Financial Literacy and Satisfaction in Malaysia: A Pilot Study

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Abstract—This paper reports the results of a pilot study examining the factors that contribute to the level of financial literacy among selected Malaysian public and its relationship with financial satisfaction. Among pre-identified antecedents of financial literacy, financial planning was found to exhibit the strongest effect on the literacy level. The literacy level then explains reliably the level of financial satisfaction among the 199 respondents selected for the study.The actual study intends to collect at least 100 responses from each of the 14 states in Malaysia. From the pilot study's results, we are convinced with the viability of the existing model, though a few modifications are suggested and discussed further together with the implications of these findings at the end of this paper.

Index Terms—Financial education, financial planning, personal finance, wealth management.

I. INTRODUCTION

Personal finance has becoming more complex than ever before with increasing needs to manage own financial matters such as planning for retirement, paying tax and protecting against losses. Personal finance encompasses simple daily activities including saving money and paying bills, and challenging tasks such as doing tax planning and assessing future risks. As such, not everyone can fare comfortably when it comes to making the best use of one's own income.The danger of a poor self-financial management is that one may spend more than his/her earnings, leading to the person owing too much debt and possibly going bankrupt.

In July 2010, the federal bank of Malaysia, Bank Negara Malaysia (BNM) has responded to the invitation by Organisation for Economic Co-operation and Development's (OECD) International Network on Financial Education (INFE) to provide internationally comparable statistical indicators on financial literacy [1]. The survey is an ongoing research and results will be released by the elected agency. However, as improving level of financial literacy among the public is a national concern, views from different organizations will be useful for related parties to plan future actions. Presently, the Malaysian government through its financial arms, i.e., BNM and PermodalanNasionalBerhad (PNB) have been engaging in educational programs such as the POWER! (a credit counselling program) and 360 days investment seminar. Though the proposed study is not going to evaluate the effectiveness of such programs, it shall target

individuals participated in the programs to provide their responses to the survey.

In evaluating potential results of the actual study, we will propose an index that measures the level of financial literacy of selected Malaysian public. As this is an exploratory study, we shall approach the attendees of financial education programs. These individuals can represent considerable segments of Malaysian population, while at the same time they are suitable for the study since participants of such programs can be considered as concerned with financial well-being.

For the pilot study, three investment seminar venues were selected before the actual study can be carried out after improvements of the survey instruments are applied. As a result, this paper reports the findings on the reliability and validity of the proposed instruments based on 199 usable responses gathered from this pilot study.

II. THEORETICAL BACKGROUND AND HYPOTHESES

A. Financial Literacy

In empowering individuals to plan and manage their financial matters, most developed nations have been engaging in various educational programs including having introduced specialised personal finance subjects in schools and conducting periodical quizzes and surveys to assess the level of financial literacy of individuals across different backgrounds [2], [3]. The effectiveness of such programs have been evaluated through, among others, individuals' portfolio diversification [4], extents of the disposition effect [5] and retirement planning [6]. The main problem associated with low level of financial literacy is that individuals can suffer credit problems which may lead to bankruptcy. At the other end, individuals may not fully utilise their 'idle' money in profitable investment opportunities. As the world is progressing, individuals' needs increase and as a results financial products have become more complex. Therefore, having a high level of financial literacy can ensure individuals to place more concern in planning their spending and savings in order to achieve a satisfactory level of financial well-being.

Financial literacy can be defined as measuring how well an individual can understand and use personal finance-related information [7]. Having accessed the right information, one can analyze it before making a decision in financial matters. For example, when obtaining a car loan, one can visit several banks to compare the interest rates before choosing the one that offer the lowest. Another example is when managing personal financial information, he/she can decide to pay larger periodical instalment but smaller total loan repayment over smaller periodical instalment but larger total loan

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repayment. When individuals grow older, their financial matters expand as they will need to put aside their savings for retirement, while at the same time preparing other financial needs such as paying loans, funding children's education and some investment activities.

