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## Financial Literacy and Personal Investment Decision: *SEM Approach for Employees of Central Bank of Nigeria*

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### Abstract

*This study examines the effect of financial literacy on personal investment decisions, using structural equation modeling for a sample of 150 employees of Nigerian Central Bank. The results show that financial knowledge has an influence on retirement planning but not too significant. Also, financial knowledge has a weak positive/insignificant relationship with portfolio choice. However, the study reveals that financial behavior and retirement planning have a positive/significant bidirectional relationship while also; there is a positive/relatively significant relationship between financial behavior and portfolio choice. Therefore, the researcher recommends as follows: employees of any organizations should identify detestable financial behavior, for an understanding of one's finances and its application in day to day activities are inevitable; and veritable measures to cultivate sound financial behavior. People should develop policy that encourages spending only on those things that sustain positive marginal utility. Employees of all levels/cadres should endeavor to invest in gilt-edged investments such as real estate, government securities and stocks of globally reputable companies that have lived for more than 50 years. Employees should endeavor to broaden their financial knowledge by regularly attending symposiums, seminars and conferences on financial matters.*

**Keywords:** Financial literacy, Financial discipline, Financial behavior, Financial knowledge

## 1. Introduction

Financial literacy remains a topical issue across the globe and has aroused much interest in the academic literature in the recent past; especially in the developed world with the rapid change in the finance landscape. Though, research on corporate finance has received more attention than the household's financial literacy and investment decision; this disparity exist because households financial decisions incorporate some unique and complex characteristics that prevent an easy application of models from corporate finance. This uniqueness of household financial literacy and investment decisions is as a result of the need to make adequate plan with respect to earnings, earnings growth, current and future rates of return, pension benefits, social security benefits, special

needs, household composition, risk-return trade-off and a host of other factors (Bernheim, 1994) as contained in (Martin, 2007).

With these prevailing complexities, one would expect a sound financial literacy that would inform appropriate investment decisions. A sound financial literacy would assist to empower and educate respective individuals and households so that they are knowledgeable about investment decisions in a way that would improve their lives. Furthermore, a high level of financial literacy would aid them to be able to assess or evaluate various financial products/services and this could enhance their standard of living and by extension improve economic growth, sound financial systems and poverty reduction. Literature reveals that, those that are less financially literate are likely to face more challenges with regard to debt management, savings and credit; and are less likely to plan for the future (Wachira & Kihui, 2012). Also, it was observed that some households are not saving enough for retirement, they are accumulating excessive debt, and are not taking advantage of financial innovation (Lusardi & Mitchell (2007) and Campbell (2006) in (Van Rooij, Lusardi,& Alessie, 2007).

Unlike in the more developed world where more attention has been given to the issue of financial literacy vis-à-vis investment decision, little attention is so far being given to it in this part of the world. Nigerian government for instance, is aware of the predicament the Nigerian populace has been facing with respect to making wise investment decision hence, some policy measures put in place, and the masses education through the Central Bank of Nigeria. These efforts however, are still inadequate as about 90% of the population is still in the dark. Survey reveals that financial illiteracy in Nigeria is simply phenomenal as both the old and even the young educated ones lack literacy in financial issues. This has informed the poor investment decisions prevalence in the country today. Thus, the interest of this study is to examine the level of financial literacy in Nigeria to see whether people accurately perceive their own economic decision –making skill; and equally determine the extent financial literacy influence portfolio choice and retirement planning. This area of focus, to the best of my knowledge has not received much attention from Scholars in this clime, hence this study.

## 2. Literature Review

A study to assess the influence of various demographic factors that influence the investment decisions of investors was carried out by Mahmood (2011) in Akims and Jagongo (2017) using an investment model that described the impact of past investment experiences of investors, variation in regulatory policies, asymmetric information, their marital status, gender, and reinvestment intentions of investors. The study found out that risk perception plays a major role in the investment decision process and also, the changes in government policies impacts greatly on the risk perception of an investor. The above finding was supported by Awais et al (2016) when they conducted a study on financial literacy and investment experience on risk tolerance and investment decisions in Pakistan. They formulated a model showing the mediating relationship of risk tolerance between financial literacy, investment experience and investment decisions. Thereafter, hypothesis were devised on the basis of the model which after testing concluded that financial literacy and investment experience in the presence of risk tolerance leads towards better investment decisions.

