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# Propensity toward financial risk tolerance: an analysis using behavioural factors

Propensity  
toward FRT

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## Abstract

**Purpose** – The purpose of this paper is to investigate the influence of six core behavioural factors on financial risk tolerance (FRT). The study also analyses the role of religiosity in the relationship between behavioural factors and FRT.

**Design/methodology/approach** – Empirical data were collected using a survey questionnaire. A total of 1,679 questionnaires were distributed to six public universities in the Klang Valley. However, only 1,204 questionnaires were completed and used for analysis. This study employs structural equation modelling to validate and assess proposed research model.

**Findings** – The results of the analysis demonstrated some new findings. The findings indicate that propensity for regret, propensity for trust, happiness in life, propensity to attribute success to luck and propensity for overconfidence have a significant influence on FRT while propensity for social interaction does not. The results also provide support for the moderating effects of religiosity in the proposed research model.

**Originality/value** – The findings highlight the important role of behavioural determinants to assess individuals' FRT. Understanding FRT is a complex process that goes beyond the exclusive use of behavioural factors. Thus, more research is clearly needed to resolve which additional factors can be used by financial advisors to increase the explained variance in FRT differences.

**Keywords** Religiosity, Financial risk tolerance, Behavioural factors, Propensity to indebtedness

**Paper type** Research paper

## 1. Introduction

Consumers' risk tolerance is crucial to advisors as they use it to guide their clients for various financial decisions making (Pan and Statman, 2012). Carr (2014) suggested that information about risk tolerance can be useful in profiling risk for individuals and designing appropriate investment strategies according to their levels of risk tolerance, thereby enabling them to earn optimum return on their investments. Many studies have linked risk tolerance to achieving adequate retirement plans, making appropriate insurance policy and others (Wang and Hanna, 2007; Anbar and Eker, 2010; Lucarelli and Brighetti, 2011). Also, West and Worthington (2012) pointed out that individual's risk tolerance has significant role in financial and regulatory policy.

However, though risk tolerance has been widely examined in the implementation of the financial planning process and development of investment management models, there is no universally accepted measure for risk tolerance. Carr (2014) indicated that the likelihood of achieving financial plans increases when risk tolerance is accurately measured. Moreschi (2005) argued that if the risk tolerance assessment process is not carried out well, financial plans may go wrong and end up with misunderstanding and disappointments. Therefore, to date, the necessity of developing appropriate tools for assessing risk tolerance is well documented in the literature and have been of interest to financial planners, regulators, consultants, financial advisors and researchers in recent years (Pan and Statman, 2012; Carr, 2014).



**JEL Classification** — G32, G110, M300

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Rattiner (2005) stated that advisors have fiduciary and legal responsibility to determine the accurate levels of a client's risk tolerance and thereby suggesting the optimal investment portfolios. For instance, according to the US Department of Labour's Pension Protection Act of 2006, it is necessary for financial planners to understand their clients' risk tolerance when providing financial planning recommendations (Gilliam *et al.*, 2010). Besides, Kahneman (2009) noted that "advisor and advisee share a common interest: both want the relationship not to end in disappointment, and both want to reduce the potential for regret and for abrupt reversals" (p. 1). Carr (2014) found that advisors who can better understand their clients risk tolerance can also convey a positive impression to their clients to accept their recommendations with a greater level of confidence.

Accordingly, financial risk tolerance (FRT) is associated with inequality of wealth. As Anbar and Eker (2010) identified that individuals who are willing to take higher financial risk can earn higher financial returns over the long run which ultimately help them to grow their personal wealth. However, Yao *et al.* (2004) noted that individuals, who tolerate inappropriately low level of financial risk, tend not to invest in risky asset like stocks and thus may face greater difficulty in achieving various financial goals such as adequate retirement plan. Wealth inequality is still an alive and relevant topic, particularly for countries with multi ethnic groups in Malaysia. Khalid mentioned that in Malaysia, Chinese have the highest average wealth of RM 128,325 which is 76 and 47 per cent higher than Malays and Indians, respectively. The demand for financial planning activities is linked to the growth of the middle income earners. Shafii *et al.* (2009) specified that the middle class in Malaysia is increasing and financial planning activities are getting popular among all ethnic groups. The development and outcomes of personal financial planning were found to be related to the accuracy of the measurement of risk tolerance. Moreschi (2005) found that if the financial planner is able to capture the right information in the risk tolerance assessment process, the entire financial plan has a better possibility of success. Thus, Fox and Tannenbaum (2011) suggested that critical strategies that include the influence of behavioural factors on risk tolerance are needed to address the ambiguity of the risk tolerance assessment process.

## 2. Financial risk tolerance

Risk tolerance is related to financial planning process (Carr, 2014), modern investment management decision-making models (Hanna *et al.*, 2008) and determining government policies about consumer risks regarding financial decisions (Sung and Hanna, 1996). Although classical decision-making theory has considered the propensity for high or low risk tolerance as situational (Kahneman and Tversky, 1979), in the decades many studies have long regarded that an individual's desire to tolerate high or low risk is a part of personality (Dahlbäck, 1990; Bromiley and Curley, 1992; Wall *et al.*, 2005). Generally, individual's risk-taking ability is high when their level of wealth and income are relatively higher than their liabilities (Borio and Zhu, 2012). While FRT (willingness to take financial risk) is not always influenced by financial returns, rather it depends more on to demographic, socio-economic and psychological (Yao, 2013; Carr, 2014).

Accordingly, FRT is defined as the maximum amount of uncertainty that an individual is willing to accept when making any financial decision (Lucarelli and Brighetti, 2011; Carr, 2014). The researcher is using the term FRT instead of risk averse or risk seeking for this study because FRT represents both and it satisfies the research objectives. Keister (2004) defined risk averse and risk seeking as "people are risk averse for gains with high probabilities and for losses with low probabilities, risk seeking for gains with low probabilities and losses with high probabilities" (p. 297). Anbar and Eker (2010) indicated that individuals' FRT is very helpful for successful financial management. According to Yao (2013), FRT determines the types of investment an individual will accept and the amount of

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wealth will be able to accumulate. Individuals that are less willing to take financial risk may end up with inadequate wealth while individuals that are willing to take more financial risks may result in unexpected losses too. These results help to see the link between FRT and investment decision making. It also helps to interpret the relationship among behavioural propensities, FRT and their preferred future investments. For example, if this study finds that propensity for overconfidence (POC) is positively related to FRT (willing to take risk) then it also indicates that individuals with high POC is more willing to accept risky investment. The probability of accepting risky investment is higher for individuals who have high risk tolerance compared to low risk tolerant ones.

Moreover, the relationships between other behavioural propensities (i.e. propensity for regret, propensity for trust, happiness in life, propensity to attribute success to luck (PASL), POC and propensity for social interaction (PSI)) and FRT are important for both clients and advisors. The understanding of direct and indirect association between behavioural propensities and FRT help investment managers to know whether an individual is truly financial risk tolerates or their FRTs are exaggerated by their propensities. Even though some propensities are intricately related to each other, a proper knowledge about their relationships will help financial advisors to make appropriate adjustments. Furthermore, individual risk tolerance plays important role for the changes of price in the stock market (Shefrin, 2002) which further emphasises the importance of understanding one's FRT.

