UNIVERSITI PUTRA MALAYSIA

# *IMPACT OF PSYCHOLOGY, FINANCIAL RESOURCES, ECONOMIC FORCES AND INVESTOR INVOLVEMENT ON RETIREMENT INVESTOR DECISION BEHAVIOUR*

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**IMPACT OF PSYCHOLOGY, FINANCIAL RESOURCES, ECONOMIC FORCES AND INVESTOR INVOLVEMENT ON RETIREMENT INVESTOR DECISION BEHAVIOUR**

By

**MARCIA EDNA A/P SANTHANA RAJAN**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy**

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In Malaysia, the greatest majority of private sector employees, who are the Employees Provident Fund (EPF) contributors rely heavily on savings accumulated with the EPF as the only significant retirement plan, but to-date most are unprepared. While the EPF's Members' Investment Scheme (MIS) endeavoured to relax this setback through the formation of individual investor responsibility on investing part EPF retirement savings into unit trusts, still a negligible fraction of these individuals have been documented to leverage on this decision notwithstanding long-term growth and profitability in the unit trust industry, outperforming even yearly EPF dividends. Henceforth, this thesis makes enquiries into the individual retirement investor decision behaviour of Malaysian EPF contributors and the factors that form pushes and pulls in influencing this criterion. In doing so, the current investigation estimates an integrated framework examining the impact of an array of psychological factors, in addition to financial resource, economic force, and investor level of involvement influences on retirement investor decision behaviour - the deduction of which stem from four prominent models comprising Hershey's model, behavioural finance theory, life-cycle hypothesis, and social judgement theory.

The study adopted a non-experimental, correlational causal design, using the *Partial Least Squares-Structural Equation Modelling* (PLS-SEM) technique to measure variables, test hypotheses, and determine the existence of cause-and-effect relationships between variables. To estimate the PLS-SEM, a questionnaire-based survey was employed to solicit responses from EPF contributors in listed private firms and private universities within the Klang Valley, Malaysia. Respondents were asked about their perceptions in exercising their retirement investor decision behaviour as EPF contributors, in which 214 questionnaires were successfully completed for use in the study's analysis. Results from the PLS-SEM indicated that

7 of 15 hypotheses assessed tested significant. Among all factor dimensions, the larger fraction of significant relationships emerged from personality trait psychology. This is followed by cognitive psychology, economic force, and investor level of involvement factors. More importantly, most predictor variables proved valuable since these produced substantive significance towards the criterion.

Several contributions and implications emerge from this study. For one, the development of a cohesive framework of a psychological dimension informing retirement investor decision behaviour. For Malaysia, results extend early homegrown findings, and are instrumental as current work in the field is limited, especially in the examination of psychological influences. Evidence on medical expense risk is valuable particularly since its exploration has yet to receive focus contextually and within Malaysia. Finally, results on investor involvement has also proven useful contextually, emerging the most influential factor, as well as enriching existing limited evidence in the financial context, particularly in the area of retirement financial planning and investment behavioural studies. In aggregate, the outrcomes of this study should assist the EPF in policy making aimed at creating sustainable retirement income for its members, and to fund management institutions and financial advisors, to develop marketing strategies and provide advice for active retirement investor participation.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**KESAN PSIKOLOGI, SUMBER KEWANGAN, KEKUATAN EKONOMI SERTA PENGLIBATAN PELABUR TERHADAP TINGKAH LAKU KEPUTUSAN PELABUR PERSARAAN**

Oleh

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Di Malaysia, majoriti pekerja sektor swasta (pencarum Kumpulan Wang Simpanan Pekerja atau KWSP) sangat bergantung kepada simpanan yang terkumpul dengan KWSP sebagai satu-satunya rancangan persaraan, tetapi setakat ini kebanyakannya masih tidak bersedia. Walaupun Skim Pelaburan Ahli KWSP (MIS) berusaha untuk mengurangkan masalah ini melalui pembentukan tanggungjawab pelabur individu untuk melaburkan sebahagian simpanan persaraan KWSP ke dalam unit amanah, namum hanya sebahagian kecil individu direkodkan menerima manfaat keputusan ini walaupun pertumbuhan jangka panjang dan keuntungan dalam industri unit amanah, adalah lebih baik mengatasi dividen tahunan KWSP. Oleh itu, tesis ini mengkaji mengenai tingkah laku keputusan pelabur persaraan individu iaitu pencarum KWSP di Malaysia dan faktor-faktor tolakan dan tarikan yang mempengaruhi kriteria tersebut. Bagi tujuan ini, penyelidikan semasa menyediakan kerangka kerja bersepadu yang mengkaji kesan pelbagai faktor psikologi, sumber kewangan, kekuatan ekonomi, dan tahap penglibatan pelabur yang mempengaruhi tingkah laku keputusan pelabur persaraan – ini diambil daripada empat cabang model terkemuka yang merangkumi model Hershey, teori tingkah laku kewangan, hipotesis kitaran hidup, dan teori pertimbangan sosial.

Kajian ini menggunakan kaedah bukan experimental, reka bentuk korelasi bersebab, menggunakan teknik *Partial Least Squares-Structural Equation Modelling* (PLS-SEM) untuk mengukur pemboleh ubah, menguji hipotesis, dan menentukan kewujudan hubungan sebab-dan-kesan di antara pemboleh ubah. Untuk menilai PLS-SEM, tinjauan berdasarkan soal selidik telah digunakan untuk mendapatkan maklum balas daripada pencarum KWSP di firma swasta tersenarai dan universiti swasta di Lembah Klang, Malaysia. Responden ditanya mengenai persepsi mereka dalam melaksanakan tingkah laku keputusan pelabur persaraan sebagai pencarum

KWSP, yang mana sebanyak 214 soal selidik telah berjaya dilengkapkan untuk digunakan dalam analisis kajian. Hasil keputusan daripada PLS-SEM menunjukkan bahawa 7 daripada 15 hipotesis yang diuji adalah signifikan. Di antara semua dimensi faktor, sebahagian besar hubungan yang signifikan wujud daripada psikologi sifat keperibadian. Ini diikuti oleh faktor psikologi kognitif, kekuatan ekonomi, dan tahap penglibatan pelabur. Paling utama, kebanyakan pemboleh ubah peramal terbukti bernilai kerana ini menghasilkan kepentingan substantif terhadap kriteria tersebut.