Al-Tamimi and Bin Kalli (2009) conducted a study the relationship between financial literacy and investment decisions in the UAE. To test the hypothesis whether there is a positive significant relationship between financial literacy and investment decisions of UAE investors, they used a regression model and found out that financial literacy along with other factors like income level, education, work place activity etc. affected significantly the investment decisions of the individual investors in the UAE. These findings were supported in a later study carried out in Bahrain by Abdeldayem (2016) where he adopted three research questions of Lusardi and Mitchell (2006, 2007) and Lusardi (2008) to measure the financial literacy of respondents. His findings pointed out that investors' level of financial literacy influences their awareness of financial products. Furthermore, he found out that those in the high financial literacy group have higher preferences for bank deposit, saving account certificate of deposit, mutual fund, stocks, bonds, pension funds, and mortgage than those in the low financial literacy group.

Van Rooij et al. (2011) cited in (Janor et al, 2016) devised two special modules for the Household Survey in Netherland to measure Financial Literacy and their links to stock market

participation, and concluded that those with low literacy were much less likely to invest in stocks. They further found that the majority of respondents demonstrated a basic financial knowledge and have some grasp of concepts such as interest compounding, inflation, and the time value of money. However, many respondents could not distinguish between bonds and stocks, the link between bond prices and interest rates, and the basics of risk diversification; thus, confirming that Financial Literacy does influence financial decision-making.

Evidence was provided to show that financial literacy has effect on the financial distress among Malaysian youths (Janor et al, 2016). The study shows that there was a moderate relationship between the levels of respondents' financial distress and financial literacy. According to them, the results is suggestive that the country should invest in its human resources with a view to developing them in the area of personal financial management; and thereby raising the level of financial literacy among individuals and by extension achieve the nations own objectives of high productivity. This was supported by studies of other lesser developed countries such as India and Indonesia carried out in (Janor et al, 2016). They examine Financial Literacy level, its determinants and the effects on the demands for financial services and observed a strong relationship between FL and financial behavior and that household financial behavior and wellbeing are in strong association with financial literacy.

Klapper and Panos (2011) carried out a study on financial literacy and its association with retirement planning in Russia, a country with a large regional disparity and emerging financial market. They tested for understanding of the working of interest compounding and inflation. Their findings revealed that only 36.3% of respondents of their sample understood interest compounding and only half could answer a simple question about inflation. Thus, they concluded that in a country with widespread public pension provisions, financial literacy is significantly and positively related to retirement planning involving private pension funds and schemes.

Furthermore, Almenberg and Soderbergh (2011) in Janor et al (2016) examine the relationship between financial literacy and retirement planning of Swedish adults and found financial literacy levels to be lower among older people, women and those with low education or earnings. Lusardi and Mitchell (2011) also in Janor et al (2016) examine the influence of financial literacy on retirement planning in the US with a view to knowing to what extent are the Americans equipped to make decisions in the pension and financial landscape?; and whether they are sufficiently knowledgeable about economics and finance to plan for retirement. It is however, revealing that, many respondents lacked the key knowledge of critical financial concepts including interest compounding, inflation, and risk diversification; and failed to plan for retirement, even when retirement was close at hand.

Lusardi (2008) in Mugo (2016) investigated the importance of financial literacy in making informed decision by consumers residing in U.S. He grouped financial literacy broadly into two: basic literacy (comprising knowledge in working of interest rates, impact of inflation, and risk diversification) and advance literacy (made up of knowledge in asset pricing, risk return and how various financial instruments works). He later found out in his study that one needs financial knowledge over and above the elementary financial concepts to make "competent decision on savings and investments.

Van Rooij et al (2007) sought to know in a Dutch household survey whether financial knowledge will help individuals invest in stock markets. To better understand financial literacy and its relation to financial decision-making, they devised two special modules for the Household Survey with questions designed in such a way to measure numeracy and basic knowledge (like compounding, effect of inflation, calculation of interest rate etc.), and advance financial knowledge (financial market instruments like stocks, bonds, and mutual funds). They evaluate the importance of financial literacy by studying its relation to the stock market; wanting to know if financially knowledgeable individuals are more likely to hold stocks. They found that, while the understanding of basic economic concepts related to inflation and interest rate compounding is far from perfect, it outperforms the limited knowledge of stocks and bonds, the concept of risk diversification, and the working of financial markets. They concluded that there is evidence of an independent effect of financial literacy on stock market participation; and that those who have high financial literacy are significantly more likely to invest in stocks.

