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# FINANCIAL LITERACY, FINANCIAL MANAGEMENT PRACTICES, AND RETIREMENT CONFIDENCE AMONG WOMEN WORKING IN GOVERNMENT AGENCIES: A MEDIATION MODEL

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## ABSTRACT

Concerns regarding the retirement experience of pre-retirees are growing globally. Numerous discussions on factors affecting retirement confidence can be found in academia. The present study employed structural equation modelling in the attempt to examine the mediating role of financial management practices on the relation between financial literacy and retirement confidence. A mediation model was tested on a sample of 626 Malaysian women working in government agencies. Significant relations were found between financial literacy, financial management practices, and retirement confidence. Earlier analysis revealed that the relation between financial literacy and retirement confidence is spurious, as the relation is fully mediated by financial management practices. The result supports the Family Resource Management Theory introduced by Deacon and Firebaugh (1988). Implications of the findings and suggestions for future studies are offered.

**JEL Classifications:**
**Keywords:** Financial literacy, Financial management practices, Retirement confidence, Mediation
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## INTRODUCTION

An enjoyable retirement experience brings gratification and proper and careful retirement planning during the pre-retirement stage is essential in order to achieve this dream. Due to growing concerns regarding retirement experience, several studies have been conducted to identify the factors influencing confidence in attaining a secure retirement life (Joo & Pauwels, 2002; Kim, Kwon, & Anderson, 2005b). Financial literacy is one of the most cited factors in determining retirement confidence. Financial literacy is expected to positively correlate with retirement confidence (Kim et al., 2005b; Lusardi & Mitchell, 2008).

However, the association between financial literacy and retirement confidence might be spurious. Although various past studies show high financial literacy in Malaysia (Organization for Economic Co-operation and Development, 2013; Tan, Hoe, & Hung, 2011), a recent study found relatively low retirement confidence among Malaysian women who work in government agencies (Ahmad, Masud, & Ibrahim, 2013). Clearly, these findings refute the expected positive relation between financial literacy and retirement confidence. Thus, the relation between financial literacy and retirement confidence remains debatable. For this reason, the present study aims to fill the research gap by re-examining the relation between financial literacy and retirement confidence in the Malaysian context, while further investigating the mediating role of financial management practices in the relation.

## LITERATURE REVIEW

### Retirement Confidence among Women Working in Government Agencies

It is acknowledged that women tend to live longer than men. According to the Department of Statistics Malaysia (2013), women are expected to live five years longer than men. The life expectancy of women is 77.2 years while for men it is 72.3 years. With the mandatory retirement age for civil servants Malaysia set at 60 years of age, women civil servants are expected to live for 17 years after their retirement. These 17 years can be distressing without proper retirement planning. Therefore, women have a crucial need for proper retirement planning in order to achieve a secure retirement life.

However, it is important to note that women consistently show lower retirement confidence compared with men (Malroutu & Xiao, 1995; Quick & Moen, 1998; Joo & Pauwels, 2002). The situation is similar in Malaysia where a recent study found relatively low retirement confidence among Malaysian women who work in government agencies (Ahmad et al., 2013). Additionally, women have been found to be less financially literate and less likely to implement financial management practices than men (Chan, Masud, Hamid & Paim, 2010; Chen and Volpe, 2002). To understand why women are at a greater disadvantage than men, the present study put the main focus on women who work in government agencies. The following section will discuss the theoretical rationale of the present study.

### Family Resource Management Theory

The Family Resource Management Theory was introduced by Deacon and Firebaugh (1988) in the attempt to explain how the family manages its resources to achieve its goals. For this reason, the concepts of input, throughput, and output were introduced. Concisely, "input" refers to material resources (money) and human resources (knowledge) possessed by the family. As expected, the family will use and utilize the inputs to generate desired outputs. "Output" refers to demand responses (satisfaction and confidence) and resource changes (resources spent). However, it is notable that family resource management is not a simple arithmetic equation. In other words, not all individuals who possess the same set of inputs can generate the same level of outputs. Deacon and Firebaugh (1988) named this phenomenon the "black box" effect, which explains that there are some unknown factors that can influence how families transform the inputs into outputs. In the attempt to understand the "black box" effect, Deacon and Firebaugh (1988) further introduced the idea of throughput to explain the deviation. In essence, "throughput" is a management process which explains how input is converted to output.

Taking the present study as an example, individuals will utilize their financial knowledge (input) to achieve higher retirement confidence (output). Due to the existence of the "black box" effect, not all individuals are able to achieve a high level of retirement confidence even though they are equally financially literate. Hence, the level of financial management practices (throughput) is added into the relation to explain the deviation. The following section will further discuss the stated relation and the mediating role of financial management practices based on past literature.

