



Determinants of Financial Literacy and Its Effects on the Financial Behaviour of Undergraduates in a Nigerian University

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Abstract

Extant studies have looked at financial literacy (FL) and its drivers on one hand as well as the effects of FL on diverse aspects of the financial behaviour of individuals, corporations and other agents that interface with financial decision making on the other hand. This paper however centres investigation on Nigeria (a country predominated by young people) and a unique segment of the youth population namely University students. It particularly centered on the gender differences in FL and assessing its influence on students' choice of investment instrument in the University of Ibadan. The survey instrument adopted was a semi-structured questionnaire and 300 copies of it were administered to students across faculties. The results were obtained using descriptive statistics, simple percentages and logistic regression analysis. These empirical results showed that gender, faculty, level of study, and work experience are positive determinants of FL. However, student status (whether full-time student, working student or self-employed), father's educational attainment, mother's educational attainment and family's average monthly income were not statistically significant drivers of FL. Also, on average, FL influenced the attitudes of undergraduates to financial investment decision making. Overall, undergraduates still exhibited low FL levels. There is therefore a need for key stakeholders in the financial system to prioritise programmes and interventions targeted at university students.

Keywords: Financial Literacy; Financial Instruments; Logistic Regression; University Undergraduates; Nigeria

Introduction

In Nigeria, university students face a great deal of difficulties like using their time productively, lack of sleep, monetary issues, social exercises, and for some, providing for their relatives, all of which can present danger to students' scholastic performance (Ansong and Gyensare, 2012). More importantly, students require adequate knowledge and skill on how to prudently manage the financial resources at their disposal in terms of saving, investing or consuming because inadequate knowledge may lead to high debt

accumulation, irrational spending on wants, investment in fraudulent Ponzi schemes and other financial problems which can also affect their academic performance negatively. Several studies conducted in the USA, Australia and other countries have shown that students tend to have a low financial literacy (FL) level (e.g., Beal and Delpachitra, 2003; Chen and Volpe, 1999; Nidar and Bestari, 2012). However, there has been limited research on FL in Nigeria and none is yet to focus on the University students who not only constitute a large proportion of Nigeria's very

youthful population but also the pool that adds to the stock of the working age group. To offer some sense of Nigeria's population in terms of its age structure, the National Bureau of Statistics (NBS) on page 12 in its 2017 report stated that *"....according to the National Population Commission, as at 2016, Nigeria had an estimated population of over 193 million, annual population growth rate of 3.2%, and over 41% of Nigeria's population was under age 15"*. Upfront therefore, this study seeks to fill this significant gap by attempting to investigate both the determinants of FL among this group as well as the influences of FL on their financial behaviour especially decisions on investment instruments.

At the tertiary level of education, students reach a decisive phase in their lives where they migrate from financial reliance to financial autonomy (Sabri, 2011). It has been identified in a study by Rasoaisi and Kalebe (2015) that most students enter into this stage without having gained adequate knowledge concerning financial management. Poor FL has been identified as one of the major problems facing Nigerians. According to the Nigeria Financial Literacy Baseline Survey Report (2015), citizens' knowledge and awareness of financial products and services are extremely low. The survey revealed that 70.7%, 25.9% and 33.3% of the 13,286 respondents have not heard of mobile-money, savings account or the term 'interest' respectively. Several organizations have shown a commitment to improving FL among targeted consumers, including university students. An example of such commitment is the FL week organized by The Nigerian Ministry of Finance, in collaboration with some other governmental and commercial organisations. In another intervention, the Federal government of Nigeria through the National Universities Commission (NUC) mandated all universities to teach entrepreneurship as a course to all students across disciplines in order to improve their level of FL (NUC, 2014). In January 2013, the CBN developed a Financial Literacy Framework (FLF) to give strategic guidelines for the delivery of financial education initiatives across Nigeria's diverse target groups.

