FINANCIAL BEHAVIOUR OF MUSLIM INVESTMENT CONSUMERS IN MALAYSIA: A RELIGION MEASUREMENT INVARIANCE ANALYSIS

BY

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ABSTRACT

This study examines a religion measurement invariance of a first-order factor model of financial behavior among Muslim Investors in Malaysia. Data elicited via a survey questionnaire was analyzed using both the Statistical Package for Social Sciences (SPSS) 22.0 and Amos 22.0 software. The study revealed that financial behaviour as a first order factor is indicated by regret aversion, mental accounting, cognitive dissonance, anchoring, herding, and overconfidence first. Measurement invariance was tested based on self-reported level of religion adherence via a set of hierarchically structured levels: a) configural invariance, b) metric invariance of the first-order model, c) intercepts of the first-order model, and d) residuals of the first-order model. Moreover, based on t-test at alpha of 0.001, the latent mean difference tests of the first order model indicators was also assessed for statistically significant difference on a path by path basis along religion demographic divides.

خلاصة البحث

تحثت هذه الدراسة ثبات القياس الديني عامل نموذج من الدرجة الأولى من التصرفات المالية بين المستثمرين المسلمين في ماليزيا. تم تحليل البيانات عن طريق الاستبيان باستخدام كل من الرزمة الإحصائية للعلوم الاجتماعية (SPSS) 22.0 وبرنامج عاموس 22.0. وكشفت الدراسة بأن التصرفات المالية كعامل الدرجة الأولى هو مبين من قبل النفور الأسف ، والمحاسبة العقلية ، التنافر المعرفي ، رسو ، الرعي ، والثقة المفرطة الأولى. تم اختبار ثبات القياس على أساس مستوى الخبر الذاتي لالتزم بالدين عبر مجموعة من مستويات منظم بشكل هرمي : أ) ثبات القياس ، ب) ثبات موزون على مثال الدرجة الأولى ، ج) واعتراض من طراز الدرجة الأولى ، و د) متبقيات نموذجية من الدرجة الأولى . وبالإضافة ، بناء على التجربة (ت) في ألفا من 0.001 ، تم تقييم الكامنة االتجريبة المتنوعة للمؤشرات المثالية بالدرجة الأولى بدلالة على إحصائية في فرق كبير في أساس مسار بمسار على طول الانقسامات السكانية الدينية .

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a research paper for the degree of Master of Science (Islamic Banking and Finance)

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DECLARATION

I hereby declare that this research paper is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

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Dedicated to my late father and sister Allahyarham Mohd Hassan Bin Mohd Noor, Allahyarhamah Hajjah Siti Hajar Bt Mohd Hassan, mother Hajjah Zabedah bt Jaudin, husband Kamarulzaidi Bin Ali, son Muhammad Luqman Bin Kamarulzaidi, siblings and friends.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Since the pioneering study by Tversky and Kahneman (1974), behavioural finance, a fusion of sociology, psychology, and finance has attracted commendable research interests among scholars and practitioners alike. Such attraction is arguably more of a function of design rather than happenstance hinged on the emerging realization of the overstretched theoretical assumptions, and to some extent contestable mechanical empiricism on which individual investors' financial behavior is grounded (Muradoglu & Harvey, 2012; Boussaidi, 2013; Nienhaus, 2015). The limitation of the modern finance theories to explain investors' behavior is advertised by the fact that focus is placed on market efficiency contingent on the relative availability of and access to financial information. This is often than not at the expense of the equally if not arguably more important psychological biases[1] that shape financial behavior (Subash, 2012, Nofsinger, 2014).

