presenting numerous reviews of literatures on the relationship between the dependent variable and predictor variables, which is the relationship between the FRT and self-esteem, sensation seeking as well as financial literacy. In addition to that, this chapter also presents some reviews on the relationship between gender and FRT, in which gender serves as the moderating variable. Moreover, the linkage between the FRT and predictors variables will be explained by relevant theoretical models. Lastly, the proposed framework will be presented.

2.1 Review of the Literature

Literature review is a presentation of analysis based on related empirical or theoretical researches that done by the earlier researches. Through the analysis of previous research, it is assumed that there are no absent of important variables.

2.1.1 Dependent Variable – Financial Risk Tolerance

FRT has been defined as the extent to which an individual is willing to take risk when facing with investment choices that result in different returns (Chattopadhyay & Dasgupta, 2015). FRT is among the crucial concepts in the finance, psychology, management science and economics field. FRT concept is essentially important particularly towards financial planners and financial advisors when deciding the most appropriate investment strategies for the investors (Gilliam, Chatterjee & Zhu, 2010). Investors who possess a great level of tolerance are more prone to take higher financial risks by investing in “high risk- high returns” investments. Conversely, investors with a low level of risk tolerance will generally

involve themselves in "low risk-low return" investments (Coleman, 2003; Grable, Britt & Webb, 2008). Hence, understanding and assessing the FRT of an investor becomes more crucial for the investors themselves as well as financial service providers. From the viewpoint of investors, by understanding FRT, investors could make better financial decisions, improve faith in their decisions and able to avoid frustration. On the other hand, from the viewpoint of the financial service providers, through the understanding of the clients' FRT, they would be able to suggest the appropriate investments to their clients and hence, maintain a good relationship with their clients.

FRT is considered to be subjective rather than objective, and is hard to quantify (Grable, 1997). In spite of its difficulty to be measured, it is important for an investor to have emotional ability to accept any potential loss from his/her investment in order to meet the investment goals. Grable and Lytton (1999) have drawn a 13 questions FRT scale to help researchers in assessing a person's level of risk tolerance. This is among the most reliable and useful scale to measure the level of risk tolerance. Kuzniak, Rabbani, Wookjae, Ruiz-Menjivar and Grable (2015) reviewed the scale to further examine its reliability and concluded that the scale is reasonably effective in assessing an individual's FRT. According to Albaity and Rahman (2012), Malaysians are generally higher risk taker in income compared to non-Malaysians. There exist numerous researches that study the demographic factors' impact on the level of FRT (Chavali & Mohanraj, 2016; Grable & Lytton, 1999; Kannadhasan, 2015; Minnis, 2016; Thanki & Jadeja, 2014). The most frequently examined demographic factors include the gender, age, financial knowledge, income level, marital status and educational level (Gibson, Michayluk, & Van de Venter, 2013).

According to Chang, DeVaney and Chiremba (2004), practitioners generally believe that demographic factors alone are sufficient to classify investors in the process of developing an investment plan for their clients.

However, Grable and Lytton (1999) argued that this general consensus is worrying because it is possible that the investors would be wrongly classified, resulting in an improper allocation of asset and consequently, investors' objectives could not be reached. They also pointed out that depending only on demographic factors has limited efficacy in meeting the investors' goals. Hence, this research is aimed to examine factors other than demographics, namely the bio-psychological factors, including the sensation seeking, self-esteem and financial literacy. Additionally, this research also serves to examine the moderating effect of gender on the link between the aforementioned bio-psychological factors and FRT.

2.1.2 Independent Variables- Bio-psychological Variables

2.1.2.1 Self- Esteem

Self-esteem is a vital personality trait which is known as a multidimensional trait that comprises of various aspects like skill, health, worth, goodness and social competence (Baumeister, Campbell, Krueger, & Vohs, 2003). In simple terms, self-esteem could tell to what extent a person is confident on his/her own abilities (Chatterjee, Finke & Harness, 2009). It is the core component of how a person perceives himself/herself overall (Drago, 2011). According to Rosenberg (1965), there are two signs where self-esteem can be, which are positive or negative. It represents one's attitude towards oneself, whether it is favourable or unfavourable. Rosenberg Self-esteem Scale (RSES) is the most commonly used scale in measuring the level of self-esteem, which has undertaken various reliability as well as validity tests extensively (Robins, Hendin, & Trzesniewski, 2001).

Higher self-esteem people tend to have a higher risk tolerance compared to those lower self-esteem people (Grable & Joo, 2004; Kannadhasan et al., 2016). A positive self-esteem may stimulate the desire to create wealth as

long as the asset buildup is in consistency with self-perception. In accordance with the self-consistency theory, individuals tend to act consistently with their perceived self-worth. Those with higher level of self-esteem have more tendencies to achieve greater performance tasks as comparing to those with lower self-esteem. The reason being is that those with higher level of self-esteem will have higher conscientiousness concerning better performance so as to preserve their perceived self-worth. Those with higher level of self-esteem are inspired to maintain and enhance their status in the society (Bragues, 2005). The relationship between self-esteem and self-consistency theory is verified by the findings found in other studies (Judge, Erez, & Bono, 1998).

According to Chatterjee, Finke and Harness (2009), the level of self-esteem would influence an individual's creation of wealth, trading behavior and allocation of portfolio. The findings show that retail investors who possess a greater level of self-esteem are more capable to manage the anxiety when dealing with uncertainties and losses. They are more willing to take risk and invest in financial instruments that are more risky (Chatterjee, Finke, & Harness, 2009). According to Arkes and Blumer (1985), individuals with higher level of self-esteem feel lesser regret even when they make non-profitable investments such as investments in underperforming investments. Also, they show less willingness to own up to their investment failure. In other words, instead of letting go a stock portfolio that suffered a severe deficit, they will choose to sell the stock portfolio with a smaller loss (Tykocinski, Israel, & Pittman, 2004). Similarly, several studies have proven that there is a positive relationship between self-esteem and FRT (Cohen, 2001; Grable, Britt & Webb, 2008; Grable & Joo, 2004; Kannadhasan et al., 2016; Zagorsky, 2007). The finding from Barber and Odean (2001) supports this relationship as well, in which men, who have higher tendency to possess a greater level of self-esteem, would take more risk and trade overly.

On the contrary, reduction of risk may be inspired by the aspiration to

constraint the decline in one's self-esteem in the event of a negative result. Investment or purchasing involves some degree of uncertainty because the result of the action/ option can only be recognized in the future. However, individuals who possess greater confidence in their abilities to invest are fearless of a possible loss. According to Taylor (1974), household who possess higher level of self-esteem is more prone to reduce their exposure to risk (information asymmetry risk) by searching for products with warranties. Similarly, individuals possess of greater level of self-esteem are less probably to evade taxes or indulge in activities that are against the law (Kanniainen & Paakkonen, 2010). In short, they are less likely to take risk.

To sum up, this research expects a positive relationship between self-esteem and FRT. One with higher self-esteem has greater confidence to take more risk and to invest in risky assets which yield higher returns in order to accumulate more wealth to match with their self-image. This positive relationship is supported by Cohen (2001); Grable, Britt and Webb (2008); Grable and Joo (2004); Kannadhasan et al. (2016); Zagorsky (2007).

2.1.2.2 Sensation Seeking

Sensation seeking is an important personality trait that often studied in the psychology literature which differs from one individual to the next. It is defined as possessing the willingness to assume physical risks as well as to pursue experiences and sensations that are diverse, intense, complicated and novel, for the purpose of such experiences (Zuckerman, 1994). According to Maattanen et al., (2013), the trait of sensation seeking could be explained through the hormones present in human, especially the testosterone. Sensation seeking is an essentially important trait that shows a consistent relationship with financial risk taking (Wong & Carducci, 1991). Sensation seekers do not mind taking risks in order to achieve the excitement and stimulation level that they desire. According to Coventry

and Brown (1993), sensation seekers have the tendency to take risk and they enjoy gambling as it increases the arousal level. They are also more likely to prefer higher risk investments (Harlow & Brown, 1990).

Sensation seeking has been widely applied particularly towards risk behavior such as the usage of drug (Yanovitzky, 2005), alcohol abuse (Yanovitzky, 2006) and hazardous driving behavior (Amirfakhraei, Taghinejad & Sadeghifar, 2013). However, there is limited literature concerning the relationship between sensation seeking and financial risk taking. According to Wong and Carducci (1991), an individual with higher level of sensation seeking has greater FRT. Additionally, the findings also show that men (who have higher level of sensation seeking) are more likely to involve in financial risk taking as comparing to women. This statement is supported by the research done by Kannadhasan et al. (2016); Wong and Carducci (2016) which pointed the positive association between sensation seeking and FRT. According to Grable and Joo (2004); Horvath and Zuckerman (1993), sensation seeking serves as a prediction regarding financial risk taking.

This research expects a positive relationship between sensation seeking and financial risk taking as supported by Wong and Carducci (1991); Kannadhasan et al. (2016); Wong and Carducci (2016). Higher sensation seekers enjoy the feeling of excitement when taking more risk during the process of investing since it offers them a chance to experience the love of earning and the fear of losing.

2.1.2.3 Financial Literacy

Financial literacy can be defined as a measure of how well an individual possesses an understanding of the major financial concepts as well as to be confident and able to make good short-term decision, long-term financial planning, while readily adapt to changes in the economy in order to have a good personal finance management (Remund, 2010).

According to Fernandes, Lynch and Netemeyer (2014), financial literacy is mostly accessed by knowledge tests in which respondents will be evaluated based on their percentage of getting correct answers on questions related to financial knowledge. Since education can enhance an individual's ability in making decisions, it can be derived that financial knowledge can significantly affects an individual's FRT.

According to Gustafsson and Omark (2015), FRT is positively associated with financial literacy. They further explained that individuals who show higher FRT are more probably to have acquired financial literacy through experiences in stock market rather than financial literacy gained from academic studies. In simple terms, regardless of education level, individuals with more stock market experiences are more likely to have higher financial literacy and show higher FRT. This is supported by Awais, Laber, Rasheed and Khursheed (2016); Gibson, Michayluk and Van de Venter (2013); Grable and Joo (2000); Grable and Joo (2004); Minnis (2016).

Individuals with more resources can utilize them to get access to financial information and enhance their financial literacy that makes them less uncertain on risky investments. In other words, a relatively wealthier individual is more likely to be more risk tolerant since he/she can buy more information and hence, enhancing his/her financial literacy (Makarov & Schornick, 2010).

In contrast, Davey (2004) challenged that the relationship between financial literacy and FRT is insignificant. It suggested that even an individual is highly educated and financial literate, he/she can have a low FRT.

This research expects a positive relationship between financial literacy and FRT. When investors have more financial knowledge, they will be more

confident when making risky investment.

2.1.3 Moderating Variables

2.1.3.1 Gender

Gender differences in self-esteem, sensation seeking, financial literacy and FRT might imply that gender has the potential moderating effect on the relationship between self-esteem, sensation seeking and financial literacy towards FRT. Gender differences in FRT are widely shown in previous researches. The literature on the relationship between gender and FRT is clear which shows that men are more likely to have higher FRT compared to women (Anbar & Eker, 2010; Ardehali, Paradi, & Asmild, 2005; Ayuub, Saleem, Latif & Aslam, 2015; Ganegoda & Evans, 2014; Garrison & Gutter, 2010; Grable & Roszkowski, 2007; Gibson, Michayluk & Van de Venter, 2013; Minnis, 2016; Mishra & Mishra, 2016; Thanki & Jadeja, 2014; Yao & Hanna, 2005). One of the reasons might be women, in general, are more responsible towards their family members, expected to live longer and their lifetime earning potential is lower (Belsky, Kobliner & Walmac, 1993). Hence, women are less willing to take risk.

Despite the general consensus, there are still several studies concluded otherwise. For instance, Grable (2000) found that males are willing to accept lesser risk than females. Chattopadhyay and Dasgupta (2015) supported this conclusion in which females in India have higher FRT than males. This is probably due to Asian women are as confident and risk-taking as men (Hewlett, Turner & Marshall, 2014). Gilliam, Chatterjee, & Zhu (2010) found that the gender differences in FRT show consistency across generations even after controlling for personal characteristics. To add to that, Statman (2008) confirmed that gender differences present across cultures.

Gender differences in self-esteem were explained in several Western countries by relating to the cultural emphasis on the physical appearance of women. Higher satisfaction of one's appearance is generally positively related with self-esteem. Women were found to be less satisfied with their appearance compared to men. Hence, women were expected to have lower self-esteem compared to men (Rentzsch, Wenzler & Schutz, 2016). According to Bleidorn et al. (2016), gender differences were not limited to Western countries, but were found in various cultures, including Malaysia.

Besides, gender differences are obvious when it comes to measuring sensation seeking. Previous studies have found that male generally have a higher sensation seeking than female (Rahmani & Lavasani, 2012; Zuckerman, 1994). Gender differences in sensation seeking could be explained based on biological factors. According to Maattanen et al. (2013), one of the major hormones in male, namely the testosterone, has been found to be significant in explaining numerous traits in humans. Biologically, males have higher level of testosterone hormone than females (Rosenblitt, Soler, Johnson & Quadagno, 2001). Hence, testosterone was found to have a positive relationship with sensation seeking (Maattanen et al., 2013).

Moreover, gender differences could be observed in financial literacy. According to Mustapha and Jeyaram (2015), males have higher financial literacy than females. However, according to Falahati and Paim (2011), females also have greater knowledge on the management of cash flow which is related to savings as well as recording. On the other hand, males are more knowledgeable on financial planning concerning risk, credit and investment.

Generally, gender differences will result in a different level of association between self-esteem, sensation seeking and financial literacy towards FRT.

