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PRETESTING AND PILOTING THE RESEARCH INSTRUMENT TO EXAMINE THE CENTRAL ROLES OF RISK PERCEPTION AND ATTITUDE TOWARDS FINANCIAL INVESTMENT BEHAVIOURAL INTENTION AMONG MALAYSIANS

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ABSTRACT

Risk perceptions and attitude are important in the context of decision-making process involving risky options because individuals normally do not have perfect information and their decision making is affected by bounded rationality. The paper aims to analyse and develop the instrument for the examination of the central roles of risk perception and attitude, sequentially, in affecting the behavioural intention towards financial investment. Items included in the pre- test and pilot test stages were adapted from literature, but not specifically related to personal finance. The two stages have significant roles in ensuring and strengthening the content validity and the reliability of the instrument. The finalised survey instrument contained a total of 40 indirect measured items, which were then employed in the study.

Keywords: *risk perception, attitude, personal finance, pretesting, pilot test*

INTRODUCTION

The explanation of decision making in finance has been dominated by standard financial theory (SFT), which generally assume investors are homogeneous and they are perfectly informed and rational. The conventional treatment under the SFT is that only the objective risk is relevant in the decision-making process and financial return of investors is a trade-off of risk level. SFT that serves as the backbone to explain how individuals should make investment decision are the efficient market hypothesis (EMH), expected utility theory

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(EUT), modern portfolio theory (MPT), capital asset pricing model (CAPM), arbitrage pricing model (APT), and Fama and French's (1992) three-factor model.

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

The inconsistency and inadequacy of the SFT in providing a satisfactory explanation for decision-making among individual investors prompted the requirement for an alternative view to explain how individuals make financial decisions. These new perspectives, focusing on individual finance decision making process is known as the behavioural finance theory (BFT). Besides taking into account of the financial aspect, the BFT also incorporates sociological and psychological aspects that affect finance decision-making processes (Ricciardi & Simon, 2000).

LITERATURE REVIEW

Ricciardi and Simon (2000) explain that sociology provides insight how people's attitudes and behaviours are affected by aspects of social relationship; psychology provides explanation on how people's thinking process is affected by their mental and physical conditions as well as related external environments; while finance focuses on issues relate to value determination as a function of resources acquisition and allocation; i.e. managing financial matters, including investments. As such, it is arguable that individual investors are affected by multiple factors when making financial decisions.

Individual investors do not have the capability to process all the facts and pieces of data and fit them into a picture (Litterer, 1965). Instead, they tend to choose certain information to reduce information overload. Which piece of information is chosen or otherwise may depend on their level of knowledge; their levels of emotion and stress at that time; how the information is presented; pressure of time; as well as their desirable

goals; among others. Examining carefully, the explanation provided by Litterer (1965) with regard to perpetual process is consistent with the notion of bounded rationality.

The process of interpreting information is aided by the individual's past experience and value system (Litterer, 1965). Since individuals' past experiences are unique, they tend to absorb dissimilar values even when presented with a same stimulus. This explains why psychological and sociological elements are part of the pillar in behavioural finance. One of the key influences in the perception formation (include forming attitudes, absorbing values, and obtaining interpretation) is reference groups, in which can be defined as the groups of people with which an individual can relate to and can pose influence on his or her opinions and beliefs. The reference groups can also cause group pressure on certain people. Within the context of finance, examples of reference groups are financial advisors, family members, relatives, friends or even colleagues. They are groups of people of whom the individual seeks advice from, or talk to, with regard to financial or investment matters.

Sitkin and Pablo (1992) identified three individual characteristics as likely determinants of risk behaviours, namely, risk preferences, risk propensity and risk perception. They argued, individuals who like the challenge associate with risk will be more likely to make riskier decisions than those who are not. The concept of risk propensity by Sitkin and Pablo (1992) concurred with MacCrimmon and Wehrung (1980) which conceptualised risk propensity as the willingness of decision makers to take risks. The third determinant in the model, risk perception, was defined as a decision maker's assessment of the situation. Sitkin and Pablo (1992) explained the assessment process may be influenced by how a situation is labelled by decision makers, their level of confidence, their ability to control the situation, and probability approximation of the potential outcome.

Amid growing evidences in Malaysia that individuals are behaving irrationally in relation to making financial decisions (Albaity & Rahman, 2012; Hamid, Rangel, Taib &Thurusamy, 2013; Jamaludin & Gerrans, 2014), it prompted an urgency to investigate the determinant of risk perceptions, and the impact of risk perception and attitude, in serial, on how individuals make financial decisions. Towards this purpose, there is a need to have a set of validated instruments.