Terdapat beberapa sumbangan dan implikasi wujud daripada kajian ini. Pertama, pembangunan kerangka yang padu dari dimensi psikologi yang menentukan tingkah laku keputusan pelabur persaraan. Bagi Malaysia, hasil penyelidikan ini memperluaskan penemuan awal kajian tempatan, dan sangat penting kerana kajian semasa di lapangan adalah terhad, terutamanya bagi kajian pengaruh psikologi. Penemuan mengenai risiko perbelanjaan perubatan adalah sangat penting memandangkan penerokaannya masih belum mendapat tumpuan secara kontekstual dan menyeluruh di Malaysia. Akhir sekali, hasil keputusan berkenaan penglibatan pelabur juga terbukti bermanfaat secara kontekstual, wujud sebagai faktor yang paling berpengaruh, serta menyumbang kepada penemuan terhad yang ada dalam konteks kewangan, terutamanya dalam bidang perancangan kewangan persaraan dan kajian tingkah laku pelaburan. Secara keseluruhan, hasil kajian ini boleh membantu pihak KWSP dalam pembuatan dasar yang bertujuan mewujudkan pendapatan persaraan yang mampan bagi ahlinya, dan kepada institusi pengurusan kewangan dan penasihat kewangan, untuk menbangunkan strategi pemasaran dan menyediakan nasihat untuk penyertaan pelabur persaraan yang aktif.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

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## LIST OF ABBREVIATIONS

| | |
|---|---|
| AIF | Asian Institute of Finance |
| AIMC | Association of Investment Management Companies |
| ANC | Anchoring |
| AVE | Average Variance Extracted |
| BCI LL | Confidence Interval Bias Lower Limit |
| BCI UL | Confidence Interval Bias Upper Limit |
| BM | Bequest Motives |
| CCA | Confirmatory Composite Analysis |
| CFA | Confirmatory Factor Analysis |
| CMB | Common Method Bias |
| CONS | Conscientiousness |
| COVID 19 | Coronavirus Disease of 2019 |
| CR | Composite Reliability |
| DB | Defined Benefit |
| DC | Defined Contribution |
| DSM | Department of Statistics Malaysia |
| EPF | Employees Provident Fund |
| EPF-MIS | EPF's Members' Investment Scheme |
| ES | Emotional Stability |
| FA | Financial advisor |
| FIK | Financial and Investment Knowledge |
| FIMM | Federation of Investment Managers Malaysia |
| FMI | Fund Management Institution |
| FRT | Financial Risk Tolerance |
| FTP | Future Time Perspective |

| | |
|---|---|
| GDP | Gross Domestic Production |
| HOUS | Housing |
| HTMT | Heterotrait-Monotrait Ratio |
| INVIN | Investor level of Involvement |
| KWAP | Kumpulan Wang Persaraan |
| LA | Loss Aversion |
| MA | Mental Accounting |
| MD | Mahalanobis' Distance |
| MER | Medical Expense Risk |
| MIS | Members' Investment Scheme |
| MMGPI | Melbourne Mercer Global Pension Index |
| NAV | Net Asset Value |
| OECD | Organisation for Economic Co-operation and Development |
| OOP | Out-of-pocket healthcare costs |
| PEMANDU | Performance Management and Delivery Unit |
| PII | Personal Involvement Inventory |
| PLS-SEM | Partial Least Squares Structural Equation Modelling |
| PTE | Perception on Tax Exemption |
| RGC | Retirement Goal Clarity |
| RID | Retirement Investor Decision Behaviour |
| RPII | Revised Personal Involvement Inventory |
| SC | Securities Commission Malaysia |
| SEM | Structural Equation Modelling |
| SIML | Schroder Investment Management Limited |
| SPM | Sijil Pelajaran Malaysia |
| SPSS | Statistical Package for the Social Sciences |

| | |
|---|---|
| TVE | Total Variance Explained |
| U.K. | United Kingdom |
| U.S. | United States |
| UT | Unit Trust |
| VIF | Variance Inflation Factor |

# CHAPTER 1

# INTRODUCTION

## 1.1 Introduction

This thesis investigates the individual retirement investor decision behaviour of Malaysian private sector workers (the Malaysian Employees Provident Fund or EPF contributors), and the elements that shape key predictors of the decision behaviour. Chapter one provides a summary of the thesis and its structural plan, the organisation of which follows. Section 1.2 presents a global perspective on pension fund systems, putting the EPF retirement income system in both a global and local perspective. This sets the background to the low retirement savings adequacy everywhere, including Malaysia. Upon this background, the EPF's investment scheme for its contributors, growth in the investment plan, and current problems associated with contributor participation is discussed. Section 1.3 explains the gaps in related literature, while Sections 1.4 and 1.5 respectively lay out the research questions and objectives aimed at resolving these gaps. The significance of the study, along with the study's scope appear in Sections 1.6 and 1.7 respectively. Finally, the research method adopted is briefly described in Section 1.9, followed by a list of definition of terms, and a summary of the chapter in Sections 1.10 and 1.11 in that order.

## 1.2 Background of Study

The role of every pension fund system is to provide adequate and sustainable retirement income and benefits to its members into the future years. While this is an essential provision to retirees, it entails much complexity for pension fund systems globally. The joint effects of population ageing, rising costs of living that are mainly due to medical cost inflation, low interest rates and reduced financial returns, and poor levels in individual retirement savings, have all placed a great burden on retirement income systems everywhere to provide adequate and sustainable funds for people upon retirement (Monash Centre for Financial Studies, 2019). These issues also mark a serious concern for the growing number of older adults, and the current working population, in preparing adequate assets for retirement consumption.

While a few pension fund systems have progressed remarkably in pension fund planning, majority of these systems worldwide are slow and weak to develop their pension provision. In assessing the performance of 37 global pension systems (63% of its global population), the Melbourne Mercer Global Pension Index (MMGPI) 2019 report revealed that only 5% of these world systems had robust retirement income systems, whereas another 30% had sound pension structures. These systems comprised of the ranking order of the Netherlands, Denmark, Australia, Finland, Sweden, Norway, Singapore, and New Zealand among others, leading pension fund systems worldwide in aspects of adequacy, sustainability and integrity. The largest proportion however were deficient in the provision for good benefits and continuous sustainability in pension coverage. These countries included the United Kingdom (U.K.), Hong Kong SAR, United States (U.S.), Malaysia, and France, among many others, making up 65% of the world's pension systems that suffer in pension performance (Monash Centre for Financial Studies, 2019). The performance report is summarised in Table 1.1.