2.2 Review of Relevant Theoretical Model

2.2.1 Behavioural Finance

According to Kubilay and Bayrakdaroglu (2016), an individual's behavior typically do not rely solely on the logical analysis as proposed by conventional financial theories such as the Efficient Market Hypothesis and might shift from rational behaviors sometimes. Behavioural finance is considered one of the newer fields that chains the behavioural psychological theory as well as cognitive psychological theory with the conventional economics. The linkage is useful in explaining why people make financial decision irrationally. As opposed to the standard finance, behavioural finance has an opposite block where it assumes that investors are normal (not rational), and the markets are not efficient. According to Shiller (2003), the impact of behavioural finance such as their mood and emotion will lead to an irrational behaviour in decision making process. There are two parts of behavioural finance, namely cognitive psychology and limitation in arbitrage. Cognitive psychology is the irrational decision of investors that are more self-belief and self-centred, as opposed to Efficient Market Hypothesis that posits that investors are rational in making financial decisions (Ritter, 2003).

Wood (1995) suggests that both individual investors and portfolio managers are affected by cognitive factors in determining risk in making financial decision and processing information. According to Lee and Lin (2006) and Lo (2005), cognitive biases such as overconfidence, loss aversion, anchoring, herding and others in making investment decision will lead to decision that are continuously error. Among the most significant factors influencing the financial decisions made by individual investors is the psychological biases (Breuer, Riesener & Salzmann, 2014). Such psychological biases as proposed by behavioral finance, lead investors to make irrational investment decisions based on their instincts and emotion which influence their financial risk tolerance.

For example, overconfidence bias implies that investors may perceive themselves as more literate or smarter than they actually are, resulting in overconfidence. This bias particularly could be related to this research's framework, considering that individual investors with higher self-esteem tend to be overconfident when making investment decisions (Hadar, Sood & Fox, 2013). This is for them to accumulate more wealth in order to match with their self-image. From this, it is clear in showing how overconfident bias, in particular, could influence an investor's FRT through his or her self-esteem. Behavioral finance posed many other biases that could influence an investor's FRT through one's inner psychology and consequently, affecting one's FRT. In short, since this research focuses on the effects of bio-psychological factors on FRT, behavioral finance which explains on the cognitive psychology, is best suited to explain the framework.

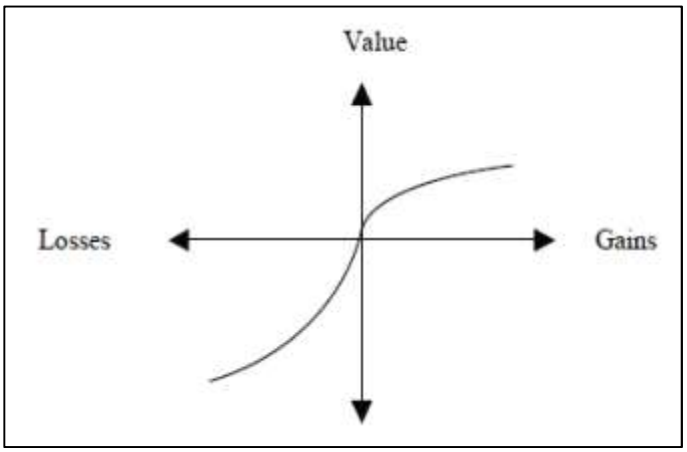
2.2.2 Prospect Theory

According to Wood (1995), behavioural finance reflects various human behaviour models which consist of many variables such as cognitive errors and prospect theory. Prospect theory, which is also called as risk-aversion theory, is a description of decision making that is relatively more accurate than expected utility theory, when the decision is involving risk. In prospect theory, it is assumed that under risk and uncertainty, people always add random behaviour as well as psychological factors into rational decision-making process. It assumes that gains and losses of a decision made are valued in different ways. Commonly, instead of the final outcome, people make decisions according to the potential value of gains and losses (Kahneman & Tversky, 1979). To be specific, people prefer a promised-gain option instead of an uncertain option even though the uncertain option might bring a greater gain; while people prefer an uncertain larger loss instead of a certain smaller loss (Chavali & Mohan,

2016).

One of the essential elements in prospect theory is the reference point. The theory says that when people face loss relative to a pre-determined reference point, he or she will be risk seeking rather than risk averse, and vice versa. Prospect theory posits that most of the individuals have an S-shaped value function (Kahneman & Tversky, 1979). As shown in Figure 2.1, the value function is S-shaped and asymmetrical, which shows a concave and convex in the gain and loss domain respectively (Wang, Yan & Yu, 2017). In other words, it exhibits the final outcome of the behaviour of an individual is prone to risk seeking or risk averse, whether it is below or above the reference point.

Figure 2.1: Hypothetical Value Function



Adapted from: Wang, H., Yan, J. and Yu, J. (2017). Reference-dependent preferences and the risk–return trade-off. *Journal of Financial Economics*, *123*(2), 395-414.

The critical argument of Prospect Theory, as well as behavioural framework is that they are consequential in nature. In other words, there is a fundamental assumption within these frameworks, where individuals generally make decisions concerning consequences, with proper analyzation and assessment. However, there is a relatively novel way of risk tolerance conceptualizing and risk-taking suspects the accurateness of this assumption. Some of the existing frameworks assume that people evaluate each of the possibility of the alternative outcomes to predict their

risky choices, even though the choices is subject to error and bias, while integrating the information through some calculus based on anticipations to come out with a decision (Loewenstein, Weber, Hsee, & Welch, 2001). Feelings triggered during the decision-making process are considered as a by-product of the process, which is not integral towards the process. Loewenstein et al. (2001) proposed a perspective, which is "risk-as-feelings" to address the situation. This perspective is unique itself as it acknowledges the influence of individual's emotion and cognitive factors in assessing risk tolerance and their behaviour. The risk-as-feelings hypothesis posits that there is no reasoned assessment when emotional reactions arise in making a risky decision. Emotional reactions including fear, worry, and anxiety influence people's judgements and choices (Olson, 2006). For example, people in good mood will assume a risky situation is less threatening than a person in frustrated mood.

In short, Prospect theory is important in explaining the irrational behaviour of investors. Because of the emotional influence, investors tend to value losses more than an equivalent amount of gain. In other words, investors tend to have a lower FRT in order to obtain a considerable amount of gain with certainty (instead of a higher amount of gain with lower probability). On the other hand, investors tend to have a higher FRT in order to restrain losses which come with a higher amount and a lower probability (instead of a sure loss of a lower amount).

2.2.3 Impulsiveness – Sensation Seeking (ImpSS) Theory

According to Zuckerman (1994), sensation seeking is a characteristic defined as the willingness to assume risks, either physical, financial or social, and to attempt for experiences and circumstances which are complicated, diverse, novel and intense for the purpose of gaining such experiences. Individuals with lower level of sensation-seeking and higher level of monoamine oxidase enzyme are likely to be conservative

investors. In contrast, investors possessing high sensation-seeking degree along with high level of this enzyme exhibit a higher willingness in accepting economic risk (Harlow & Brown, 1990). This shows a theoretical link between behavioural traits and risk tolerance.

Zuckerman (1994) posits that sensation seekers generally do not seek risk for their own sake. They tend to seek for stimulation instead of the riskiness. For example, partying or listening to rock music is not risky, but drug use and fast driving do involve some type of risk. Therefore, it is important to indicate which type of sensation-seeking is related to which types and forms of risk taking. However, the concept of risk itself is typically problematic. Generally, risk is regarded as something negative in risk management literature (Yates, 1992). Zuckerman (2007) later defines risk as the danger or possibility to suffer loss, where the loss can be various kinds such as losses financially, physically, psychologically, socially as well as losses in terms of performance and time.

According to Zuckerman and Link (1968), individuals with high level of sensation-seeking personality are reported as more extrovert, impulsive, less anxious and nonconformist than other. Even though sensation seekers are risk prone, it is suggested that there is possibility that the search for new experiences is higher than the search for risky venture. In other words, if people constantly seek for stimulation and change, they are more likely to be involved in risky activities (Daderman, 1999; Mellstrom, Cicala & Zuckerman, 1976).

The propensity to engage in risky activities of an individual is reflected by psychometric measures of sensation-seeking personality traits (Zuckerman, Buchsbaum and Murphy, 1980). Individual's tolerance for risk indicates that sensation-seeker tends to rate more situations as low risk, experience lesser fear when exposed to those situations.

2.2.4 Self-Esteem and Identity Theory

The study of self-esteem is originated from a psychosocial perspective. Cooley (1902) and Mead (1934) have expanded the concept of self and emphasize that self is a social construction in interaction, based on the understanding of social roles, symbols, rules, and categories of each individuals. Self-esteem is conceptualized as a motive, or outcome, but does not have an overall theory. Cast and Burke (2002) regards Identity Theory as a theoretical framework to integrate different concept of self-esteem, where self-esteem is referring to the result of the self-verification process in groups.

Generally, self-esteem is referring to one's overall positive evaluation about himself or herself (Gecas, 1982; Rosenberg, Schooler, Schoenbach & Rosenberg, 1995). There are two dimensions of self-esteem, which are competence dimension and worth dimension. The competence dimension is also known as efficacy-based self-esteem, which is referring to the degree that people view themselves as capable and efficacious; while the worth dimension is also known as worth-based self-esteem, which is referring to the degree that people see themselves as a person of value (Gecas, 1982).

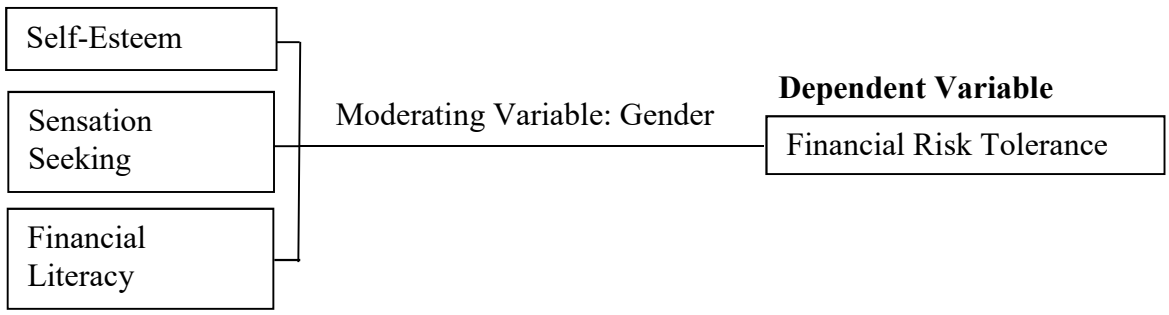
An individual's role identities are verified by his or her worth-based self-esteem and efficacy-based self-esteem. When self-verification is problematic itself, the self-esteem built up can buffer the arising negative emotions, ensuring the structural arrangements interaction and continuation (Cast & Burke, 2002). Furthermore, the desire for self-esteem arises from the self-verification process is able to stabilize the group because it motivates individuals to verify identities through forming and maintaining the relationships. In other words, in order to maintain an individual investor's self-esteem, one would strive to take more financial risk, having a greater FRT, in return for higher profits. A higher return from investment implies that wealth could be accumulated in accordance to one's self-perception (Bragues, 2005). This theory assumes that

individual investors would always act in line with their self-image.

It is finally suggested that people create "opportunity structures" in maintaining or increasing their self-esteem, where they seek opportunities to prove their identities and avoid situation when self-verification is problematic (Swarm, 1983). This effort does not only help them in managing self-esteem, but also in forming and maintaining group relations.

2.3 Proposed Framework

Figure 2.2: Proposed Conceptual Framework



Source: Developed for the research

This research expects a positive relationship between self-esteem and FRT, in accordance to the findings found in Grable and Joo (2004) and Kannadhasan et al. (2016). Besides, this research also expects that sensation seeking is positively related with FRT, agreeing with the results found by previous researchers such as Kannadhasan et al. (2016) and Wong and Carducci (1991). Lastly, this research has an expectation of positive association between financial literacy and FRT, in compliance with past researchers such as Gustafsson and Omark (2015) and Minnis (2016).

2.4 Conclusion

Reaching the end of this chapter, literature review of related journal articles was presented. The FRT, self-esteem, sensation seeking, and financial literacy are defined in this chapter. Moreover, the relationship between the bio-psychological variables and FRT is explained. In addition to that, the role of gender as moderating variable is discussed. Next, the relevant theories that explain the relationship between the dependent variable and independent variables were demonstrated. Lastly, the proposed framework was presented. This research will then continue with the identification and discussion of research methodology in the next chapter.

CHAPTER 3: METHODOLOGY

3.0 Introduction

Research methodology presents a systematic procedure utilized for collecting data and information to aid in making a good decision. This chapter discusses about the method used in carrying out the research. It includes the design of this research, method to gather data, sampling design such as the targeted respondents, sample frame, size, technique as well as location. It also includes the research instruments used, measurement construction, data preparation process, and data analysis. It then concludes with this chapter's summary.

3.1 Research Design

The types of research can be assigned as either qualitative or quantitative. Qualitative research is designed "To understand and interpret social actions" (Johnson & Christensen, 2008), with the main objectives of exploring, discovering and constructing. Qualitative data would be words, objects or images. On the other hand, quantitative research aims to "Test hypotheses, look at cause and effect, and make predictions" (Lichtman, 2006), with the main objectives of describing, explaining as well as forecasting. Quantitative data would be numbers and statistics obtained through questionnaire or rating scales.

In this research, quantitative research is applied in the aim of investigating the association between bio-psychological variables towards FRT. By collecting data to measure the variables which are in the numerical nature and subsequently transformed into statistics term is known as quantitative research (Wyse, 2011). Quantitative research is useful and effective in determining the correlation, causal effect, descriptive analysis and the like.

The research design employed in this research is the descriptive research. Descriptive research is utilized to investigate how the dependent variable and

independent variables are related. Hence, it seems to be the most suitable as it could meet this research's objective which is to examine the relationship between bio-psychological variables towards FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

3.2 Data Collection Method

The process to collect data is among the highly crucial parts while conducting a research since they are the input for generating results. The data collection process should be clearly identified and outlined to ensure the data and findings is accurate and valid. There are two ways from which data can be collected when conducting a research, which is the primary data or secondary data.