More recently, the Nigerian financial system is experiencing increasing creation of complex financial products, technological improvements in the way services are delivered and strict regulations by appropriate regulatory authorities such as Central Bank of Nigeria (CBN) and Securities and Exchange Commission. As a result, consumers are faced with so many investment options, products and strategies to adopt which may be complicated when the required financial knowledge to choose the right strategy and invest in the right product in a timely manner is lacking. The absence of financial knowledge is financial illiteracy and this has been cited in literature as the major reason for falling savings rate (Hilgert, Hogarth and Beverly, 2003), mounting consumer debt (Stango and Zinman, 2007); the cause of emotional stress, depression and lower self-esteem (Wolcott and Hughes, 1999); costly borrowing and high debt (Lusardi and Tufano, 2009) and low participation in the stock and financial market (Cole, Sampson and Zia, 2008). Also, some past studies have been conducted on FL, with only very few focusing on students (See Rasoaisi & Kalebe, 2015; and Beal & Delpachitra, 2003).

From the foregoing, it is apparent that FL is an understudied research area in Nigeria and no extant studies have a focus entirely on undergraduate students who are a large part of the active youth population. In other words, research is yet to be conducted, as far as we know, on identifying the determinants of FL in Nigeria. Therefore, this study is aimed at probing the determinants of FL and its effects on financial behaviour in context of Nigeria. In other words, there are two main goals in this study. First, the study examined the determinants of FL among the University students using logistic regression. Second, the study also assessed the financial behaviour (gauging this by their revealed preference for alternative investment instruments) of these students using non-parametric tools especially analysis of variance.

It is on this basis that this study attempted to examine both the determinants of FL and the impact of FL on financial behaviour among these students in the University of Ibadan. It pointedly sought to address some of the following pertinent questions: what are the determinants of FL among

undergraduate students in the University of Ibadan; Is there a gender gap in FL among students; and does FL influence students' choice of investment instrument?

Review of Related Literature

At the conceptual level FL has been subject to extensive debates in terms of its meanings as well as what constitutes it. In certain circumstances, the term FL has also been misinterpreted as simply financial knowledge. This incomplete conceptualization of the construct created a lingering gap in the field though efforts at clarifying it continue. For instance, Warmath and Zimmerman (2019) redefined FL as comprising of: financial skill, knowledge and self-efficacy. They used a formative scale development method that measures FL as a weighted combination of these three indicators. Though their findings did not suggest that financial skill, knowledge and self-efficacy cause or affect FL, it showed that the level of each indicator has a significant impact on a person's ability to make financial decisions. On the empirical side many researchers have undertaken studies on FL in different countries such as the United States, Australia, Ghana and South Africa (e.g., Mandell and Hanson, 2009; Ansong and Gyensare, 2012; Beal and Delpachitra, 2003). Some of these studies on FL have focused on students (Sarigul, 2014; Arianti, 2018; Chen and Volpe, 1998) and investors in the financial market (Rooij, Lusardi and Alessie, 2007). We proceed by first reviewing existing literature on determinants of FL, we move to the relationship between gender and FL, and wind up with discussion on the nexus between FL and choice of investment instrument. It is to this empirical aspect of FL that we turn in the balance of this section.

Determinants of Financial Literacy

A substantial number of research have focused on the determinants of FL among students in advanced countries such as the United States (Lusardi and Mitchell, 2009), Australia (Beal and Delpachitra, 2003), and Germany (Driva, Luhrmann and Winter, 2015). Also, a few papers have focused on determinants of FL in developing countries like Ghana (Abraham and Gyensare, 2012), Philippines (Sucuahi, 2013), and Turkey (Sarigul, 2014). However, there is little or no attention paid to identifying the

determinants of FL in Nigeria. Some of the factors that have been found to determine the level of FL in previous studies include academic discipline, age, gender, parent's influence and level of education, work experience, parent's income among others. We provide succinct discussions on some of the related literature in what follows.

There is considerable proof that individuals who studied business-related courses are likely to be more financially savvy than others. Chen and Volpe (1998) analysed personal FL among 924 students in 14 colleges in the United States. The study used a comprehensive questionnaire to cover major aspects of FL such as general knowledge, savings and borrowing, insurance, and investments. The survey participants were asked to answer 52 questions including 36 multiple-choice questions of their knowledge on personal finance, 8 questions of their opinions and decisions, and 8 questions on demographic profile. The findings derived from the use of logistic regression model and analysis of variance technique revealed that participants' educational background has a significant impact on their knowledge as the business majors answered 60.72% of the survey questions correctly while the non-business majors answered only 49.94% of the survey questions correctly which means that business majors are more knowledgeable than non-business majors. Likewise, the studies by Beal and Delpachitra (2003) as well as Ansong and Gyensare (2012) confirmed this finding.