### 3. Theoretical model and hypotheses development

#### 3.1 Propensity for regret

Regret is accusing oneself or taking personal responsibility for making mistakes (Joel *et al.*, 2012). Extensive prior literature on psychology and neurobiology agree with the assumption that regret affects decision-making process under uncertainty. As Connolly and Zeelenberg (2002) mentioned that the emotion that has received the most research attention from decision theorists is regret. Regret is one such emotion that can have significant influence on risk tolerance and risky decisions. Regret is one of the factors that are associated with risk taking in behavioural economics. Regret could lead to either risk aversion or risk seeking (Tsai, 2012). Both risk seeking and risk aversions are related to regret and decision making (Inman and Zeelenberg, 2002).

People tend to shield themselves against future regret by avoiding risk now hence opt for the less risky decision. For instance, Reb (2008) pointed out that people who have high levels of regret tend to make more careful decisions. In contrast, regret could lead to risk-seeking behaviour (Reb and Connolly, 2009). This would have happened if the individual is faced with two options or more where one is riskier than the others and there is always feedback on the outcome of the riskier option. Therefore, if an individual faced with two choices where one is riskier than the other opting for the less risky option lead to regret if the riskier option turned out to be better than the less risky option (Ritov, 1996). As a result, in many occasions, regret aversion of a bank's chief executive officer makes the bank more tolerant to financial risks (Tsai, 2012). This result indicates that regret may have positive relation with FRT. While Bell (1982) found evidence that the relationship between regret and risk aversion is positive. This indicates that people who have high propensity for regret tend to have less FRT. However, Pan and Statman (2012) found no correlation between regret and risk tolerance. The mix findings about the relationship between regret and risk tolerance demand for the reinvestigation of the relationship. Thus, this study investigates the relationship between propensity for regret and FRT by developing and testing the hypothesis. Financial advisors need to understand the relationship between propensity for regret and FRT to make appropriate adjustments in the process of measuring individuals' FRT as propensity for regret may exaggerate or underestimate the level of risk tolerance. Individuals' propensity for regret is important to financial advisors

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even if it is unrelated to FRT as it guides individuals towards fitting portfolios. Based on these arguments, it has been postulated that:

*H1. Propensity for regret has positive impact on FRT.*

### *3.2 Propensity for trust*

Trust as a psychological state comprising the intentions to accept vulnerability based on positive expectations of the actions or behaviour of another (Rousseau *et al.*, 1998). In investigating the relationship between trust and risk-taking attitude, Luhmann (1979) found that there is a positive relationship between trust and risk taking, while Yamagishi and Yamagishi (1994) argued that trusting is equal to risk taking. Generally, people who trust others are more willing to take risk. Risk must exist for trust to occur and when trust occurs more risk will be attractive. However, some studies found the negative relationship between trust and perceived risk (Viklund, 2003; Olsen, 2008). Moreover, Tsai (2012) explored that perceived risk significantly affects individuals' decision-making process. In contrast, Ashraf *et al.* (2006) found a little or no correlation between propensity for trust and overall level of risk aversion or risk tolerance. Hurley (2006) found that people risk tolerance has a significant impact on their willingness to trust the trustee. The mixed findings about the relationship between propensity for trust and risk tolerance further demand for the investigation of the relationship. Thus, this study investigates the relationship between propensity for trust and FRT by developing and testing the hypothesis. However, financial advisors need to understand the relationship between propensity for trust and FRT to make appropriate adjustments in the process of measuring individuals' FRT as propensity for trust may exaggerate or underestimate the level of risk tolerance. Thus, the hypothesis proposes that:

*H2. Propensity for trust has positive impact on FRT.*

### *3.3 Happiness in life*

Tatarkiewicz (1976) defined that happiness refers to total satisfaction that is satisfaction with life as a whole. In the context of the USA, Easterlin (1974) found a positive relationship between happiness and individual income. Similar results were found in UK, Germany, Italy, the Netherlands and Japan (Blanchflower and Oswald, 2004; Layard, 2005; Statman, 2008). While, Frey and Stutzer (2002) reported that there is no clear-cut negative or positive relationship between income and happiness. Argyle (1999) in his book mentioned that higher income is associated with greater happiness, although the relationship between income and happiness is stronger in relatively low-income countries than in relatively high-income countries such as the USA which was on average constant between 1942 and 1991. Few studies that have linked happiness to financial satisfaction include Michalos and Orlando (2006) and Van Praag *et al.* (2010). Happiness seems to increase with income up to a certain point, but not beyond it. Isen and Patrick (1983) reported that people who have high level of happiness in life tend to have low level of risk tolerance. The finding indicates a negative relationship between happiness in life and risk tolerance. On the other hand, Laakso (2010) documented a positive link between happiness and optimism. Some earlier studies found a positive link between optimism and high FRT (Weinstein, 1984). Based on these arguments, it has been postulated that:

*H3. Happiness in life has negative impact on FRT.*

### *3.4 Propensity to attribute success to luck*

People tend to attribute success to their own skills and failures to bad luck (Duval and Silvia, 2002). As Blaine and Crocker (1993) found that individuals with high self-esteem believe that

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they are lucky and tend to exaggerate their control over events, especially successful events. Camerer and Lovo (1999) reported lower level of luck when skill is not accounted for. Armour and Taylor (2002) indicated that greater uncertainty can induce greater optimism such that people become risk taker. Certainly, the inclusion of a skill component might increase risk taking. Putting it differently, if skill does not help in success, luck can ignite optimistic beliefs and this belief leads to take more risk. Some studies that found positive relationship between experienced good luck and FRT are Hanna *et al.* (2008) and Post *et al.* (2008).

However, Pan and Statman (2012) noted that high risk tolerance is linked to high level of belief in luck over skill. In a recent study, Albaity and Rahman (2012) investigated the correlation between belief in luck and portfolio risk and they found that there is a positive relation between belief in luck and portfolio risk. This finding indicates that people who attribute success to luck are more willing to take financial risk. Therefore, this study aims to investigate the relationship between PASL and FRT by developing and testing hypothesis. However, financial advisors need to understand the relationship between PASL over skill and FRT to make appropriate adjustments in the process of measuring individuals' FRT as attribute success to luck may exaggerate or underestimate the true level of risk tolerance. Therefore, the following hypothesis is proposed:

*H4.* PASL has positive impact on FRT.

### *3.5 Propensity for overconfidence*

Studies have identified three main consequences of overconfidence in the context of financial markets such as excessive trade (Glaser and Weber, 2007), too much volatility (Gervais and Odean, 2001), and both over and under reaction to information (Glaser and Weber, 2007). POC is defined as "overestimating the probability of favorable outcomes" (Rosa, 2011). Overconfident people hold riskier portfolios similar to high risk tolerant investors (Dorn and Huberman, 2005). Additionally, overconfidence can influence the measurement of FRT since less overconfident individuals tend to perceive risk as higher than overconfident individuals (Pan and Statman, 2012). Furthermore, overconfident individuals tend to resist advice regarding diversifying their portfolios. This finding indicates that individual propensity for overconfident might be positively correlated with high FRT. Odean (1998) noted that rational investors possess less risky portfolios than overconfident investors. Similar findings have been documented by Gervais and Odean (2001) and Kim and Nofsinger (2002). Nevertheless, some studies have found no relations between risk tolerance and overconfidence (Kirchler and Maciejovsky, 2002). Doerr *et al.* (2011) found that overconfidence is highly correlated to farmers' risk tolerance. Therefore, together with all the above arguments, it is believed that POC influences FRT. Thus, the following hypothesis is proposed:

*H5.* POC has positive impact on FRT.