A serious concern should be given to the level of financial literacy among individuals because it affects ones' welfare, especially when they are in their retirement ages during which the benefits of having early financial planning and savings would have been felt. Moreover, financial illiterate persons tend to make welfare-reducing decisions such as maintaining large outstanding balances on credit cards when cheaper forms of credit are available [8] and fail to refinance mortgages when it would be optimal to do so [9].

B. Research Model

The overall research design selected for this study is based on a positivist paradigm by following a relatively standard survey approach. After the research questions are formed, a conceptual framework and hypotheses are identified. As this study is exploratory in nature, we will adapt a framework commonly used in general consumer satisfaction model, and modify it to suit to the context of the study. At the current stage, we are proposing the following research model in Fig. 1. Research hypotheses are represented by each single-arrow headed path connecting the latent constructs in the research model. From the research model, measures of each latent constructs are identified mainly through related literature and consultation with related experts. A pilot study was performed to examine the reliability and validity of these variables and their respective indicators as well as the overall research model.
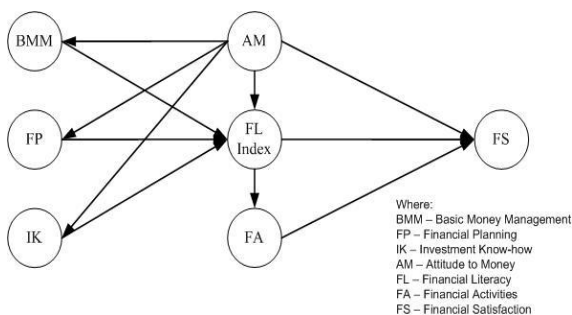

Fig. 1. Research model.

C. Antecedent Variables

Basic money management (BMM) involves simple and routine financial activities that should be performed by all individuals. These activities may include paying and comparing monthly utility bills, having monthly budget for expenditure and using Internet banking. The extent of these activities may differ according to the differing needs of individuals and their attitudes to those activities. Questions on BMM have been asked in many previous financial literacy survey and individuals' responses to them have been found to provide an indication of the level of financial literacy in individuals [10]-[12]. When people are accustomed with these basic financial management activities, they tend to become increasingly financial literate over time. Therefore, we hypothesized that:

- H_{1a}: Basic money management is positively related to financial literacy.

Financial planning normally revolves around managing six major financial activities related to taxes, liabilities, insurance, investment, retirement and estate plan. Good financial planning is considered crucial in individuals' efforts to achieve desirable level of financial wellness, while at the same time avoiding insolvency problem [13]. In addition it was found to significantly predict elderly financial satisfaction during their retirement [14]. Therefore, it is hypothesized that:

- H_{1b}: Financial planning is positively related to financial literacy.

Knowing how to weigh associated risk and expected returns from an investment helps an investor to make a well-informed investment decision making. It is also a condition that satisfies the characteristics of an efficient market [15]. Although findings of market efficiency are mixed, they do not diminish the importance of investors having good understanding about the relationship between risk and return. Therefore, we can easily see that those who are actively involved in investment are more financially healthy than an average person. Through their readings, knowledge acquiring and experience, these investors' financial literacy can be expected to increase. As a result, we have formed the following hypothesis:

- H_{1c}: Investment know-how is positively related to financial literacy.

Attitude can be defined as an affective or evaluative judgment of some person, object or event [16]. In many behavioral contexts, attitudes are found to play significant role in the realization and extent of the behavior in question. For example, decision to purchase can be explained by users' attitude towards the advertisement promoting the product[17]. Similarly, gamblers' addiction can also be explained by their attitudes towards money [18]. As money is very much the central of this study, we have formulated the following hypotheses related to attitude:

- H_{2a}: Attitude towards money is positively related to basic money management.
- H_{2b}: Attitude towards money is positively related to financial planning.
- H_{2c}: Attitude towards money is positively related to investment know-how.
- H_{2d}: Attitude towards money is positively related to financial literacy.
- H_{2e}: Attitude towards money is positively related to financial satisfaction.