QUESTIONNAIRE DESIGN

The specific objective of the paper is to produce a validated research instrument. The measurement items for the study were drawn from literature not limited to financial risk taking. These instruments were modified accordingly in order to accommodate the respondents and the research context. This practice is not only common, but also inherits two benefits: (1) the validity and reliability of the measurements had been assessed; and (2) the current results are comparable with previous studies (Kitchenham & Pfleeger, 2002).

Table 1 Summary of items to measure each construct

Constructs	Number of items	Source
Behavioural intentional towards financial investment	6	Lam and Hsu (2006)
Financial knowledge Objective knowledge Subjective knowledge	10 6	Lusardi and Mitchell (2008) Flynn and Goldsmith (1999)
Social influence Family influence	6	Jorgensen and Salva (2010); Jorgensen (2007)
Peer influence	6	Jorgensen and Salva (2010); Jorgensen (2007)
Internet influence	5	Jorgensen and Salva (2010); Jorgensen (2007)
Personality trait Risk propensity Inertia	4 4	Dulebohn and Murray (2007) Dulebohn and Murray (2007)
Risk perception	4	Hoffman, Post and Pennings (2013)
Attitude towards financial investment	5	Lee (2009), Ramayah, Rouibah, Gopi and Rangel (2009)

Table 1 illustrates a snapshot of all the constructs, number of items for each construct, as well as their sources. Except for the objective knowledge component (aimed to measure the actual level of financial knowledge of respondents), all +other constructs were operationalised using the Likert scales. Likert scale is one of the most popular non-comparative scaling techniques in management business research (Kumar, Abdul Talib & Ramayah, 2013) and it is a common approach utilised to measure a variety of constructs (Kent, 2001). By using this scale, respondents indicate a degree of agreement or disagreement with each of the series of statement about the stimulus objects (Sekaran, 2003). This research applied even-point scales in order to avoid the central tendency error (Cooper & Schindler, 2003). This type of error could happen especially within the context of Asian countries when respondents ended up state their priority in the neutrality dimension (Trompenaars & Hampden-Turner, 1997).

The source language questionnaires (SLQs) for the research were English and initially tested outside Malaysia. The present study was conducted in Malaysia where the first language for the large majorities is not English. Therefore, the SLQs needed to undergo the translation process in order to mitigate variance resulting from linguistic and cultural differences (Beaton, Bombardier, Guillemin & Ferraz, 2000; Char, Kim & Erlen, 2007). As cited in Chapman and Carter (1979), Brislin, Lonner and Thordike (1973) suggested one or more of the following translation techniques, i.e. back translation, bilingual techniques; committee approach and pre-test. Of these approaches, back translation is the most common as well as highly recommended technique (Brislin, 1970; Chapman & Carter, 1979), which is hereby employed.

INSTRUMENT PRETESTING

Pretesting of instrument was administered using personal interview. The method was employed at this stage instead of telephone interviews and mail self-reports as it enabled researchers to observe reactions, qualms, and other signs by respondents (Hunt, Sparkman & Wilcoc, 1982). The pre-test process involved five persons as it usually need not be large (Kumar et al., 2013). As suggested by Tull and Hawkins (1976), the five interviewees met the criteria set forth for the target respondents in the study.

During the pre-test, discussion with each respondent was conducted separately by going through each of the questions, instructions, as well as questionnaire format and layout. Several improvements were subsequently made to the research instrument based on feedbacks received during the pre-test. For example, it was discovered that interviewees demonstrated some hesitations of either choosing 'Do not know' or 'Refused to answer' when they were less confident in answering financial literacy questions. After further discussions with them, it was suggested to delete the 'Refused to answer' option for financial literacy questions. The amendment should further improve measuring validity for the level of objective knowledge.

Since the study was intended for income earners between the age of 19 to 39, it was suggested that these requirements to be stated in the covering letter. This would ensure only the targeted respondents take part in the survey. It was also suggested that the labelling for Likert's scale to appear on the top of every new page for easy reference by respondents. Modifications and refinement on the questionnaire were made before pilot test was conducted.

RESULTS OF PILOT TEST

Convenience sampling was used in selecting the respondents for the pilot study. The sample size for the pilot study was 100. Data from pilot test was analysed using the Statistical Package for Social Science (SPSS). A brief description of the respondents of the pilot test is provided in Table 2.

The pilot study has three aims. First is to examine whether the distinctions of the group of items really do reflect a particular construct. For this, factor analysis was employed. Second is to identify the internal consistency of the questions. To achieve this purpose, reliability analysis was conducted. Finally, pilot study also serves to determine the understanding of the respondents to the questionnaire.

The research included nine latent variables (constructs) that were indirectly measured. Each of the latent variables was measured based on different facets. As such, it was critical to investigate whether the differences of the group of items really do reflect a particular variable (Field, 2009; Matsunaga, 2015).