### *3.6 Propensity for social interaction*

In this study, PSI is defined, based on Hong *et al.*'s (2005) definition of social households, as the degree of individuals' involvement with their neighbours. Social interaction is related to willingness to take risk, stock market participation and other investments decision making (Lu, 2011). Similarly, Hsee and Weber (1999) noted that people of collective societies have high risk tolerance than people from individualistic societies because if they are in trouble then the society provides a cushion. Meanwhile, some studies have found that people who have high FRT tend to buy more stocks (Baker and Nofsinger, 2002; Guiso *et al.*, 2003; Renneboog and Spaenjers, 2012).

Many studies have found significant relationship between various aspects of social interaction and individual decision making (Cook and Oliver, 2011; Renneboog and

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Spaenjers, 2012). The above findings indicate possible direct and indirect relationship between social interaction and individual investment decision making which is ultimately linked with FRT (Bromiley and Curley, 1992). Therefore, together with all the above arguments, it is expected that social interaction influences one's FRT. Therefore, the hypothesis is proposed that:

*H6.* PSI has positive impact on FRT.

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### 3.7 Religiosity

Riquelme (2001) defined religiosity as personal beliefs about one's religion, feelings about many aspects of the religion and actions towards religious obligation like attending religious activities, reading religious books, doing charities and others. Religiosity captures the degree to which individuals understand the world around them in terms of religious beliefs, which may or may not be influenced through their involvement in religious activities, but are not constituted by attendance. Tan and Vogel (2008) have defined religiosity "as the extent to which one ascribes to the beliefs, experiences, and rituals of a religion". The researcher will adopt Tan and Vogel's definition of religiosity in this study as it satisfies the research objectives. Demaria and Kassinove (1988) found that religiosity is a very important guilt predictor. Religiosity has strong influence on people's beliefs and preference. For example, Helms and Thornton (2012) demonstrated a positive relationship between religiosity and charitable behaviour. Prior studies have found that people show common beliefs and preference when they are raised religiously (Guiso *et al.*, 2003). Similarly, studies show that there is a positive relationship between individual religiosity, people's ethical behaviour and the level of risk tolerance. For instance, Hess (2012) found that religiosity significantly influences individual financial decision-making behaviour. The author also found that people who live in the area where religious social norm is very strong has less bankruptcies cases compare to the people who are living in the lower level of religiosity area. Several other studies also documented that there is a strong relationship between religiosity and personal behaviour (Iannaccone, 1998; Lehrer, 2004). In this study, religiosity is considered as moderator in the proposed model on the relationship between behavioural factors and FRT. This construct is concerned about individuals' level of religiousness. Based on the prior studies, religiosity is conceptualised in this study as the degree to which it can strength or weaken the relationship between behavioural propensities and FRT. However, in terms of the seventh hypothesis:

*H7.* The religiosity positively moderates the effect of (a) propensity for regret, (b) propensity for trust, (c) happiness in life, (d) PASL, (e) POC and (f) PSI on the FRT.

Based on the above clarification, Figure 1 proposes a comprehensive model that encompasses how behavioural factors affect FRT. The model identifies six factors incorporating propensity for regret, propensity for trust, happiness in life, PASL, POC and PSI to determine the individual's FRT.

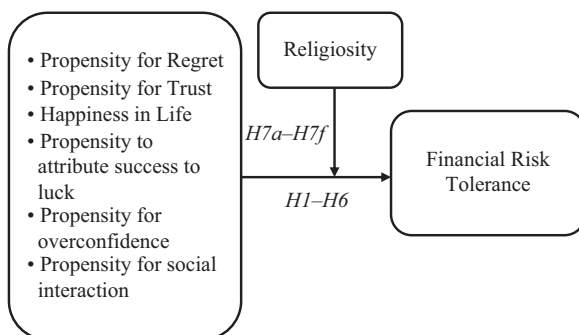
This study presents exploratory approach in nature. The exploratory research aims to test specific research hypotheses (Hair *et al.*, 2003). A research model is developed to investigate the influence of behavioural propensity factors in FRT. To evaluate the construct of behavioural propensity towards FRT, 12 hypotheses are considered relations, as portrayed in Table I.

## 4. Research methodology

### 4.1 Sample and procedure

The survey questionnaire method was adopted to collect empirical data for the study. The psychometric properties were examined via data reduction, exploratory factor analysis (EFA)

## Propensity toward FRT



**Figure 1.**  
Research model

Hypotheses/relations	References
<i>H1</i> : propensity for regret positively impacts financial risk tolerance	Saffrey <i>et al.</i> (2008), Spunt <i>et al.</i> (2009)
<i>H2</i> : propensity for trust is positively impacts financial risk tolerance	Naef and Schupp (2009), Ben-Ner and Halldorsson (2010)
<i>H3</i> : happiness in life is positively impacts financial risk tolerance	Pavot and Diener (1993), Lyubomirsky and Lepper (1999)
<i>H4</i> : propensity to attribute success to luck is positively impacts financial risk tolerance	Maltby <i>et al.</i> (2008), Wood and Zaichkowsky (2004)
<i>H5</i> : propensity for overconfidence is positively impacts financial risk tolerance	Wood and Zaichkowsky (2004)
<i>H6</i> : propensity for social interaction is positively impacts financial risk tolerance	Hong <i>et al.</i> (2005), Moely <i>et al.</i> (2002)
<i>H7a</i> : religiosity positively moderates the effect of propensity for regret on financial risk tolerance	Proposed by the authors
<i>H7b</i> : religiosity positively moderates the effect of propensity for trust on financial risk tolerance	Proposed by the authors
<i>H7c</i> : religiosity positively moderates the effect of happiness in life on financial risk tolerance	Proposed by the authors
<i>H7d</i> : religiosity positively moderates the effect of propensity to attribute success to luck on financial risk tolerance	Proposed by the authors
<i>H7e</i> : religiosity positively moderates the effect of propensity for overconfidence on financial risk tolerance	Proposed by the authors
<i>H7f</i> : religiosity positively moderates the effect of propensity for social interaction on financial risk tolerance	Proposed by the authors

**Table I.**  
Hypotheses and research relations with bibliographic references

and reliability tests (Cronbach's  $\alpha$ ). All items factored according to the literature and displayed internal consistency. A quota sampling method was used to collect data for the current study to confirm the representativeness of the targeted population. The final questionnaires were distributed among local undergraduate students, who are studying in the field of business, economics, finance and accountancy in Malaysian public universities in the Klang Valley[1]. These student samples were chosen because they have learned basic finance and having considerable knowledge about financial risk. The lecturers and professors were contacted to conduct the survey in their respective classes to reach bigger number of students. The potential respondents were politely approached by the researcher who described the study. The researcher also ensured that the data collected would be absolutely used for academic research purposes and their participation was anonymous and voluntary.

A total of 1,679 questionnaires were distributed in six public universities, namely, the International Islamic University Malaysia, University of Malaya, University Kebangsaan



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Malaysia, University Putra Malaysia, University Technology Malaysia and University Technology of MARA by the help of many lectures and professors. English was used throughout, as the medium of instruction of the six public universities that were used for this study are English. The data were collected during May 2013 to March 2014. The survey instruments were only consisted of close-ended questions. However, the total 1,314 questionnaires were returned, and only 1,204 questionnaires were usable for the analysis, yielding a response rate of approximately 78 per cent. The rest of questionnaires had missing responses.

#### 4.2 Non-response bias

Non-response bias may lead to an inappropriate interpretation of the measured phenomena. Thus, the presence of such a bias was ruled out by comparing means of the first and the last 40 respondents of this study. *t*-Test was used to examine whether any significant differences were present in the mean variable scores between the early and the late respondents. The absence of any such significant differences indicated the absence of non-response bias in this study.