According to Credit Suisse, Thorsten and Meier (2015), orthodox finance makes it appear as if financial decisions are correctly taken considering available objective and quantitative statistical optimization; and mathematical operationalization based on established sophisticated models. However, the reality is that 80 percent of such decisions are based on behavioural finance. Nofsinger (2014) and Credit Suisse et al (2015) thus conclude that the financial decision process that investors go through is

[1] Psychological bias can be broadly categorized into cognitive bias and emotional bias. While the former reflects investment decisions based on a rule of thumb that may not necessarily be factual, the latter reflects investment decisions based on feelings rather than facts.

cyclical in nature and comprises a number of sequential chains of interrelated decisions that are susceptible to pitfalls mainly due to investors' behavioural biases, emotions, and cognitive errors. Interestingly, the relative importance of culture and religion for investment behavior can also not be discountenanced. For instance, some recent studies have proven that a person's religion to a reasonable extent also moderates financial behavior across various dimensions of cognitive biases (Leon and Pfeifer, 2013; Alam, Zanariah, Che Wel, & Ahsan (2012), while same effect is noted for cultural diversity (Credit Suisse et al, 2015).

According to Li, Wang, and Rhee (2015), financial decision makers can be generally classified into either individual or institutional. According to Nienhaus (2015) the individual financial decision makers can also be further sub-classified into either retail investors or investment consumers. Without prejudice to the fact that both individual and institutional investors are prone to making financial decision mistakes (Shiller, 2015:26), Nofsinger (2014:2) noted that the former had overtime been labelled as perennial bad market timers. As stated in Li et al (2015:3) plausible reasons could be that individual investors are often less-informed and highly susceptible to the influences of psychological biases, market sentiments, and attention-grabbing events. In addition, the recent interest of behavioural finance researchers to shift from the usual focus on what orthodox finance considers rational investment acts, to the irrational investment acts seems more apposite when situated in the context of the individual decision makers and what norms drive such acts. As succinctly captured by Leon and Pfeifer (2013:1):

> Norms capturing how decision makers should, or how they should not behave should be incorporated in macroeconomic analysis as the appropriate way for its micro-foundation instead of solely presuming the constrained maximization of profit and utility functions.

In the context of Malaysia, the growth of the Islamic banking and Finance industry[2] and the drive by the Malaysian government through regulatory agencies like Bank Negara Malaysia, and the Securities Commission of Malaysia towards making Malaysia a global hub of the burgeoning Islamic banking and finance industry are very commendable. Nonetheless, the industry would have had a fair share of its own unintended financial misjudgment by the investment consumers apparently due to assumed rational and well-informed decision (Nienhaus, 2015) based on orthodox economic models on the one hand, which may not have factored in the strong effect religious consideration (Alam, Zanariah, Che Wel, & Ahsan 2012) on the other.

Moreover, stringent regulatory requirements relating to transparency and disclosure may not address likely issue of the cognitive biases that by human nature often results in 'bad' investment decisions by the investment consumers (Nofsinger, 2015, Nienhaus, 2015). As such, for the regulatory agencies to ensure that both the mechanics (operational efficiency) and the spirit (equity and fairness) of Islamic banking and finance are realized there is a need to consider not only the financial literacy of the retail investors, but also the religion-moderated cognitive biases that shape their investment decision. For this group of investors, their relatively low wealth and income level, limited access to information, relative added costs of seeking professional advice to possible returns on investment make them highly susceptible to making bad investment decisions based on various combinations of cognitive biases. It is likely, therefore, that if these cognitive biases remain veiled and policy interventions only cater for institutional compliance with transparency and disclosure, 'bad' investment choices and decisions by consumer investors may persist. The process

[2] Notwithstanding its continuous global appeal, the Islamic banking and finance industry in Malaysia is presently worth about 27 percent of the entire worth of the Malaysia financial system.

leading to these bias evolutions and possible steps toward de-biasing may become fuzzy which though may seem insignificant in isolation may also have huge systemic implication in aggregate for the Islamic financial market.