D. The Mediating Role of Financial Literacy

The research model postulates that financial literacy mediates the relationships between identified antecedents and financial satisfaction. Financial attainments can be in the range of between debt-free and asset accumulation; nevertheless, being satisfied regardless of the amount of wealth and debt is considered the ultimate outcome of good financial well-being [12]. Therefore, we propose the following hypotheses to be tested in the actual study. Note that mediation is analyzed separately but no specific hypothesis stipulated on it.

- H_{3a}: Financial literacy is positively related to financial satisfaction.
- H_{3b}: Financial literacy is positively related to financial activities.

Financial activities may vary across individuals. Certain activities can be considered common to many people while some other might prefer to engage in many types of activities in order to meet their financial aims. Financial activities were considered as the second component of financial literacy by Huston [7], but we conceptualized it as a dependent variable of literacy. We contend that the extent of financial activities of individuals can be expected to increase according to the level of literacy; as such, the extents of these activities taken are very much dependent on individuals' differing needs and knowledge to perform them. It is expected that the more financial activities engaged by a person, the more likely that he or she will be more financially content than other who are not as able as him/her. Therefore, we hypothesize that:

- H_4: The extent of financial activities is positively related to financial literacy.

III. RESEARCH METHOD

This actual survey will be administered across several regions in Malaysia targeting the participants of investment educational seminars. Cooperation from PNB, a government-linked unit trust manager has been sought after in order to distribute the questionnaire to participants of their annual investment educational program. For the pilot study, three seminar venues were selected for survey administration which has resulted in 199 usable responses.

Analysis on pilot data followed two approaches; exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The CFA was performed simultaneously while examining the convergent and discriminant validity using a PLS model.

A. Data Collection

The unit of analysis in this study was working individuals who are interested in managing financial matters. The labour force of Malaysia as at December 2012 was 13,034,700 [19] (Department of Statistics Malaysia, 2013). Since this study is interested to model financial satisfaction of the Malaysian public, a sample of the population who is made of working individuals who are concerned about managing financial matters was deemed suitable for gathering the responses. The PNB has committed to run investment educational seminar since 2008 through its 360 days investment seminar. This seminar was conducted across Malaysia almost every working day of the year. The data for the pilot study was gathered from participants attended three seminars in April 2012 which has yielded in 199 responses. The descriptive characteristics of the sample are shown in Table I.

TABLE I: DESCRIPTION OF SAMPLES

Age	N	Gender	N	Income	N	Education	N
≤ 20	5	Male	66	Unemployed	34	No formal	2
21-30	114	Female	133	< RM1000	25	Secondary	53
31-40	44			RM1000-1999	45	Undergraduate	42
41-50	26			RM2000-3999	68	Bachelor	99
> 50	10			RM4000-5999	14	Postgraduate	17
				> RM6000	11	Professional	2
Total	**199**		**199**		**197**		**198**

B. Construct Operationalization

Most measures of each variable in the research model

werebased on the extant literature e.g., [3], [11], [20]-[23]. However, some items were modified and some were specially created to suit with the context of the proposed study. For the pilot study, the financial literacy level will be based on respondents' scores of their correct answers to simple financial quiz given in Table II, whilethe measures for other variables are listed in Table III. These measures were first piloted before a final questionnaire can be distributed to testtheir validity and reliability related being complete in term of depth, unambiguous and simple for respondents to participate to answer. In the event that we may not receive adequate responses to the financial literacy quiz, we may use a specific formula to calculate the literacy index score (analogous to method by [24]).Note that the quiz only contains 10 questions which may not be exhaustive but deemed sufficient to measure the literacy level for our study since the targeted respondents are common working individuals. These literacy measures can be regarded as Tier 1 literacy or basic financial literacy [6].