3.2.1 Primary Data

If first-hand data are collected on the variables of interest for the purpose of the research, it is known as primary data (Saunders, Lewis & Thronhill, 2012). Collection of primary data has the advantage in which the data collected is designed particularly for the purpose of a particular research and hence, it would meet the research objective. Additionally, primary data is always up-to-date compared to secondary data which uses historical data that has the possibility of being outdated.

Based on the research objective to examine the relationship between bio-psychological variables towards FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak, the collection of primary data through questionnaires is suitable. Questionnaires can directly gather the opinions, descriptions and perception from the target respondents (academic staff in UTAR, UTP, QIUP and TARUC in Perak) and the data collected through questionnaires are more comparable (Zikmund, 2003). Questionnaires are also useful since a substantial amount of data can be collected within a short scope of time. The questions designed in the questionnaires are

close-ended questions in which there are restrictions as to the respondent's answers. There are specific response options for the respondents to choose from. Close-ended questions are more specific and easy to answer which would encourage a higher rate of response. The structures used include the binary and ranking questioning.

3.2.2 Secondary Data

If the research data were previously gathered for other motives or other researches, they are known as secondary data which can be in the form of journals, annual reports, internet sources or articles (Bryman & Bell, 2011). It is advantageous from the aspect of time saving and cost saving.

In this research, journal articles, internet sources and online information database is used to support the research. The online information databases that have been employed include the ScienceDirect, Emerald, Research Gate and ProQuest to search for relevant journal articles.

3.3 Sampling Design

3.3.1 Target Population

The objective of this research is to determine the relationship between bio-psychological variables towards FRT among academic staff of UTAR, UTP, QIUP and TARUC in Perak, and when moderated by gender. Therefore, the target population would be the academic staff in UTAR, UTP, QIUP and TARUC in Perak, in which the total population is approximately 1368 academic staff.

3.3.2 Sampling Frame and Sampling Location

According to Battaglia (2008), sampling is the selection of a certain proportion from the finite population under the research. This is essential since the population is often too large to be studied.

The sampling frame in this research is the academic staff in UTAR, UTP, QIUP and TARUC in Perak. There are approximately 700 academic staff in UTAR, 420 in UTP, 190 in QIUP and 58 in TARUC, totaling 1368 academic staff for the population.

Besides, Perak state is chosen as the sampling location for this research. To be particular, the locations include Kampar, in which UTAR and TARUC are located, Teronoh, in which UTP is located as well as Ipoh, in which QIUP is located.

3.3.3 Sampling Elements

The academic staff in UTAR, UTP, QIUP and TARUC in Perak will take part in this research as respondents. Academic staff is chosen mainly because they are deemed to have a greater financial literacy, with a stable source of income.

3.3.4 Sampling Technique

In a quantitative research, there are two major sampling techniques, known as the probability sampling and non-probability sampling (Bryman & Bell, 2011). Probability sampling technique is the subject is chosen based on a specific probability while non-probability sampling technique is the subject chosen is subjective to the researchers' judgement. Despite its non-probability nature, it also seeks to obtain samples which are representative of the population itself (Schreuder, Gregoire, & Weyer, 2001). In this

research, convenience technique under non-probability sampling is used since the master list of all academic staff cannot be exactly determined. Non-probability sampling can be classified into a few types, which are quota sampling, snowball sampling and convenience sampling.

Firstly, according to Stephenson (1979), quota sampling is a method to ensure certain characteristic of respondents with fixed percentage needed is exactly collected by researchers. Acharya, Prakash, Saxena and Nigam (2013) suggested that quota sampling is useful in gaining the exact percentage of different characteristic of the result. However, since quota sampling method does not choose the sample by random selection, it is hard for researchers to determine the possible sampling error. In addition, it requires the respondents to be clearly divided into different categories or strata and require each of the individual in the population belongs to one of the strata, which might consume a lot of time.

Next, Dusek, Yurova and Ruppel (2015) explained that snowball sampling method is used to conduct a survey for first respondent who fulfil the requirement of the researchers and this particular individual will invite more people who possess similar characteristic with him/her into the survey. The advantages highlighted by Faugier and Sargeant (1997) suggested that snowball sampling method allows the researchers to reach more respondents easily since the first respondent participating in the survey is most likely to have friends with similar characteristics and subsequently, increase the sample size. On the other hand, its disadvantage includes the difficulty to control the sampling method since the respondents are not selected by the researchers but instead, the respondents themselves (Sydor, 2013). This is not appropriate in this research since it will cause the result to be bias while not showing sincerity of researchers to invite particular respondents to participate in the survey.

Lastly, convenience sampling is one of the most common methods used to collect the data needed. Convenience sampling concerns most with how

easily a sampling can be obtained. This technique enables researcher to reach only respondents who are more readily and easily accessible. Sample will be collected continuously based on convenience until the target number of sample size is reached which lead to time-saving and cost-effective (Leiner, 2017). Even though it possessed the disadvantages of the sample might be dominated by a certain group of people as the respondents are reached based on convenience, but it is most appropriate to use in this research due to its usefulness. It provides a way to collect data from huge number of academic staff using the shortest time and minimal cost considering the time and budget constraints.

3.3.5 Sampling Size

According to Krejcie and Morgan (1970), a population size of approximately 1368 people requires an approximate of 297 people as the sample size. However, the sample size fixed for this research is 300 people, with the expectation of receiving some incomplete questionnaires from the respondents.

3.4 Research Instrument

3.4.1 Questionnaire Survey

There are numerous collection means to collect data such as interview, questionnaire, observation, focus groups and self-study (Sekaran & Bougie, 2016). Among many other options, questionnaire has been chosen as the method in collecting data for this research. This is because questionnaire is the most common and easily applied method to collect data for a survey (Kothari, 2004). Moreover, it is much simple to analyze and interpret the data collected from the respondents. Besides, questionnaire tends to be chosen due to its cost-saving, time saving and

effective features as there is large number of target respondents. According to Bulmer (2004), questionnaire is a well-established tool within social science research to acquire information regarding respondents' social characteristics, behavior, attitudes or beliefs, and reasons of action with respect to the topic under investigation.

In order to better achieve research objectives and receive the relevant responses, the questionnaire has to be structured in a clear and direct way. This is because the well-designed questionnaire tends to provide more accurate information. The questionnaire has been set in a relatively more direct and simple manner because complicated and ambiguous question might lead to misunderstanding, which will further cause inaccurate data analysis. Fixed-alternative questions have been included in the research questionnaires because it provides only limited-alternative response. Hence, it can better save respondents' time and it is easier for researcher to key in the data when analyzing it.

3.4.2 Questionnaire Design

The questionnaire's cover page contains the title and objectives of the research. A basic information about all of the researchers such as their name, phone number and e-mail address are included. It also includes a personal data protection statement, which states that all of the information provided by the respondents will be kept confidential and used solely for academic purpose.

Three sections are included in the questionnaire namely the Section A, Section B and Section C. Section A requires respondents' demographic information including their gender, age, marital status, education level, and income.

Section B is about the independent variables that affect the FRT, which

include sensation seeking, self-esteem, and financial literacy. There is different number of questions for each of the questions. A Five-point Likert scale has been adopted to evaluate the variables, where Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly Agree = 5. Five-point Likert scale is chosen due to it is sufficient to show the variance of respondents' attitude, while avoid the complexity of offering too much alternatives as compared to seven-point or nine-point scale.

Section C is the last part of the questionnaire, which includes 10 questions in assessing the respondents' level of FRT. This section adopts a Five-point Likert scale as in Section B, where it ranges from strongly disagree to strongly agree.

3.4.3 Pilot Study

Pilot study is a relatively smaller scale version or trial run before the formal survey (Polit, Beck & Hungler, 2001). In other words, it is called as pre-test of the research. It is essential to carry out the pilot test to make sure there is no ambiguity regarding the wording and measurement used, which may further bring the consequences of misinterpreting data. The guidance and advice from the respondents regarding the structure of the questionnaire, inadequacy in grammar used, understanding of the questions and so on were sought for.

Isaac and Michael (1971) suggested that the number of participant for the pilot study should be around ten to thirty, while Connelly (2008) suggested that it should be 10% of the total sample size. Hence, since this research has targeted 300 respondents as the sample size, it requires approximately 30 sets of questionnaires to be disseminated to the academic staff of UTAR, Kampar Campus to run the pilot study. All the data collected are run with SPSS Statistic to test for its reliability and validity.

3.5 Constructs Measurement

Three independent variables consisted in this research, including self-esteem, sensation seeking and financial literacy, while the dependent variable is risk tolerance which emphasis in financial investment sector. The collection of data was through questionnaires in which 50 questions are designed to examine the variables. For the sake of easing the completion of the questionnaire, Likert Scale is being adopted in this research.

3.5.1 Origin of Constructs

Table 3.1: Origins of Constructs

Dimension	Author	Scale of Measurement
Risk Tolerance (Dependent Variable)	Nobre, Grable, Silva and Veiga (2016)	Ordinal
Self Esteem (Independent Variable)	Rosenberg (1965); Heatherton and Polivy (1991)	Interval
Sensation seeking (Independent Variable)	Zuckerman and Aluja (2015)	Interval
Financial literacy (Independent Variable)	Ibrahim and Alqaydi (2013)	Interval

Source: Developed for the research

3.5.2 Scale of Measurement

Choosing the scale of measurement is significant since it has impact on the research analysis's exactness. Gavin (1996) had classified the scale of measurement into three levels, including nominal scale, interval scale as well as ordinal scale. Nominal scale and the ordinary scale are considered as the non-metric scale while the interval scale considers as metric scale. Since there are no quantities to be represented, the value requires not to be represented in numerical form.

3.5.2.1 Nominal scale

In general, nominal scale is described as a type of scale where data is presented in the classification where it is not in ranking and ordering (Stevens, 1946). It is the most simple and basic scale, usually known as categorical variables. The nature of the data is easy to be observed and identified. The nominal scale is presented in two fundamental aspects which are the direct observation of the nature of the data and the frequency of the data appears. Gender and marital status are considered as nominal scale in this research. One of the examples that used nominal scale has been shown below:

Q1) Gender
□ Male
□ Female

Source: Developed for the research

3.5.2.2 Ordinal scale

Velleman and Wilkinson (1993) said that ordinal scale is a better measurement than the nominal scale. The reason behind is because the ordinal scale considers the rank and order of the data. However, ordinal scale measurement does not classify data into the range form. In this research study, the dependent variable (risk tolerance) and demographic information such as age, education level, and income are considered as ordinal scale. One of the examples that used ordinal scale is shown below:

Q2) Age (in years)
□ 20 - 29
□ 30 - 39
□ 40 - 49
□ 50 and above

Source: Developed for the research

3.5.2.3 Interval scale

Interval scale provides higher feature for the researcher to organize the data as compared to ordinal scale. Interval scale is a method to categorize data by using fixed amount of distance between data. It consists of both the properties of nominal scale and ordinal scale, while it additionally catches data about exact different in concept's value (Zikmund, Babin, Carr, & Griffin, 2010). The different between values on the scale are precisely equivalent and measurable. This measurement of scale allows researcher to run the parametric test more effectively by using the information and data collected (Gavin, 1996).

In this research, all of the independent variables are considered as interval scale. The higher the score of the three independent variables, indicate that the respondents have high level of the biopsychological factor, which are high level of self-esteem, sensation seeking and financial literacy. One of the examples that used interval scale is shown below:

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q6	I think that I have confident.	1	2	3	4	5

Source: Developed for the research

3.5.3 Scaling Technique

Five Point Likert-Scale has been used to design the questionnaire. It is a series of choices that allow the respondents to choose their degree of acceptance toward a statement given. The choices given are “Strongly

Disagree - 1", "Disagree - 2", "Neutral - 3", "Agree - 4", and "Strongly Agree - 5". Five Point Likert-Scale is used because 5 choices are suitable for the topic that measure the characteristics of human. It reduces the inaccuracy of the data either too much of choices make the respondent confuses or too less of choices reduce the precise of data (Croasmun & Ostrom, 2011).

3.6 Data Processing

The data processing is highly important steps to ensure a study can contribute to the society. It is a process transforming raw data from the questionnaires into meaningful information before they can be used in statistical analysis. This process includes checking, editing, coding and transcribing. According to Zikmund (2003), data processing is also crucial to ensure the data's consistency, standard as well as precision that represent the outcome of a research.

3.6.1 Checking

First of all, researcher need to check whether there is grammar mistake or jargon exist that will make the respondent confuse or find difficulty in understanding the questionnaire. Researcher need to ensure all questionnaires distributed have been collected back all and were completely answered. This process also includes find out those incomplete questionnaires or questionnaires that simply answered by respondent, and then omit them. This help to ensure the data collected is reliable as well as consistent.

3.6.2 Editing

Editing work includes the amendment of the questionnaire after the checking process that may due to omission, lack of legibility and

consistency. Researcher need to try to minimize the mistakes found from the checking process to zero or nearly perfect such as mistake on grammar, alignment of words, categories of data or usage of words. Amendment may be made based on the comment given by the respondent to best suit their need.

3.6.3 Data Coding

The process in allocating number to the responses of questionnaire participants before entering it into the database is called as data coding. In the process of coding, the latest version of the statistic software, Statistical Package for Social Science (SPSS) version 24 had been chosen to run the coding in this research. The questionnaire consists of three sections which name as Section A, Section B and Section C. Section A is question looking for the demographic information of the respondents. The coded number will be one number follow by the other number for all of the choices given. For example, "1" for male while "2" for female. On the other hand, five-point Likert scale is utilized for section B as well as C. For example, the data are coded 1 to 5 for risk tolerance variable based on the categories, which coded number "1" for super low risk taker, number "2" for low risk taker, number "3" for moderate risk taker, number "4" for high risk taker, and number "5" for super high-risk taker.

3.6.4 Data Transcribing

The process of transferring the coded data into the database (SPSS) that is obtained from the questionnaire for the convenience of analyzing the data is referred to as data transcribing. The outcome included the result of Factor Analysis, Reliability Test and Pearson's Correlation.

