

**THE LINKAGES BETWEEN RISK
PERCEPTION, ATTITUDE AND BEHAVIOURAL
INTENTION: INVESTIGATION ON
FINANCIAL INVESTMENT AMONG
INDIVIDUALS PRIOR TO
PRIME SAVING YEARS**

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PERPUSTAKAAN
UNIVERSITI MALAYSIA SABAH

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**THESIS SUBMITTED IN FULFILLMENT FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
(FINANCIAL MANAGEMENT AND BANKING)**

**FACULTY OF BUSINESS, ECONOMICS AND
ACCOUNTANCY
UNIVERSITI MALAYSIA SABAH
2017**

UNIVERSITI MALAYSIA SABAH

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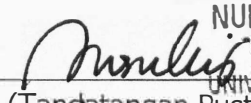


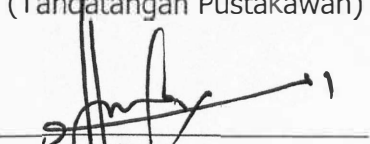
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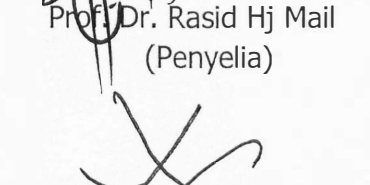
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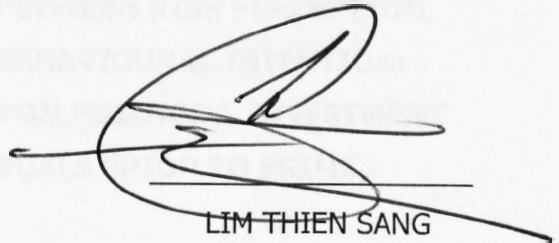

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I hereby declare that the materials in this thesis is my own except for quotations, excerpts, equations, summaries and references, which have been duly acknowledged.

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ACKNOWLEDGEMENT

This humble servant is extremely grateful to The Almighty God for establishing me to complete this PhD thesis. I am praying to You Almighty God to extend Your generous blessings upon all persons who have been supporting me throughout this PhD undertaking.

I would like to express the deepest gratitude to my supervisors, Professor Dr. Rasid Hj Mail, Associate Professor Dr. Mohd Rahimie Abd Karim and Associate Professor Dr. Zatul Karamah A.B.U. The completion of this thesis is thanks in large part to these three highly regard persons who supported, challenged, and stuck with me along the way. I am very fortunate to have them as my supervisors as they have the attitude and substance of great scholars. Thank you, thank you, and thank you for supporting my PhD endeavour and giving such thoughtful guidance, always aimed at moving me forward.

I wish to thank Prof. Dr. Arsiah Hj Bahrom, former Dean of the Faculty of Business, Economics and Accountancy for supporting my application for study leave. I would like to place on record, my sense of gratitude to the management of Universiti Malaysia Sabah, for allowing me to embark and financing me in this PhD journey.

A very big thank you to my good friends/colleagues, Dr. Mazalan Mifli and Mdm. Junainah Jaidi. who have been very active in exchanging meaningful academic discourse and challenging me to see the potential of the daily practice of research writing. My special gratitude to my beloved family members for their unceasing and unconditional encouragement and support. Thank you so much for your patience and understanding. You guys are my source of inspiration, and yes ... simply AWESOME!

Last but not least, I would like to record my sense of appreciation to one and all who, directly and indirectly, have extended their helping hands in this venture.