**Table 1.1 : Summary of MMGPI 2019**

| Grade | Index Value | Systems | Description |
|---|---|---|---|
| A | >80 | Netherlands<br>Denmark | Robust retirement income system that delivers good benefits, is sustainable and has high integrity. |
| B+ | 75-80 | Australia | Sound retirement income system, with many good features, but has some areas for improvement differentiating it from an A-grade system. |
| B | 65-75 | Finland<br>Sweden<br>Norway Singapore<br>New Zealand<br>Canada<br>Chile<br>Ireland<br>Switzerland<br>Germany | |
| C+ | 60-65 | U.K.<br>Hong Kong SAR<br>U.S.<br>Malaysia<br>France | System that has some good features, but has major risks and / or shortcomings that should be addressed. Efficacy and / or long-term sustainability can be questioned without these improvements. |
| C | 50-60 | Peru<br>Columbia<br>Poland<br>Saudi Arabia<br>Brazil<br>Spain<br>Austria<br>South Africa<br>Italy<br>Indonesia | |
| D | 35-50 | Korea<br>China<br>Japan<br>India<br>Mexico<br>Philippines<br>Turkey<br>Argentina<br>Thailand | System that has some desirable features, but has major weaknesses and / or omissions that need to be addressed. Efficacy and sustainability are in doubt without these improvements. |
| E | <35 | Nil | A poor system that may be in the early stages of development or non-existence. |

(Source : Monash Centre for Financial Studies, 2019)

The situation escalates with close to 93% of global pension fund systems in 2016 holding high risks of being unable to fund future pension liabilities, since these systems owned pension fund assets of lower than 100% of gross domestic production (GDP). The greatest majority of pension fund systems were unsuccessful in achieving this common pension system goal, and hence contributed to a very low world average value of 26.63% in pension fund assets as a percentage of GDP. As with this majority, Malaysia produced pension assets of only 59.92% of GDP and therefore faces additional pension provision pressures such as the risks of unfunded future pension liabilities (TheGlobalEconomy.com, n.d.). An extract of results on the 12 leading pension fund assets in 2016 is found in Table 2.1 of Chapter 2.

Finally, significant population aging in many countries has created a greater pressure point for pension fund systems since this introduces higher old age dependency ratios. The most recent United Nations World Population Prospects 2019 shows that over 10-year gap periods between 2000 and 2050, the aggregate age dependency ratios of all world regions (i.e. more developed, less developed and least developed regions) are increasing overall, signifying the increased burden to working people and pension fund systems worldwide in supporting pension provision for the aging population. For Malaysia, the ratios indicate a more serious problem particularly since the increases in aggregate figures over the 5-decade period is rising faster than most regional aggregates (United Nations, Department of Economic and Social Affairs, Population Division, 2019). This means that Malaysia is ageing faster than many other countries, and is thus exposed to more financial stress in its provision of pension income and healthcare to retirees (an extract of the age dependency ratios is depicted in Table 1.2).

**Table 1.2 : United Nations World Population Prospects 2019 (extract)**

| **Old age dependency ratios by regions (aggregates)** | **2000** | **2010** | **2020** | **2030** | **2040** | **2050** |
|---|---|---|---|---|---|---|
| More developed regions | 26.7 | 29.4 | 36.2 | 45.3 | 51.5 | 56.5 |
| Less developed regions | 11.7 | 12.3 | 15.1 | 19.6 | 25.0 | 28.8 |
| : Malaysia among others | 8.9 | 10.5 | 13.7 | 18.5 | 23.8 | 31.6 |
| Least developed regions | 9.7 | 9.6 | 9.5 | 10.4 | 11.9 | 14.1 |

(Source : United Nations, Department of Economic and Social Affairs, Population Division, 2019)

Collectively, these issues and the shortcomings in pension fund provision among most pension systems everywhere have made the accumulation of individual retirement savings both, an important policy issue, as well as a crucial individual responsibility, encouraging people to take on more aggressive roles in planning and managing retirement funds alongside pension systems within national structures. While this means that Malaysia and other poorly performing pension systems must act more aggressively in improving current pension planning, it is also imperative that people practise proper retirement financial behaviour that enables sufficient income and economic satisfaction during the retirement years (Kapoor et al., 2009).

Yet, globally, retirees are troubled with low financial readiness owing considerably to deficient planning (Aegon Center for Longevity and Retirement, 2017; Schroder Investment Management Limited [SIML], 2017). American individuals for instance were found to be saving at a worrying inadequate rate, raising concerns about their financial solvency and independence during retirement (Warshawsky & Ameriks, 2000; Yuh et al., 1998). Similarly, the U.K. has seen concerns of the current generation of workers not saving adequately for retirement, while only one in three Canadians expecting to retire in 2030 are saving at appropriate levels in order to meet basic household expenses in retirement. In the Asian region, while retirees in Thailand face comparable late life dilemmas, 74% of Singaporeans wishing to retire before the mandatory retirement age are yet ill-prepared for their retiring years (Association of Investment Management Companies [AIMC], n.d.). Together, this signifies a widespread low level of planning and retirement savings. The cost of low planning and readiness in turn are enormous – financial insolvency and old age poverty, a heavy dependence on government assistance as well as on working children, or a need to continue working much longer (Abdul Samad & Kari, 2007).

In Malaysia, the pension landscape is dominated by the Employees Provident Fund or EPF (the government agency mandating compulsory retirement savings of all Malaysian private-sector and non-pensionable public-sector workers, who together form members and contributors of the EPF), which oversees more than half of the Malaysian labour force in the provision of primary pension support. Pension planning is based on a mandatory Defined Contribution (DC) retirement scheme, whereby retirement income risks fall on individual employees (Murphy & Yetmar, 2010; Wilmington Plc., n.d.). Although DC plans do not promise a guaranteed income upon retirement, it is critical that the institutional approaches adopted by the EPF are effective in stimulating sufficient retirement savings by individuals (Monash Centre for Financial Studies, 2019).