3.7 Data Analysis

The process of the transformation of data collected into a reasonable, clear, dependable and even unique investigation and information which is done through analytic procedures is referred to as data analysis. Zikmund (2003) described data analysis as technique used for translating the collective data into valuable and understandable data. To study and interpret the data that have collected, Statistical Package for the Social Sciences (SPSS) is used to assist in managing the data and portraying the statistics result from questionnaires done by respondents. For example, reliability test and inferential analysis are applied in this research.

3.7.1 Scale of Measurement

3.7.1.1 Reliability Test

The pertinence and quality of instruments to research questions are always considered by researchers when developing a new instrument or picking an instrument. Reliability is regarded with the stability or uniformity of the research's instrument measure under repeated trials (Tavakol and Dennick, 2011). It ought to be noticed that the reliability of an instrument is nearly connected with its validity. An instrument cannot be substantial unless it is reliable. In other words, reliability is referring to where the measurement of the instrument is free from bias and consistency of result under different occasion (Drost, 2011)

According to Sekaran (2003), the most frequently used method to conduct reliability test is Cronbach's Alpha. It allows researchers to check and verify how consistent are the scale of instruments internally, and help to improve the tests. It is denoted as a number in the vicinity of 0 and 1, and coefficient of alpha value that is equal to or greater than 0.6 generally considered to be reliable (Sekaran & Bougie, 2013). The greater the alpha value of coefficient, the greater the reliability of the questionnaire, and

vice versa. The Rules of Thumbs of Cronbach's Alpha coefficient size are shown below:

Table 3.2: Cronbach's Alpha Range

Coefficient Alpha (α)	Level of Reliability
0.80 to 0.95	Very good reliability
0.70 to 0.80	Good reliability
0.60 to 0.70	Fair reliability
<0.60	Poor reliability

Source: Sekaran, U., & Bougie, R. (2013). *Research methods for business: A skill building approach* (6th ed.). Chichester, West Sussex: John Wiley & Sons, Inc., (*pg. 229)*.

3.7.2 Inferential Analysis

The statistical technique of making inference and conclusion about the sample to generalize to the population is referred to as inferential analysis. Likert scale method has been applied in designing the questionnaire to identify the level of agreeableness of target respondents to a statement. Thus, Pearson Correlation Analysis and Linear Regression Analysis are applied in this research as the entire statements used to measure the variables are metric scales.

3.7.2.1 Pearson's Correlation Coefficient

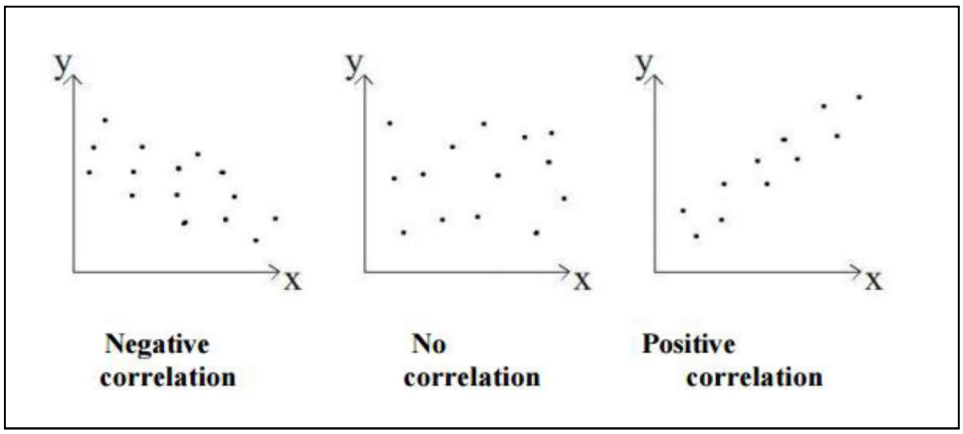
In assessing the significance of linear relationship and the level of association between two variables, Pearson connection coefficient has been used. Pearson's correlation coefficient, "r" represents a nonparametric measure of how strong is the connection between 2 variables that is widely used (Gogtay, Ravi, & Thatte, 2017). Pearson correlation coefficient allows researchers to dissect those metric statements and determine the extent of association between variables. This analysis plays an essential role for researchers in response to the research questions

as mentioned before in Chapter 1.

The coefficient value varies from -1 to +1, whereby positive sign indicates a positive relationship; negative sign indicates a negative relationship. The stronger the strength of relationship, the closer the value will be to ±1. Zero value indicates there is no correlation between 2 variables, for instance, if variable X increase, there is no impact on variable Y. Below table depicts a summarization of Pearson Correlation Coefficient.

Table 3.3: Rules of Thumbs of Pearson Correlation Coefficient

Size of Correlation	**Interpretation**
.90 to 1.00 (-.90 to -1.00)	Very high positive (negative) correlation
.70 to .90 (-.70 to -.90)	High positive (negative) correlation
.50 to .70 (-.50 to -.70)	Moderate positive (negative) correlation
.30 to .50 (-.30 to -.50)	Low positive (negative) correlation
.00 to .30 (.00 to -.30)	Negligible correlation



Source: Mukaka, M. M. (2012). Statistic Corner: A guide to appropriate use of correlation coefficient in medical research. *Malawi Medical Journal; 24(3)*, 69-71.

3.7.2.2 Multiple Linear Regression Analysis

Statistical technique that tests the impact of several independent variables (>1) toward one dependent variable is referred to as multiple linear

regression analysis. This analysis enables researcher to easily study if the relationship between independent variables and dependent variable is significant (Sekaran & Bouige, 2012). The impact of each variable has on dependent variable can be clearly identified and estimated by studying regression coefficient.

According to Zikmund et al. (2010), R-square is the coefficient of determination of the regressions that explained how many variance of response variable is explained by explanatory variables. Normally, the greater the R-square, the closer the data fitted to the regression line. However, high R-square does not always mean good while low R-square does not mean bad, it is subjected to the studied subject. For instance, it will usually get lower than 50% of R-square when studying human behavior as it is difficult to predict human behavior.

Multiple regressions equation generated for this research by following general formula is as followed:

$$\boldsymbol{Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_i}$$

Whereby,

$\boldsymbol{Y_i}$ **= Financial Risk Tolerance**
$\mathbf{X_1}$ **= Self-Esteem**
$\mathbf{X_2}$ **= Sensation Seeking**
$\mathbf{X_3}$ **= Financial Literacy**
$\boldsymbol{\beta_i}$ **= Coefficient of** $\mathbf{X_i}$

3.8 Conclusion

To sum up, this chapter has discussed on the research methodology, which began from collecting data, to processing and analyzing it. It briefly discusses the

research design, method of data collection, sampling design, research instruments, and the data analysis process. With the information obtained and discussed in this chapter, the actual survey will be carried out and the data collected will be discussed and summarized in the following chapter.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

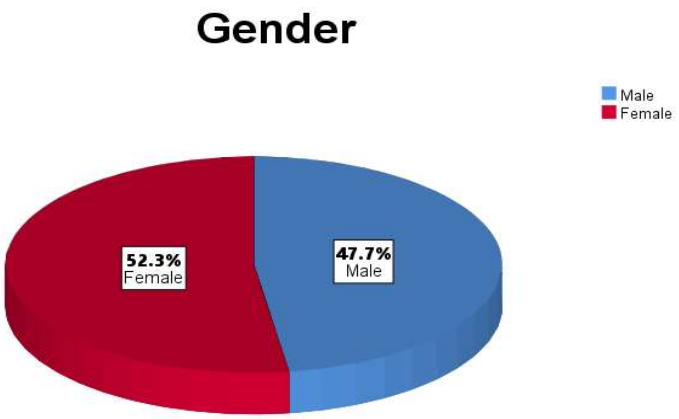
In this chapter, the questionnaires results are interpreted. The purposes are to examine and interpret the data gathered from the survey. The data compiled will be analyzed using SPSS Statistics 24. The analyses of result will be further classified into several sections like the analysis of demographic profiles, reliability testing, Pearson's Correlation Analysis and Multiple Regression Analysis.

4.1 Descriptive Analysis

Descriptive analysis is one of the methods used in facilitating data responded from large numbers of target respondents into an easier way to understand. By conducting a descriptive analysis, it allows researcher to summarize and interpret the respondent's characteristics easily, which may have done through graphics such as pie charts, tables, histogram (Kelechi, 2012). Frequency and percentage distribution are employed in Section A to show a greater picture on demographic information of target respondents. For data showed in Section B and C, central tendencies such as mean, median and standard deviation are calculated and generated through SPSS software for every statement used in the research. This information portrays a significant effect on collective data's skewness of distribution.

4.1.1 Respondent Demographic Profile

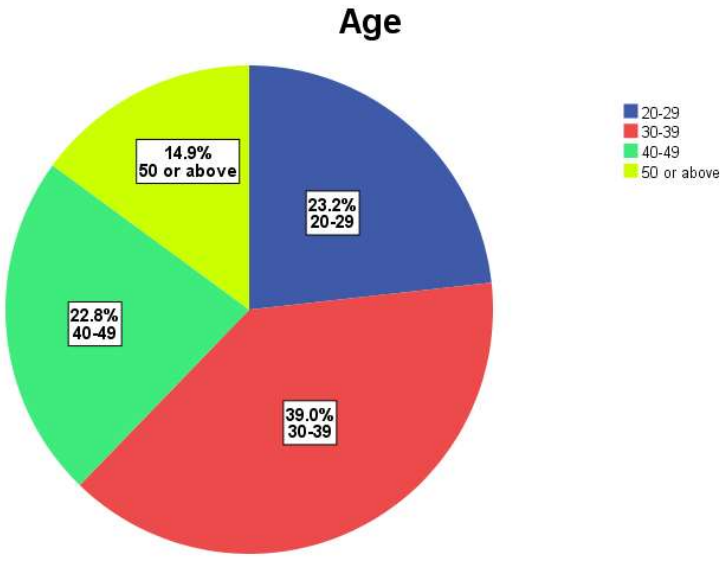
Figure 4.1: Gender of Respondents



Source: Developed for the research

Figure 4.1 above demonstrate the respondents' gender who have taken part in the survey. Out of 241 respondents, there are 126 (52.3%) respondents are female and 115 respondents (47.7%) are male.

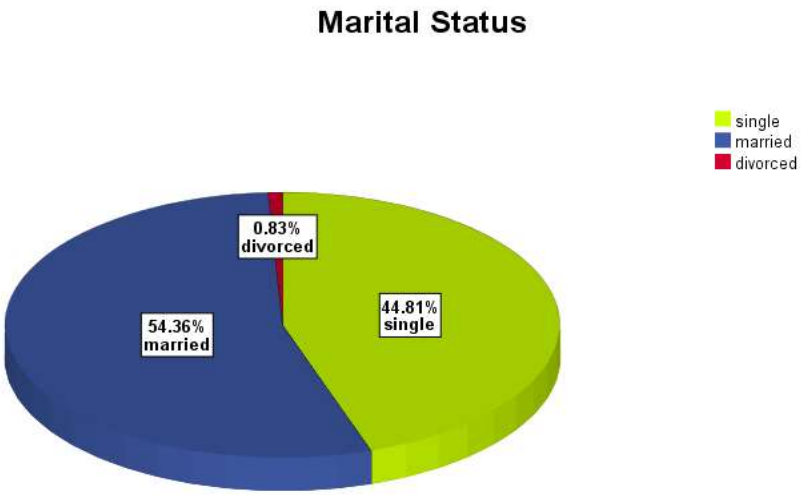
Figure 4.2: Age of Respondents



Source: Developed for the research

Figure 4.2 above show the respondents' age from 241 respondents. The age of respondents with highest frequency is between 30 to 39 years old with 94 (39.0%), respondents, followed by 56 (23.2%) respondents with age between 20 to 29 years old and 55 (22.8%) respondents with age between 40 to 49 years old. The lowest frequency of respondents' age is 50 and above years old, which consist of 36 (14.9%) respondents.

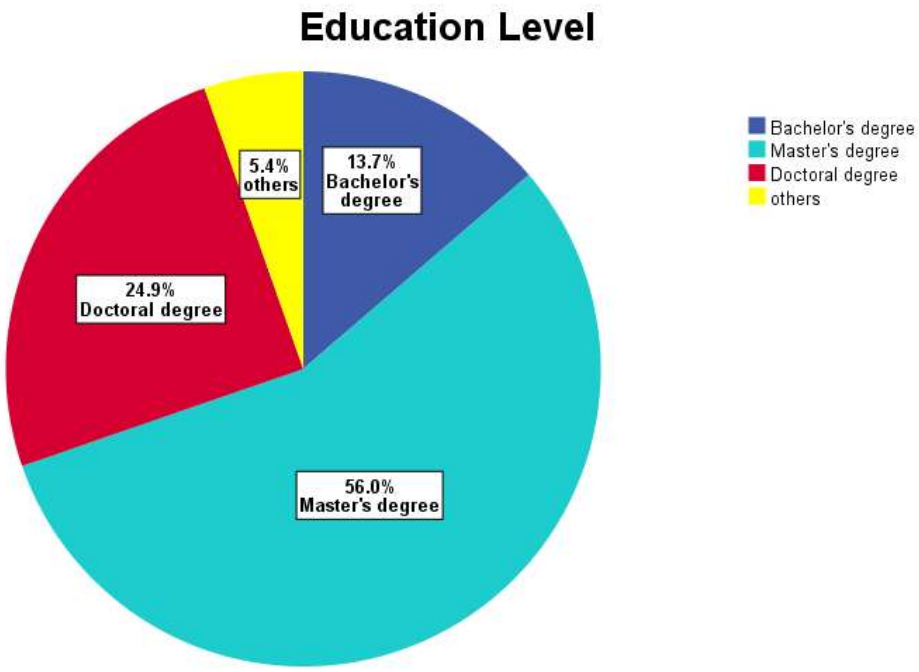
Figure 4.3: Marital Status of Respondents



Source: Developed for the research

Based on Figure 4.3, it shows majority of respondents are in single status, which comprised of 131 (54.36%) out of 241 respondents. Next, there are 108 (44.81%) respondents are in status of married while there are only 2 (0.83%) respondents had divorced.