Lim Thien Sang

12 May 2017

ABSTRACT

Decision making among individuals with regard to financial investment is a complicated process. Relying on modern financial theory is inadequate to explain behaviours of individual investors because it focuses solely on the objective risk as the determinant for making investment decision. In personal finance industry, having a long-term and meaningful client-advisor relationship is vital. One way to achieve this is when there is a good understanding of risk perception, attitude and risk-taking behaviour on both sides. Clearly, research results from risk perception in the behavioural finance theory would further strengthen and consolidate the understanding on how individuals make financial decision. This research aims to identify the predictors of risk perception and determine the central role of risk perception in affecting risk taking behaviours. The research framework was based on Perception Formation Model (PFM) with further support from the Theory of Planned Behaviour, decision making models under risk, and knowledge-attitude-behaviour model. Data were collected from Peninsula Malaysia, Sarawak and Sabah involving 492 individual income earners below the age of prime savings years. Nineteen hypotheses were tested using AMOS Structural Equation Modelling software and SPSS Macro PROCESS Model 6. Four predictors: subjective knowledge, peer influence, internet influence, and risk propensity were significantly and positively associated with favourable risk perception. Consistent with the PFM, favourable risk perception showed a direct association with the intention to invest. Although, objective knowledge did not demonstrate a significant direct association with behavioural intention, there were significant indirect effects between objective knowledge and intention to invest via three specific indirect paths where risk perception and attitude stood as simple and sequential mediators. Subjective knowledge showed a stronger effect than objective knowledge as the former demonstrated significant effect on behavioural intention directly and indirectly. The supportive results for mediation tests allowed the conclusion that risk perception and attitude played a significant central role to explain risk taking behaviour in financial investment. How the findings implicate the theory, methodology, and industry were also discussed. Finally, some suggestions to expand research in the field of behavioural finance, particularly in risk perception were also included.

ABSTRAK

HUBUNGKAITAN DI ANTARA PERSEPSI RISIKO, SIKAP DAN NIAT TINGKAHLAKU: SATU KAJIAN KE ATAS PELABURAN KEWANGAN DALAM KALANGAN INDIVIDU SEBELUM MENCAPAI USIA SIMPANAN PRIMA

Proses membuat keputusan yang berkaitan dengan pelaburan kewangan dalam kalangan individu adalah suatu yang rumit. Hal ini disebabkan kebergantungan kepada teori kewangan moden untuk menerangkan tingkahlaku seseorang pelabur adalah tidak mencukupi kerana teori-teori yang ada hanya menumpukan kepada risiko objektif sebagai penentu kepada keputusan pelaburan. Bagi industri kewangan peribadi, memiliki satu jalinan hubungan pelanggan-penasihat yang lama dan bermakna adalah amat mustahak. Salah satu cara untuk mencapai hubungan sedemikian ialah apabila wujud kefahaman yang baik dalam soal persepsi risiko, sikap dan tingkahlaku pengambilan risiko pada kedua-dua belah pihak. Justeru itu, hasil kajian mengenai persepsi risiko dari sudut teori tingkahlaku kewangan akan meningkatkan dan mengukuhkan lagi pengetahuan tentang proses membuat keputusan kewangan dalam kalangan pelabur individu. Kajian ini bertujuan untuk mengenalpasti peramal kepada persepsi risiko dan menentukan peranan utama persepsi risiko dalam mempengaruhi tingkah laku pengambilan risiko. Rangka penyelidikan ini adalah berdasarkan (Perception Formation Model atau PFM) dan disokong oleh Teori Tingkahlaku Dirancang (Theory of Planned Behaviour), model membuat keputusan berisiko, dan juga model pengetahuan-sikap-tingkahlaku. Data melibatkan 492 individu dari Semenanjung Malaysia, Sarawak dan Sabah yang mempunyai pendapatan sendiri dan belum mencapai usia penyimpanan prima. Sebanyak 19 hipotesis telah diuji menggunakan perisian AMOS Structural Equation Modelling dan SPSS Macro PROCESS Model 6. Sebanyak empat peramal: pengetahuan subjektif, pengaruh rakan sebaya, pengaruh Internet, dan kecenderungan pengambilan risiko mempunyai hubungan positif dan signifikan dengan persepsi risiko yang menggalakkan. Selari dengan PFM, persepsi risiko yang menggalakkan menunjukkan kaitan langsung dengan niat untuk melabur. Walaupun pengetahuan objektif tidak menunjukkan kaitan langsung yang signifikan dengan niat tingkahlaku, terdapat kesan tidak langsung yang signifikan di antara pengetahuan objektif dan niat untuk melabur melalui tiga laluan tidak langsung yang spesifik di mana persepsi risiko dan sikap bertindak sebagai mediator secara bersendirian dan juga secara berjujukan. Pengetahuan subjektif menunjukkan kesan lebih kuat berbanding pengetahuan objektif, di mana pengetahuan subjektif menunjukkan kesan signifikan ke atas niat tingkahlaku samada secara langsung maupun tidak langsung. Dapatan sokongan daripada ujian mediasi membolehkan kesimpulan dibuat bahawa persepsi risiko dan sikap memainkan peranan yang utama untuk menjelaskan proses tingkahlaku pengambilan risiko dalam pelaburan kewangan. Perbincangan bagaimana dapatan kajian ini memberi kesan ke atas teori, metodologi, dan industri turut dibincangkan. Akhir sekali, beberapa cadangan untuk mengembangkan kajian di dalam bidang tingkahlaku kewangan, terutamanya berkaitan persepsi risiko, juga telah dikemukakan.