#### 4.3 Common method bias

Precautions were taken to reduce any potential effects of common method bias and common method variance. Questionnaire items were thus mixed up and psychological separators were inserted between them. Additionally, we used Harman's single-factor test to assess method bias (Podsakoff *et al.*, 2003). To conduct Harman's single-factor test, EFA was performed on all the questionnaire items with the number of factors constrained to 1 and the unrotated solution was analysed. The results of the EFA showed no sign of a single factor explaining majority of the variance (presence of which suggests method biases), indicating hence that the data are free from common method bias.

#### 4.4 Measures

The items of the focal constructs were pooled from existing psychology, behavioural economics and behavioural finance literature. The questionnaire was presented to a focus group to determine whether terms used in the items are understandable and to strengthen the quality of the instrument. Participants answered all measurement items on a Likert-type scale ranging from "strongly disagree (1)" to "strongly agree (5)".

**4.4.1 Propensity for regret.** Propensity for regret was measured using six items adapted from Saffrey *et al.* (2008) and Spunt *et al.* (2009), which was reported as a highly reliable ( $\alpha = 0.96$ ) scale. One example item is, "If I make a choice and it turns out well, I still feel like something of a failure if I find out that another choice would have turned out better". This scale was used because the wordings of the scale items are very general and not linked to any specific decision as they were formulated to measure the level of regret. In this study, the Cronbach's  $\alpha$  reliability for propensity for regret is 0.65.

**4.4.2 Propensity for trust.** Based on Naef and Schupp (2009) and Ben-Ner and Halldorsson (2010), six items measuring the propensity for trust were adapted, which was reported as reliable ( $\alpha = 0.77$ ) scale. For example, a measurement item is, "It is better to be cautious before trusting strangers". In this study, the Cronbach's  $\alpha$  reliability for propensity for trust is 0.80.

**4.4.3 Happiness in life.** Six items from the studies of Pavot and Diener (1993) and Lyubomirsky and Lepper (1999) were used to evaluate the happiness in life, which was considered as a highly reliable ( $\alpha = 0.85$ ) scale. One example item is, "So far I have gotten the important things I want in life". In this study, the Cronbach's  $\alpha$  reliability for happiness in life is 0.69.

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*4.4.4 Propensity to attribute success to luck.* PASL was measured utilising six items adapted from the studies of Maltby *et al.* (2008) and Wood and Zaichkowsky (2004), which was reported as a highly reliable ( $\alpha = 0.80$ ) scale. For instance, an item is, “Even the things in life I cannot control tend to go my way because I am lucky”. In this study, the Cronbach’s  $\alpha$  reliability for PASL is 0.79.

*4.4.5 Propensity for overconfidence.* Five items from the study of Wood and Zaichkowsky (2004) were used to evaluate the propensity for overconfidence, which was reported as reliable ( $\alpha = 0.70$ ) scale. One example item is, “I feel more confident in my own investment opinions over opinions of financial analysts and advisors”. In this study, the Cronbach’s  $\alpha$  reliability for propensity for overconfidence is 0.69.

*4.4.6 Propensity for social interaction.* PSI was measured utilising six items adapted from the studies of Hong *et al.* (2005) and Moely *et al.* (2002), which was also reported as reliable ( $\alpha = 0.70$ ) scale. One example item is, “We need to change people’s attitudes in order to solve social problems”. In this study, the Cronbach’s  $\alpha$  reliability for PSI is 0.85.

*4.4.7 Religiosity.* The operationalization of religiosity is measured using ten items adapted from the study of Worthington *et al.* (2003), which was also reported as a highly reliable ( $\alpha = 0.88$ ) scale. For example, an item is, “It is important to me to spend periods of time in private religious thought and reflection”. In this study, the Cronbach’s  $\alpha$  reliability for religiosity is 0.92.

*4.4.8 Financial risk tolerance.* The FRT construct is measured using five items adapted from the studies of Ben-Ner and Halldorsson (2006), Wärneryd (1996), Wood and Zaichkowsky (2004) and Weber *et al.* (2013), which was identified as reliable ( $\alpha = 0.71$ ) scale. For instance, an item is, “I feel more comfortable taking risks (possibility of initial losses) when my investments are performing well”. In this study, the Cronbach’s  $\alpha$  reliability for FRT is 0.80.

#### *4.5 Reliability and validity of the measures*

In this study, the data were checked to determine whether it is qualified to use in the main study via a number of preliminary analysis techniques including EFA, reliability testing (Cronbach’s  $\alpha$ ) and validity testing (convergent and discriminant). The results show that for all measures, items loaded onto the appropriate factor with loadings ranging from 0.55 to 0.90 (see Table II for the factor loading, average variance extracted (AVE) and composite reliability (CR) of the measurement model details). The cut-off score of 0.5 was used, and items that did not meet the cut-off criteria were dropped from the final scales. For example, item T1 of the propensity for trust scale was dropped due to low factor loading. Cronbach’s  $\alpha$ , all constructs display high internal consistency with  $\alpha$  scores ranging from 0.66 to 0.94 (see Table III for validation of constructs). These  $\alpha$  scores are considered acceptable according to Nunnally (1978) and Churchill (1979) who suggest that  $\alpha$  values of 0.60 and above are acceptable. Our results also confirm that all measures have a variance explained that is greater than 50 per cent indicating evidence of convergent validity (Fornell and Larcker, 1981) which means that the measures used in this study that theoretically should be related are actually related.

### **5. Analysis and findings**

This study followed a three-step approach. First, the respondents’ profile was assessed using statistical package for the social sciences. Second, the researcher estimated the measurement model based on the confirmatory factor analysis (CFA). Third, the structural model was analysed and estimated the path coefficients, applying a structural equation modelling technique. By using this method, the source of a poor model fit was identified easily (Anderson and Gerbing, 1988).

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Characteristics	Factor loadings	CR	AVE
<i>Propensity for regret</i>		0.68	0.41
(RE1) Whenever I make a financial choice, I am curious about what would have happened if I had chosen differently	0.72		
(RE2) Whenever I make any financial decision, I try to get information about how the other alternatives turned out	0.60		
(RE3) If I make a choice and it turns out well, I still feel like something of a failure if I find out that another choice would have turned out better	0.62		
(RE4) When I assess my financial performance due to my financial choice, I think about opportunities I have passed up	0.61		
<i>Propensity for trust</i>		0.80	0.51
(T2) I am confident that I can trust people to be involved in making financial investments	0.55		
(T3) I am confident that I can trust financial institutions	0.69		
(T4) I am confident that I can trust mutual fund manager's investment decision	0.86		
(T5) I am confident that I can trust the information provided by financial advisors	0.72		
<i>Happiness in life</i>		0.70	0.43
(H1) In general, I am very happy with my financial condition	0.67		
(H2) I am satisfied with the financial situation of my parents	0.68		
(H3) All things considered, I am very satisfied with my life as a whole	0.61		
<i>Propensity to attribute success to luck</i>		0.80	0.50
(L1) Luck plays an important part in financial decisions' outcomes	0.73		
(L2) Some people are consistently lucky, and others are unlucky in getting good financial returns	0.78		
(L3) I believe in luck for any financial return	0.72		
(L4) I often feel like it is my lucky day to make financial decisions	0.80		
<i>Propensity for overconfidence</i>		0.70	0.43
(OC1) I feel more confident in my own opinions about financial decisions over opinions of my friends and colleagues	0.62		
(OC2) I believe that on average my financial decisions will be better than others	0.74		
(OC3) When I have a successful decision, I feel that my actions and knowledge affected the result	0.60		
<i>Propensity for social interaction</i>		0.85	0.60
(S1) In the last four weeks, I often took part in the various activities organised by student clubs and societies (e.g. teaching programme for orphans, educational, etc.)	0.56		
(S2) I often involve in doing some volunteer work in my faculty	0.73		
(S3) I am an active member of my department society	0.86		
(S4) I participate in faculty student society action programme	0.90		
<i>Religiosity</i>		0.92	0.57
(RL1) Religion is especially important to me because it answers many questions about the meaning of life	0.73		
(RL2) I often read books and magazines about my religion	0.78		
(RL3) I spend time trying to grow the understanding of my faith	0.72		
(RL5) I make financial contributions to my religious organisation	0.71		
(RL6) I enjoy spending time with others of my religious affiliation	0.77		
(RL7) Religious beliefs influence all my dealings in life	0.81		
(RL8) It is important to spend time in private religious thought and prayer	0.78		
(RL9) I enjoy taking part in activities of my religious organisation	0.83		
(RL10) I keep well informed about my local religious group and have some influence in its decision	0.67		
<i>Financial risk tolerance</i>		0.81	0.50
(RT1) If I believe an investment will carry profit, I am willing to borrow money to make this investment	0.80		