Moreover, there are mixed findings on whether age is a significant determinant of FL. In the study of Kharchenko (2011) on the determinants of FL in Ukraine and implications for savings behaviour. Analysis of data collected from the National Survey of Financial Literacy and Awareness in Ukraine conducted by USAID in 2010 revealed that age does not seem to matter in explaining the level of FL as people of age 20-25, 25-35 or 45-60 have the same probability of being financially literate as those of age 35-45. This finding corresponds with the study of Oseifuah, et al. (2018) on FL in Ghana but refutes the findings of Ansong and Gyensare (2012) and Altintas (2011) that age is a positive predictor of FL in Ghana and the United States respectively. We see that two studies conducted in Ghana have

contradictory findings on age as a factor that influences FL. Ansong and Gyensare (2012) analysis on the determinants of university working students' FL at the University of Cape Coast, Ghana concluded that age and work experience are positive predictors of respondents' FL. Also, mother's education was positively related with respondents' level of FL. This confirms findings of previous work among college students (Lusardi, et al., 2009). Besides, level of study (undergraduate or postgraduate), work location, father's education, access to media were all not significantly correlated with FL. The results indicated that business students display higher FL level than non-business students which supports studies by Chen and Volpe (1998, 2002). Similar to the issue of age as a determinant of FL, there are mixed findings on whether education level of fathers strongly influence FL. Altintas (2011) discovered in a survey conducted on 650 university students in Turkey that the most important characteristics that affect the overall personal FL of university students are class rank, age, education level of fathers, discussion potential about financial issues with their parents and income level of family. This contradicts the conclusion of Ansong and Gyensare (2012) that father's education and level of study have no significant effect on FL in a sample of Ghanaian students. Among the group of papers that investigate FL, Beal and Delpachitra (2003) undertook research on Australian university students. The study methodology was very similar to that of Chen and Volpe (1998) and data was collected from 837 students sampled from the entire students of the University of Queensland in Australia. A total of 25 technical four-option multi-choice questions were asked on basic financial concepts, financial markets and instruments available, financial planning, making financial analyses and decisions and insurance as a risk management tool. In addition, nine demographic questions were asked, and the tenth question examined respondents' risk tolerance by using a five-point Likert scales to rate their agreement with four statements. Results revealed that five independent variables which are academic discipline, gender, profession, experience and risk preference impacted FL level significantly.

Studies have also shown a positive relationship between level of education attained and FL. In Sucuahi's (2013) study on determinants of FL of micro entrepreneurs in Philippines, he employed the multiple regression analysis to obtain the determinants of FL. Analysis revealed a significant influence of educational attainment on the level of FL of the participants. This is parallel to the established conclusion by Lusardi, et al. (2009) that there is a strong association between FL and educational attainment. Finally, among the studies on FL in developing countries is the study by Sarigul (2014) on university students in Turkey. Outcome of the analysis conducted revealed that differences in FL can be seen in gender, business and non-business academic disciplines, and students' level of study (freshmen, sophomore, juniors, seniors). On the other hand, the study of Oseifuah, et al. (2018) on FL among undergraduates in Ghana revealed that age and academic disciplines do not account for any difference in FL but gender and parent's income affect students' FL level.