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LIST OF ABBREVIATIONS

AT	-	Affect Theory
ASNB	-	Amanah Saham Nasional Berhad
AMEX	-	American Stock Exchange
AMOS	-	Analysis of Moment Structures
APT	-	Arbitrage Pricing Theory
ATT	-	Attitude
AVE	-	Average Variance Extracted
BNM	-	Bank Negara Malaysia
BFT	-	Behavioural Finance Theory
BI	-	Behavioural Intention
BERNAMA	-	Berita Nasional Berhad
BootLLCI	-	Bootstrapped Lower Limit Confidence Interval
BootULCI	-	Bootstrapped Upper Limit Confidence Interval
BRICKS	-	Brazil, Russia, India, China, South Korea, South Africa
CAPM	-	Capital Asset Pricing Model
CML	-	Capital Market Line
CMV	-	Common Method Variance
CFI	-	Comparative Fit Index
CR	-	Composite Reliability
CFA	-	Confirmatory Factor Analysis
CB	-	Covariance Based
CCDMA	-	Credit Counselling and Debt Management Agency
C.R.	-	Critical Region
d.f.	-	Degree of freedom
DV	-	Dependent Variable
DK	-	Do Not Know
DOSPERT	-	Domain-Specific Risk-Taking
EMH	-	Efficient Market Hypothesis
EPF	-	Employees Provident Fund
ETFs	-	Equity Traded Funds
EUT	-	Expected Utility Theory
EV	-	Expected Value
EFA	-	Exploratory Factor Analysis
Fam	-	Family Influence
FTSE	-	Financial Times Stock Exchange
GroT	-	General Rules of Thumb
GFI	-	Goodness-of-fit Index
GDP	-	Gross Domestic Product
IV	-	Independent Variable
INT	-	Internet Influence
KMO	-	Kaiser-Meyer-Olkin
KRI	-	Khazanah Research Institute

LISREL	-	Linear Structural Relationship
LLCI	-	Lower Limit Confidence Interval
MBA	-	Master of Business Administration
ML	-	Maximum Likelihood
MS	-	Microsoft
MPT	-	Modern Portfolio Theory
MI	-	Modification Indices
NTMs	-	Normal Theory Models
MCQ	-	Multiple Choice Question
NASDAQ	-	National Association of Securities Dealers Automated Quotations System
NST	-	New Straits Times
NYSE	-	New York Stock Exchange
NLSER	-	Non-Linear Seemingly Unrelated Regression
NFI	-	Normal Fit Index
OK	-	Objective Knowledge
PEER	-	Peer Influence
PFM	-	Perception Formation Model
PNB	-	Permodalan Nasional Berhad
PRC	-	Pew Research Center
P/E	-	Price-to-Earning
PCA	-	Principal Component Analysis
PT	-	Prospect Theory
REITS	-	Real Estate Investment Trusts
RO	-	Research Objective
RQ	-	Research Question
PER	-	Risk Perception
RP	-	Risk Propensity
RMSEA	-	Root Mean Square Error of Approximation
S.E.	-	Standard Error
SML	-	Security Market Line
SLQs	-	Source Language Questionnaires
SFT	-	Standard Finance Theory
SRCM	-	Standardised Residual Covariance Matrix
SRMR	-	Standardised Root Mean Squared Residual
SPSS	-	Statistical Package for Social Science
SEM	-	Structural Equation Modelling
SK	-	Subjective Knowledge
TPB	-	Theory of Planned Behaviour
TRA	-	Theory of Reason Actions
TLI	-	Tucker-Lewis Index
UK	-	United Kingdom
US	-	United States
ULCI	-	Upper Limit Confidence Interval
VB	-	Variance Based