TABLE II: FINANCIAL LITERACY QUIZ

Items	Questions
FL1	If you spent RM13 on lunch on day 1 but only RM8 the next day, how much did you spend on lunch over the two days?
FL2	If a person pays for goods valued at RM165 with four RM50 notes, how much change would they receive?
FL3	If 20 football players paid RM350 weekly, what is the total amount paid out in weekly salary to them?
FL4	If a prize draw win of RM18,000 is shared equally between six people, how much will each person receive?
FL5	If a person takes home RM1,400 a month and 50% of this goes on rent, what is their monthly rent?
FL6	If a refrigerator priced at RM1,000 is discounted by 10% at a sale, how much would it cost?
FL7	If a person pays the minimum sum of his outstanding credit card balance, he will not have to pay any interest charge. (T/F)
FL8	Outstanding balance on a credit card is subject to a finance charge (interest charge) of ____ %. (MCQ)
FL9	In hire purchase financing, the owner of the car is _____. (MCQ)
FL10	The role of this institution is to provide advice on money management and assistance to deal with debt: (MCQ)

TABLE III: MEASURES OF VARIABLES

Items	Statements
	Basic Money Management
BMM1	I always pay bills before the due date.
BMM2	I always read the details of my bills to compare monthly usage or rate changes.
BMM3	I normally budget my monthly expenses.
BMM4	I keep track of my expenses.
BMM5	Before I buy something, I carefully consider whether I can afford it.
BMM6	On any day, I would know how much money I have to meet daily living costs.
BMM7	If I own a credit card, I will use it only when needed.
BMM8	If the need arises, I would compare offers before applying for a credit card.
BMM9	I would only use ATMs of the same bank as my account.
BMM10	I prefer using online banking to traditional channels in monthly routine transactions.

C. Exploratory Factor Analysis

Since some of the measures were modified and added to suit the study, an exploratory factor analysis (EFA) was first performed in order to check the reliability and validity of the

measures. Furthermore, the EFA can help assessing the suitability of the measures to be modeled as either in a reflective or formative mode. The PLS program has made researchers easy in modeling both modes of the measures.

TABLE III: MEASURES OF VARIABLES (CONT.)

Items	Statements
	Financial Planning
FP1	I save aside money for retirement.
FP2	My monthly pension/EPF contribution is sufficient for my retirement days.
FP2	At any time, I have some money saved for emergency.
FP3	I ensure that for every pay, I would save some.
FP4	I keep in mind of long-term goals including children education fund, houses, vehicles and the like.
FP5	My insurance/takaful coverage is sufficient to meet costs related to emergency events.
FP6	When the need arises, I would search for affordable estate property.
FP7	I spend all of my income as I get it and don't really plan for the future.
FP8	I would be able to meet daily living expenses if lost the main wage for three months.
FP9	It is important for me to have a long term financial plan.
FP10	It is important for me to have a financial plan for the short term.
	Investment Know-how
IK1	I read a lot about earning income through investing activities.
IK2	I frequently use the media to seek information about investment.
IK3	An investment with a high return is likely to have higher than average risk.
IK4	Investing in unit trusts such as PNB's unit trust schemes expose investors with relatively little risk.
IK5	Holding shares exposes investors with high risk but can provide high returns.
IK6	Given the related information, I can select good performing shares.
IK7	In general, increasing the number of shares held reduces total risk.
IK8	Government bonds are less risky than corporate bonds.
IK9	Purchasing power decreases when inflation increases.
IK10	In conventional system, house price increases when interest rate increase.
	Attitude to Money
AM1	Money brings happiness in life.
AM2	I know almost to the cent how much money I have in my purse/wallet/pocket.
AM3	I always know how much I have in my savings account.
AM4	I feel compelled to argue or bargain about the cost of almost everything that I buy.
AM5	In making any purchase, for any purpose, my first consideration is cost.
AM6	After buying something, I wonder if I could have gotten the same for less.
AM7	I prefer not to lend people money.
AM8	I often try to find out if other people make more money than I do.
AM9	I often fantasize about money and what could I do with it.
AM10	I rarely give beggars money when they ask for it.
	Financial Activities
FA1	I invest in unit trust such as those of PNB.
FA2	I invest in shares a lot.
FA3	I contribute to insurance/takaful sufficiently.
FA4	I do not need assistance in filing my tax form/claim.
FA5	I have estate properties above my needs.
FA6	I always search to buy affordable estate properties.
	Financial Satisfaction
FS1	I am satisfied with my current financial situation.
FS2	I can do little to improve my current financial situation.
FS3	I rarely run short of money.
FS4	Sometimes I feel that my income does not quite cover my living costs.
FS5	If I had a major loss of income I could manage for a period of time.
FS6	Based on my current financial situation, I could easily obtain loans if I need one (e.g. car loans, personal loans).