Over the past 14 years, the EPF has experienced exceptional growth, with numbers in active members increasing from 5.29 million people in 2006 to 7.6 million people in 2019, in turn boosting total contributions from contributors and their employers from RM289.055 billion to RM924.882 billion. Such development overall has expanded the total assets controlled by the EPF, moving from RM295.26 billion in 2006 to RM927.894 billion in 2019 (Employees Provident Fund [EPF], 2006 - 2019).

In spite of its powerful presence in acting as a pension fund pillar for Malaysian private sector workers, evidence has shown that the EPF is far from extending adequate and sustainable retirement incomes and benefits to its contributors (EPF, 2021b; Hassan et al., 2015; Monash Centre for Financial Studies, 2019; TheGlobalEconomy.com, n.d.; Samad & Mansor, 2017). A survey conducted on 2,000 Malaysian retirees revealed that for a large proportion of these retirees, the benefits provided by the EPF were not adequate to sustain their retirement lifestyle, forcing them to depend heavily on the assistance of working children to support retirement consumption (Abdul Samad & Kari, 2007).

Consistent with this finding, internal reports from the EPF revealed that only 18% of its active 55-year-old contributors met the minimum recommended retirement funds of RM228,000 in 2017, which in itself represents a trivial sum since it translates into monthly incomes of RM950 until age 75 and is below Malaysia's average poverty line income of RM2,208 (Department of Statistics Malaysia [DSM], 2020; EPF, 2021b; Jomo, 2017). Moreover, 68% of the active EPF contributors aged 54 and 6 years away from retirement had less than RM50,000 in their accounts (a quarter of the minimum recommended savings), while about 70% of contributors who withdraw their retirement savings in full at age 55 are expected to exhaust their savings in less than a decade after retirement (Jomo, 2017).

This predicament is felt despite average historical dividends of 5.57% from the EPF in the last twenty years (see Appendix 1, EPF, 2021a), signifying that individual savings with the institution lacked sufficient compounding, and are incapable in supporting consumption during retirement. These financial issues are further intensified as unlike the Malaysian public-sector, private sector workers do not qualify for an array of retirement and healthcare benefits that are critical in covering consumption beyond normal living expenses at retirement (Malaysia, 1980a, as cited in Chee, 1997; Hassan et al., 2015). Furthermore, in addition to the increased life expectancies of 10.17 years overall for both men and women in Malaysia between 1970 and 2019, the proportion of those older are also increasing (DSM Official Portal, 2020). Hence, like countries elsewhere, Malaysia's experience of a longer life expectancy and population aging further exaggerates the implied retirement setback. Taken together, this requires private-sector workers to manage retirement wealth accumulation even more prudently to avoid falling into financial insolvency and poverty at old age.

One of EPF's main response to these retirement income issues has included the introduction of the EPF's Members' Investment Scheme (or EPF-MIS) which began in November 1996. Recognising the necessity in empowering EPF contributors with the potential for higher returns and greater asset accumulation, this investment scheme was instituted to engage contributors to invest part of their accumulated EPF savings (i.e. 30% of EPF savings) with approved Fund Management Institutions (FMIs) and mutual fund (unit trust or UT) investments (EPF, 2021b). This investment plan is particularly useful since UT investments have grown to be the choice of retail investors in search of a safer investment mechanism that provides lucrative returns, liquidity, and portfolio diversification (Federation of Investment Managers Malaysia [FIMM], n.d.).

The benefits of UT investments are obvious considering the fast growing UT industry in Malaysia. The past two decades has seen this industry sector develop remarkably, producing a total net asset value (NAV) of 29.78% of the market capitalisation of Bursa Malaysia (i.e. National stock exchange in Malaysia) in January 2021, and recording an improvement of over 1,116% in total NAV between the period 2000 and 2020 (FIMM, n.d.; Securities Commission Malaysia [SC], n.d.). These results show the long term performance track record of the UT sector in Malaysia, which is in turn mirrored in the performance of EPF approved UT funds.

The most recent 10 years have shown that a fair number of these funds across fund categories have quite consistently and comfortably outperformed yearly EPF dividends, as well as the 7% annualized return benchmark set by the EPF (EPF, 2021a; EPF, n.d.b). The 10-year performance is shown in Table 2.2 of Chapter 2.

Dauntingly, published statistics by the EPF indicate a lack of responsibility and participation among contributors in exploiting the benefits of the EPF-MIS plan. On an overall, these statistics suggest that during the most recent 14 years, contributor participation as well as funds invested into UTs through the investment plan have been significantly low, averaging at a yearly low of 9.18% of total active contributors and 0.99% of total existing funds respectively (EPF, 2006 – 2019). This is indicative of a passive behaviour among majority of the EPF contributors who presently neglect their responsibilities and retirement investor roles to actively participate in the EPF-MIS. The prevalence in such behaviour can cause a failure to expand wealth accumulation and shift away from inadequate and unsustainable levels in future retirement savings.

More than two decades after the introduction of the EPF-MIS, the way in which Malaysian EPF contributors make retirement savings decision is beginning to be thoroughly investigated. This study thus aims to understand the retirement investor decision behaviour of these individuals, measuring it as the decision behaviour to purchase external UT investments through the EPF-MIS. The adequacy of this decision is a critical determinant of the contributors' wealth accumulation, and as a consequence, their lifestyles in retirement. If suboptimal decisions are made, present retirement income issues reported among these people (EPF, 2021b) may continue into the future years and cause financial insolvency at retirement, as well as a heavy reliance on government support during that phase.

While the low participation in such retirement investment decisions may be explained by the common lack of interest and concern in long term financial matters apparent among most Malaysians (Malay Mail, 2017; The Edge Markets, 2015), behavioural finance experts infer such sedentary behaviour to be an expression of irrational investor behaviour (Kahneman & Tversky, 1974). Hershey's model of the factors that influence retirement investor behaviour in this instance questions the presence of investor decision making effort (Hershey, 2004).

Thus, more research is warranted to understand the key drivers that influence people's decisions to invest accumulated savings for retirement. With the growing acceptance that human psychology shapes pre-requisites for a thorough understanding of retirement planning behaviours (Stawski et al., 2007), this investigation intends to examine how human psychology, as well as how financial resource, economic force, and consumer behaviour factors can improve clarification of retirement investor decisions. Relevant findings will be useful to help the EPF and FMIs in improved policy making and strategy development directed at assisting EPF contributors to inhibit inertia and increase investment practices that promote greater wealth accumulation for retirement consumption. Four models renowned for their utility towards retirement financial planning are consulted to enable the estimation of a theoretical framework that predicts retirement investor decision behaviour as examined in a mandatory DC retirement income system fixed in unique investing features.