Kozina and Ponikvar (2015) examined how first year students of a Slovenian University manage their finances and their general financial literacy by surveying 259 students from two different

faculties. It was observed that students who offered economics subjects were statistically better at defining inflation, liquidity and real income. Courses being offered were seen to have significant differences in the area of investment decisions; business students seem to prefer riskier investments like an investment in bonds or gold, while non-business students prefer saving their money in a savings account. The results show that students who had economics in their curriculum are more often confident in the management their finances and on the average have better financial knowledge. They concluded that undergoing economic/financial courses increases financial literacy and also feelings of mastery of financial areas, which is important to transfer knowledge into the practice.

The findings of all of the above highlight problems with financial knowledge in which many respondents lacked the key knowledge of critical financial concepts including interest compounding, inflation, and risk diversification; and as such failed to plan for retirement, even when retirement was close at hand.

A Research company, Srinter Tyrimai (2013) conducted a study on behalf of Bank of Lithuania to review the financial behavior of Lithuania households as defined by their borrowing and saving habits; and to know the reasons for these habits and equally find out how households assess their current financial situation. The survey covered a total of 1007 households. It was discovered that majority of the households choose non-risky saving and instruments of investment to secure themselves against unforeseen factors such as decline in income or contingency expenses. It was also discovered that, they rely on personal experience or advices from friends for their financial decisions; and that they borrow for consumption which a bane in the process of wealth accumulation. From the above, the financial behavior by the sampled households is not supported by a sound financial literacy level, thus pointing out the importance of financial literacy in investment decisions.

A study on the relationship between household investment behavior and borrowing among Swiss household was carried out by Brown and Graf (2012) using 1,500 Swiss households as sample. Retirement savings, mortgage borrowings and financial market participation were used to measure households' financial behaviors. The empirical outcomes revealed that financially literate households are more likely to participate in financial markets, own mortgage and have retirement saving account. They concluded by positing that financial literacy level as indicated by financial behavior, has a correlation with voluntary retirement savings, mortgage borrowing and financial markets participation.

In a study of the effects of financial literacy on individual saving in the context of an emerging market, Malaysia, Mahdzan and Tabiani (2012) opined that financial literacy is an important determinant of individual saving and that saving acts as a contingency for individuals and countries in the event of economic downturns and financial crisis. Furthermore, they pointed out that financial literacy has been found to be positively related to the probability of having positive saving behavior amongst individuals. A saving behavior (culture) on the part of the individual and the entire society is capable of acting as a stimulus for improving investment decisions. Thus, they concluded that if the government aims to increase saving amongst households, it should increase efforts in promoting financial literacy through basic educational programs regarding financial issues.

Existing research suggests that there is, in fact, a correlation between financial literacy and behavior, although the interconnection remains unclear. In Hogarth, Beverly, and Hilgert (2003) as contained in Bell and Lerman (2005), it was pointed out that this correlation does not necessarily mean that more knowledge improves behavior, but perhaps more experience in financial activities, or learning by doing, might lead to more financial knowledge. However, some evidence shows that the level of financial knowledge within a household affects its inhabitants' subsequent financial behavior. Furthermore, Hilgert and Hogarth (2003) in Bell and Lerman (2005) threw more light on this when they examined sources of financial experiences, knowledge, and practices in the 2001 Survey of Consumer Finances and the University of Michigan's 2001 Surveys of Consumers. They explored consumer behavior and knowledge in cash-flow management, credit management, saving, and investment, and concluded that those who knew more in each of these areas also tended to "score" better in terms of financial practices—such households were more likely to follow sound financial behaviors.

The focus of past studies was mainly on retirement planning and stock market participation using foreign economies as examples. There were no in-depth studies on other economic variables

like borrowing, budgeting, savings as well as various windows of investment. Further research should aim at localizing their studies and look at investment windows in Nigeria such as Nigeria Treasury Bills, Real Estate, Mutual fund, the Reits (real estate investment trusts). Also, effort should be made to look at the risk inherent in financial products and types of investment etc.