The results of the EFA are shown in Table IV. As can be seen in the table, some items failed to load reliably and thus discarded in the further analyses. These items too may be candidates to be dropped from the actual questionnaire. Notice also that the initial basic management variable is suggested by the EFA to form two distinct variables; we named these as expenses management (EXP_MGT) and account management (ACC_MGT). Similarly, financial planning variable can be split into two as income planning (INC_PL) and risk planning (RISK_PL). In total, 16 items were suggested to be removed by the EFA. The remaining measures were retained and examined as suggested in the PLS analysis. Furthermore, these retained items were considered reliable representing the respective variables with alphas ranging from 0.57 to 0.86. Although Nunnally [25] suggested 0.70 as the cut-off alpha level, we opted to retain ACC_MGT since this is a pilot study and the confirmatory factor analysis is yet to be performed.

TABLE IV: RELIABILITY OF MEASURES

Construct	Item	Mean	Standard Deviation	Alpha
EXP_MGT	BMM2	5.49	1.243	0.813
	BMM3	5.07	1.404	
	BMM4	5.06	1.271	
	BMM5	5.60	1.198	
	BMM6	5.19	1.307	
ACC_MGT	BMM7	5.85	1.334	0.566
	BMM8	5.71	1.387	
	BMM9	4.99	1.526	
INC_PL	FP1	5.44	1.401	0.622
	FP2	4.66	1.529	
	FP6	4.97	1.403	
RISK_PL	FP3	5.52	1.233	0.862
	FP4	5.52	1.249	
	FP5	5.86	1.120	
AM	AM2	5.37	1.181	0.844
	AM3	5.62	1.107	
	AM4	5.60	1.091	
	AM5	5.55	1.078	
	AM6	5.24	1.233	
IK	IK3	5.59	1.403	0.816
	IK4	5.50	1.253	
	IK5	5.25	1.358	
	IK6	5.43	1.244	
	IK7	4.61	1.307	
	IK9	5.46	1.341	
	IK10	5.48	1.372	
FS	FS1	4.09	1.624	0.670
	FS3	4.25	1.476	
	FS5	4.21	1.516	
FL score	FL	6.74	1.397	N/A

D. Measurement Model

The confirmatory factor analysis (CFA) can be run simultaneously in the examination of the measurement or outer model through SmartPLS. The measurement model for all constructs was evaluated through their convergent validity and discriminant validity. The convergent validity of a construct is established when items measuring the construct have levels of item reliability above 0.70, and both composite reliability and average variance extracted (AVE) of the construct exceeding 0.70 and 0.5 respectively [26]. Further, the discriminant validity of a model was assessed by comparing the square root of the AVE of each construct against its bi-variate correlations with other constructs, and checking cross-loading cases [27].

Measurement model was evaluated by running a PLS algorithm (300 maximum iteration, standardized values and centroid weighting scheme). The results of this analysis displayed in Table V suggested that all constructs are reliable with loadings above the desired level of 0.60 except for IK7 which can be discarded or improved in the actual questionnaire. In addition, the minimum construct composite reliability (CR) is 0.78 (ACC_MGT) while the minimum construct Average Variance Extracted (AVE) is 0.48 (IK). Since the AVE of investment know-how is below than 0.50, we may need to further improve the related items or possibly model it in a formative mode.Since most of thesemeasures are above the stated thresholds, we concluded that the research model has achieved acceptable convergent validity with some items can be further improved.