**Table II.**  
Factor loadings, AVE  
and CR of the  
measurement model

(continued)

Characteristics	Factor loadings	CR	AVE
(RT2) I believe I need to take more financial risks if I want to improve my financial position	0.60		
(RT3) I am willing to run the risk of losing money if there is also a chance that I will make money	0.71		
(RT4) I am willing to take risks, such as starting a business or gambling, unlike other people who prefer a secure job with fixed pay to an uncertain venture	0.73		

**Notes:** CR, composite reliability; AVE, average variance extracted

**Table II.**

Factors	Initial items	Final items	Measurement scale	Cronbach's $\alpha$	Adjustment index
Propensity for regret	RE1–RE6	RE1–RE4	1 – strongly disagree to 5 – strongly agree	0.65	GFI = 0.935; CFI = 0.909; AGFI = 0.996; TLI = 0.914; RMSEA = 0.014
Propensity for trust	T1–T6	T2–T5	1 – strongly disagree to 5 – strongly agree	0.80	GFI = 0.997; CFI = 0.993; AGFI = 0.983; TLI = 0.978; RMSEA = 0.053
Happiness in life	H1–H6	H1–H3	1 – strongly disagree to 5 – strongly agree	0.69	GFI = 0.990; CFI = 0.988; AGFI = 0.950; TLI = 0.963; RMSEA = 0.049
Propensity to attribute success to luck	L1–L6	L1–L4	1 – strongly disagree to 5 – strongly agree	0.79	GFI = 0.910; CFI = 0.912; AGFI = 0.900; TLI = 0.913; RMSEA = 0.035
Propensity for overconfidence	OC1–OC5	OC1–OC3	1 – strongly disagree to 5 – strongly agree	0.69	GFI = 0.975; CFI = 0.919; AGFI = 0.955; TLI = 0.904; RMSEA = 0.024
Propensity for social interaction	S1–S6	S1–S4	1 – strongly disagree to 5 – strongly agree	0.85	GFI = 0.998; CFI = 0.976; AGFI = 0.989; TLI = 0.988; RMSEA = 0.040
Religiosity	RL1–RL10	RL1–RL3, RL5–RL10	1 – strongly disagree to 5 – strongly agree	0.92	GFI = 0.911; CFI = 0.903; AGFI = 0.901; TLI = 0.914; RMSEA = 0.014
Financial risk tolerance	RT1–RT5	RT1–RT4	1 – strongly disagree to 5 – strongly agree	0.80	GFI = 0.944; CFI = 0.886; AGFI = 0.920; TLI = 0.901; RMSEA = 0.048

**Table III.**  
Validation of constructs

The normality test was carried out in this study and used to determine the appropriate techniques in testing hypothesis, even though the sample size is 1,204 which is considered as large sample size. However, based on the 1,204 responses, the result indicated that female respondents are more compare to male respondents. From the responses of the survey, 391out of 1,204 respondents are male, which is approximately 32 per cent and 813 respondents are female, which represents about 68 per cent of the total responses collected. The reason behind the difference in the percentage is because in the target population (local undergraduate university students studying business, economics and accountancy), the number of female is higher than male (MMHE, 2010). However, in terms of age, the result reports that it varied between bellow 20–30 years old and above. The results show that the majority of the respondents are in the range of 21–25 years about (68 per cent), followed by the age group of 20 years and below (29.8 per cent) and the age group between the range of 26–30 (2.2 per cent). The researcher aimed for 66.1 per cent Malay, 24.9 per cent Chinese and

7.5 per cent Indian respondents, which represents Malaysian population according to the Tenth Malaysian Plan 2011–2015. The results show that the majority of the respondents are Malays approximately (67 per cent), followed by Chinese about (25 per cent) and Indian approximately (8 per cent). Thus, the sample of this study is representative to the ethnicity in the structure composition of the Malaysian population. The categories of the marital status show that majority of the respondents are single with 1,083 people about (90 per cent) while 115 respondents are married (9.6 per cent) and others (0.5 per cent). Regarding the religion of the respondents, the majority of 836 respondents are Muslim which represents about 70 per cent of the responses, while approximately 22 per cent of the respondents are Buddhists, about 5 per cent are Hindus and approximately 3 per cent are Christians.