Gender Differences in Financial Literacy

The gender gap in FL is of particular concern as women are also more likely than men to become economically vulnerable due to longer life spans, shorter work experiences, and other factors (Xu and Zia, 2012). Chen and Volpe (2002) looked into gender differences in personal FL among college students and inferred that women generally have less knowledge about topics relating to personal finance. Likewise, the findings of Ansong and Gyensare (2012) showed that male working-students exhibit higher level of FL than female working-students. The consistency of this result is seen in various studies on gender gap in FL (Beal and Delpachitra, 2003; Sarigul, 2014; Lusardi et al., 2009; Oseifuah et al., 2018). Lusardi, et al. (2009) in their study on FL among the young using data from the 1997 National Longitudinal Survey of Youths found that FL is low among the young and there is a large difference in FL between males and females. Driva, et al. (2015) undertook a study on gender differences and stereotypes in FL. The result from a survey of 418 high school students across 13 schools in Germany revealed that female teenagers have lower financial knowledge than male teenagers. This finding corresponds

with the discovery of similar studies by Dreber and Almenberg, (2012); Xu and Zia (2012), Abubakar (2015) and Kharchenko, (2011). An exception to the above findings on gender differences in FL is that of Sucuahi (2013) who found no difference in FL by gender among micro entrepreneurs in the Philippines. Turning the searchlight on Europe, Swiecka et al., (2020) conducted research to determine the level of FL among high school students between the ages of 15-16 years in Poland and identify any gender gap in FL. Results showed “good” and “very good” financial knowledge level among young Polish students. Nevertheless, they found that differences in the level of financial knowledge between gender is insignificant, the results revealed that gender made little or no difference to financial behaviour. Swiecka et al (2020) therefore opined that financial education is the appropriate way to acquire financial knowledge that will translate to proper financial behaviour.

Financial Literacy and Choice of Investment Instrument

The life cycle hypothesis (Modigliani & Brumberg 1954) and permanent income hypothesis (Friedman 1957) are based on the assumption that people have the ability to perform complex economic calculations and fundamental skills in dealing with financial markets (Lusardi and Mitchell 2013). However, Lusardi, Michaud and Mitchell (2013) developed a multi-period dynamic life cycle model where individuals not only choose capital market investments but also invest in financial knowledge, with people paying a certain amount to obtain additional financial knowledge. Their conceptual model suggests that higher FL is associated with better investment portfolio choices and outcomes. Using data from the 2014 Chinese Survey of Consumer Finance, Chu and Wang (2017) investigated the potential impact of FL on household portfolio choice and investment return. According to their findings, households with better FL, particularly those with higher FL, are more likely to invest in mutual funds.

In the study of Almenberg and Widmark (2011) on numeracy, FL and participation in the asset market, the result from a survey of about 1,300 Swedish adults to measure levels of both numeracy and FL indicated that FL is positively

associated with participation in the stock market but not in the housing market. Another study that confirms the above result is one by Rooij, Lusardi and Alessie (2007) on FL and stock market participation using data from the 2005 De Nederlandsche Bank (DNB) household survey in Netherlands which found evidence that those who have low FL are significantly less likely to invest in stocks and vice versa. The foregoing disparities suggest that financial education may be a veritable means by which better outcomes in respect of FL is achieved. That said, the effect or impact of financial education on FL still appears to be a controversial topic among researchers and other stakeholders in the field. While some research provided supporting evidence to show a significant association between financial education and FL (Bernheim et al., 2001; Xiao et al., 2014), other studies have shown otherwise (Mandell and Hanson, 2009; Hastings et al., 2012).

To put a cap on the discussion in this literature section, there are similarities as well as contradictions in the findings of the various studies under review. The study by Chen and Volpe (1998), Ansong and Gyensare (2012) discovered that academic discipline influences FL and business majors are more knowledgeable than non-business majors in financial matters. Sucuahi (2013) and Lusardi et al. (2009) both discovered a strong association between educational attainment and FL. Also, the study by Chen and Volpe (1998), Beal and Delpachitra (2003), Nidar and Bestari (2012) showed that level of FL of students is inadequate in USA, Australia, and Indonesia respectively. Two studies revealed that university students have low level of FL in Turkey (Sarigul, 2014; Altintas 2011). Finally, we observed that the determinants of FL varied across countries and research samples. No study has yet been found to focus on FL among university students in Nigeria who form a vibrant part of Nigeria's youthful population. Therefore, this paper contributes to the growing literature on FL by identifying its determinants among University undergraduates on one hand and examining the influence of FL on students' choice of investment instrument on the other hand.