However, this study is aimed at evaluating the effect of financial literacy on personal investment decisions using employees of some Branches of the Central Bank of Nigeria as a study. Financial literacy is the ability to be knowledgeable in financial matters and applying the knowledge to make informed investment decisions. Various studies such as Klapper and Panos (2011); Musundi (2014) and Awais *et al.*, (2016) reveal that in order to make effective investment decisions, an investor needs to make the right choice that is optimal among various alternatives at the right time; and this can only be possible if the investor is financially knowledgeable enough to discern the distinct nature of financial decisions and the consequences.

### 3. Method

#### ***Model Specification***

The researcher adopts structural equation model (SEM) to investigate the interaction among financial knowledge, financial behavior, retirement planning and portfolio choice. This model/equation is given in econometric forms as follows:

#### **3.7.1 Econometric Form**

This includes both the structural and the measurement forms; the structural form gives the interaction between the latent variables. Meanwhile, the measurement form expresses the latent variable as a linear function of the observed variable. Therefore, the estimation of the structural form is employed to test the hypotheses for this study; the measurement equation is computed to extract scores/values for the latent variables. The researcher state the structural equations first and then measurement equations.

#### **3.7.2 The Structural Equation**

$$FK = B_1FB + h_1 \quad 3.1$$

$$FB = B_2FK + h_2 \quad 3.2$$

$$RP = B_3PC + h_3 \quad 3.3$$

$$PC = B_4RP + h_4 \quad 3.4$$

$$FK = B_5RP + h_5 \quad 3.5$$

$$RP = B_6FK + h_6 \quad 3.6$$

$$PC = B_7FB + h_7 \quad 3.7$$

$$FB = B_8PC + h_8 \quad 3.8$$

$$FK = B_9PC + h_9 \quad 3.9$$

$$PC = B_{10}FK + h_{10} \quad 3.10$$

$$RP = B_{11}FB + h_{11} \quad 3.11$$

$$FB = B_{12}RP + h_{12} \quad 3.12$$

#### **3.7.3 Measurement Equations**

$$FK_1 = a_1FK + e_1 \quad 3.13$$

$$FK_2 = a_2FK + e_2 \quad 3.14$$

$$FK_3 = a_3FK + e_3 \quad 3.15$$

$$\begin{aligned}
 FK_4 &= a_4 FK + e_4 & 3.16 \\
 FB_1 &= a_5 FB + e_5 & 3.17 \\
 FB_2 &= a_6 FB + e_6 & 3.18 \\
 FB_3 &= a_7 FB + e_7 & 3.19 \\
 FB_6 &= a_8 FB + e_8 & 3.20 \\
 RP_1 &= a_9 RP + e_9 & 3.21 \\
 RP_2 &= a_{10} RP + e_{10} & 3.22 \\
 RP_3 &= a_{11} RP + e_{11} & 3.23 \\
 RP_4 &= a_{12} RP + e_{12} & 3.24 \\
 RP_5 &= a_{13} RP + e_{13} & 3.25 \\
 RP_6 &= a_{14} RP + e_{14} & 3.26 \\
 PC_1 &= a_{15} PC + e_{15} & 3.27 \\
 PC_4 &= a_{16} PC + e_{16} & 3.28
 \end{aligned}$$

Note that there are 16 measurement equations and 12 structural equations to be estimated.

### 3.7.4 Definition of Variables

FK, FB, RP and PC are financial knowledge, financial behavior, retirement planning and portfolio choice respectively. All of these factors are constructs or latent factors. Their corresponding observed variables are:

FK<sub>1</sub>, FK<sub>2</sub>, FK<sub>3</sub>, FK<sub>4</sub>, FB<sub>1</sub>, FB<sub>2</sub>, FB<sub>3</sub>, FB<sub>6</sub>, RP<sub>1</sub>, RP<sub>2</sub>, RP<sub>3</sub>, RP<sub>4</sub>, RP<sub>5</sub>, RP<sub>6</sub>, PC<sub>1</sub> & PC<sub>4</sub> which represent the series of questions drafted to collect values from respondents. Thus, FK<sub>1</sub>- It is good to invest today than wait till tomorrow, realizing the time value of money; FK<sub>2</sub>- Spreading one's portfolio investment minimizes risk of loss, FK<sub>3</sub> - Allowing one's savings to grow overtime is a good investment strategy and FK<sub>4</sub> - Mutual fund investment will minimize risk of investor.