CHAPTER 1

INTRODUCTION

1.1 Introduction

Data for 2016 shows more than two-third of Malaysia's population is below 30 years old, with an estimated median age of 28.2 years (Indexmundi.com). It indicates a large proportion of its population has not reached the prime saving years. Prime saving years refers to populations within the age structure of 40 to 64 years old (Poterba, 2001) and they are at their prime time in assets and wealth accumulations (Higgins, 1998). In other words, those in prime saving years can be assumed to be active in seeking for investment opportunities, including in financial investment.

As Malaysia's population is expected to grow and the ageing rate of its population continues to increase (Jones, 2008), the trajectory of the population entering the prime saving years is predicted to be in the upward direction. Thus, many of them are expected to search for investment opportunities and subsequently to engage in financial investment in the future. This expectation conforms to the life-cycle hypothesis, which posits: as individuals enter their middle age and very likely to have surplus income, they will start accumulating wealth (Modigliani, 1966).

Individual investors may engage in financial investment on their own efforts or using services of financial professionals. Study has found financial knowledge to be associated with the using of services of financial advisors for the purpose of investing, saving, tax planning and insurance planning (Robb, Babiarz and Woodyard, 2012). Interestingly though, Boon, Yee and Ting (2011) found Malaysian public seemed to be reluctant in relying on the financial advisors to realise their financial goals. As such, it is not too much to suggest that there may be lacking of a long-term and meaningful client-advisor relationship in the personal finance sector, which, if not

addressed, could potentially impede the growth of the industry in Malaysia. Meanwhile, since many Malaysians were not using the services of financial professionals (Boon *et al.*, 2011), it may be deduced that they were likely engaging financial investment on personal efforts.

Many scholars, including Chen and Volpe (1998), Joo and Grable (2005), Lusardi and Mitchell (2006, 2007), and Robb (2011) argued that in order to achieve good and efficient financial decisions, ones have to have good financial knowledge. Sabri and MacDonald (2010) found exactly that when they reported Malaysians who had a higher level of financial literacy tend to demonstrate favourable financial behaviours and showed fewer financial problems. This raises a worrying concern because in the last 10 years, Malaysian youths have often linked to findings of financial knowledge inadequacy (Bernama, 2008; Lim, Ahmad Baharul Ulum, Osman, Abd Jamal, Mail and Mohidin, 2014; Osman, Lim and Justine, 2008; Sabri, MacDonald, Hira and Masud, 2010) and financial mismanagement (Bernama, 2012; Duasa and Yusof, 2013; Jarian, Husniyah, Laily and Britt, 2004; The Star, 2016). Moreover, Khazanah Research Institute has reported the growth of savings rate in Malaysia which was once high, has been trending at lower in recent years (The Star, 2016). Clearly, efforts to seek a better understanding of financial behaviours of this group of the population is crucial when look upon from the viewpoint that financial investment, particularly in the early stage of life create a much-needed foundation for future financial wellbeing (Beverly and Burkhalter, 2005).

Malaysia had one of the highest gross domestic savings among the developing countries (Collins, 1991). The rapid growth of its economy in the past three decades enabled Malaysians to maintain a healthy savings rate of around 35 percent (World Bank, 2014). Thus, it was natural when the government was placing great efforts supporting and boosting the mobilisation of these savings by initiating new financial products and services in the financial markets. Since the launching of the Financial Sector Masterplan in 2001, some major structural changes took place in the form of emergence of new entities, the increased presence of new international players, and more diversified and developed financial markets (Bank Negara Malaysia, 2007). As a result, Malaysians now have a wider range of investment alternatives from the local, regional and global arenas.