## 1.3 Problem Statement

Combined with a need for higher retirement income due to medical cost inflation that mounts particularly at retirement, inadequate retiree and healthcare benefits for private-sector workers, and longer life expectancies, the resulting insufficiency in retirement savings constitute a serious concern for the Malaysian EPF and its contributors.

Evidence from Malaysia indicates that a large majority of EPF contributors accumulating their retirement wealth with the EPF fail to save enough. Results from the EPF confirm that a meagre number of retirees met the minimum retirement savings target - the target in itself is lacking since it represents a monthly income value that is below the average poverty line income of RM2,208 in Malaysia (DSM, 2020; EPF, 2021b; Jomo, 2017). Moreover, among the active contributing pre-retirees close to retirement, the largest fraction even had less than a quarter of the minimum targeted savings, while equally large numbers of contributors who withdraw their retirement savings in full are projected to deplete these savings in less than a decade after retirement (Jomo, 2017).

Although the EPF has recognised the importance in increasing individual responsibility to elevate retirement savings through the EPF-MIS, majority of the active contributors presently fail to practice their roles in this UT investment opportunity (EPF, 2006 – 2019), notwithstanding the continuous growth in funds and returns observed in the Malaysian UT industry (EPF, n.d.b); FIMM, n.d.; SC, n.d.). This passivity towards investing funds for retirement destroys any chance of accumulating adequate retirement wealth, consequently succumbing these individuals to becoming incapable of funding consumption post-retirement. With the presence of such a predicament, old age poverty, a heavy reliance on the government and working children, or having to work much longer post-retirement, inevitably ensues. For the EPF, this means having to address the low levels in private individual pension investments, as well as issues with unfunded future pension liabilities.

Why therefore do so many Malaysian EPF contributors neglect responsibilities to make adequate retirement investment decisions? This concern shapes the focus of the present study of EPF contributors' motivation in carrying out their retirement investor behaviour. In this study, a model integrating four prominent retirement theories that collectively deduce psychological, financial resource, economic force, and consumer behaviour mechanisms is proposed in order to distinguish individuals who will plan and invest for retirement from those who will not invest.

Faced with the decision to invest part accumulated savings into UTs, EPF contributors are expected to hold the capacity to make rational retirement investor decisions which are frequently overtaxed since they involve financial market transactions that are complex and which exceeds the ability of people to act effectively (Garling et al., 2009). Evidently, majority of these individuals neglect the decision. Up till now, research focused on understanding retirement investor behaviour have mainly directed efforts into determining the influence of demographic-related motivators of people's decisions to invest (Hershey, 2004; Jamaludin & Gerrans, 2015).

The upsurge in behaviourally rooted explanations of retirement financial tasking are nonetheless attempts to improve decision making seen through the lens of people's psychological characteristics (Croy et al., 2012; Hauff et al., 2020). These studies infer that psychological characteristics explain the regularities in individual perceptions and decisions, and therefore emerge as more visible, relevant, and play a bigger role in people's retirement investing tendencies (Hershey & Mowen, 2000).Yet, related investigations are still limited, and typically derived from western and developed nations such as the US and Australia (Agnew et al., 2003; Ameriks & Zeldes, 2004; Bowman, 2003; Choi et al., 2002; Gerrans et al., 2006; Mitchell et al., 2006). Hence, it is essential that psychological factors be brought to bear on the issue of retirement investor decision behaviour among EPF contributors in Malaysia, especially since the influence of culture has been shown to predict various financial decisions (Breuer & Salzmann, 2012) that can vary across borders (note: although the influence of culture itself is not investigated here).

In discussing psychological factors, Hershey (2004) clarifies that personality trait, cognitive, and motivational psychology make up the three psychological dimensions that matter when it involves investing for retirement. Among the psychological factors documented to be most influential, and have accordingly received most attention in the context of retirement financial planning (Blundell et al., 2016; DiCenzo, 2014; Koehler et al. 2015; Stawski et al., 2007) involve: personality traits - conscientiousness, emotional stability, financial risk tolerance, and future time perspective; cognitive factors - financial and investment knowledge, perception on tax exemption, loss aversion, mental accounting, and anchoring; and motivational factors - bequest motives, and retirement goal clarity.

However, only bits and pieces are known about the influence of these psychological factors on individual investing inclinations for post-employment wealth accumulation. Instead, a larger fraction of work has investigated their effects on overall money management; liquid savings; retirement planning, saving, and preparedness; employer based retirement plan participation and saving rates; and asset allocation choices and decisions for retirement, among a few others (Benartzi & Thaler, 2001, 2007; Gutter et al., 2007; Hershey & Mowen, 2000; Ksendzova et al., 2017; Nyhus & Webley, 2001; Parise & Peijnenburg, 2017).

Furthermore, prior investigations studying the impact of these factors are limited to separate investigations and lack the presence of a cohesive framework assimilating key psychological influences that motivate retirement investor decision behaviour (Gutter et al., 2007; Thaler & Benartzi, 2004). Relevant investigations in Malaysia moreover consist of only a small subset of studies – these being non-extensive relative to those conducted in Western countries, and are especially limited in enquiry of psychological influences (Hassan et al. (2015), Jamaludin & Gerrans (2015) and Moorthy et al. (2012)). Thus, the examination of the aforementioned psychological dimensions and factors will enable a solid framework looking at its main effects on retirement investor decision behaviour as depicted in the present study.

Another matter receiving considerable attention relates to understanding the precautionary retirement savings behaviour of people. Here, retirement researchers are placing more focus in examining the factors that stir retirees into dis-saving less quickly, while simultaneously preparing additional savings owing to unpredictable expenses that rise in retirement. Notably, these studies indicate respectively the value of housing and medical expense risk as key financial resource and economic force factors in directing the behaviour (Blundell et al., 2016; Nakajima & Telyukova, 2019, 2013).