FB<sub>1</sub> - I organize, evaluate and regularly keep track of my financial activities, FB<sub>2</sub> - Budgeting for all expenditures and carefully considering purchases by drawing up a list is what I normally pursue, FB<sub>3</sub> - I prefer long term mortgage which attracts lower monthly repayment and FB<sub>6</sub> - I like depending on financial experts and other credible financial sources for guidance and advice on variety of financial issues.

RP<sub>1</sub> - Regular evaluation of income and expenditure pattern is good for wealth accumulation for retirement, RP<sub>2</sub> - As you near retirement or old age, one needs to adjust your asset allocation to reduce risk and volatility, RP<sub>3</sub> - Developing a plan for retirement savings and sticking to it strictly, is very desirable, RP<sub>4</sub> - I can figure out how much I have personally saved for retirement, RP<sub>5</sub> - Contributory pension and regular financial planning are good for retirement well-being and RP<sub>6</sub> - Employees can make pension contributions additional to any payments by their employers.

PC<sub>1</sub> - Investment in stock assets is better because it gives the highest return on the long run and PC<sub>4</sub> - Buying stock mutual fund is better because it provides safer return than a company stock. Each of these expressions is subject to summation scale that is, the Likert's scale, of which respondents are made to choose from strongly disagree (1), disagree (2), neutral (3) agree (4) strongly agree (5). Each of the B's ( B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>4</sub>, B<sub>5</sub>, B<sub>6</sub>, B<sub>7</sub>, B<sub>8</sub>, B<sub>9</sub>, B<sub>10</sub>, B<sub>11</sub>, B<sub>12</sub>) parameters (coefficients) show the strength of the relationship between the latent variables, while each of the a's ( a<sub>1</sub>, a<sub>2</sub>, a<sub>3</sub>, a<sub>4</sub>, a<sub>5</sub>, a<sub>6</sub>, a<sub>7</sub>, a<sub>8</sub>, a<sub>9</sub>, a<sub>10</sub>, a<sub>11</sub>, a<sub>12</sub>, a<sub>13</sub>, a<sub>14</sub>, a<sub>15</sub>, a<sub>16</sub>) parameters (factor loading values) represents the strength of the relationship between latent variable and its associated observed variable; while h<sub>1</sub>, .....h<sub>12</sub> are the variance or disturbance terms relating to the structural equations (other factors that can influence the latent constructs that are not included in the equations), while e<sub>1</sub>,.....e<sub>16</sub> are the error/disturbance terms relating to measurement equations. The latent variables and disturbance terms are bounded by ellipsis or cycles, but the observed variables are bounded by squares.

## 4. Results

The main focus of this study is to examine the effect of financial literacy on investment decisions by investigating the interrelationship between four latent construct variables (which are financial knowledge, financial behavior, retirement planning and portfolio choice) using a sample of four state branches of the CBN. To achieve this objective, a structural equation model (SEM) was estimated to provide the values of the coefficients of these latent variables. Likewise, each latent construct variable was captured using arrays of questions, in which case 152 questionnaires were designed and administered; and 118 were returned properly filled by the respondents and this amounts to 77.63 percent success rate in the researcher's field work. To be systematic in this chapter, the researcher divides the outputs of his survey into three sections namely: pre-estimation results, estimation results and post estimation results. However, for instilling confidence in the data and instruments used, the researcher starts this chapter with demographic statistics of the respondents' profiles.

### 4.1 Estimation Test Results

The researcher estimated the four latent variables SEM proposed, in chapter three to test the hypotheses of the study. To iterate, these hypotheses in null forms are (1) financial knowledge and retirement planning are not significantly interrelated, (2) financial knowledge has no significant effect on portfolio choice, (3) there is no significant relationship between financial behavior and retirement planning, and (4) financial behavior does not significantly influence portfolio choice. The results of all of these hypotheses are presented in table1 below.