Banks and insurance companies in Malaysia had revolutionised their business approaches after the 1997-1998 Asian financial crisis. Bankers were suffering from lower interest rate spreads in new loans in the post crisis due to fierce competition, and in response, many banks reacted to replenish the loss income by venturing into fee-based services such as personal wealth consultancy (Chin, 2004). One major area of personal wealth consultancy that was popular was cross-selling of financial products, especially unit trusts, structured investment products, insurance coverage, will writing, etc. (Chin, 2004). In order to support the growth in the personal wealth consultancy sector, banks were seen to be aggressive in hiring new employees.

The post crisis era also witnessed the determined efforts by life insurers in the offering of investment-linked life insurance over the traditional life insurance coverage such as endowment and wholelife (The Report Malaysia, 2008). The major difference between an investment-linked policy compare to endowment/wholelife policy is in the methods of cash-value accumulation. Under endowment/wholelife policy, the insurers would declare annual income/bonus based on their annual investment income (Redja, 2011). Therefore, the capability and capacity of insurers to declare a steady and satisfactory income/bonus to the insured is depending on insurers' investment profits. When the economy is less favourable, the insurers would face hardship to declare a level of income/bonus based on the projection schedule of life insurance policy. Under the investment-linked policy, a portion of the premium paid is allocated for the purchase of unit trust at market value. Cash value accumulation of investment-linked policy depends mainly on the market price of unit trust (Binder and Ngai, 2012). As such, since the performance of investment-linked policy is no longer link to insurers' profits, the risk of cash value accumulation and progression is borne by policy holders.

The growth of investment among Malaysians is also propelled by a new provision of the Employees Provident Fund (EPF), where members are allowed to invest using a portion of their EPF savings. There are more than 300 types of unit trust funds managed by 37 managers approved for the EPF scheme. In 2009, a total of 427,455 applications amounting to RM3.31bil were approved for investment withdrawals (The Star, 2010a) and the investment scheme was forecasted to steadily increase over the next few years (The Star, 2010b). The positive growth of individual

investors was further boosted with the formation of more unit trust companies. Among these, perhaps none could match the impact brought upon by the establishment of Permodalan Nasional Berhad (PNB). Its subsidiary, namely the Amanah Saham Nasional Berhad, has nine funds and topping RM140 billion in value by the end of 2009 (Malaysian Business, 2010), is the leading unit trust player of the country.

Clearly, structural and policy changes, coupled with proactive responses from the players in Malaysia's financial markets have been the catalysts for growth. It has given investors more sophisticated financial products and services. As some products and services are more complex than others, their risk levels may also vary considerably. Some investors who wish to grab the opportunities may approach financial professionals in managing their financial affairs while others may prefer to do it themselves. Regardless whether they seek for professional guidance or otherwise, there is one constant about financial investment, i.e, investment risk is always present. Therefore, investors must aware of the risk of their investment choices because their investment decisions will directly impact their future financial wellbeing.

Based on the aforesaid, it is imperative to study how individuals behave in dealing with risky financial decisions. There is an urgency to foster better understanding on this aspect, especially involving the youth because they are frequently linked to issues related to financial illiteracy and financial mismanagement. From the perspective of financial providers, a good behavioural understanding of this group can offer a promising market segment because this group makes up a large proportion of the country's population. Since the scope of the decision-making process under risk is broad, this study focused on issues related to risk perception, attitude towards financial investment, and behavioural intention toward financial investment. The background of this study, as well as the motivations for conducting it, will be explained in the next sections.