### Financial Literacy, Financial Management Practices, and Retirement Confidence

A large body of past literature indicates that financial knowledge can help individuals to plan for better retirement life (Brown & Graf, 2013; Lusardi, 2009; Lusardi & Mitchell, 2008; Mullock & Turcotte, 2012). Conceivably, formulating a retirement plan is a complex and challenging process which requires certain financial knowledge (Lusardi & Mitchell, 2008). For instance, individuals who lack knowledge in interest and inflation rates are at higher risk of overestimating their retirement income (Nyamute & Maina, 2011). Hence, it is plausible that there is a positive association between financial literacy and retirement confidence, in that individuals who are financially literate are able to construct better retirement plans and become more confident of their coming retirement compared with their financially illiterate counterparts.

Yet, the relation between financial literacy and retirement confidence is questionable. Referring to the "black box" effect as discussed in the previous section, not all individuals who possess the same set of inputs can generate an equal amount of output. In other words, having similar levels of financial knowledge (input) does not automatically lead individuals to having equal levels of retirement confidence (output). Simply being financially literate does not automatically guarantee the individuals' positive retirement confidence. Hence, financial literacy itself might not be sufficient in explaining personal differences in retirement confidence. In this connection, the present study suggests financial management practices as a mediator between financial literacy and retirement confidence. More specifically, the present study hypothesizes that financial literacy will encourage individuals to implement better financial management practices, which will then promote higher retirement confidence.

There is evidence which suggests that financial literacy can encourage individuals to practise healthy financial management (Hilgert, Hogarth, & Beverly, 2003; Nyamute & Maina, 2011; Titus, Fanslow, & Hira, 1989; Zaimah et al., 2013). This is as those who are financially illiterate might not know the proper way of implementing financial management practices (Robb & Woodyard, 2011). Besides, Titus et al. (1989) suggested that those who are financially illiterate tend to be unaware of the importance of financial planning. In fact, financial literacy will help individuals to learn the importance of financial management as well as the negative consequences of poor financial management, and hence promote regular implementation of financial management in daily life (Nyamute & Maina, 2011).

Having established that financial literacy can lead to better financial management practices, the existing evidence also points out that financial management practices can yield positive impacts on retirement confidence (Kim, Garman, & Quach, 2005a). Theoretically, individuals who consistently implement financial management and plan for retirement tend to be more optimistic of their retirement. This is because as people plan for their retirement, they will most probably perceive themselves as being well-prepared and feel more confidence in their ability to achieve their retirement goals (Taylor-Carter et al., 1997). Following this rationale, financial management practices could be a potential mediator on the relation between financial literacy and retirement confidence. The current study therefore aims to investigate the mediating role of financial management practices on financial literacy and retirement confidence.

### Research Objectives

Based on the above rationale, there are two objectives for the present study.

1. To determine the relation between financial literacy and retirement confidence.
2. To determine the mediating role of financial management practices on the relation between financial literacy and retirement confidence.

## METHODOLOGY

### Participants and Procedure

The sample of the present study comprised 722 women working in government agencies in four states in Peninsular Malaysia, which are Penang, Johor, Terengganu, and Perak. Acknowledging that Amos 18 is sensitive to missing data, the present study implemented listwise deletion technique to handle missing data. As a result, the final sample consisted of 626 respondents with complete data. Of the 626 participants, the mean age was 36.06 years (SD= 9.855). As for marital status, the majority of the participants (73.0%) were married, 23.6% were single, 2.2% were widowed, and 1.1% were divorced.

Upon acquiring permission and cooperation from selected government agencies for data collection, trained enumerators were sent to the government agencies which had agreed to participate in the study. Prior to distributing the questionnaires, consent was sought from all potential participants. As Malays form the major ethnic group in Malaysia, the questionnaire was designed in the Malay language.

### Measures

There were four sections in the questionnaire. The first section requested details concerning the respondent’s personal background, which include age, marital status, education background, and personal income.

The second section consisted of 34 questions on financial literacy. The financial literacy scale was adopted with permission from the original authors (Sabri & MacDonald, 2010). This scale divided financial literacy into five major dimensions, namely general knowledge, saving and investment, credit card, Islamic banking, and debt and loan. The participants were requested to identify whether each given statement was true or false. One point was given for every correct answer while no point was given for wrong answers. The total score was summed up for each dimension. Higher scoring indicated better financial knowledge in the respective dimensions. The financial literacy scale had relatively good internal consistency in the present study (Cronbach’s alpha = .768).