S/N	Latent variable	CE	SE	CR	P
1.	FK $\leftrightarrow$ RP	0.002	0.003	0.548	0.584
2.	FK $\leftrightarrow$ PC	0.01	0.017	0.584	0.559
3.	FB $\leftrightarrow$ RP	0.137	0.057	2.407	0.016
4.	FB $\leftrightarrow$ PC	0.114	0.065	1.75	0.08
5.	FK $\leftrightarrow$ FB	0.003	0.006	0.546	0.585
6.	RP $\leftrightarrow$ PC	0.016	0.029	0.566	0.571

Table 4.1 Test of the Hypothesis for the Study

Source: Field Survey, 2019

Note that in the table above, CE = Coefficient Estimate, which shows the strength and magnitude of direction of relationship, SE = standard error which reflects error in measurement where a lower value shows that the measurement error is minimal, CR= Critical Ratio with a threshold of 2.0 shows that the coefficient estimate is significant in measuring the relationship while P value = level of significance of construct variable with a threshold of ( $\leq 0.05$ ) for rejection or acceptance of the null hypothesis. The potentials of the SEM enable the researcher to estimate six interrelated equations that are constructed using latent variables only (see chapter three for details). Note that the double ended arrows ( $\leftrightarrow$ ) implies bidirectional causation between variables.

The first hypothesis is tested using the estimate of the first equation in table 4.12. The estimate coefficient of 0.002 and a large p value of 0.584 (58%) provides evidence that there is no significant bidirectional causation between financial knowledge and retirement plan. This signifies that financial knowledge cannot significantly drive retirement plan, however, there exist a positive relationship even though it is weak. This result is consistent with the work of de Bassa Scheresberg (2013) who asserts that financial literacy is positively correlated with precautionary saving and planning for retirement. It is also consistent with theoretical preposition of the relationship between financial knowledge and retirement planning hence; it is possible that people gain financial knowledge by planning for retirement.

The second hypothesis is tested using the estimate coefficient and p values of 1 and 55.9 percent respectively as reflected in equation two. The large p value shows a weak positive relationship between financial knowledge and portfolio choice and as such there is no significant relationship between the two latent constructs. This is in line with the work of von Gaudecker (2013) whose result shows that increasing financial knowledge would not help much for portfolio choice outcome because there are other important factors influencing PC than financial knowledge.

The third hypothesis is tested in equation three resulting in a coefficient estimate of 13.7 percent and the corresponding p value is 1.6 percent justifying the convention that retirement planning influences financial behavior and vice-versa ‘People financially plan their retirement if they have sound financial behavior’. The empirical outcomes in Brown and Graf (2013) reveals that financially literate households are more likely to participate in financial markets, own mortgage and have retirement saving account. They concluded by positing that financial literacy level as indicated by financial behavior, has a correlation with voluntary retirement savings, mortgage borrowing and financial markets participation.

The fourth hypothesis is tested in equation four and it shows a coefficient of 11 percent and p value of 8 percent. This implies that financial behavior and portfolio choice interrelate positively and slightly significant which is supported by Mahdzan and Tabiani (2012) when they posit that financial behavior in the form of saving culture is capable of improving investment decisions. Thus, any 1 percent increase in financial behavior could cause portfolio choice to improve by 11 percent and vice versa.

The researcher also tested whether there is significant influence between financial knowledge and financial behavior in equation 5. The coefficient estimate and associated p values are 0.003 and 59 percent respectively. This connotes that there is very weak positive influence between financial knowledge and financial behavior. This interdependence is not statistically significant because of the large p value. Therefore, the study establishes that there is no significant interrelationship between financial knowledge and financial behavior but however, have positive influence on each other which is consistent with Martin (2007) where he said there is a connection between FK and FB with increase in FK having a positive impact on personal finance behavior.