1.2 STATEMENT OF THE PROBLEM

It is quite unlikely that the behavior of investors is solely determined by their level of investment knowledge or informational differences. Rather, as noted by Nienhaus (2014) such investment behaviours may be a manifestation of a collection of deep seated cognitive biases that influence financial decisions. Widely accepted notions such as the 'risk-return' relationship and 'efficient market hypotheses' in finance' or wealth maximization theory of economics have in recent times been subjected to intense debate. Arising from the attempt by economists to model human behavior as wealth maximizing without due cognition to past and current level of wealth, understanding financial decisions and how such decisions deviate from the predictions of the economic models in real life settings seems puzzling. Even more interesting is the fact that the relative importance of intra and inter variation along cultural, religious, and socio-economic divides are often disregarded in behavioural finance discourse.

According to Nienhaus (2015), most of the empirical studies carried out on investors' behavior focused on the 'Western world' specifically the United States of America (USA). This is in stark contrast to the dearth of similar empirical studies in the context of other parts of the world. The differences in socio-cultural belief and religious inclination for instance may be imply that the presentation of findings in the Western studies as being universal may be akin to overstretching empiricism (Credit Suisse et al, 2015). Nienhaus (2015) therefore submits that location and religion are two good reasons why it is necessary to conduct further empirical studies in behavioural finance.

For instance, Nienhaus (2015) noted the variance in cognitive bias of investors in both the USA and Germany. While the later have huge credit card financing overhang and low savings rates, the latter are usually over-insured and rarely use credit cards or payday loans. Interestingly, in Japan which is a technologically advanced economy, the use of credit cards is not as popular as in the US or Australia. This is because, based on age demographics, the population of Japan is aging and most people prefer to save rather than to spend. As such, credit cards are used as charged cards on smaller purchases rather than as an alternative means of borrowing as done in most other developed countries.

Furthermore, from a religious perspective, Nienhaus (2015) in line with the arguments in Omar Farook (2011) noted that there may be a need to distinguish between *Homo economicus* and *Homo Islamicus* given that they both have different fundamental economic inclinations.[3] The two reasons advanced by Nienhaus (2015) seem apposite when situated in the context of Malaysia Muslim investors. Unlike Germany, the credit overhang relating to the use of credit cards in Malaysia is similar to those noted in the USA. The issue of over-indebtedness in Malaysia is assuming a monstrous status which calls for attention (Mokhtar and Ismail, 2013). The credit expansion policy in Malaysia seems to have morphed over the years to a socio-economic problem – household over-indebtedness. As succinctly put by Yeap (The Edge, October 2013): "...from household to corporate, Malaysia is a nation in debt, spending more than we earn on the back of easy and abundant credit and a shocking lack of a financial discipline...."

Furthermore, the data from the Malaysia Department for Insolvency[4] also indicated that about 44 percent of the incidences in bankruptcy in Malaysia are among

[3] Although from a purely practical point of view, Omar Farook (2011) and Asutay (2007) contend that both *Homo economicus* and *Home Islamicus* tend to converge.
[4] www.insolvensi.gov.my

the Malays. By default, this group of Malaysians is Muslims. As such, a basis to consider Islam's disposition vis-à-vis the financial behavior of Muslims in related financial dealing is necessitated. Against the backdrop that obtaining financial credit for instance is a financial decision which is based on certain prejudices; it is likely that an understanding of the psychological biases that shape such decision would help to stem the negative tide of over-indebtedness and similar consequences of pitfalls archetypal of investment consumers' behavior. Moreover, it is necessary to empirically assess the moderating influence of religion, in this case Islam on investment behaviour of Muslims against the mention in Williard and Norenzayan (2013) that religion exerts limited influence on the human behavior relative to cognitive biases.