1.2 Background of Study

The understanding of financial decision making has long been explained and dominated by traditional finance theory. It takes the assumptions that market is

efficient and operates under perfect environment, people are homo-economicus and rational, they are generally risk averse, and they have access to complete information to make optimal decisions in order to yield maximum utility (Ackert, 2014; Altman, 2014; Bloomfield, 2010; Diacon and Ennew, 2001; Edwards (1954); Li, 2008; Ricciardi and Simon, 2000). Some classical finance theories that serve as the backbone to explain how an individual should make investment decision are the efficient market hypothesis, expected utility theory, modern portfolio theory, capital asset pricing model, arbitrage pricing model, and Fama and French's three-factor model.

The Expected Utility Theory (EUT) explained how a rational individual is able to choose the best course of action when he or she is facing uncertain or risky situations (Von Neumann and Morgenstern, 1944). Nobel Prize winner in Economics in 1990, Harry Markowitz, in his 1952 works, forwarded the Modern Portfolio Theory (MPT) which posits some investment risks are diversifiable when investors properly put financial securities together in a portfolio. Motivated by and extended from the MPT, William Sharpe and John Lintner invented the capital asset pricing model (CAPM) between 1964 and 1965. It describes asset pricing based on the relationship between risk and expected return. The core idea of CAPM is that investors need to be compensated for taking extra risk (known as risk premium) and time value of money. Risk is used as the key element to compute how much compensation is needed by investors for taking such risk and the standard measure for risk under the CAPM is the beta coefficient.

Most traditional finance theories, including the EUT, MPT and CAPM are using numerical analysis of rigorous mathematical models based on the assumptions that people are rational, have complete information, and risks are diversifiable. According to classical principles of finance, investors who desire higher return must be willing to assume higher risk. In other words, investors are entitled for a risk premium if they are to make risky investments compare to other investors who choose less risky investments. Since the standard measure for individual stock risk is beta coefficient, the classical finance principles dictate that one must invest in stocks with high beta values to enjoy higher returns. The main focus of traditional finance theories is the objective risk, i.e., the beta coefficient in the CAPM. Objective risk is calculated using

long-term historical data. Since the data are observable and measurable, proponents of the traditional finance theories argue that quantifiable risk is the most effective to manage investment of a long period of investment horizon.

The effectiveness and appropriateness of relying on the traditional finance theories to explain risk-taking behaviours among investors were questioned as early in the 1970s. Blume and Friend (1973) argued risk in stock investment is more than just the beta coefficient from individual investors' point of views. In other words, using only the beta coefficient to capture the risk level in CAPM is deemed insufficient. Roll (1977) was so crucial in his argument claiming that the CAPM cannot be truly tested. Findings by Fama and French (1992) showed there was no support for a positive correlation between risk and return as posited in the MPT and the CAPM. Over a long period of time, Fama and French (1992) found the return of individual stocks correlated poorly with the beta values. In other words, the result of Fama and French (1992) suggested investors who chose higher investment risk might not be rewarded with higher returns, and that was against the theoretical argument of the MPT and CAPM. According to Brennan (1995), models of traditional finance theories were popular could merely be due to analytically convenience. As the explanatory power of these models is questionable, their inadequacies continued to be raised until the recent years. Dayala (2012) argued the CAPM was incomplete. Meanwhile, Dempsey (2013) claimed any attempt to improve the CAPM could worsen the situations because it may (1) simply become an econometric exercise and (2) radical deviation from the core concept of risk and return.

Over the years, many researchers especially in financial markets and personal finance found results inconsistent with the notion of rationality (Capon, Fitzsimons and Prince, 1996; Dulebohn and Murray, 2007; Gooding, 1975; McGregor, Slovic, Dreman and Berry, 2000; Olsen, 1997; Slovic, 1972a), especially so with regards to making risky financial decisions (Diacon and Ennew, 2001; Diacon, 2002; Diacon and Hasseldine, 2005; Humphrey, 2001; Kagel and Levin, 1986; Loewenstein, 1999; Slovic and Tversky, 1974; Tuyon and Ahmad, 2016; Vlaev, Chater and Stewart; 2009) and thus prompted the requirement for an alternative views to explain how individuals make financial decisions. These new perspectives, focusing on individual finance decision making process is known as the behavioural finance theory (BFT).