Also equation 6 reveals that retirement planning and portfolio choice are not significantly linked together, however they have positive relationship which connotes that one can influence another. An employee who hopes to retire well in the future might invest in the capital market to enjoy streams of income after retirement. It is good to examine the nature of the influence from each of the measurement or instrument variable to the latent variables. This influence is shown in figure 1

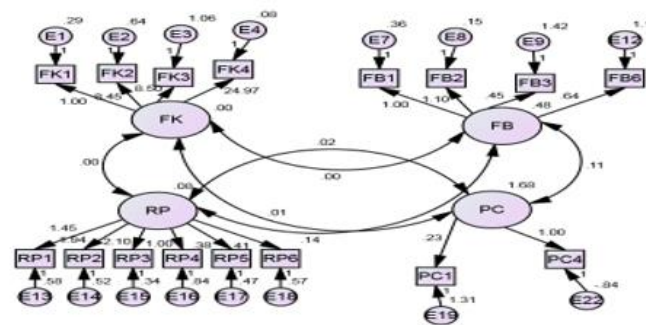


Figure 1-The Path Diagram showing the influence of Measurement Variables on the Constructs

From the diagram we can see that all the measurement variables relating to financial knowledge maintain very strong association with it. So also, two of the measurement variables relating to financial behavior have strong relationship with it; while the remaining two display moderate association-ship. All the measurement variables relating to retirement plan have strong correlation except two. Lastly, one of the latent variables relating to portfolio choice is strongly correlated. This implies that all these instruments strongly capture all the latent constructs proposed for this study.

#### 4.2 Post Estimation Test

The Researcher used AMOS to carry out the post estimation test which is based on the RMSEA (Root Mean Square Error by Approximation). The computed value for this test is reported in table 2 below.



Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.072	.050	.092	.051
Independence model	.140	.124	.155	.000

Table 2 Test of Model Fitness

Source: Field Survey, 2019

The post estimation test is used to check the appropriateness of the SEM model adopted for this study. As shown in the table above the default model has good fit since the p value is larger than the alpha value at 5 percent. Thus, this model is a good description of the data employed in this study; hence the independence model is rejected because the p value is very small.

## 5. CONCLUSION & RECOMMENDATION

The main thrust of this study is to explore the potentials of estimable SEM in evaluating the interdependence among financial knowledge, financial behavior, retirement planning and portfolio choice. In the preceding chapters, the researcher provided a framework and the methodological path that establish this interdependence. Then the model was estimated to obtain the coefficients for the proposed relationships. Most importantly, the researcher interpreted the result holistically. Therefore, in this chapter, there is need to summarize the findings of the research to be in line with the study objectives, draw conclusion and recommendations. The researcher particularly looks at policy implication of these recommendations.

In consonance with these major findings, the researcher draws out the following conclusions to support or contend the existing positions in the literature.

One of the most important conclusive remarks is that financial knowledge has positive but insignificant impact on financial behavior. This position is valid empirically using the information from the CBN, and it is not in tandem with the convention that financial knowledge has significant influence on financial behavior.

The researcher has overwhelming evidence to conclude that the financial knowledge of individual increases with a rise in the tendency to initiate and sustain achievable retirement plan. However, there is evidence that this relationship is not significant. Therefore, the study further concludes that the notion of significant relationship between financial knowledge and retirement plan does not hold empirically.

The part of arguments today is that the predicament relating to the link between financial behavior and portfolio choice is on the oval of continuity and thus, a satisfiable conclusion has not been reached. However, this study concludes that financial behavior is a positive catalyst to portfolio choice. Most importantly there are feedback effects that reverse this relationship.

Lastly, the researcher concludes that financial behavior has strong positive influence on retirement planning. A very weak financial behavior distorts retirement planning. Such weak financial behavior is manifested in ostentatious and avaricious desires on consumption instead of assets.

The researcher presents the recommendations of this study in order of priority as follows. As a matter of urgency, people particularly employees of any organizations should identify detestable financial behavior. An understanding of person finance and its application in day to day activities are inevitable and veritable measures to cultivate sound financial behavior. Therefore, people should develop policy of spending only for the things that sustain positive marginal utility.

An adage says if there is no plan, you only plan to fail. Moreover, we have seen many retirees today living in failed, famished, quashed and stocked in formidable debts. Unfortunately, many of these retirees retired at managerial cadre without retirement plan to run a business venture that could generate consistent cash flows. The word consistent is a remarkable adjective here; therefore, the researcher recommends that employees of all levels/cadres should start investing now in glit-edged investments such as real estate, government securities and stocks of globally reputable companies that have lived for more than 50 years.

Optimum portfolio choice directly depends on financial knowledge. Poor or inadequate knowledge can lead to sub-optimal portfolio choice. Thus, the researcher recommends that employees should endeavor to broaden their financial knowledge by regularly attending symposiums, seminars and conferences on financial matters

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