Methods

Data Generation

The population of this study constitutes undergraduate students in the faculties of the Social Sciences, Science, Arts, Technology, Agriculture, Education and Economics in the University of Ibadan. Type of data collected is primary in nature and this was obtained by administering hardcopies of a questionnaire. The questionnaire designed covered five areas which are personal information of respondents, basic FL questions, advanced FL questions, choice of investment instrument and financial behaviour. The survey instrument focused on two dimensions of FL: knowledge and skill. Knowledge in terms of a person's understanding of common financial concepts and financial assets. Skill in terms of the impact of financial knowledge on participants' financial behaviour in relation to budgeting, spending, financial planning, saving and borrowing. Data was obtained using a stratified sampling technique on a faculty-by-faculty basis. This technique is preferred because it prevents the possibility of concentrating on only one faculty and considers the differences in the population size of the faculties. The sample size for this study is 300 and the distribution of respondents across faculties (see Table 1). As shown in Table 1, the total number of duly registered students as at the time of conducting the field survey within the 2018/2019 academic session was 9800. The samples drawn across the 7 faculties considered

was done proportionately to the enrolment sizes of each of them. This was done in order to avoid oversampling from certain faculties thereby precluding the possibility of taking outliers on board which in turn might lead to substantial bias in the sampling procedure. Using the well-known Slovin formula for computing sample size resulted into a sample size of 100 which we considered rather small and thus not representative. To deal with this potential small sample bias and its attendant downsides, we purposively raised the sample size by threefold (i. e. 300).

At this juncture, it is noteworthy to state that till date, the field of FL is without a universally acceptable measure of the construct, though there appears to be some commonalities across surveys used by researchers to measure their respondents' level of FL. In an attempt to reduce variability in the measure of FL, Knoll and Houts (2012) introduced a psychometrically sound measure of the financial knowledge component of FL. The authors' used data from 3 large-scale US surveys (American Life Panel (ALP), 2007; Health and Retirement Study (HRS), 2004 & 2008)) and survey questions from Lusardi and Mitchell (2007, 2009) to develop a 20-item scale that covered broad ranges of financial related topics. This approach, though a great contribution to existing knowledge is not to be misconstrued as encompassing as it is limited solely to the financial knowledge dimension of FL.

Table 1: Faculty Sampling Allocation (2018)

S/N	FACULTY	TOTAL NUMBER OF STUDENTS	SAMPLE SIZE
1	Social Sciences	1100	40
2	Arts	1800	50
3	Technology	1500	40
4	Science	2000	50
5	Agriculture	1000	40
6	School of Economics	400	30
7	Education	2000	50
	Total	9800	300

Data was analysed using logistic regression model given that the dependent variable is binary or dichotomous in nature. The data collected was analysed using statistical package for social science (SPSS) and STATA statistical software (Version 15). Responses were marked and the percentage of correct responses for each question, section and entire survey was calculated. The mean percentage of correct scores were grouped into 3 categories. Where the categories of more than 70% represents a relatively high level of knowledge, categories of 50% to 70% represents a medium level of knowledge and categories below 50% represents a relatively low level of knowledge. Further evidence of differences in the level of FL among the independent variables was provided using analysis of variance (ANOVA). Participants were grouped into two according to the mean percentage of the sample. Students with scores equal or higher than the mean percentage of correct answers were classified as having “Higher knowledge” while those with scores below the mean percentage were classified as having “Lower knowledge”. The two-layered variable (there was also implicitly a hidden/repressed category “No knowledge” in order to assure analytical completeness) that was thus constructed was used in the logistic regression model specification as the dependent variable. It is pertinent to note at this point that this dependent variable is not an all-or-none type i.e it is not assigned values of zero (0) or one (1). Otherwise, the appropriate approach would have been probit regression which could have been apt if the question of interest was ascertaining the probability (or likelihood) of students being financially literate.

Since, the focus is on the determinants of FL in this paper, we elected to deploy the logistic regression instead.

To determine the effect of FL on participants’ financial behaviour especially its influence on their choice of investment instrument, similar approach to the logistic regression was used. Data was analysed using tabulations and Chi-square test to determine statistical significance. All the variables used in the analysis with their corresponding definitions are presented in Table 2.