1.3 JUSTIFICATION FOR THE STUDY

The justification for this study is hinged on a number of facts. While investors can be categorized into retail and institutional and with both prone to bad investment decisions, evidences exist to demonstrate that the susceptibility of the former is higher. They are thus dubbed 'perennial bad market timers'. Given that bad investment decisions may be explained by a combination of factors including cognitive biases, this study provides an insight into how such biases implicate financial decision making of Muslim retail investors. Furthermore, the moderating effect of socio-economic factors especially religion and location is brought to the fore. A notable lacuna in the extant behavioural finance literature is the fact that most studies are carried out in the west and with little or no cognition to religion. Although cognitive biases and how they impact financial decision making is gaining traction in recent times, providing empirical evidences from

Malaysia Muslims perspective provide a number of opportunities. For instance, it may help improve operation and regulation relating to consumer protection especially in Islamic finance. This is by identifying investors' cognitive bias to protect them against service providers as well as their own personal prejudices.

1.4 RESEARCH OBJECTIVES

The objective of this research paper is to investigate the susceptibility of Malaysia Muslim individual investment consumers to the various psychological biases that shape investment behavior. Specifically, this paper also:

1- Examines the fit of a first order-measurement model of financial behavior among Muslim consumer investors in Malaysia

2- Assesses the significance of various cognitive biases among Muslim consumer investors in Malaysia

3- Assesses the relative significance of the various cognitive biases among Muslim consumer investors in Malaysia

4- Investigates the moderating effect of self-rated importance of religion on the measurement model of the psychological biases affecting the financial behavior of the Malaysia Muslim consumer investors.

1.5 RESEARCH QUESTIONS

1. Does the first order-measurement model of financial behavior among Muslim consumer investors in Malaysia reproduce the data?

2. What is the relative significance of various cognitive biases among Muslim consumer investors in Malaysia?

3. What is the moderating effect of self-rated importance of religion on the measurement model of the psychological biases affecting the financial behavior of the Muslim consumer investors in Malaysia?

1.6 PLAN OF THE STUDY

This study is divided into five distinct chapters. Chapter one focuses on the background of the study, problem statement, and the justification for the study. Other aspects of this first chapter are the scope of the study, research objectives and research questions. The second chapter focuses on the literature review of the extant related studies on the variables of interest in this research. Chapter three focuses on the research methodology comprising the sources of data, collection procedures, research instruments, and the tools of statistical analysis. The data obtained from the respondents are subjected to statistical analysis using the confirmatory factor analysis as part of a structural equation modeling process. The final chapter focuses on the summary of the main findings, conclusion, recommendations, limitations and suggested areas of further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter focuses on the review of the extant literature relating to investors' psychological and cognitive biases as it relates to investment decisions. In this regard, As such, numerous databases were consulted to retrieve articles, policy and working papers. As such, existing gaps in the existing literature relating to cognitive biases and retail investors especially how these biases are moderated by religion were identified.

2.2 MALAYSIAN CAPITAL MARKET

The financial system is made up of two distinct segments. These are the money market and the capital market. While the former is meant for short term investments, the latter is meant for long term investments. In the capital market which is the context focus of this study, two sub-markets are also noted. These are the bond and equity markets. The bond market provides a trading platform for investors interested in government and corporate bonds, sukuk, etc. The equity market on the other hand provides trading platform for securities like common stocks for both retail and corporate investors.

Capital market activities in Malaysia have towards witnessed remarkable growth in recent years. This is reflected in the growing number of firms raising funds from the market indicated by increased number of companies listed in the Bursa Malaysia. This trend is even expected to grow further given the government's drive towards privatization. As at the end of 2014, the Bursa Malaysia has market capitalization of RM1,651 billion (Bursa Malaysia, 2014).