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Another instrument used in the present study was the financial management practices scale adopted from Hogarth and Anguelov (2004). This instrument consisted of 17 items which required participants to identify if they implemented the given financial management practices. This instrument comprised four dimensions, which were credit management, cash management, risk management, and savings management. One point was given for any financial management practice that the participants implemented. A higher total score indicated higher involvement in relative financial management practices. This instrument showed acceptable reliability in the current study (Cronbach's alpha = .585).

Lastly, the present study also implemented the retirement confidence scale adopted from Kim et al. (2005b). This instrument consisted of 8 items which attempted to measure how confident the participants were regarding their retirement. This instrument was designed as a 4-point Likert scale, where higher rating indicated more confidence on their retirement. Based on the result of the reliability test, this instrument was generally reliable (Cronbach's alpha = .911).

**Statistical Procedure**

All analyses in the present study were performed using maximum likelihood estimation in Amos 18. Confirmatory factor analysis (CFA) was first performed to test all instruments implemented in this study. All items were allowed to load on a single factor only. Although chi-square ($\chi^2$) was identified in the present study, Type-II error is prone to occur when using $\chi^2$ in a large-sized sample. Hence, several fit indices were evaluated to access the model fit. The fit indices included normed fit index (NFI), non-normed fit index (TLI), comparative fit index (CFI), root mean square error of estimation (RMSEA), and relative chi-square ($\chi^2/ df$). The cut-off point for good model fit was set as .9 for NFI, TLI, and CFI. On the other hand, RMSEA with values below .08 are considered as good fitting model. Following CFA, a measurement model was developed and tested under same set of fit indices. With the valid measurement model, the structural model was evaluated to examine the mediating effect of financial management practices between financial literacy and retirement confidence.

## RESULTS

**Confirmatory Factor Analysis**

The results of CFA are displayed in Table 1 below. For the financial literacy scale, all five dimensions were loaded into a single factor. The fit indices show relatively good model fit to the data, where NFI = .988, TLI = .989, CFI= .994, RMSEA =.038, and $\chi^2/ df = 1.902$.

Similar to the financial literacy scale, all four dimensions of financial management practices scale were loaded into a single model. All of the fit indices indicate sufficient model fit, where NFI = .987, TLI = .942, CFI = .990, RMSEA=.063, and $\chi2/ df = 3.461$.

In terms of the retirement confidence scale, all eight items were loaded into a single factor. However, the fit indices are below the par level, where NFI = .907, TLI = .878, CFI = .878, RMSEA =.146, and $\chi2/ df = 14.292$. Upon referring to the modification indices, it was found that item 2 was correlated with various items. As a result, item 2 was removed from the model. When this was done, the fit indices improved and indicated good fitting of data, where NFI= .991, TLI = .993, CFI = .996, RMSEA =.036, and $\chi2/ df = 1.790$.

With all models fitting well to the data, a measurement model was developed where all latent variables were permitted to correlate with each other. The fit indices show satisfactory model fit, where NFI = .953, TLI = .976, CFI = .980, RMSEA = .033, and $\chi2/ df = 1.687$.

**TABLE 1. CONFIRMATORY FACTOR ANALYSIS**

| Model | NFI | TLI | CFI | RMSEA | $\chi^2$ | $\chi^2/ df$ |
|---|---|---|---|---|---|---|
| Financial literacy scale | .988 | .989 | .994 | .038 | 9.509 | 1.902 |
| Financial management practices | .987 | .942 | .990 | .063 | 3.461 | 3.461 |
| Retirement Confidence (8 items) | .907 | .878 | .878 | .146 | 285.85 | 14.292 |
| Retirement Confidence (7 items) | .991 | .993 | .996 | .036 | 21.476 | 1.790 |
| Measurement model | .953 | .976 | .980 | .033 | 167.048 | 1.687 |

**Correlation between Variables**

Pearson correlation was performed in order to analyse the relation between financial literacy, financial management practices, and retirement confidence. The results of Pearson correlation is displayed in Table 2 below. The results reveal that financial literacy is significantly correlated with financial management practices (r = .184; p < .001) and retirement confidence (r = .124; p < .01). In addition, the results reveal significant relation between financial management practices and retirement confidence (r = .162; p < .001).