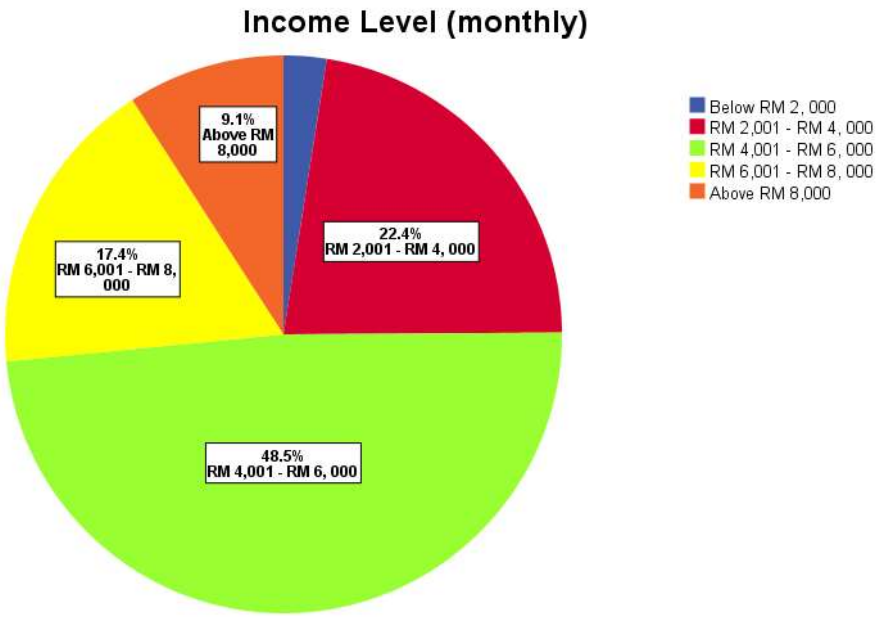
Figure 4.4: Education Level of Respondents



Source: Developed for the research

In term of education level, there are 3 levels of qualifications which are bachelor's degree, master's degree, doctoral degree and other types of qualification. According to Figure 4.4, there are 135 (56.0%) respondents are Masters' degree holder, followed by 60 (24.9%) respondents are doctoral degree holder and 33 (13.7%) respondents are bachelor's degree holder. Lastly, the lowest frequency of respondents' education level is from others (mostly professional qualification), with only 13 (5.4%) respondents.

Figure 4.5: Income (Monthly) of Respondents



Source: Developed for the research

The Figure 4.5 is about income level (monthly) of respondents. According to the result, it shows that majority of respondents (117) have monthly income of in between RM4001 to RM6000, which comprised of 48.5%. It follows by 54 (22.4%) respondents have monthly income of in between RM2001 to RM4000 and 42 (17.4%) respondents have monthly income of in between RM6001 to RM8000. For income level of above RM8000, there are only 22 (9.1%) respondents in this category. The least frequency of income level is 6 (2.5%) respondents that from group with monthly income of below RM2000.

4.1.2 Central Tendencies Measurement of Constructs

Central tendencies measurements had been conducted through the software SPSS system version 24 in order to show the values of mean and standard deviation of each item in the questionnaire.

4.1.2.1 Self-Esteem

Table 4.1: Descriptive Statistics of Self-Esteem

Statements (Items)	Mean	Mean Ranking	Standard Deviation	Standard Deviation Ranking
1. I think that I have confident.	3.31	5	1.164	4
2. I feel difficult to fight for my point when argument occurred.	3.18	9	1.083	9
3. I feel comfortable to talk with someone who have higher authority over me.	3.23	8	1.085	8
4. I feel confident to approach anyone I meet.	3.35	3	1.043	10
5. I think most people don't like me.	3.39	2	1.136	5
6. I am proud to be myself.	3.55	1	1.087	7
7. I feel that I have many good qualities.	3.32	4	1.134	6
8. I hope that I can be like others.	3.13	10	1.189	3
9. I enjoy speaking to large audience.	3.26	7	1.248	1
10. I have nothing to be proud of.	3.28	6	1.206	2

Source: Developed for the research

Table 4.1 depicts the central tendencies measurement of independent variable, self-esteem and is arranged in descending order ranking.

Based on table 4.1, the highest rank of mean score (3.55) is belonged to the statement "I am proud to be myself" with standard deviation of 1.087 (rank 7 in standard deviation). While for the statement "I hope that I can be like others" has the lowest mean score (3.13) with standard deviation of 1.189 (rank 3 in standard deviation). Besides, the statement "I enjoy speaking to large audience" obtained the highest standard deviation

(1.248) with mean score of 3.26 (rank 7 in mean). While for the statement "I feel confident to approach anyone I meet" has obtained the lowest standard deviation (1.043) with mean score of 3.35 (rank 3 in mean).

4.1.2.2 Sensation Seeking

Table 4 2: Descriptive Statistics of Sensation Seeking

Statements (Items)	Mean	Mean Ranking	Standard Deviation	Standard Deviation Ranking
1. I enjoy the feeling of speeding in car.	2.82	6	1.280	2
2. I would like to go on a trip without pre-planning.	3.05	1	1.300	1
3. I enjoy getting into new situation where the outcome is unpredictable.	2.98	2	1.204	7
4. I prefer making friends who are more unpredictable.	2.81	7	1.192	8
5. I would volunteer for exciting yet dangerous duties if I were in army.	2.85	5	1.255	4
6. I enjoy classical, melodic or relaxed music.	2.53	10	1.215	6
7. I enjoy spending time in the familiar surrounding than exploring new places.	2.94	3	1.183	9
8. I prefer something familiar when eating in a restaurant.	2.92	4	1.235	5
9. I usually make up my mind through careful reasoning before taking action	2.56	8	1.277	3
10. I have a cautious attitude toward life.	2.54	9	1.136	10

Source: Developed for the research

Table 4.2 depicts the central tendencies measurement of independent variable, sensation seeking and is arranged in descending order ranking.

Based on table 4.2, the statement "I would like to go on a trip without pre-planning" marks the highest mean score (3.05) and have the highest standard deviation (1.300). In the meantime, the lowest mean score (2.53) is marked by the reverse statement "I enjoy classical, melodic or relaxed music" with having standard deviation of 1.215 (rank 6 in standard deviation). Besides, the lowest standard deviation (1.136) is belonged to the reverse statement "I have a cautious attitude toward life" with mean score of 2.54 (rank 9 in mean).

4.1.2.3 Financial Literacy

Table 4.3: Descriptive Statistics of Financial Literacy

Statements (Items)	Mean	Mean Ranking	Standard Deviation	Standard Deviation Ranking
1. Buying a single company stock usually provides a safer return than a stock mutual fund.	3.12	7	1.060	5
2. Health insurance policies usually contain maximum annual amounts to be paid to medical doctors and hospitals.	3.27	5	1.067	4
3. In periods of economic growth, financial leverage does not work well for the company.	3.08	8	1.038	7
4. Holding diversified stock portfolio reduces financial risk inherent in stock market.	3.43	2	1.011	8
5. A high-risk high return investment strategy is suitable for an elderly	3.46	1	1.151	1

retired couple living on fixed income.				
6. An overdraft occurs when you write a check of RM 1,000 when you have only RM 700 in your account.	3.41	3	1.115	3
7. Your ownership in a mutual fund is proportionate to the number of shares you own in the fund.	3.23	6	1.046	6
8. The rate of interest on your credit card is usually higher than what you can earn on a certificate of deposit.	3.30	4	1.148	2

Source: Developed for the research

Table 4.3 depicts the independent variable's central tendencies, financial literacy and is arranged in descending order ranking.

Based on table 4.3, the statement "A high-risk high return investment strategy is suitable for an elderly retired couple living on fixed income" obtained the highest mean score (3.46) with highest standard deviation of 1.151 (rank 1 in standard deviation). While for the statement "In periods of economic growth, financial leverage does not work well for the company", it obtained the lowest mean score (3.08) with standard deviation of 1.038 (rank 7 in standard deviation). Furthermore, the lowest standard deviation (1.011) is belonged to the statement "Holding diversified stock portfolio reduces financial risk inherent in stock market" with mean value of 3.43 (rank 2 in mean).

4.2 Scale Measurement

Reliability test is performed through SPSS system for evaluation of the independent variables: self-esteem, sensation-seeking and financial literacy. Table 4.4 depicts the reliability analysis result for the three independent variables (self-

esteem, sensation seeking, and financial literacy). This analysis is conducted to evaluate the internal consistency of each items.

Table 4.4: Reliability Analysis's Result

Variables	Number of Items (N)	Cronbach's Alpha		Result of Reliability
		Pilot Study	Full Study	
Self-Esteem	10	0.815	0.913	Very Good
Sensation Seeking	10	0.765	0.920	Very Good
Financial Literacy	8	0.719	0.878	Very Good

Source: Developed for the research

Firstly, financial literacy which is measured by 8 items displayed the lowest Cronbach's alpha value, 0.878 among other 3 independent variables, but also regarded as very good reliability. Next, the sensation seeking which is measured by 10 items showed the highest Cronbach's alpha value, 0.920, which means that it has a very good reliability result. For self-esteem, the Cronbach's alpha is 0.913 and thus also considered as very good reliability. In conclusion, Cronbach's alpha of all the independent variables are greater than 0.8, which means that all of them have a very good internal reliability (Sekaran & Bougie, 2013).

4.3 Inferential Analysis

4.3.1 Pearson's Correlation Analysis

Pearson's Correlation Analysis is used to investigate the direction, strength and significance of the relationship between independent variables and dependent variables in this section. Standard alpha level is usually set at the value of 0.01 or 0.05. Three independent variables which are self-esteem, sensation seeking and financial literacy are examined in this

research by using Pearson's Correlation analysis.

Hypothesis 1

H_0: There is no significant relationship between self-esteem and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_1: There is a significant relationship between self-esteem and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

Table 4.5: Correlations between Self-Esteem and FRT

		Self-Esteem	FRT
Self-Esteem	Pearson's Correlation	1	0.485
	Sig. (2-tailed)		0.000**
	N	241	241
FRT	Pearson's Correlation	0.485	1
	Sig. (2-tailed)	0.000**	
	N	241	241

Source: Developed for the research

** = Significant at alpha level of 0.01 and 0.05

Direction

Referring to Table 4.5, the result points out that there is a positive relationship between self-esteem and FRT as the coefficient value is positive sign. The self-esteem has a 0.485 correlation with the FRT. This indicates that when level of self-esteem increase, the FRT will increase.

Strength

The correlation coefficient value of 0.485 falls under the correlation range from ± 0.30 to ± 0.50. As a result, this indicates that these 2 variables have low positive relationship.

Significance

Since the p-value (0.000) is less than the alpha value of 0.05, so there is a significant relationship between self-esteem and FRT. Thus, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted.

Hypothesis 2

H_0: There is no significant relationship between sensation seeking and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_1: There is a significant relationship between sensation seeking and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

Table 4.6: Correlations between Sensation Seeking and FRT

		Sensation Seeking	FRT
Sensation Seeking	Pearson's Correlation	1	0.652
	Sig. (2-tailed)		0.000**
	N	241	241
FRT	Pearson's Correlation	0.652	1
	Sig. (2-tailed)	0.000**	
	N	241	241

Source: Developed for the research

** = Significant at alpha level of 0.01 and 0.05

Direction

Referring to Table 4.6, the result points out there is a positive relationship between sensation seeking and FRT as the coefficient value is positive sign. The sensation seeking has a 0.652 correlation with the FRT. This indicates that when level of sensation seeking increase, the FRT will increase.

Strength

The correlation coefficient value of 0.652 falls under the correlation range from ± 0.50 to ± 0.70. As a result, this indicates that these 2 variables have moderate positive relationship.

Significance

Since the p-value (0.000) is less than the alpha value of 0.05, thus there is a significant relationship between sensation seeking and FRT. Consequently, the null hypothesis (H_0) is rejected and alternative

hypothesis (H_1) is accepted.

Hypothesis 3

H_0: There is no significant relationship between financial literacy and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_1: There is a significant relationship between financial literacy and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

Table 4.7: Correlations between Financial Literacy and FRT

		Financial Literacy	FRT
Financial Literacy	Pearson's Correlation	1	0.102
	Sig. (2-tailed)		0.113
	N	241	241
FRT	Pearson's Correlation	0.102	1
	Sig. (2-tailed)	0.113	
	N	241	241

Source: Developed for the research

Direction

Referring to Table 4.7, the result points out that there is a positive relationship between financial literacy and FRT as the coefficient value is positive sign. The financial literacy has a 0.102 correlation with the FRT. This indicates that when level of financial literacy increase, the FRT will increase.

Strength

The correlation coefficient value of 0.102 falls under the correlation range from ± 0.00 to ± 0.30. As a result, this indicates that these 2 variables have negligible relationship.

Significance

Since the p-value (0.113) is greater than the alpha value of 0.05, so there is no significant relationship between financial literacy and FRT. Thus, the

null hypothesis (H_0) is accepted and alternative hypothesis (H_1) is rejected.

4.3.2 Multiple Regression Analysis

Table 4 8: Analysis of Variance

Model	df	Sum of Squares	Mean Square	F value	Sig.
Regression	3	72.517	24.172	67.781	0.000**
Residual	237	84.520	0.357		
Total	240	157.037			

Source: Developed for the research

** = Significant at alpha level of 0.01 and 0.05

a. Dependent variable: Financial risk tolerance (FRT)

b. Predictor variable: Self-esteem, sensation seeking, financial literacy

H_0 : The three independent variables (self-esteem, sensation seeking, financial literacy) are not significant explained the variance of FRT.