In the South East Asia region, Bursa Malaysia with more than 1000 listed firms cutting across numerous industrial divides remains the biggest stock exchange in terms of market capitalization. As it is in most stock markets, the Bursa Malaysia also caters for three categories of boards according to for instance, paid-up capitals. While the main board caters for the big companies with large capitalization, the ace or second board caters for relatively smaller companies. The third board is the Mesdaq which caters for stocks that are start-ups especially in the technology based industry. In line with Malaysia's drive towards becoming the hub of Islamic banking and finance, provisions are also made for sharia'h compliant stocks. The Securities Commission of Malaysia following the recommendations of its Sharia'h Advisory Council using certain criteria determines the sharia'h compliance or otherwise of a company listed. Criteria used include quantitative consideration such as what is the proportion of the contribution of non-Sharia'h activities relative to Revenue and Profit before Tax. A permissible range of between 5 percent and 10 percent of such proportion is used as the benchmark to determine shari'ah compliance otherwise the stocks will be considered non-Syariah compliance. There are also other qualitative considerations that the Sharia'h Advisory Council of the Securities Commission of Malaysia uses in determining the sharia'h compliance of a listed firm. Other securities traded on the exchange include equity warrants, convertible bonds, hybrid stocks that is, preference stocks, closed-end fund and property trust etc.

Commendably, the Securities Commission of Malaysia has put in place adequate regulation and guidelines to ensure transparency and disclosure in order to protect investors from sharp practices by operators. Nonetheless, there are also concerns that investors, especially the retail investors need to be protected against their own self-inflicted prejudices and cognitive biases. It is from concerns like this that the field of behavioural finance evolved in order to understand the why rather than the how of investment.

2.3 BEHAVIOURAL FINANCE

A subset of the behavioural economics domain, behavioural finance is the fusion of a number of disciplines such as sociology, psychology, economics and finance. The behavioural aspect accentuates on the fact that contrary to theoretical fundamentals, investors often behaves in a way that necessitates a revisit or remodification of theoretical assumptions.

The concept of rationality and utility maximization often at the centre of economics and financial discourse may be overstretched afterall. In order words, the assumption that what guides investment or financial decisions that people make can be situated within the bounds of their wealth and liquidity. As such, human behaviours can be predicted because it is further assumed that the market behaves efficiently, resources are allocated efficiently based on prices. However, since the last few decades, this theoretical status quo has been challenged (Burton and Shah, 2013).

According to Erta et al (2013), the frequency and implications of cognitively biased decisions taken by most investors in particular and the financial markets in general necessitated a paradigm shift in the way investment assumptions are viewed. According to Nienhaus (2015) efforts by regulators to unravel the reasons behind such unexpected financial behaviour by investors revealed that the intrinsic psychological attributes of people exert more influence on their financial decisions compared to their financial knowledge apparently due to deep rooted cognitive biases. In this regard, a number of biases have been documented in the extant literature. These biases can be broadly categorised into those relating to procrastination, regret and loss aversion, mental accounting, status quo bias, and information overload (Nienhaus, 2015). Some of these biases are briefly reviewed in the subsequent sections.

2.4 OVER-OPTIMISM AND MISJUDGEMENT

Many people tend to be over-optimistic, which overestimate on their capabilities on managing their finances and underestimate the possibility of being affected by negative events, such as illness or the loss of employment (Anderloni and Vandone 2010). A study conducted amongst students in New Zealand to oversee the existence of optimism bias in relation to student debt. In general, the students were unrealistically optimistic which they over-estimated their level of income in the future and underestimated the time it would take them to repay their student loans (Seaward and Kemp 2000).

Another research on over-indebted individuals in the UK discovered that almost all respondents had *misjudged* the amount of debt they were capable of handling (Elliot 2005). In a similar study by Stango and Zinmann (2007) conclude that consumers "systematically underestimate the cost of short-term borrowing, and the return on long-term saving". This caused them to save less, and have more short-term expensive loans (Stango and Zinmann 2007).

2.5 HYPERBOLIC DISCOUNTING

"Buy now and pay later" is a possibility that comes with credit. A study by Vandrone (2009) shows that people have a tendency to prefer immediate benefits despite the future costs. Hyperbolic discounting explains as to why people choose to do so, even if it causes them financial problems later in the future. This factor reveals an inconsistency in consumers' preferences, and posits that individuals *discount* future rewards the closer they come in time (Thaler 1981). For example, an individual will most likely prefer to receive an immediate payment of RM100 instead of waiting until tomorrow and receive an extra RM10. However, if the amount is "delayed", he will