Firstly, driven by the need to protect housing assets from being decumulated at retirement, retirees are compelled to create additional savings in order to accommodate unpredictable expenses during this phase. In Malaysia, coupled with increasing housing wealth (Zahiid, 2016), and with such assets shaping the main wealth of most individuals, the role of housing on individual financial security, and hence efforts to accumulate retirement wealth, require investigation.

Secondly, in Malaysia the effects of medical cost inflation and age-related increases in health-care costs inevitably exposes the small pool of savings most EPF contributors have towards high medical expense risk (unpredictable out-of-pocket medical expenses), likely causing these savings to be fully expended much before the end of their retirement period. This is additionally problematic for EPF contributors since these working cohorts are not privileged in receiving governmental retiree and health-care benefits (Hassan et al., 2015). In view of the growing agreement that medical expense risk explains retirement savings behaviour within the de-cumulation phase (Blundell et al., 2016; Nakajima & Telyukova, 2013, 2019), the present study finds motivation to also examine its effect on retirement investor decision behaviour in the accumulation phase. The investigation of both, housing and medical expense risk is thus useful especially considering the dearth of evidence available on retirement investor decision behaviour within the asset accumulation phase, and in relation to the present study in Malaysia (Jamaludin & Gerrans, 2015).

Yet another essential financial resource factor worthy of consideration in retirement investment practices relates to the importance of financial advisors, in which evidence suggests are influential over similar retirement behaviours (Burke & Hung, 2015; Jamaludin & Gerrans, 2015). With the observed passivity in retirement investor decisions among EPF contributors, the exploration of this influence is necessary to establish its impact in elevating such decisions. Understanding the importance of financial advisors is thus key in predicting retirement investor decision behaviour, particularly when explored together with a large number of psychological factors, since these dimensions work out to be excellent candidates when it involves intervention efforts by financial advisors to augment the behaviour (Hershey, 2004).

Finally, one potential cause of an ineffective way to deal with individual responsibility in investing for retirement may be associated with low individual involvement in financial matters. This may be true in the case of Malaysia where the largest fraction of EPF contributors abandon their decisions to invest their retirement savings, which may otherwise enable greater wealth accumulation. As a consequence, these individuals may have to succumb to too little savings at retirement. Literature revolving individual level of involvement is however anchored in the field of consumer behaviour, results of which summarise that this factor is valuable in predicting behaviour (Antil, 1984; Zaichlowsky, 1985, 2012). Only a handful of studies have concentrated on exploring this construct as an antecedent of financial decisions. These studies conclude the importance of individual level of involvement to understand actual purchase decisions of financial services (Aldlaigan & Buttle, 2001), as well as of individual investment intentions (Howcroft et al., 2007; Lim et al., 2016). Hence, although the association between the level of involvement and these financial behaviours are valuable to practitioners and academics, knowledge pertaining this construct is still partial, especially when its effect on investment behaviour in the retirement context is concerned.

To this end, the present study estimates a cohesive model of retirement investor decision behaviour that is both psycho-motivational (since it accounts for the different psychological dimensions), and integrative (since it includes four different types of major variables), together making it broader in scope than most previous models of retirement financial / investment planning. The exploration of this model among young, middle-aged, and pre-retiree EPF contributors in Malaysia will also extend retirement investing research to mandatory DC retirement systems embedded with unique investing features, as well as to younger and pre-retiree workers as they invest towards their retirement pots. In estimating the model, four prominent theories in the discipline were solicited. These included Hershey's model, behavioural finance theory, extended life-cycle hypothesis, and the social judgement theory.

## 1.4 Research Questions

The research questions of the study are developed as follows:

1) What are the effects of personality trait, cognitive ability, and motivational psychological influences on retirement investor decision behaviour among Malaysian EPF contributors?

2) What are the effects of financial resource and economic force influences on retirement investor decision behaviour among Malaysian EPF contributors?

3) What is the effect of investor level of involvement on retirement investor decision behaviour among Malaysian EPF contributors?

## 1.5 General and Specific Research Objectives

The current study aims to examine the following general research objectives which are:

1) To examine the impact of personality trait, cognitive ability, and motivational psychological influences on retirement investor decision behaviour among Malaysian EPF contributors.

2) To examine the impact of financial resource and economic force influences on retirement investor decision behaviour among Malaysian EPF contributors.

3) To examine the impact of investor level of involvement on retirement investor decision behaviour among Malaysian EPF contributors.

Following the aforesaid objectives, the specific research objectives are hence developed:

1) To examine the impact of: personality trait psychological influences, namely (a) conscientiousness, (b) emotional stability, (c) financial risk tolerance, and (d) future time perspective; cognitive ability psychological influences, namely (e) financial and investment knowledge, (f) perception on tax exemption, (g) loss aversion, (h) mental accounting, and i) anchoring; and motivational psychological influences, namely (j) bequest motives, and (k) retirement goal clarity, on retirement investor decision behaviour among Malaysian EPF contributors.

2) To examine the impact of financial resource influences, namely (a) housing, and (b) financial advisor, as well as of economic force influence, namely

medical expense risk, on retirement investor decision behaviour among Malaysian EPF contributors.

3) To examine the impact of investor level of involvement on retirement investor decision behaviour among Malaysian EPF contributors.

## 1.6 Rationale and Significance of the Study

### Theoretical Significance

With the focus on psychological variables, the present study will add evidence on a collection of key psychological influences that are central to people's retirement investment tendencies, particularly within contexts of mandatory DC retirement income systems embedded in unique investing features. Evidence will contribute to the development of a robust framework of psychological dimensions informing retirement investor decision behaviour. For Malaysia, this will also extend current limited work in retirement related studies (Jamaluddin & Gerrans, 2015) which are especially lacking in the examination of psychological influences.

Furthermore, with a dearth of knowledge on the impact of housing and medical expense risk on retirement financial planning behaviours in the accumulation phase, and especially within Malaysia, the present study will add important findings on these financial resource and economic force determinants towards retirement investor decision behaviour within this phase. On the other hand, the examination of investor level of involvement will enrich relevant evidence in the financial context, and enable the extension of its value from consumer behaviour studies to research in retirement investment behaviour.

Together, findings from this investigation will both, complement the usefulness of existing models solicited (Hershey's model, behavioural finance theory, life-cycle hypothesis, and social judgement theory), and indicate its ability to form a suitable basis for the study's theoretical framework in predicting retirement investor decision behaviour. For future researchers in the field, the current research model will be of assistance in forming a foundation as they make further enquiries into the important predictors that navigate a variety of retirement financial planning behaviours within similar and dissimilar retirement systems.