H_1 : The three independent variables (self-esteem, sensation seeking, financial literacy) are significant explained the variance of FRT.

Based on the table 4.8, the p-value (0.000) is less than the alpha value of 0.05. So, the F-statistic is significant with the value of 67.781. This implies that the model for this study is good descriptor for the dependent variable (FRT) in relation to the independent variables (self-esteem, sensation seeking, financial literacy). Thus, the alternative hypothesis is accepted and the three independent variables which are self-esteem, sensation seeking, and financial literacy are significant explained the variance of FRT.

Table 4.9: Model Summary of R square

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	0.680	0.462	0.455	0.597

Source: Developed for the research

a. Dependent variable: Financial risk tolerance (FRT)

b. Predictor variable: (Constant), self-esteem, sensation seeking, financial literacy

The R square indicates the percentage or extent of variation in the dependent variable which are explained by the independent variables. Its value is ranged from 0 to 1 and usually stated as percentages (0 to 100%). By referring to the table 4.9, the value of the coefficient of determination (R-square) is 0.462. This demonstrates that the independent variables (self-esteem, sensation seeking, and financial literacy) could explain 46.20% of the variation in the dependent variable (FRT). Nonetheless, there is still have remaining 53.80% (100% - 46.20%) were unexplained in this research and could be explained by other variables. In other words, it implies that there exist some other important variables in explaining FRT are not measured in this research.

Table 4.10: Parameter Estimates

Model	Unstandardized Coefficients		Standardized Coefficients Beta	T-statistic	Sig.
	Beta	Std. Error			
(Constant)	1.081	0.211		5.133	0.000
Self-esteem	0.020	0.005	0.205	3.609	0.000**
Sensation seeking	0.048	0.005	0.550	9.972	0.000**
Financial literacy	0.005	0.006	0.039	0.781	0.436

Source: Developed for the research

** = Significant at alpha level of 0.01 and 0.05

a. Dependent variable: Financial risk tolerance

Regression Equation

$$\boldsymbol{Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_i}$$

Whereby,

$\boldsymbol{Y_i}$ = Financial Risk Tolerance
$\mathbf{X_1}$ = Self-Esteem
$\mathbf{X_2}$ = Sensation Seeking
$\mathbf{X_3}$ = Financial Literacy
$\boldsymbol{\beta_i}$ = Coefficient of X_i

By substituting the result, the below equation is formed.
Financial risk tolerance = 1.081 + 0.020 (self-esteem) + 0.048 (sensation seeking) + 0.005 (financial literacy)

According to Table 4.10:

Since the p-value for self-esteem is 0.000 which is lesser than alpha value of 0.05, it indicates that self-esteem is significant in predicting the dependent variable (FRT) in this study. By referring to the unstandardized beta coefficient, for every unit increase in self-esteem will result in 0.020 increase in FRT.

Next, as the p-value for sensation seeking is 0.000 which is less than alpha value of 0.05, it implies that sensation seeking is significant in predicting the dependent variable (FRT) in this study. By referring to the unstandardized beta coefficient, for every unit increase in sensation seeking will result in 0.048 increase in FRT.

Besides, financial literacy has p-value of 0.436 which is more than alpha value of 0.05, it indicates that financial literacy is insignificant in

predicting the dependent variable (FRT) in this study.

4.3.2.1 Level of contribution

The higher the beta of the predictor variables, the more significant effect it has toward the dependent variable. Table 4.10 shows that sensation seeking is the highest contribution of predictor variable as the value (0.550) of parameter under standardized coefficient is the highest among the other two variables (self-esteem and financial literacy). It indicates that sensation seeking is the strongest contributor in explaining the variation in FRT, holding other variables constant. This is followed by self-esteem (second-highest contributor) which owns parameter of 0.205 under standardized coefficient to explain the variation in FRT. Lastly, financial literacy contributes the least to the variation of FRT by having 0.039 parameter under standardized coefficient.

4.3.3 Moderating Effect of Gender

Table 4.11: Moderating Effect of Gender

Variables	Pearson Correlation	Significant Level
Self-esteem * Gender	-0.151	0.019*
Sensation Seeking * Gender	0.045	0.490
Financial Literacy * Gender	-0.344	0.000**

Source: Developed for the research

** = Significant at alpha level of 0.01 and 0.05

* = Significant at alpha level of 0.05

Hypothesis 4:

H_0: Gender does not moderate the relationship between self-esteem and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_1: Gender moderates the relationship between self-esteem and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

Based on table 4.11, the null hypothesis (H_0) is rejected and alternate hypothesis (H_1) is accepted since the p-value (0.019) is less than the alpha value of 0.05. This indicates gender has the moderating effect on self-esteem in relation with FRT.

Hypothesis 5:

H_0: Gender does not moderate the relationship between sensation seeking and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_1: Gender moderates the relationship between sensation seeking and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

Based on table 4.11, the null hypothesis (H_0) is accepted and alternate hypothesis (H_1) is not supported since the p-value (0.490) is more than the alpha value of 0.05. This indicates gender does not has the moderating effect on sensation seeking in relation with FRT.

Hypothesis 6:

H_0: Gender does not moderate the relationship between financial literacy and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

H_1: Gender moderates the relationship between financial literacy and FRT among academic staff in UTAR, UTP, QIUP and TARUC in Perak.

Based on table 4.11, the null hypothesis (H_0) is rejected and alternate hypothesis (H_1) is accepted since the p-value (0.000) is less than the alpha value of 0.05. This indicates gender has the moderating effect on financial literacy in relation with FRT.

4.4 Conclusion

In a nutshell, descriptive analysis is conducted for interpreting the demographic information of the survey participants, and this has been done through frequency analysis. Besides, the measurement of central tendencies of the independent variables as well as the reliability test have been conducted through SPSS software. Reliability test has been conducted for the evaluation of internal consistency, and the overall results showed that all the independent variable have good internal reliability. Moreover, Pearson's Correlation Analysis is performed to investigate the sign, strength and significance of the association between independent variables and dependent variables.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

In this chapter, a discussion and conclusion based on the entire research have been conducted. Starting with an introduction, this chapter is followed by the summary of statistical analysis presented in the earlier chapter, including descriptive analysis and inferential analysis. Moreover, the major findings are discussed to validate the hypotheses as well as research objectives. Besides, this research's implications as well as limitations have been outlined, along with the recommendations for the improvement of future study. It then ended with a comprehensive summary of this research.

5.1 Summary of Statistical Analysis

Table 5.1: Summary of Pearson Correlation Coefficient Result

Test	Hypothesis	Decision	Result
Self-Esteem and FRT	H_1: There is a significant relationship between self-esteem and FRT.	H_0 is rejected H_1 is supported	Positive Significant **(p-value = 0.000)**
Sensation Seeking and FRT	H_1: There is a significant relationship between sensation seeking and FRT.	H_0 is rejected H_1 is supported	Positive Significant **(p-value = 0.000)**
Financial Literacy and FRT	H_1: There is a significant relationship between	H_0 is supported H_1 is rejected	Positive Insignificant **(p-value = 0.113)**

	financial literacy and FRT.		

Source: Developed for the research

Table 5.2: Summary of Multiple Regression Result

Test	Hypothesis	Decision	Result
Self-Esteem and FRT	H_1: There is a significant relationship between self-esteem and FRT.	H_0 is rejected H_1 is supported	Positive Significant **(p-value = 0.000)**
Sensation Seeking and FRT	H_1: There is a significant relationship between sensation seeking and FRT.	H_0 is rejected H_1 is supported	Positive Significant **(p-value = 0.000)**
Financial Literacy and FRT	H_1: There is a significant relationship between financial literacy and FRT.	H_0 is supported H_1 is rejected	Positive Insignificant **(p-value = 0.436)**
Self-Esteem, Sensation Seeking, Financial Literacy and FRT	H_1 : The three independent variables (self-esteem, sensation seeking, financial literacy) are significant explained the variance of FRT.	H_0 is rejected H_1 is supported	Overall Significant **(p-value = 0.000)**

Source: Developed for the research

5.2 Discussion of Major Findings

5.2.1 Self-Esteem

This research shows a significant and positive result between self-esteem and FRT. In other words, individuals with higher self-esteem tend to possess higher FRT while making investment decisions. This positive association agrees with the result obtained from a previous study done by Grable and Joo (2004). Self-esteem plays a part in the development of an individual's subjective financial knowledge which has a strong association with an individual's own confidence in making good investment decisions (Hadar, Sood & Fox, 2013). According to Tang and Baker (2016), self-esteem would affect one's subjective judgment of his own knowledge in investment. In other words, individuals with high self-esteem would perceive themselves as having higher financial knowledge that leads to greater confidence. When an individual possesses greater confidence, his fear of a potential loss would be significantly lessened (Kannadhasan et al., 2016).

According to Chatterjee, Finke and Harness (2008), individuals who possess higher self-esteem have greater confidence to make investment in assets which are high risk and high returns. This could lead them to greater wealth accumulation that matches with their perceived self-image.

5.2.2 Sensation Seeking

Besides, sensation-seeking is a significant predictor of FRT and is positively related with FRT. This outcome is in line with the conclusion made by Kannadhasan et al. (2016). An individual with higher sensation seeking has the ability to accept higher risk while making investment

decisions. Sensation seekers are normally related to characteristics such as exploratory, intense stimuli and optimism. Generally, they are less afraid and could adapt quicker in risky situations (Breivik, Sand & Sookermany, 2017). According to Wong and Carducci (2016), individuals with high sensation seeking are likely to attempt for the thrill of FRT since it offers them with a chance to emotionally feel the fright of loss as well as the fond of profit with high level of uncertainties.

5.2.3 Financial Literacy

Additionally, this research finds that financial literacy has a positive but insignificant relationship with FRT. Individuals who are more financially literate tend to be more willing to take risk while investing. Gustafsson and Omark (2015) and Grable and Joo (2004) found that the association between financial literacy and FRT is significantly positive. Individuals who are more financially literate are competent to analyze financial information which led them to have a better capability to opt for relatively riskier investments for the sake of higher returns through their knowledge of managing the investments (Awais et al., 2016). However, in this research, the positive relationship is insignificant. This might be due to the sample respondents targeted, who are the academic staff in UTAR, UTP, QIUP and TARUC in Perak. Since they are academic staff, they are all expected to have significant degree of financial literacy that comes from their academic background. In this research, up to 94.6% of respondents own a bachelor of degree and higher, while the remaining has professional qualifications.

5.2.4 Gender as Moderating Variable

From the results obtained in Chapter 4, gender does moderate the association between self-esteem and FRT, given a p-value of 0.019. On the

other hand, the relationship between sensation seeking and FRT is not moderated by gender, with a p-value of 0.490. Lastly, gender also moderates the association between financial literacy and FRT, with a p-value of 0.000.

Gender differences in FRT were observed even in previous researches. Generally, men have higher FRT than women (Minnis, 2016; Mishra & Mishra, 2016; Thanki & Jadeja, 2014). This might be attributed to the higher responsibility of women towards their family members that made them relatively conservative (Belsky, Kobliner & Walmac, 1993). On the other hand, Chattopadhyay and Dasgupta (2015) found that women in India have a relatively higher FRT compared to men which might due to Asian women are as confident as men.

According to a cross-cultural study done by Bleidorn et al. (2016), gender differences in self-esteem were seen not only in western countries, but also in Malaysia. Males were also found to have higher self-esteem than females (Rentzsch, Wenzler & Schutz, 2016). One factor that contributes to the level of one's self-esteem includes the satisfaction towards one's appearance. According to Rentzsch, Wenzler and Schutz (2016), women have lower satisfaction towards their physical appearance which led to a lower self-esteem.

According to Rahmani and Lavasani (2012), social factors do affect a person's degree of sensation seeking as well. Since this research was carried out in relatively small towns compared to big states like the Kuala Lumpur, the respondents might be influenced by the slow pace lifestyle that led to no differences between male and female in sensation seeking.

According to Mustapha and Jeyaram (2015), males have higher financial literacy than females. Falahati and Paim (2011) also suggested that males have greater knowledge on financial planning regarding risk, credit as well as investment while females possess more knowledge on cash flow

management. According to Adeleke (2013), a person's role in the society was based dominantly on the societal messaging that was inherited from one generation to the next. Traditionally, males were believed to be the one responsible for supporting the family financially whereas females would in charge of the household activities. However, this might not be the truth in this era. Statistics from World Bank also showed that female participation in the labor force has been on a rise for the past 8 years. From 2010 to 2017, the female constitutions in the total labor force have increased from 34.90% to 38.07%. This was believed to have motivated, or somehow forced, them to learn how to build wealth and financial literacy.

5.3 Implications of the Study

This research's findings can fill in the knowledge gap in which most of the past studies emphasized on the demographic factors when considering the factors of FRT. This research incorporates bio-psychological variables that were not widely tested previously.

According to the findings of this research, self-esteem and sensation seeking are significant predictors of FRT, with a positive association. Hence, this research is expected to contribute theoretically a further insight on how self-esteem and sensation seeking are related to FRT. Additionally, this research would contribute, to a certain degree, to the contradictory literature by strengthening the existing results so as to have a further reinforcement on the determinants of FRT. This research is also able to enrich the literature on FRT in Malaysia context, particularly in Perak.

This research is useful for existing and potential investors. In the process of making investment decisions or constructing portfolio, investors would face complications such as risk and overwhelming choices. This decision-making process would be easier when the determinants of FRT are recognized by them.

This could lead them to make a good decision in which losses could be lessened in the future. For instance, an individual with high self-esteem should pursue higher risk and return investments to suit with their self-image and risk tolerance level. Otherwise, their financial goal would not be met. If FRT is incorrectly assessed, an inappropriate investment type might be chosen which conflict with one's risk tolerance level. This would then lead to a fall in overall wealth and the investor's confidence with investment.