**TABLE 2. MEANS, STANDARD DEVIATIONS, AND CORRELATIONS AMONG VARIABLES**

| | | | Correlations | | |
|---|---|---|---|---|---|
| Variable | Mean | SD | RC | FL | FMP |
| RC | 19.00 | 3.47 | 1 | | |
| FL | 17.45 | 6.135 | .124** | 1 | |
| FMP | 9.27 | 2.606 | .184*** | .162*** | 1 |

N= 626
*RC* Retirement Confidence; *FL* Financial Literacy; *FMP* Financial Management Practices
** $p <$ .01; *** $p <$ .001

**Financial Management Practices as Mediator**

The mediating effect of financial management practices on financial literacy and retirement confidence was tested using a three-step method suggested by Holmbeck (1997). The results of the mediation test are displayed in Table 3 below. First, a direct model was developed to estimate the effect of financial literacy (predictor) on retirement confidence (criterion). Path coefficient between predictor and criterion should be significant in order to proceed to the second step of mediation analysis. This requirement was satisfied, where the path coefficient between financial literacy and retirement confidence was significant (β = .14; p < .01). Hence, Objective 1 was achieved, where significant relation was found between financial literacy and retirement confidence.

The second step proposed by Holmbeck (1997) is to test on the partially mediated model. Financial management practices were added into the model. More specifically, both direct and indirect effects of financial literacy on retirement confidence were tested simultaneously. It is notable that the relation between financial literacy and retirement confidence was no longer significant when financial management practices were taken into account (β = .08; p = .124). Further, path coefficient between financial literacy and financial management practices was significant (β = .31; p < .001). Similarly, significant path coefficient was found between financial management practices and retirement confidence as well (β = .19; p < .01). In short, the influence of financial literacy on retirement confidence is indirect, mediated by financial management practices.

The last step in Holmbeck's (1997) procedure is to develop a fully mediated model. In the fully mediated model, the direct path from financial literacy and retirement confidence was constrained as zero. Significant path coefficients were found between financial literacy to financial management practices (β = .32; p < .001) and financial management practices to retirement confidence (β = .23; p < .001). In order to determine which model was better, chi-square difference was compared between the partially mediated model and the fully mediated model. The result revealed that $\Delta\chi2$ (1, N = 626) = 2.361 and p = .124. Hence, the fully mediated model was proven as a better fit for the data. This implies that the effect of financial literacy on retirement confidence is purely indirect, fully mediated by financial management practices. The objective 2 of present study was achieved.

**TABLE 3. STANDARDIZED AND UNSTANDARDIZED COEFFICIENTS FOR STRUCTURAL MODELS**

| Hypothesized path | b | *Beta* | Critical ratio | *p* |
|---|---|---|---|---|
| Direct model | | | | |
| Financial literacy → Retirement confidence | .079 | .138 | 2.865 | .004 |
| Partially mediated model | | | | |
| Financial literacy → Retirement confidence | .046 | .078 | 1.538 | .124 |
| Financial literacy → Financial management practices | .094 | .307 | 4.286 | .000 |
| Financial management practices → Retirement confidence | .369 | .194 | 3.110 | .002 |
| Fully mediated model | | | | |
| Financial literacy → Financial management practices | .097 | .315 | 4.365 | .000 |
| Financial management practices → Retirement confidence | .436 | .229 | 3.747 | .000 |