### Practical Significance

### Policy Makers and Financial Consultants

This study is significant to the EPF as policy makers, as well as to financial advisors, as relevant findings will shed better insight into understanding what predictors pose a dominant push and pull effect on the Malaysian EPF contributors' retirement investor decision behaviour. This will provide an understanding of what stimulates retirement investment decisions, as well as of the root causes of the current condition revealing passive decision makers in relation to the behaviour. Specifically, the better grasp of how selected psychological, financial resource, economic force, and consumer behaviour factors influence the magnitude of UT purchase decisions for retirement investment. Together, this would contribute to important knowledge creation and management to assist related parties in policy making, strategy development, and advise for active retirement investor participation. For the FMIs, such understanding extends to the development of better marketing strategies in reaching individuals, and subsequently motivating them into demonstrating favourable retirement investor decision behaviour.

Furthermore, because the same psychological factors that influence investor behaviour will also affect the decision processes of financial advisors (Hershey, 2004), these advisors will be able to reflect on their own psychological biases to understand themselves better and appreciate the psychological infleunces that affect retirement investor decision behaviour. Hence, findings from this study should inform financial advisors to obtaine more complete sets of psychological profiles, as well as individual information on financial resources, economic force, and involvement to encourage people in active participation of retirement investor decisions. This in turn can improve people's long term retirement plans and their attainment of financial needs and goals.

Additionally, the examination of investor level of involvement and its relationship to retirement investor decisions will enable financial advisors, the EPF, and policy makers in devising ways to increase the level of involvement and UT investment purchase decisions for retirement wealth accumulation. Collectively, this will not only contribute towards improving the current retirement savings policy (i.e. through the MIS) in Malaysia, but is also hoped to provide assistance to the EPF in their endeavour to help the next 40% - 50% of the population in changing financial planning and investor habits for retirement.

**EPF Contributors and Other Individuals**

Finally, this research is important to retirement investors since findings create improved awareness on the impact of both, their own individual psychological biases, as well as of financial resource, economic force, and involvement factors on expected decision making processes in the financial market. Such information is thus useful when these individuals make conscious efforts to leverage on or navigate away influences that promote or cloud active retirement investor decision behaviour.

## 1.7 Scope of the Study

For the purpose of this research, the following parameters are made:

1) It is assumed that the theoretical framework which is based on retirement investor decision behaviour in developed nations is applicable to emerging nations like Malaysia.

2) Currently, the retirement savings accumulation under the EPF pension landscape represents the most significant retirement savings component among the larger private sector working population in Malaysia.

3) The study focuses on the perceptions and behaviours of the active and contributing Malaysian EPF contributors (Malaysian private sectors workers) mandated in remitting a portion of annual gross income towards accumulation of retirement income. This population segment thus forms the future retiring nation profoundly dependent on the savings deposited with the EPF, and is given the opportunity to participate in the EPF-MIS decision. They are hence the focal point of the current investigation.

4) The investigation is conducted in private sector organisations operating in the education and financial services sectors; the oil and gas sector; and the manufacturing sector, within the Klang Valley, Malaysia. The Klang Valley was chosen as it represents the main business hub in Malaysia and the largest fraction of total private sector workers in Malaysia. Additionally, within the Klang Valley, the aforementioned private sector organisations were selected since these fall within the major sectors that contribute to the biggest private sector groups, as well as added greatly to the Malaysian economy (DSM, 2019; Performance Management and Delivery Unit [PEMANDU], 2014). Together, the Klang Valley and industry sectors chosen provide a wide source of active Malaysian EPF contributors.

5) This study adopts a non-experimental, correlational causal design, using the structural equation modelling (SEM) multivariate statistical technique to measure variables, test hypotheses, and determine and understand the existence of cause-and-effect relationships between variables. The study's instrumentation is based on a questionnaire survey design used to test a cross-section of the Malaysian EPF contributors and their opinions about their retirement investor decision behaviour, conducted within a few private universities and private-listed organisations from a variety of industry sectors and job levels within Malaysia.

## 1.8 Definition of Terms

The operational definitions in this study are as follows:

1) **Retirement investor decision behaviour** refers to the investor decision-making behaviour of individual EPF contributors to purchase external UT investments by withdrawing and directing allowable portions of their EPF retirement savings into EPF-approved UT investments under the EPF-MIS plan.

2) **Psychological factors** refer to a collection of factors within three psychological dimensions. These dimensions comprise personality traits, cognitive characteristics, and motivational factors, all of which affect the individual EPF contributor's retirement investor decision behaviour. In this study such factors are deduced from and include 1) *Hershey's model*: *personality traits* – conscientiousness, emotional stability, financial risk tolerance, and future time perspective; *cognitive factors* - financial and investment knowledge, and perception on tax exemption; and *motivational factor* - retirement goal clarity; 2) *Behavioural finance theory*: *cognitive factors* - loss aversion, mental accounting, and anchoring; and 3) *Life-cycle hypothesis*: *motivational factor* - bequest motives.

3) **Financial resource and economic force factors** refer to a collection of financial resource and economic force factors that affect the individual EPF contributor's retirement investor decision behaviour. In this study such factors are deduced from and include 1) *Life-cycle hypothesis: financial resource* – housing; *economic force* – medical expense risk; and 2) *Hershey's model: financial resource* – financial advisor.

4) **Consumer behaviour factor** refers to the investor level of involvement factor which affects the individual EPF contributor's retirement investor decision behaviour. This factor clarifies the extent of involvement likely engaged by these individuals in purchasing the EPF-approved UT investments, and hence reveals their personal relevance towards the decision.

## 1.9 Motivation of the Study

The problems in retirement income adequacies is a real issue that has persisted for many Malaysian private sector workers for the past two decades. These retirees are faced with retirement income that cannot support consumption in the decumulation phase due to poor levels in retirement income and benefits extended by the EPF pension fund system, and high costs of living which is particularly driven by medical expense inflation. This predicament is especially problematic for private sector workers since we are not privileged in receiving lifelong pensions and healthcare benefits. While the EPF-MIS can solve some of these issues, most contributors have neglected their investor roles. Nonetheless, with proper involvement for example, I, as an EPF contributor, have managed to increase the returns and liquidity of my retirement savings from this scheme. Happy with my returns from the well-performing UT funds, I hope that more private sector workers can benefit from this investment plan in the long term, and thus create sustainable wealth for their retirement years. With the expectation of helping relatives, friends, colleagues and other EPF contributors control their nest eggs better, I was motivated to conduct this study.