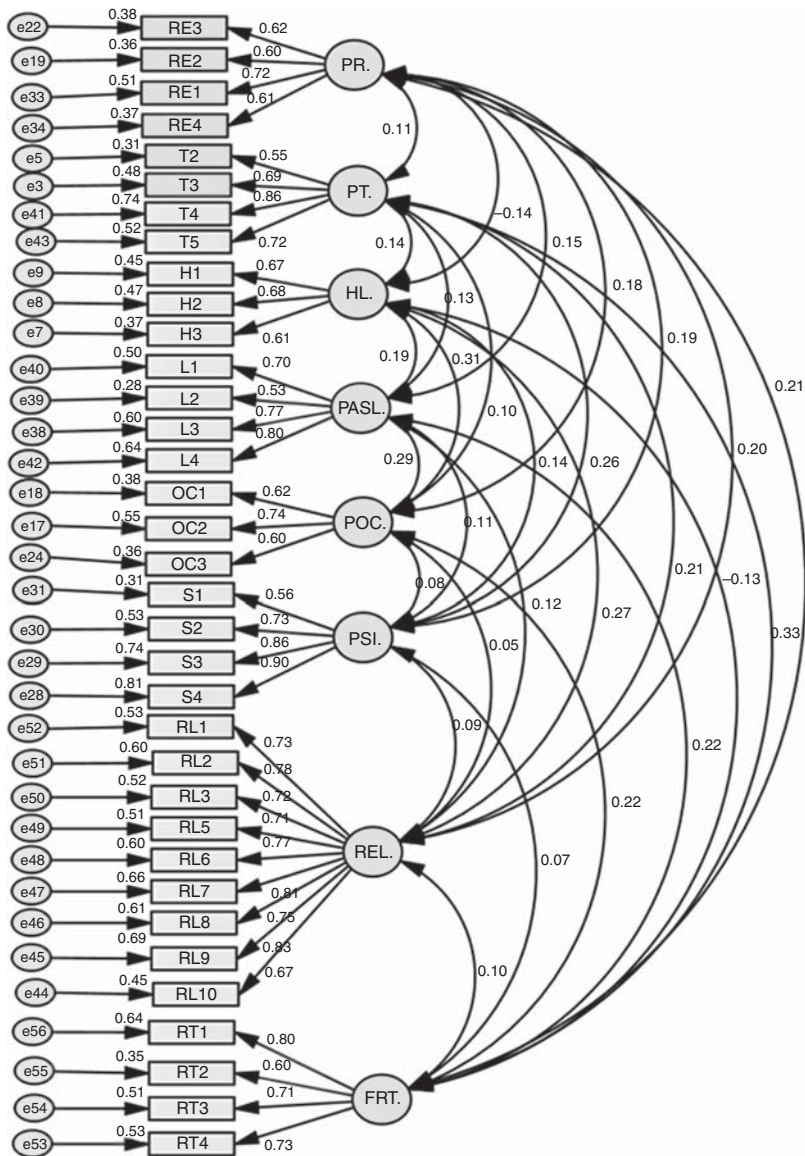
A measurement model, CFA was performed to confirm the number of factors and relationship among them. Multiple iteration process of CFA is performed on the measurement model to purify the items. Item purification process involves finding lower factor loading items (RE5, RE6, T1, T6, H4, H5, H6, L5, L6, OC4, OC5, S5, S6, RL4, RT5) are deleted from the measurement model. This purification process through CFA continues until the parameter estimates yields acceptable goodness-of-fit (GOF) for the measurement model. The final measurement model after some modification, achieves a satisfactory GOF with relative  $\chi^2$  value CMIN/df of 3.582, RMSEA 0.046, CFI of 0.911, GFI of 0.912, NFI of 0.90 and PNFI of 0.787. In addition, GFI, AGFI, CFI, RMSEA indices are more than threshold and Hoelter's critical  $N$  for 0.5 and 0.1 levels is above 200 representing that the sample is adequate. Finally, parsimony GOF index (PRATIO)=0.892 indicates the complication (number of estimated parameters) of the hypothesised model in the assessment of overall model fit. Thus, the measurement model achieves the required GOF.

In this paper, reliability test determines the adequacy of the internal consistence by observing the Cronbach's  $\alpha$ . The results of the reliability test for all the constructs indicate that all the measures are reliable with  $\alpha$  ranging from as low as 0.65 to as high as 0.92 (Table III). As Hair *et al.* (2006) stated that when the  $\alpha$  value of a construct is greater than 0.70, then the items scale is considered as reliable. Validity and reliability were measured based on the full measurement model generated (Figure 2).

This study determines construct reliability using composite reliability (CR > 0.60) and average variance extracted (AVE > 0.50) as suggested by (Hair *et al.*, 2013). As Table II shown all the variables had CR values greater than the threshold point of 0.60 (Hair *et al.*, 2013). Moreover, the AVE value of these constructs achieved the cut-off point, signifying a satisfactory degree of reliability. Additionally, the factor loading of the items were greater than 0.60, representing a good convergent validity (see Table II for factor loadings, AVE and CR of the measurement model). However, discriminant validity (see Table IV for discriminant validity) can also be assessed using square root of AVE of the construct and correlation between constructs (Fornell and Larcker, 1981). It is important to indicate that the scales used in this study are five-point Likert scales. Validation of the constructs is carried out. The CFA are considered. Relationships between the observed variables and their constructs were examined via estimation of maximum likelihood. The results obtained from construct validation are shown in Table III.

Moreover, Table IV presents that the diagonal value (square root of AVE score of all the constructs score) is higher than the correlation shared between two variables. This implies that all the constructs are strong in discriminating each of its own items from other constructs. The findings of the measurement model indicate that different validity and reliability criteria were satisfied. Thus, the variables developed in this measurement model were used to test the structural model and the associated hypotheses.

In addition, multicollinearity test was done using tolerance and VIF values. The result indicated that none of the correlation coefficients values of the variables in this study are exceeded 0.7 showing the absence of the multicollinearity problem among the variables. Tolerance and VIF values were checked in this study to detect the presence of



**Notes:** PR, propensity for regret; PT, propensity for trust; HL, happiness in life; PASL, propensity to attribute success to luck; POC, propensity for overconfidence; PSI, propensity for social interaction; REL, religiosity; FRT, Financial risk tolerance

**Figure 2.** Measurement model

multicollinearity for all the variables. From the multicollinearity analysis, it is observed that the tolerance values for all the variables are close to 1.0 or more than 0.1 while VIF values are less than 10 which justify the absence of multicollinearity in this study according to Hair *et al.* (2006). Thus, all these items and variables are included in the final structural model of this study and used to test the proposed hypothesis.

The structural model was constructed based on the results of the measurement model. Both independent and dependent variables are combined into a single model to test the relationship between them, which is demonstrated as a full structural model. The full structural model achieves a satisfactory GOF with relative  $\chi^2$  value CMIN/df of 3.567, RMSEA of 0.046, RMR of 0.038, CFI of 0.914, GFI of 0.937, NFI of 0.885 and TLI of 0.90 (see Table V for final fit indexes for the proposed model). The standardized loadings for all the items of the variables are more than 0.50 (Figure 3).

The summary of standardized regression analysis as indicated in Table VI show that there is a significant relationship between PR and FRT with  $\beta = 0.141$  (SE = 0.043) and  $p$ -value = 0.001. Likewise, a highly significant relationship is found between PT and FRT with  $\beta = 0.297$  (SE = 0.035) and  $p$ -value = 0.000. Next, highly significant negative relationship is found between HL and FRT with  $\beta = -0.148$  (SE = 0.035) and  $p$ -value = 0.002. Furthermore, a significant relationship is found between PASL and FRT with  $\beta = 0.147$  (SE = 0.028) and  $p$ -value = 0.000. Finally, a significant relationship is found between POC and FRT with  $\beta = 0.178$  (SE = 0.039) and  $p$ -value = 0.000. Thus,  $H1-H5$  are supported. However, only one variable, namely, PSI is turned out as insignificant with  $\beta = 0.030$  (SE = 0.016)  $p$ -value = 0.409. The  $p$ -value for PSI was above  $\alpha = 0.05$  which indicates that the variable has insignificant relationship with dependent variable. Therefore,  $H6$  is not supported (Table VII). Besides, Figure 3 also demonstrates that the  $R^2$  for the dependent variable FRT is 0.204, which indicates that all the six independent variables contribute to 20.4 per cent of the variance explained in the dependent variable.