Table 2 Background of respondents for pilot test (N = 100)

Demographic Variable	Variable sub-groups	Per cent (%)
Gender	Male	34
	Female	66
Marital status	Single	50
	Married	48
	Widower	2
Education level	SRP/PMR	4
	SPM/SPMV/STPM/STAM	36
	Diploma	20
	University degree or equivalent	40
Ethnicity	Malay	22
	Chinese	34
	Bumiputera Sabah	40
	Bumiputera – Others	4
Occupation sector	Government	30
	Private	60
	Business/Self-employed	10

The employment of factor analysis herein was consistent because the items for the latent variables were pooled from multiple and expansive sources (Fabrigar, Petty, Smith & Crites, 1999). All of the items were previously used in other countries as well as on different sample groups, therefore, there was no prior knowledge on how the values were related when these items were applied in Malaysia, especially when dealing with a very specific targeted group of respondents. Furthermore, all the items were adapted from multiple sources. Another objective of this process was to reduce the number of items into a smaller number of components (factors) without compromising the amount of loss of the original information (Field, 2009; Matsunaga, 2015). Finally, the results of the factor analysis also serve to mitigate potential issues at later analysis.

The factor analysis applied herein was based on principal component analysis (PCA) as it was designed to summarise information into groups or clusters of variables (Field, 2009). The rotation method selected was "Promax" that give solutions with correlated components, which also known as "oblique" solutions (Field, 2009; Matsunaga, 2015). The cut-off threshold for the factor loading used in the research was 0.63. Although the level was considered more stringent but classified as a very good level (Comrey & Lee, 1992; Tabachnick & Fidell, 2014). Guadagnoli and Velicer (1988) and Field (2009) regarded a factor as reliable if its items were loadings of at least 0.6.

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.780 and the Bartlett's Test of Sphericity was significant (p-value = 0.000). The highest and lowest communalities were 0.862 and 0.533 respectively. A total of nine components (factors)

were extracted based on Eigenvalue extraction (value more than 1.00), with 72.506% of total variance explained. However, further examination based on the Pattern Matrix and Structure Matrix indicated no item was loaded under the 9th component. This suggests the extractionsolution cannot be based on Kaiser's criterion (retaining factor with eigenvalues more than 1) (Field, 2009). In this situation, the screen plot was used as an addition reference (Figure 1).

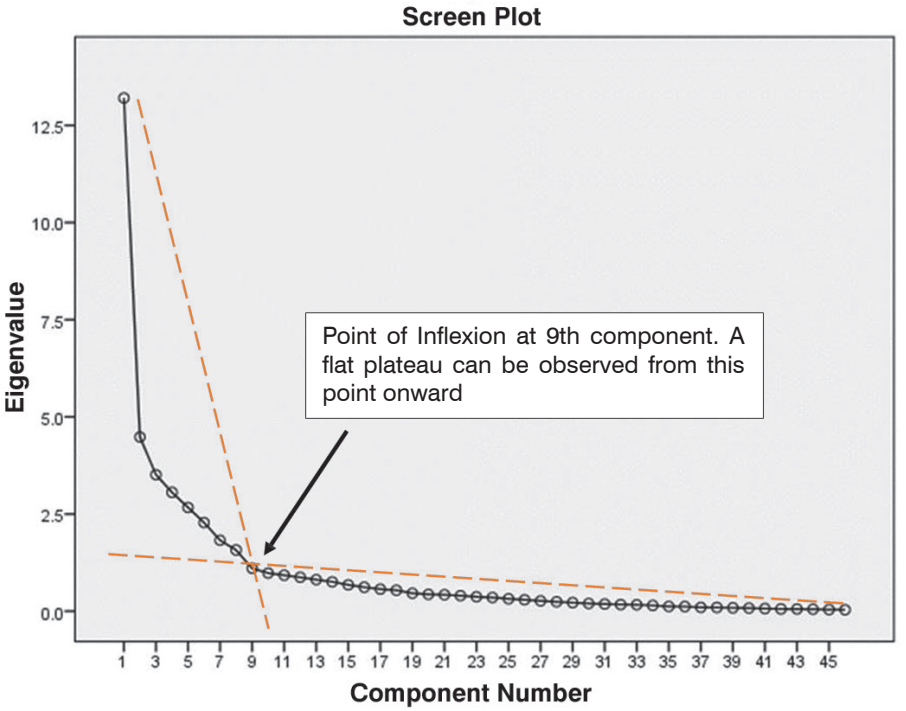

Figure 1 Screen plot

Based on the curve in the screen plot, there was a drop after eight factors before a stable plateau is reached creating an obvious point of inflexion at 9th factor. With that, it was justified to select the eight-factor solution (Field, 2009). The eight-factor solution provided 69.622% of total variation explained. The component extraction was converged after eight iterations. A total of six items were dropped by the analysis as their loadings were lower than the cut-off of 0.63. These items were Fam1, INT3, IN1, IN3, IN4, and Att3.