TABLE IV: CONVERGENT VALIDITY

Construct	Item	Loading	CR	AVE	Alpha
EXP_MGT	BMM2	0.662	0.868	0.570	0.809
	BMM3	0.781			
	BMM4	0.820			
	BMM5	0.763			
	BMM6	0.738			
ACC_MGT	BMM7	0.778	0.781	0.547	0.573
	BMM8	0.824			
	BMM9	0.611			
INC_PL	FP1	0.767	0.800	0.568	0.620
	FP2	0.761			
	FP6	0.733			
RISK_PL	FP3	0.880	0.916	0.786	0.863
	FP4	0.894			
	FP5	0.883			
AM	AM2	0.783	0.890	0.621	0.847
	AM3	0.857			
	AM4	0.792			
	AM5	0.831			
	AM6	0.662			
IK	IK3	0.700	0.861	0.477	0.815
	IK4	0.791			
	IK5	0.695			
	IK6	0.585			
	IK7	0.463			
	IK9	0.731			
	IK10	0.805			
FS	FS1	0.820	0.818	0.600	0.670
	FS3	0.751			
	FS5	0.751			

TABLE V: DISCRIMINANT VALIDITY

	EXP_MGT	ACC_MGT	INC_PL	RISK_PL	AM	IK	FS
EXP_MGT	0.755						
ACC_MGT	0.445	0.740					
INC_PL	0.325	0.216	0.864				
RISK_PL	0.507	0.478	0.540	0.887			
AM	0.541	0.440	0.264	0.424	0.788		
IK	0.212	0.304	0.258	0.271	0.300	0.691	
FS	0.222	0.146	0.332	0.364	0.162	0.129	0.775

Table VI provides the results of discriminant validity

analysis. As can be seen, the square roots of the AVE on the diagonal elements are greater than the bi-variate construct correlations on the off-diagonal elements, suggesting that the model has achieved acceptable discriminant validity. In other words, these variables are distinct to each other and can be modeled separately. In addition, item cross loadings were examined and although several cases of cross loadings were found, they were considered not a major concern to the measurement model validity.

IV. DISCUSSION AND CONCLUSION

This paper proposes a model that can be used to assess the level of financial literacy index among Malaysian selected public. The model postulates that financial literacy can predict individuals' financial satisfaction. Five antecedents of the financial literacy index have been identified including basic money management, financial planning, investment know-how, attitude to money and financial activities. Further, the proposed item measurements in Table II can be used to calculate the financial literacy index.

The index is cross-sectional in nature. As such, it can be used for over-time benchmarking. It will be useful if this index and future annual indexes can provide indications as to whether or not improvement in the levels of financial literacy and financial satisfaction has taken place. As the model may not be comprehensive, one should use it with care when doing benchmarking analysis.

Variables making up the research model in this study were gathered from related literature; nonetheless, the model is not without flaw. Through this pilot study, we have found 16 measures that failed to load reliably in the anticipated constructs. In addition, the EFA performed suggested that we may model basic money management and financial planning into two distinct variables. As a result one of the variables (i.e., ACC_MGT) had a relatively low reliability level, while the slightly low AVE of the investment know-how construct added a doubt into its reliability.

Overall, the research model has been validated through the examination of its measures' reliability and constructs' validity. Some of the items may be discarded in the actual survey while some may be refined to improve the reliability of the final questionnaire. The actual study which is expected to gather more than 2,000 responses would provide a glimpse on the financial literacy level among Malaysian public and their states of being financially satisfied. We further hope that the study can expand the knowledge on the related fields and can be a benchmark financial literacy study in Malaysia.

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