## 1.10 Summary

This study attempts to address the most pressing retirement concern in Malaysia - inadequate retirement savings and behaviours therein for late-life consumption and preparedness. This investigation hence focuses on the pushes and pulls that discriminate between the Malaysian EPF contributors that may be inclined towards exercising their retirement investor decision behaviour (i.e. through the EPF-MIS) and those who are not moved to do so despite the lucrative performance reported from such investment opportunity. In understanding the retirement investor decision behaviour among these groups, work here looks at collecting data to be analysed using multivariate statistical techniques to produce relevant knowledge creation and management.

The wide range of psychological constructs, and the selection of financial resource, economic force, and consumer behaviour constructs discussed will be examined in relation to their impact towards the criterion, since these are considered most influential in retirement financial planning behaviour. Thus, on the basis of a priori theory and relevant empirical evidence, the present investigation expects to establish that psychological foundations, as well as financial resource, economic force, and investor level of involvement factors will shape proximal effects on retirement investor decision behaviour within contexts of mandatory DC retirement systems fixed in unique investing features. The theoretical framework of this study proposing these expectations is shown in Figure 1.1 below. Findings will have implications theoretically and practically, some of which relate to promoting more awareness among policy makers, financial advisors, and people, both retirees and future retirees, and thus stimulate greater levels in retirement investor decision behaviour.

Building on the background of the study, Chapter 2 describes the performance of pension fund systems globally in greater detail, the position that the EPF fits in acting as a pension landscape for Malaysia, and the EPF-MIS plan and retirement investor decision behaviour in Malaysia. The remainder of the thesis is organised as follows –Chapter 3 begins with the theoretical considerations of the study, and continues with reviews on empirical evidence pertaining the factors that are key in informing retirement investor decision behaviour. Chapter 4 illustrates the theoretical framework of the study, after which the study’s hypotheses are developed. Chapter 5 details the methodological plan, while Chapter 6 reports and examines the outcomes of data analysis. The thesis ends with Chapter 7, discussing the study's implications, limitations and suggestions for future work.

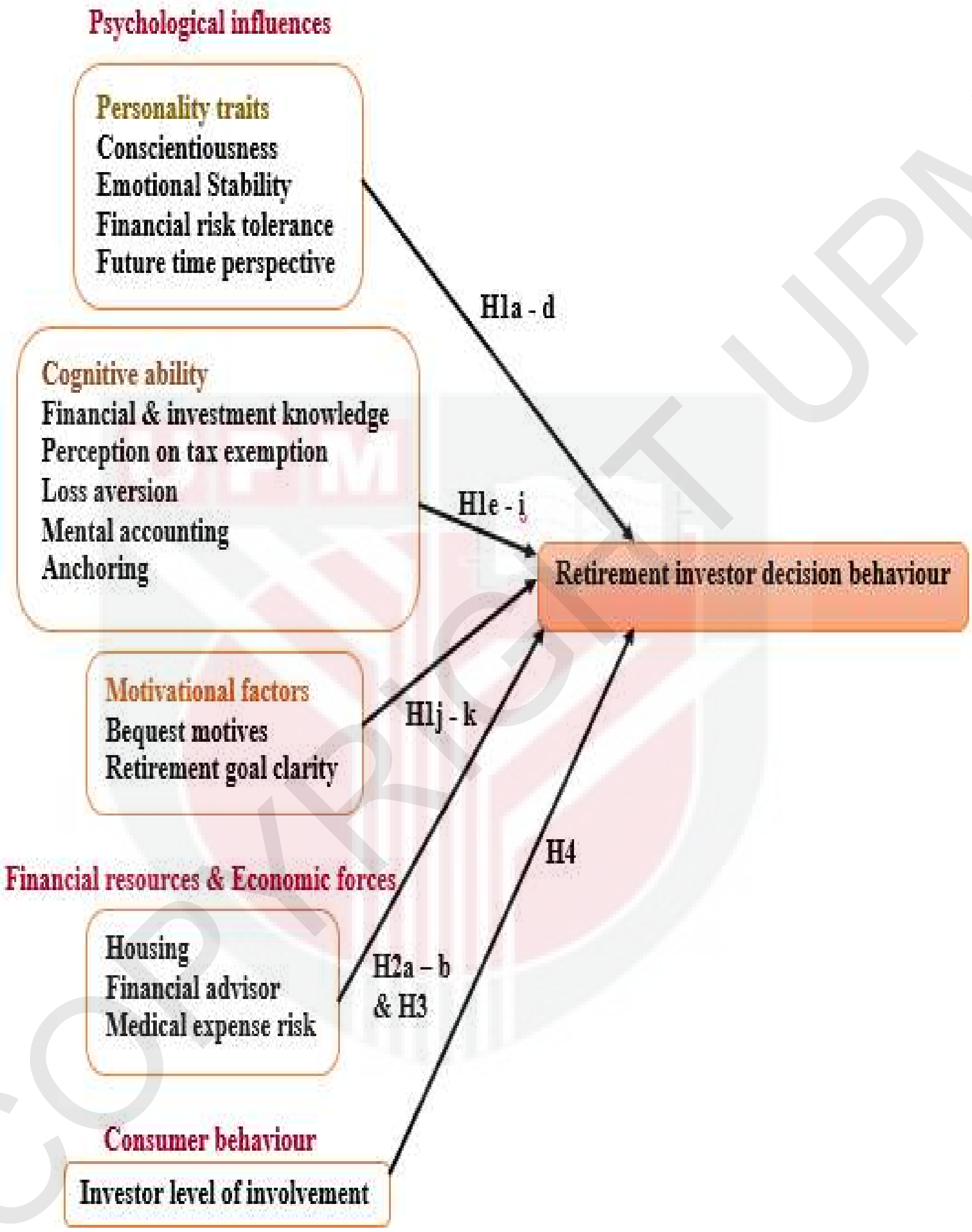


**Figure 1.1 : Theoretical Framework of Retirement Investor Decision Behaviour (A)**

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