Financial industry can also benefit from understanding the positive association between sensation seeking and self-esteem towards FRT. Financial advisor would find this research useful in understanding the bio-psychological factors of their clients. In order to achieve the client's goal, advisors must precisely measure the FRT of their client. If the FRT is not precisely assessed, the client's investment portfolio may conflict with their FRT which would possibly lead to disappointment in them, such as unacceptable loss. This circumstance would bring negative impact towards the relationship between the advisor and the client. Above all, it would negatively affect the advisor's career (Kannadhasan et al., 2016). By recognizing the significant bio-psychological predictors from this research, the financial advisors can understand better the determinants of FRT except relying only on the well-established demographic factors. Financial advisor can consider the sensation seeking and self-esteem level of their client before making any investment plan for them. For example, if their client has low sensation seeking level, they should promote mutual fund instead of stocks to their client.

The societal implication of this research is highly regarded with the impacts of FRT on the development of society's financial well-being as well as household wealth. For instance, if majority of individuals are conservative investors, the society's financial development would be negatively affected since they would ignore opportunities that have high return accompanied with high risk (Gustafsson & Omark, 2015). Besides, investors who do not understand their own FRT might encounter losses in investment or failure to meet their financial goals. This might discourage them from further investment. Realizing the contribution of sensation

seeking and self-esteem in explaining FRT, the authorities should establish programs in order to understand and develop individual's bio-psychological traits. This effort would help in enhancing financial management efficiency (Tang & Baker, 2016).

5.4 Limitations of the Study

Every research has constraints which restrict its performance that has caused imperfections. In this research, the first limitation to pinpoint is the sample size of the research. 241 responses have been collected from the academic staff of UTAR, UTP, QIUP and TARUC through both online and hardcopy questionnaire survey. The targeted respondent size to meet is 300 responses in which this research was short of 59 responses. This might influence the persuasive of the findings due to insufficient sample size. A greater sample size is relatively persuasive due to its higher statistical power.

Furthermore, the sampling location poses another limitation to this research. Due to convenience and time constraints, this research was done only in one state, which is Perak, out of the 13 states in Malaysia. Thus, the data cannot exactly represent the behaviour and FRT of the Malaysian private universities' and university colleges' academic staff.

Lastly, scarcity of resources is one of the limitations. There are quite several high quality journal articles which are unable to access due to needed to purchase (cost high price) and also copyright problem. Thus, it might lead this research unable to comprehensively explained the relevant variables in further and detail.

5.5 Recommendations for Future Research

To improve the research in response to its limitations, some recommendations are given for the benefit of future studies. Extension of the geographical areas for the

questionnaire distribution is a way to improve the accuracy of the result, since it includes more behaviour from the private universities' and university colleges' academic staff in Malaysia. There are 39 private universities in Malaysia which included university and university college ("Private Universities", n.d.). Future researches may collect needed data from all these private universities.

According to Theories of Culture (Keesing, 1974), people in a same culture tend to have same social beings, knowledge, values and believe. Perak is a state that is not so well developed as compared to those well-developed states like Kuala Lumpur, Johor as well as Penang. The lifestyle and culture in Perak is more relax compare to the lifestyle in those develop states. Therefore, future studies should take into consideration to the behaviour of those respondents who are from less developed states and high developed states.

To avoid overlook of online questionnaire that is delivered via email, future researches could distribute the survey form by using hardcopy questionnaire survey form. Furthermore, when researchers accompany respondents to complete the questionnaire, respondents tend to complete it more seriously and can make clear of their misunderstanding by researchers on the spot if needed.

For the future studies, it is suggested that researchers could add in more variables to investigate the relationship with FRT. For example, financial satisfaction, moderating effect of age and experience in investment could be used to examine FRT in the future. This is due to there might be existence of other important variables that could significantly affect the FRT which are not included in this research.

5.6 Conclusion

To sum up, this research was carried out in order to examine the determinants of FRT of academic staff in UTAR, UTP, QIUP and TARUC in Perak, Malaysia. The relationship between independent variables including self-esteem, sensation

seeking, and financial literacy and dependent variable, FRT has been tested. Apart from that, this research showed the moderating effect of the variable gender on FRT as well.

The outcome of this research showed that two of the independent variables, which are self-esteem and sensation seeking have positive and significant relationship on one's FRT; while the variable financial literacy showed no significant relationship with FRT. However, with the moderating variable, both the self-esteem and financial literacy have significant associations with the FRT.

There are some limitations of this research. One of the limitations worth a note is the findings might not be representative of the entire population of academic staff in private universities and university colleges as the target respondents in this research are limited to those in Perak only. Hence, extension of the geographical areas is encouraged for future studies for the purpose of improving the accuracy of the results. Besides, future researchers are recommended to include more other variables in their research to examine the relationship with FRT.

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APPENDICES

Appendix A: Permission Letter for Questionnaire Survey

UNIVERSITI TUNKU ABDUL RAHMAN
Wholly Owned by UTAR Education Foundation (Company No. 578227-M)

17th August 2017

To Whom It May Concern

Dear Sir/Madam,

Permission to Conduct Survey

This is to confirm that the following students are currently pursuing their *Bachelor Of Finance (Hons)* program at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR) Perak Campus.

I would be most grateful if you could assist them by allowing them to conduct their research at your institution. All information collected will be kept confidential and used only for academic purposes.

The students are as follows:

Name of Student	Student ID
Lim Chui Wei	14ABB04665
Ng Keat Zhao	14ABB04663
Pang Li Ying	14ABB03974
Seow Kai Wen	14ABB02926
Then Weng Kian	14ABB04968

If you need further verification, please do not hesitate to contact me.

Thank you.

Yours sincerely,

.....

Ms Kuah Yoke Chin
Supervisor and Head of Department
Faculty of Business and Finance
Email: kuahyc@utar.edu.my

Address: Jalan Sg. Long, Bandar Sg. Long, Cheras, 43000 Kajang, Selangor D.E. **Postal Address:** P O Box 11384, 50744 Kuala Lumpur, Malaysia
Tel: (603) 9086 0288 **Fax:** (603) 9019 8868 **Homepage:** http://www.utar.edu.my

Appendix B: Questionnaire

UNIVERSITI TUNKU ABDUL RAHMAN
FACULTY OF BUSINESS AND FINANCE
BACHELOR OF FINANCE (HONS)

Title: Gender Differences? A study on financial risk tolerance among academic staff of UTAR, UTP, QIUP and TARUC in Perak

Dear respondents,

We are final year undergraduate students of Bachelor of Finance (Hons) from Universiti Tunku Abdul Rahman (UTAR). As part of the assessments of our research project, we are required to conduct a research survey. The purpose of this research is to determine the relationship between the self-esteem, sensation-seeking and financial literacy towards financial risk tolerance among academic staff of UTAR, UTP, QIUP and TARUC in Perak and the role of gender as moderator.

This questionnaire consists of three parts, Section A, B, and C. **Section A** is respondent's demographic information, **Section B** is the bio-psychological factors, and **Section C** is to determine respondent's financial risk tolerance. It may take you approximately 15 minutes to complete. All the information provided is assured to be kept strictly confidential and used solely for academic purpose.

We truly appreciate for your willingness and cooperation to participate in our survey. If you have any doubts, please feel free to contact us:

	Student ID	Name	Phone No:	E-Mail Address
1	1404665	Lim Chui Wei	016-5270105	limchuiwei96@gmail.com
2	1404663	Ng Keat Zhao	018-5756714	nk_zhao96@hotmail.com
3	1403974	Pang Li Ying	016-6591861	liyingpang96@gmail.com
4	1402926	Seow Kai Wen	017-7743891	seow96@hotmail.com
5	1404968	Then Weng Kian	010-9338180	mrjkenkian@hotmail.com

Section A

INSTRUCTION: This section consists of 5 questions about respondent's demographic profile. Please complete **ALL** the question by placing a tick (√) on the most appropriate answer.

1. Gender ☐ Male ☐ Female
2. Age (in years) ☐ 20 – 29
   ☐ 30 – 39
   ☐ 40 - 49
   ☐ 50 and above
3. Marital Status ☐ Single ☐ Married
   ☐ Divorced
4. Education Level ☐ Bachelor ☐ Master ☐ PhD
   ☐ Others (please specify) : _____
5. Income (monthly) ☐ Below RM 2, 000
   ☐ RM 2,001 - RM 4, 000
   ☐ RM 4,001 - RM 6, 000
   ☐ RM 6,001 - RM 8, 000
   ☐ Above RM 8,000

Section B

INSTRUCTION: This section consists of 28 questions. Please complete **ALL** questions based on your degree of agreement by circle ONLY ONE number.

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

Self-Esteem					
6. I think that I have confident.	1	2	3	4	5
7. I feel difficult to fight for my point when argument occurred.	1	2	3	4	5
8. I feel comfortable to talk with someone who have higher authority over me.	1	2	3	4	5
9. I feel confident to approach anyone I meet.	1	2	3	4	5
10. I think most people don't like me.	1	2	3	4	5
11. I am proud to be myself.	1	2	3	4	5
12. I feel that I have many good qualities.	1	2	3	4	5
13. I hope that I can be like others.	1	2	3	4	5
14. I enjoy speaking to large audience.	1	2	3	4	5
15. I have nothing to be proud of.	1	2	3	4	5

Sensation Seeking					
16. I enjoy the feeling of speeding in car.	1	2	3	4	5
17. I would like to go on a trip without pre-planning.	1	2	3	4	5
18. I enjoy getting into new situation where the outcome is unpredictable.	1	2	3	4	5
19. I prefer making friends who are more unpredictable.	1	2	3	4	5
20. I would volunteer for exciting yet dangerous duties if I were in army.	1	2	3	4	5
21. I enjoy classical, melodic or relaxed music.	1	2	3	4	5
22. I enjoy spending time in the familiar surrounding than exploring new places.	1	2	3	4	5
23. I prefer something familiar when eating in a restaurant.	1	2	3	4	5
24. I usually make up my mind through careful reasoning before taking action.	1	2	3	4	5
25. I have a cautious attitude toward life.	1	2	3	4	5

Financial Literacy					
26. Buying a single company stock usually provides a safer return than a stock mutual fund.	1	2	3	4	5
27. Health Insurance policies usually contain maximum annual amounts to be paid to medical doctors and hospitals.	1	2	3	4	5
28. In periods of economic growth, financial leverage does not work well for the company.	1	2	3	4	5
29. Holding diversified stock portfolio reduces financial risk inherent in stock market.	1	2	3	4	5
30. A high-risk high return investment strategy is suitable for an elderly retired couple living on fixed income.	1	2	3	4	5
31. An overdraft occurs when you write a check of RM 1,000 when you have RM 700 in your account.	1	2	3	4	5
32. Your ownership in a mutual fund is proportionate to the number of shares you own in the fund.	1	2	3	4	5
33. The rate of interest on your credit card is usually higher than what you can earn on a certificate of deposit.	1	2	3	4	5

Section C

INSTRUCTION: This section consists of 10 questions. Please complete **ALL** questions based on your degree of agreement by circle ONLY ONE choice.

Financial Risk Tolerance					
34. My family describe me as a risk taker.	1	2	3	4	5
35. I would plan a luxurious vacation even I haven't saved enough money.	1	2	3	4	5
36. I prefer high risk but high return investment.	1	2	3	4	5
37. I feel comfortable to invest in stocks or stocks mutual funds.	1	2	3	4	5
38. I think that taking risks is just an action without much considerations.	1	2	3	4	5
39. I prefer a very high-income job even though I might lose this job in a 2 month time	1	2	3	4	5
40. I prefer a sure gain of a smaller amount instead of an uncertain gain of higher amount.	1	2	3	4	5
41. I would make high risk investment if I have inherited a huge amount of money.	1	2	3	4	5
42. I prefer a big portion of low risk investment in my portfolio.	1	2	3	4	5
43. I would spend all my earning if given an opportunity to make an investment with 20% of possibility earning 100 times return.	1	2	3	4	5

If you have any comment, please state it down:

_____

_____

THANK YOU FOR YOUR PRECIOUS TIME

Appendix C: Descriptive Analysis of Respondents' Demographic Profile

Frequencies

Statistics						
		gender	age	marital_status	education_level	income
N	Valid	241	241	241	241	241
	Missing	0	0	0	0	0
Mean		1.52	2.29	1.46	2.22	3.08
Median		2.00	2.00	1.00	2.00	3.00
Mode		2	2	1	2	3

Frequency Table

gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	115	47.7	47.7	47.7
	female	126	52.3	52.3	100.0
	Total	241	100.0	100.0	

age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-29	56	23.2	23.2	23.2
	30-39	94	39.0	39.0	62.2
	40-49	55	22.8	22.8	85.1
	50 or above	36	14.9	14.9	100.0
	Total	241	100.0	100.0	

marital_status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	married	131	54.4	54.4	54.4
	single	108	44.8	44.8	99.2
	divorced	2	.8	.8	100.0
	Total	241	100.0	100.0	

education_level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	bachelor	33	13.7	13.7	13.7
	master	135	56.0	56.0	69.7
	phd	60	24.9	24.9	94.6
	others	13	5.4	5.4	100.0
	Total	241	100.0	100.0	

income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below RM 2, 000	6	2.5	2.5	2.5
	RM 2,001 - RM 4, 000	54	22.4	22.4	24.9
	RM 4,001 - RM 6, 000	117	48.5	48.5	73.4
	RM 6,001 - RM 8, 000	42	17.4	17.4	90.9
	Above RM 8,000	22	9.1	9.1	100.0
	Total	241	100.0	100.0	

Appendix D: Descriptive Analysis of Independent Variables

Self-Esteem

Frequencies

Statistics

		Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
N	Valid	241	241	241	241	241	241	241	241	241	241
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		3.31	3.18	3.23	3.35	3.39	3.55	3.32	3.13	3.26	3.28
Median		4.00	3.00	3.00	3.00	4.00	4.00	3.00	3.00	3.00	3.00
Mode		4	4	4	4	4	4	4	3	4	4
Std. Deviation		1.164	1.083	1.085	1.043	1.136	1.087	1.134	1.189	1.248	1.206
Variance		1.355	1.172	1.177	1.088	1.290	1.182	1.286	1.413	1.559	1.453
Minimum		1	1	1	1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5	5	5	5