To examine the moderating effect of religiosity, first, the sample is split into two groups, namely, high religiosity and low religiosity based on the mean score of the religiosity. The first group represents the higher religious individuals ( $n = 673$ ) while the second group represents lower religious individuals ( $n = 531$ ). Next, to test the  $\chi^2$  difference at

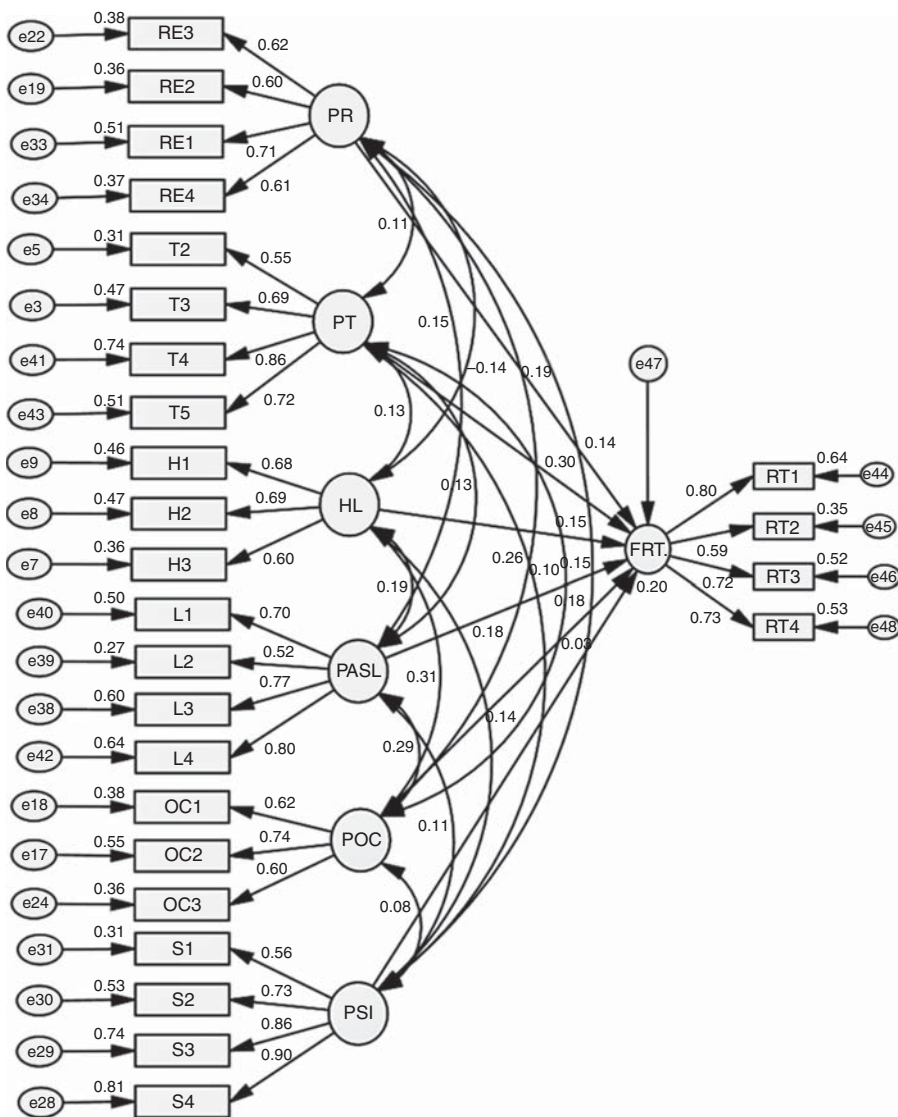
Variables	REL	PT	HL	POC	PR	PSI	PASL	FRT
REL	0.755							
PT	0.216	0.714						
HL	0.266	0.135	0.656					
POC	0.049	0.095	0.305	0.653				
PR	0.208	0.114	-0.135	0.180	0.638			
PSI	0.092	0.264	0.140	0.076	0.194	0.774		
PASL	0.122	0.131	0.188	0.285	0.155	0.113	0.708	
FRT	0.103	0.331	-0.127	0.217	0.206	0.073	0.220	0.710

**Notes:** FRT, financial risk tolerance; PR, propensity for regret; PT, propensity for trust; HL, happiness in life; PASL, propensity to attribute success to luck; POC, propensity for overconfidence; PSI, propensity for social interaction; REL, religiosity; CR, composite reliability; AVE, average variance extracted

**Table IV.**  
Discriminant validity

Index	Value
$\chi^2$ (CMIN/df)	3.567
RMSEA	0.046
RMR	0.038
CFI	0.914
GFI	0.937
NFI	0.885
TLI	0.90

**Table V.**  
Final fit indexes for  
the proposed model



**Figure 3.** Structural model analysis

the model level, first, all the parameters are constrained (e.g. the path between the behavioural propensities and FRT), which is referred here as constrained model and then the basic model which is estimated without constraining the parameters. A significant difference is found in  $\chi^2$  value between constrained model or model X ( $\chi^2 = 1,521.498$ ,  $df = 562$ ) and basic model or model Y ( $\chi^2 = 1,500.376$ ,  $df = 556$ ). However, the difference in  $\chi^2$  value ( $\Delta\chi^2 = 21.122$ ) at the model level is significant ( $p < 0.01$ ). This result indicates that religiosity moderates the relationship between behavioural propensities and FRT. However, it concludes that the model has satisfactory level of fit and the moderating variable influence the relationship between five behavioural propensities and FRT except PSI.



## 6. Discussion

Based on the statistical analysis, the outcomes of this study reveal that five hypotheses are supported and one hypothesis is not supported. All the relationships are in positive direction except for happiness in life variable. Propensity for trust ( $\beta = 0.30$ ) has more effect on FRT followed by POC ( $\beta = 0.18$ ), PASL ( $\beta = 0.15$ ), propensity for regret ( $\beta = 0.14$ ) and happiness in life ( $\beta = -0.15$ ). However, propensity for regret ( $\beta = 0.030$ ) is not associated with FRT. Therefore, *H1–H5* are supported and *H6* is not supported. Among the behavioural determinants of FRT, as this study finds that propensity for regret has positive impact on FRT. This result suggests that respondents with relatively high levels of propensity for regret have relatively high FRT. It seems that high levels of regret make risky investment acceptable. This finding suggests that advisors should consider advisees' levels of regret while assessing their FRT as, it may exaggerate or underestimate their true FRT. Furthermore, the finding also indicates that financial advisors may recommend risky investment portfolios to the clients who have relatively high levels of regret.

Reb and Connolly (2009) found that people with high propensity for regret tend to have risk-seeking behaviour (making them high risk tolerant). In this study, high propensity for regret influences respondents to be highly financial risk tolerant. This finding is consistent with the findings of Reb and Connolly (2009). Perhaps, the possible explanation for the positive relationship between the two is that when an individual faced with two choices where one is riskier than the other opting for the less risky option lead to regret if the riskier option turned out to be better than the less risky option (Ritov, 1996). Therefore, people with high propensity for regret are more likely to tolerate high financial risk as they are always in

**Table VI.**  
Standardized  
regression results  
analysis

Hypo.	Relationship	Estimate	SE	<i>p</i> -value	Supported
<i>H1</i>	FRT←PR	0.141	0.043	0.001	Yes
<i>H2</i>	FRT←PT	0.297	0.035	0.000	Yes
<i>H3</i>	FRT←HL	-0.148	0.035	0.002	Yes
<i>H4</i>	FRT←PASL	0.147	0.028	0.000	Yes
<i>H5</i>	FRT←POC	0.178	0.039	0.000	Yes
<i>H6</i>	FRT←PSI	0.030	0.016	0.409	No

**Note:** Hypo, hypotheses

**Table VII.**  
Testing moderating  
effect

Hypo	Relationship	Moderator	Coefficient	Constrained model $\lambda^2$	Basic model $\lambda^2$	Difference in $\lambda^2$	Supported
<i>H7a</i>	PR to FRT	High religiosity	0.134**	1,503.10	1,500.376	2.72*	Yes
		Low religiosity	0.138**				
<i>H7b</i>	PT to FRT	High religiosity	0.250***	1,503.921	1,500.376	3.55*	Yes
		Low religiosity	0.356***				
<i>H7c</i>	HL to FRT	High religiosity	-0.111*	1,503.565	1,500.376	3.19*	Yes
		Low religiosity	-0.215***				
<i>H7d</i>	PASL to FRT	High religiosity	0.155***	1,504.231	1,500.376	3.86**	Yes
		Low religiosity	0.217***				
<i>H7e</i>	POC to FRT	High religiosity	0.072	1,508.988	1,500.376	8.62***	Yes
		Low religiosity	0.336***				
<i>H7f</i>	PSI to FRT	High religiosity	0.062	1,501.765	1,500.376	1.39	No
		Low religiosity	0.034				

**Notes:** Hypo, hypothesis; FRT, financial risk tolerance; REL, religiosity; PR, propensity for regret; PT, propensity for trust; HL, happiness in life; PASL, propensity to attribute success to luck; POC, propensity for overconfidence; PSI, propensity for social interaction. \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

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doubt that they could have made a better choice if they would go for the riskier option (Tsai, 2012). This indicates that the propensity for regret is associated to FRT even though some studies reported the two are distinct (Pan and Statman, 2012).