Table 3 summarises the result of the PCA. The factor analysis result was encouraging as most of the initial items were loaded according to the theorised latent variables of the research, with the exception of Risk Propensity and Inertia. The PCA has grouped items on these two latent variables into a single component (Component 6). Next subsection examines the internal consistency reliability of the eight components.

The internal consistency reliability among individual items was measured using the Cronbach's Alpha. It is one option that can be used to investigate how well each of the items in a scale correlates with the sum of the remaining items. It is also the most popular test for this purpose (Kumar et al., 2013). The widely-accepted cut-off is that alpha should be higher than 0.70 (Hair, Bush & Ortinau, 2003). Although, Nunnally and Bernstein (1994) agreed that alpha should be above 0.70, they also pointed out that it should not be too high. If alpha is too high (especially if higher than 0.95), then it may suggest a high level of item redundancy; that is, a number of items asking the same question in slightly different ways. In short, the items are too homogenous.

Table 3 Results of factor analysis and internal consistency reliability

KMO Measure of Sampling Adequacy:		0.780
Bartlett's Test of Sphericity	Chi-Square	3646.373
	Degree of freedom	1035
	Sig (*p*-value)	0.000

Item	Component								Cronbach Alpha
	1	2	3	4	5	6	7	8	
BI1	0.926								
BI2	0.933								0.946
BI3	0.904								
BI4	0.862								
BI5	0.772								
BI6	0.935								
SK1		0.698							
SK2		0.817							0.897
SK3		0.881							
SK4		0.896							
SK5		0.788							
SK6		0.768							
Fam1			Deleted						
Fam2			0.867						0.824
Fam3			0.727						
Fam4			0.761						
Fam5			0.716						
Fam6			0.791						
Peer1				0.805					
Peer2				0.907					0.872
Peer3				0.809					

Peer4				0.642					
Peer5				0.672					
Peer6				0.735					
INT1					0.800				
INT2					0.862				0.819
INT3					Deleted				
INT4					0.771				
INT5					0.683				
RP1						0.820			
RP2						0.712			0.879
RP3						0.946			
RP4						0.924			
IN1						Deleted			
IN2						0.803			
IN3						Deleted			
IN4						Deleted			
PER1							0.814		
PER2							0.931		0.880
PER3							0.886		
PER4							0.845		
Att1								0.825	
Att2								0.854	0.819
Att3								Deleted	
Att4								0.726	
Att5								0.791	

As shown in Table 3, the alpha coefficient from the pilot test ranges from 0.819 to 0.946. The Cronbach's Alpha for component representing BI was a little on the high side. Despite this, it was decided to retain the result for now because internal consistency reliability to be further examined when the full dataset undergo structural equation modelling (SEM) analysis. Under SEM, the internal consistency reliability would be analysed using composite reliability (CR), an alternate to Cronbach's Alpha.

DISCUSSION AND CONCLUSION

An issue pertaining to pilot study that deserve attention is sample size. Saunders, Lewis and Thornhill (2003) pointed out that the number of people with whom researchers pilot their questionnaires should be sufficient to include any major variations in the

population that is likely to affect responses. Fink (1995) mentioned for the minimum number for a pilot in most student questionnaires is 10; while Luckas, Hair and Ortinau (2004) suggested having 50 respondents in a pilot study to allow the running of proper statistical testing procedures. Another criterion to determine the sample size is the range of communalities. Since the lowest communalities based on the factor analysis was 0.533, it was well above the 0.50 range. Therefore, the sample size of 100 used herein was deemed appropriate (Field, 2009).

The results from the pilot study warranted two major adjustments to be made on the research. First, the research instrument, i.e., research questionnaire needs to be revised. As six items involving four components were deleted, the research questionnaire was duly adjusted accordingly. Thus, the final version of the research questionnaire would be without six items, namely: Fam1, INT3, IN1, IN3, IN4, and Att3.

The other adjustment was related to the research model. The sole retained item of Inertia was regrouped along with items of Risk Propensity. As all the initial items for Risk Propensity were retained, it was justifying to retain the name of Risk Propensity. For easy reference, the sole remaining Inertia item, IN2, would be recoded to RP5, consistent with where it belonged. The immediate consequence resulting from the major change was the inability to test the hypothesis involving Inertia, thus must be excluded from the study. With all the changes made, the validated instrument was ready for employment in the study.

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