Frequency Table

Q6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	20	8.3	8.3	8.3
	Disagree	45	18.7	18.7	27.0
	Neutral	49	20.3	20.3	47.3
	Agree	95	39.4	39.4	86.7
	Strongly Agree	32	13.3	13.3	100.0
	Total	241	100.0	100.0	

Q7					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	7.1	7.1	7.1
	Disagree	50	20.7	20.7	27.8
	Neutral	69	28.6	28.6	56.4
	Agree	83	34.4	34.4	90.9
	Strongly Agree	22	9.1	9.1	100.0
	Total	241	100.0	100.0	

Q8					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	13	5.4	5.4	5.4
	Disagree	54	22.4	22.4	27.8
	Neutral	66	27.4	27.4	55.2
	Agree	81	33.6	33.6	88.8
	Strongly Agree	27	11.2	11.2	100.0
	Total	241	100.0	100.0	

Q9					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	11	4.6	4.6	4.6
	Disagree	41	17.0	17.0	21.6
	Neutral	70	29.0	29.0	50.6
	Agree	90	37.3	37.3	88.0
	Strongly Agree	29	12.0	12.0	100.0
	Total	241	100.0	100.0	

Q10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	19	7.9	7.9	7.9
	Disagree	30	12.4	12.4	20.3
	Neutral	68	28.2	28.2	48.5
	Agree	85	35.3	35.3	83.8
	Strongly Agree	39	16.2	16.2	100.0
	Total	241	100.0	100.0	

Q11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	14	5.8	5.8	5.8
	Disagree	27	11.2	11.2	17.0
	Neutral	56	23.2	23.2	40.2
	Agree	101	41.9	41.9	82.2
	Strongly Agree	43	17.8	17.8	100.0
	Total	241	100.0	100.0	

Q12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	16	6.6	6.6	6.6
	Disagree	43	17.8	17.8	24.5
	Neutral	66	27.4	27.4	51.9
	Agree	79	32.8	32.8	84.6
	Strongly Agree	37	15.4	15.4	100.0
	Total	241	100.0	100.0	

Q13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	23	9.5	9.5	9.5
	Disagree	52	21.6	21.6	31.1
	Neutral	72	29.9	29.9	61.0
	Agree	59	24.5	24.5	85.5
	Strongly Agree	35	14.5	14.5	100.0
	Total	241	100.0	100.0	

Q14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	28	11.6	11.6	11.6
	Disagree	38	15.8	15.8	27.4
	Neutral	61	25.3	25.3	52.7
	Agree	72	29.9	29.9	82.6
	Strongly Agree	42	17.4	17.4	100.0
	Total	241	100.0	100.0	

Q15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	7.1	7.1	7.1
	Disagree	56	23.2	23.2	30.3
	Neutral	53	22.0	22.0	52.3
	Agree	72	29.9	29.9	82.2
	Strongly Agree	43	17.8	17.8	100.0
	Total	241	100.0	100.0	

Sensation Seeking

Frequencies

Statistics										
		Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
N	Valid	241	241	241	241	241	241	241	241	241	241
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		2.82	3.05	2.98	2.81	2.85	2.53	2.94	2.92	2.56	2.54
Median		3.00	3.00	3.00	3.00	3.00	2.00	3.00	3.00	2.00	2.00
Mode		2	2	2	2	2	2	2	2	2	2
Std. Deviation		1.280	1.300	1.204	1.192	1.255	1.215	1.183	1.235	1.277	1.136
Variance		1.639	1.689	1.449	1.422	1.575	1.475	1.400	1.526	1.631	1.291
Minimum		1	1	1	1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5	5	5	5

Frequency Table

Q16					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	43	17.8	17.8	17.8
	Disagree	69	28.6	28.6	46.5
	Neutral	41	17.0	17.0	63.5
	Agree	64	26.6	26.6	90.0
	Strongly Agree	24	10.0	10.0	100.0
	Total	241	100.0	100.0	

Q17					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	27	11.2	11.2	11.2
	Disagree	72	29.9	29.9	41.1
	Neutral	48	19.9	19.9	61.0
	Agree	50	20.7	20.7	81.7
	Strongly Agree	44	18.3	18.3	100.0
	Total	241	100.0	100.0	

Q18					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	27	11.2	11.2	11.2
	Disagree	69	28.6	28.6	39.8
	Neutral	55	22.8	22.8	62.7
	Agree	63	26.1	26.1	88.8
	Strongly Agree	27	11.2	11.2	100.0
	Total	241	100.0	100.0	

Q19					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	29	12.0	12.0	12.0
	Disagree	86	35.7	35.7	47.7
	Neutral	53	22.0	22.0	69.7
	Agree	48	19.9	19.9	89.6
	Strongly Agree	25	10.4	10.4	100.0
	Total	241	100.0	100.0	

Q20

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	40	16.6	16.6	16.6
	Disagree	63	26.1	26.1	42.7
	Neutral	56	23.2	23.2	66.0
	Agree	56	23.2	23.2	89.2
	Strongly Agree	26	10.8	10.8	100.0
	Total	241	100.0	100.0	

Q21

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	48	19.9	19.9	19.9
	Disagree	94	39.0	39.0	58.9
	Neutral	44	18.3	18.3	77.2
	Agree	33	13.7	13.7	90.9
	Strongly Agree	22	9.1	9.1	100.0
	Total	241	100.0	100.0	

Q22

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	22	9.1	9.1	9.1
	Disagree	82	34.0	34.0	43.2
	Neutral	54	22.4	22.4	65.6
	Agree	55	22.8	22.8	88.4
	Strongly Agree	28	11.6	11.6	100.0
	Total	241	100.0	100.0	

Q23

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	28	11.6	11.6	11.6
	Disagree	79	32.8	32.8	44.4
	Neutral	50	20.7	20.7	65.1
	Agree	53	22.0	22.0	87.1
	Strongly Agree	31	12.9	12.9	100.0
	Total	241	100.0	100.0	

Q24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	46	19.1	19.1	19.1
	Disagree	105	43.6	43.6	62.7
	Neutral	30	12.4	12.4	75.1
	Agree	30	12.4	12.4	87.6
	Strongly Agree	30	12.4	12.4	100.0
	Total	241	100.0	100.0	

Q25

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	34	14.1	14.1	14.1
	Disagree	113	46.9	46.9	61.0
	Neutral	47	19.5	19.5	80.5
	Agree	25	10.4	10.4	90.9
	Strongly Agree	22	9.1	9.1	100.0
	Total	241	100.0	100.0	

Financial Literacy

Frequencies

Statistics									
		Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33
N	Valid	241	241	241	241	241	241	241	241
	Missing	0	0	0	0	0	0	0	0
Mean		3.12	3.27	3.08	3.43	3.46	3.41	3.23	3.30
Median		3.00	3.00	3.00	4.00	4.00	4.00	3.00	3.00
Mode		3	4	3	4	4	4	3	4
Std. Deviation		1.060	1.067	1.038	1.011	1.151	1.115	1.046	1.148
Variance		1.123	1.138	1.076	1.021	1.325	1.244	1.094	1.319
Minimum		1	1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5	5

Frequency Table

Q26					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	7.1	7.1	7.1
	Disagree	49	20.3	20.3	27.4
	Neutral	85	35.3	35.3	62.7
	Agree	68	28.2	28.2	90.9
	Strongly Agree	22	9.1	9.1	100.0
	Total	241	100.0	100.0	

Q27					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	12	5.0	5.0	5.0
	Disagree	50	20.7	20.7	25.7
	Neutral	68	28.2	28.2	53.9
	Agree	84	34.9	34.9	88.8
	Strongly Agree	27	11.2	11.2	100.0
	Total	241	100.0	100.0	

Q28					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	7.1	7.1	7.1
	Disagree	47	19.5	19.5	26.6
	Neutral	98	40.7	40.7	67.2
	Agree	57	23.7	23.7	90.9
	Strongly Agree	22	9.1	9.1	100.0
	Total	241	100.0	100.0	

Q29					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	15	6.2	6.2	6.2
	Disagree	20	8.3	8.3	14.5
	Neutral	80	33.2	33.2	47.7
	Agree	98	40.7	40.7	88.4
	Strongly Agree	28	11.6	11.6	100.0
	Total	241	100.0	100.0	

Q30					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	14	5.8	5.8	5.8
	Disagree	39	16.2	16.2	22.0
	Neutral	57	23.7	23.7	45.6
	Agree	83	34.4	34.4	80.1
	Strongly Agree	48	19.9	19.9	100.0
	Total	241	100.0	100.0	

Q31					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	16	6.6	6.6	6.6
	Disagree	39	16.2	16.2	22.8
	Neutral	48	19.9	19.9	42.7
	Agree	105	43.6	43.6	86.3
	Strongly Agree	33	13.7	13.7	100.0
	Total	241	100.0	100.0	

Q32					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	7.1	7.1	7.1
	Disagree	37	15.4	15.4	22.4
	Neutral	83	34.4	34.4	56.8
	Agree	82	34.0	34.0	90.9
	Strongly Agree	22	9.1	9.1	100.0
	Total	241	100.0	100.0	

Q33					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	16	6.6	6.6	6.6
	Disagree	47	19.5	19.5	26.1
	Neutral	65	27.0	27.0	53.1
	Agree	75	31.1	31.1	84.2
	Strongly Agree	38	15.8	15.8	100.0
	Total	241	100.0	100.0	

Appendix E: Reliability Analysis for Full Study

Statements of Self-Esteem

Scale: ALL VARIABLES

Case Processing Summary			
		N	%
Cases	Valid	241	100.0
	Excluded[a]	0	.0
	Total	241	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.913	10

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q6	29.69	58.280	.744	.901
Q7	29.82	60.489	.665	.905
Q8	29.77	60.952	.633	.907
Q9	29.65	59.846	.739	.902
Q10	29.61	59.098	.714	.903
Q11	29.45	60.165	.682	.904
Q12	29.68	59.336	.700	.903
Q13	29.87	59.729	.638	.907
Q14	29.74	58.292	.682	.905
Q15	29.72	59.653	.631	.908

Statements of Sensation Seeking

Scale: ALL VARIABLES

Case Processing Summary			
		N	%
Cases	Valid	241	100.0
	Excluded[a]	0	.0
	Total	241	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.920	10

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q16	25.17	72.489	.632	.916
Q17	24.94	71.000	.695	.913
Q18	25.01	71.521	.734	.910
Q19	25.18	71.181	.761	.909
Q20	25.13	71.441	.702	.912
Q21	25.46	72.999	.648	.915
Q22	25.05	73.148	.660	.914
Q23	25.07	71.833	.695	.912
Q24	25.43	70.363	.743	.910
Q25	25.45	72.424	.734	.911

Statements of Financial Literacy

Scale: ALL VARIABLES

Case Processing Summary			
		N	%
Cases	Valid	241	100.0
	Excluded[a]	0	.0
	Total	241	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.878	8

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q26	23.19	30.969	.689	.857
Q27	23.04	32.365	.554	.871
Q28	23.22	31.475	.659	.860
Q29	22.88	31.176	.711	.855
Q30	22.84	31.483	.574	.870
Q31	22.89	31.063	.637	.863
Q32	23.08	30.873	.710	.855
Q33	23.01	31.267	.595	.867

Appendix F: Inferential Analysis

Pearson's Correlation Analysis

Correlations					
		self_esteem	sensation_seeking	financial_literacy	risk_tolerance
self_esteem	Pearson Correlation	1	.492**	.246**	.485**
	Sig. (2-tailed)		.000	.000	.000
	N	241	241	241	241
sensation_seeking	Pearson Correlation	.492**	1	.024	.652**
	Sig. (2-tailed)	.000		.713	.000
	N	241	241	241	241
financial_literacy	Pearson Correlation	.246**	.024	1	.102
	Sig. (2-tailed)	.000	.713		.113
	N	241	241	241	241
risk_tolerance	Pearson Correlation	.485**	.652**	.102	1
	Sig. (2-tailed)	.000	.000	.113	
	N	241	241	241	241
**. Correlation is significant at the 0.01 level (2-tailed).					

Multiple Linear Regression Analysis

Variables Entered/Removed[a]			
Model	Variables Entered	Variables Removed	Method
1	financial_literacy, sensation_seeking, self_esteem[b]	.	Enter
a. Dependent Variable: risk_tolerance			
b. All requested variables entered.			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.680[a]	.462	.455	.597

a. Predictors: (Constant), financial_literacy, sensation_seeking, self_esteem

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	72.517	3	24.172	67.781	.000[b]
	Residual	84.520	237	.357		
	Total	157.037	240			

a. Dependent Variable: risk_tolerance

b. Predictors: (Constant), financial_literacy, sensation_seeking, self_esteem

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.081	.211		5.133	.000	.666	1.496
	self_esteem	.020	.005	.205	3.609	.000	.009	.030
	sensation_seeking	.048	.005	.550	9.972	.000	.038	.057
	financial_literacy	.005	.006	.039	.781	.436	-.008	.017

a. Dependent Variable: risk_tolerance

Appendix G: Moderating Effect of Gender

Correlations

		esteem_gender	sensation_gender	literacy_gender	risk_tolerance
esteem_gender	Pearson Correlation	1	.599**	.595**	-.151*
	Sig. (2-tailed)		.000	.000	.019
	N	241	241	241	241
sensation_gender	Pearson Correlation	.599**	1	.437**	.045
	Sig. (2-tailed)	.000		.000	.490
	N	241	241	241	241
literacy_gender	Pearson Correlation	.595**	.437**	1	-.344**
	Sig. (2-tailed)	.000	.000		.000
	N	241	241	241	241
risk_tolerance	Pearson Correlation	-.151*	.045	-.344**	1
	Sig. (2-tailed)	.019	.490	.000	
	N	241	241	241	241

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

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