In relation to propensity for trust, the findings indicate that respondents with relatively high levels of trust have relatively high FRT. This is in concurrence with Pan and Statman (2012) who noted that high propensity for trust is associated with high risk tolerance. This finding suggests that respondents with relatively high levels of propensity for trust have relatively high FRT. It seems that high levels of trust make risky investment acceptable. This finding suggests that advisors should consider advisees' levels of trust while assessing their FRT as, it may exaggerate or underestimate their true FRT.

In addition, among the behavioural determinants of FRT, as this study expects, happiness in life has negative impact on FRT. This finding suggests that respondents who are relatively happy in life have low FRT. It seems that high levels of happiness in life make risky investment unpopular. The finding suggests that advisors should consider advisees' levels of happiness in life while assessing their FRT as, it may exaggerate or underestimate their true FRT. The finding of this paper is consistent with Isen and Patrick (1983) who argued that people who have high levels of happiness in life tend to have low level of risk tolerant. The finding indicates a negative relationship between happiness in life and risk tolerance. The knowledge about the relationship between happiness in life and FRT matters to financial advisors because it may assist them to make appropriate adjustments in the process of measuring individuals' FRT as it may exaggerate or underestimate their true FRT.

As expected, this study finds strong support on the relationship between PASL and FRT, indicating PASL is a predictor of FRT. In relation to PASL, the findings indicate that respondents with relatively high levels of PASL have relatively high FRT, as their belief in luck serving as a shield against regret. This finding is consistent with Pan and Statman (2012) who argued that high PASL is associated with high risk tolerance. Similarly, some studies that found positive relationship between experienced good luck and FRT are Albaity and Rahman (2012), Hanna *et al.* (2008) and Post *et al.* (2008). The statistical results also indicate that respondents with relatively high levels of POC have relatively high FRT, as they tend to overestimate the precision of their knowledge or their abilities. This finding is consistent with Barber and Odean (2000) and Dorn and Huberman (2005) who illustrated overconfidence investors hold riskier portfolios like high risk tolerant investors. Similarly, majority of the prior studies have suggested that there is a positive relationship between overconfidence and risk tolerance (Doerr *et al.*, 2011; Hassan *et al.*, 2014). Furthermore, Pan and Statman (2012) believed that overconfidence can influence the measurement of FRT because less overconfident individuals tend to perceive risk as higher than overconfident individuals. This study finding also contradicts with some prior studies that pointed out that risk tolerance is insignificantly related with POC (Frascara, 1999; Heath and Tversky, 1991; Kirchler and Maciejovsky, 2002).

The study finds PSI has statistically insignificant but positive impact on FRT. One possible explanation for this finding is that the challenge for the individual in realizing the full benefit from the social interaction when a society is consisted of heterogeneous people (e.g. Malaysia). Thus, in Malaysia, one may not have the firm influence of any attribute (e.g. risk tolerance) that is adapted from the social interaction because levels of risk tolerance differ between Chinese, Indian and Malay. This finding from the current study is not consistent with Hsee and Weber (1999) who noted significant positive relationship between PSI and willingness to take high risk (risk tolerance). This finding suggests that respondents with relatively high levels of PSI have relatively high FRT but the relationship is not statistically significant.

Finally, the moderation effect of religiosity is reported with the six behavioural propensities (PR, PT, HL, PASL, POC and PSI) to determine what role religiosity plays in the relationship between behavioural propensities and FRT. Hence, the moderating impact of religiosity was

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confirmed for the relationship between five behavioural propensities and FRT except PSI. However, the findings also indicate that low level of religiosity strengthens the relationship between five behavioural propensities and FRT more than the high level of religiosity.

### **7. Conclusion**

Risk tolerance is the main key of financial planning process and modern investment management decision-making models. Therefore, in order to obtain the benefit of FRT, there must be a comprehensive FRT measurement system to be used. The significant role of FRT in the success of financial management encourages those who care about financial planning process and modern investment management decision-making models to find out the factors that influence FRT measures. The present study attempts empirically to fill the gap in the literature of the behavioural factors that predict individuals' FRT and to examine the role of religiosity in the relationship between behavioural factors and FRT.

The findings of the study support most of the hypotheses proposed. Behavioural factors (propensity for regret, propensity for trust, PASL and POC) are found positively significant towards FRT while happiness in life is found negatively significant. However, PSI is found not to be significant to FRT. Moreover, the outcomes of this study reveal that religiosity moderate the relationship between all behavioural factors and FRT except PSI. The study also shed light on behavioural factors as predictors of FRT among undergraduate students in Klang Valley in Malaysia. The findings provide a better understanding of the behavioural determinants of FRT. The results also highlight the significant role of religiosity on the relationship between behavioural factors and individuals' FRT. This contribution could be a useful source of information for advisors to guide their clients.

### **8. Limitation and future study**

The study is confined to university students in Malaysia. The working individuals or investors may differ from the university students in terms of income, experiences and characteristics. These elements may affect behavioural propensities and subsequently to the FRT. Thus, care must be taken to generalise to the Malaysian population. Future research may carry out comparative studies between university students and working individuals or investors. It is also recommended to conduct studies on other countries and subsequently carry out cross-country examination to identify similarities and differences. In addition, the behavioural determinants of FRT are confined to propensity for regret, propensity for trust, happiness in life, PASL, POC and PSI. Moreover, this study did not investigate propensity for maximisation, propensity for fear, propensity for exuberance. This is because adequate research gaps are recognised for the behavioural factors considered in this study. Besides, additional construct will require more samples as there will be an increase in the total numbers of items. Thus, these behavioural factors are not included due to time and costs constraints. Future studies could incorporate these factors to predict FRT.

This study was unable to combine the impact of behavioural factors and other socio-economic factors such as income, work experience, wealth on the measurement of FRT as the respondents are university student. Future studies could include the demographic and socio-economic factors in the current research model. Also, the study has identified the need to understand the behavioural factors to assess the individuals' FRT for developing country context, and future research could carry out empirical validation in different study context. Meanwhile, exploratory studies will help identify unique behavioural factors for the different context. The study applied pure positivistic research methodology (e.g. self-administered questionnaire). Future studies can apply neo-positivistic research methodology (e.g. mixed method, qualitative method followed by a quantitative study or other way around). This strategy might help to explore the reasons for the shortcoming of the tools used by financial advisors to assess and guide investors.

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**Note**

1. The Klang Valley is an area in the Selangor state of Malaysia, where most of the public universities that have large number of undergraduate students are located (MMHE, 2010).

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