b = unstandardized coefficient; *Beta* = standardize coefficient

**FIGURE 1-3. A MEDIATED MODEL**

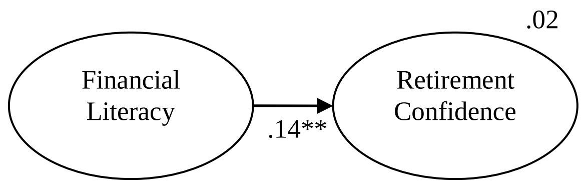


**Fig. 1** Direct model. $^{**}p < .01$

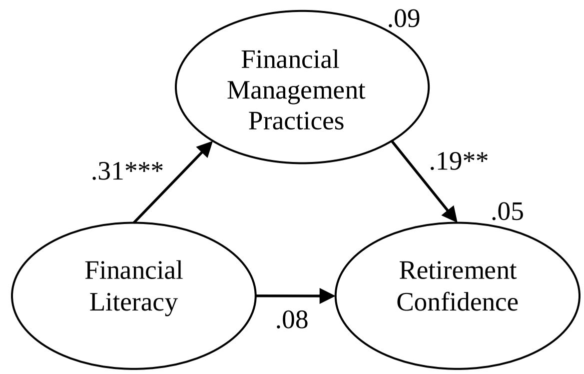


**Fig. 2** Partially mediated model. $^{**}p < .01$; $^{***}p < .001$

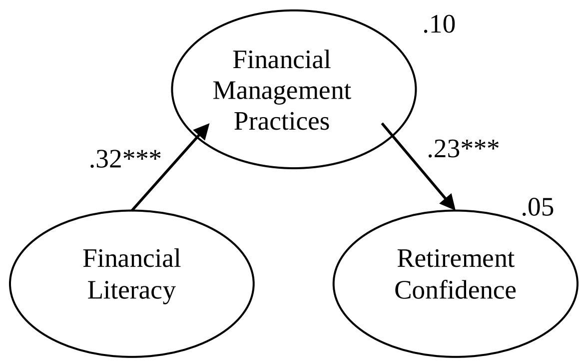


**Fig. 3** Fully mediated model. $^{***}p < .001$

**Bootstrapping**

The present study used bootstrapping to further test the mediating effect. The number of bootstrap samples was set as 5000 samples. The findings yielded relatively stable result, with a 95% BC confidence interval [.012, .118]. The direct impact of financial literacy on retirement confidence was less after controlling for financial management practices. Moreover, significant indirect relation was found between financial literacy and retirement confidence (SIE = .060; p<.01). Clearly, financial management practices significantly mediated the relation between financial literacy and retirement confidence.

**TABLE 3. BOOTSTRAPPING MEDIATION EFFECT**

| Hypothesized path | *Beta* | *p* | 95% Bootstrap BC CI | |
|---|---|---|---|---|
| | | | LB | UB |
| Direct model | | | | |
| Financial literacy → Retirement confidence | .138 | .004 | | |
| Partially mediated model | | | | |
| Financial literacy → Retirement confidence | .078 | .124 | | |
| Standard indirect effect (SIE) | .060 | .001 | .021 | .118 |

**DISCUSSION**

Although past studies have consistently identified significant relation between financial literacy and retirement confidence, the present study found that the relation is spurious. The result of the present study is in line with Braunstein and Welch (2002), which suggests that the relation between financial literacy and retirement confidence is complicated and indirect. As suggested by Braunstein and Welch (2002), simply providing financial literacy training programmes will not guarantee better financial wellbeing in the future. In fact, an effective financial literacy training programme rather than simply providing excessive financial information to participants should encourage the participants to improve and change their poor financial attitude and behaviour.

In extension to the commonly agreed positive relation between financial literacy and retirement confidence, the present study suggests that the influence of financial literacy on retirement confidence is indirect and mediated by financial management practices. In other words, improvement in financial literacy will encourage individuals to practise better financial management, which will further enhance retirement confidence as well. As suggested by Hilgert et al. (2003), financial illiteracy is a strong obstacle that prevents people from proper financial management practices. This idea is generally supported by literature in the area, which suggests that financial knowledge is essential to make effective financial decisions (Haynes-Bordas, Kiss, & Yilmazer, 2008; Titus et al., 1989). As a consequence of proper financial management practices, individuals will gain a sense of preparedness and perceive future retirement as a welcoming event.

In this connection, the present findings confirm the Family Resource Management Theory introduced by Deacon and Firebaugh (1988) to be true. As proposed by Deacon and Firebaugh (1988), the input (financial literacy) is insufficient in explaining the output (retirement confidence). For this reason, throughput (financial management practices) should be accounted for in order to obtain a better picture of the input-output relationship. The present study has proven the applicability of the Family Resource Management Theory in this issue.

## IMPLICATIONS, LIMITATIONS, AND SUGGESTIONS FOR FUTURE RESEARCH

The findings of the present study have practical implications on developing effective financial literacy training programmes. There is no doubt that financial literacy training is essential in building retirement confidence. However, future training should include elements that can encourage healthy financial management practices. The importance of proper financial management practices should be explained to participants. Moreover, the training programmes should provide participants with practice opportunities. For example, the training should provide some actual cases of healthy financial management practices for the participants. In addition, some simulation activities which allow the participants to demonstrate their understanding of the topics might help the participants to learn better.

Although the findings of the present study are consistent with those in past studies, the present study has some notable limitations. Most importantly, all participants in the present study were women working in government agencies in Peninsular Malaysia. Hence, the implications of the findings should not go beyond this scope. Hence, the suggestion is for future studies to include women working in the private sector for greater generalizability. Furthermore, the present study was designed as a cross-sectional study. The interpretation of the causal relationships is very limited. Longitudinal studies on this issue will be highly beneficial to confirm the causal relations. Lastly, acknowledging that retirement planning is a complex process, there must be some other predictors or mediators that should be accounted. Future researches are recommended to identify and include other variables into the model.

## SUMMARY

The present study sheds light on the mediating role of financial management practices on the relation between financial literacy and retirement confidence. The findings confirm that financial literacy will encourage proper use of financial management practices, which will in turn improve one's retirement confidence. More precisely, financial literacy influences retirement confidence only indirectly. Effectively, this suggests that discussions on financial management practices in financial literacy training programmes might work well in building retirement confidence.

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