Model Specification

Logistic Regression Analysis is widely used where the dependent variable is discrete and ordered/hierarchical (i.e., in our specific case, high financial knowledge, low financial knowledge and the repressed no financial knowledge category). Such Logistic regression, as opposed to either multiple regression or discriminant analysis, is particularly appropriate (Pyke and Sheridan 1993). Although logistic regression is particularly useful in providing a parsimonious combination of the best predictor variables, the procedure however has the tendency to latch on to chance sample characteristics which implies that the set of predictors yielded by one sample are unique i.e. they may not hold for another sample. In this study, and for each major variable, the reference/base category is chosen. This choice was made on the basis of the deliberations and intuition of the three authors. Following Pyke and Sheridan (1993) therefore the logistic model is expressed as follows:

$$\log [FK] = \beta_0 + \beta_1(\text{Gender}) + \beta_2(\text{Social Sciences}) + \beta_3(\text{Science}) + \beta_4(\text{Technology}) + \beta_5(\text{Agriculture}) + \beta_6(\text{Education}) + \beta_7(\text{Economics}) + \beta_8(\text{Arts}) + \beta_9(\text{Level1}) + \beta_{10}(\text{Level 2}) + \beta_{11}(\text{Level3}) + \beta_{12}(\text{Level4}) + \beta_{13}(\text{Level5}) + \beta_{14}(\text{Status1}) + \beta_{15}(\text{Status2}) + \beta_{16}(\text{Status3}) + \beta_{17}(\text{Experience}) + \beta_{18}(\text{Father's Edu1}) + \beta_{19}(\text{Father's Edu2}) + \beta_{20}(\text{Father's Edu3}) + \beta_{21}(\text{Father's Edu4}) + \beta_{22}(\text{Father's Edu5}) + \beta_{23}(\text{Mother's Edu1}) + \beta_{24}(\text{Mother's Edu2}) + \beta_{25}(\text{Mother's Edu3}) + \beta_{26}(\text{Mother's Edu4}) + \beta_{27}(\text{Mother's Edu5}) + \beta_{28}(\text{Income1}) + \beta_{29}(\text{Income2}) + \beta_{30}(\text{Income3}) + \beta_{31}(\text{Income4}) + \epsilon_i$$

Table 2: Definition of Variables

Variable	Definition
FK	This represents the financial knowledge of students' and has categories high, low and none
Gender	1 if the participant is a male, 0 otherwise
Social Sciences	1 if the participant is in the faculty of the social sciences, 0 otherwise
Science	1 if the participant is in the faculty of science, 0 otherwise
Technology	1 if the participant is in the faculty of technology, 0 otherwise
Agriculture	1 if the participant is in the faculty of agriculture, 0 otherwise
Education	1 if the participant is in the faculty of education, 0 otherwise
Economics	1 if the participant is in the faculty of economics, 0 otherwise
Arts	1 if the participant is in the faculty of arts, 0 otherwise
Level1	1 if the participant is in 100 level, 0 otherwise
Level2	1 if the participant is in 200 level, 0 otherwise
Level3	1 if the participant is in 300 level, 0 otherwise
Level4	1 if the participant is in 400 level, 0 otherwise
Level5	1 if the participant is in 500 level, 0 otherwise
Status1	1 if the participant is only a student, 0 otherwise
Status2	1 if the participant is a student and employed, 0 otherwise
Status3	1 if the participant is a student and self-employed, 0 otherwise
Experience	1 if the participant has work-experience, 0 otherwise
Father's Edu1	1 if the participant's father only attended elementary school, 0 otherwise
Father's Edu2	1 if the participant's father only has a secondary school certificate, 0 otherwise
Father's Edu3	1 if the participant's father has an OND/HND, 0 otherwise
Father's Edu4	1 if the participant's father has a university degree, 0 otherwise
Father's Edu5	1 if the participant's father has no formal education, 0 otherwise
Mother's Edu1	1 if the participant's mother only attended elementary school, 0 otherwise
Mother's Edu2	1 if the participant's mother only has a secondary school certificate, 0 otherwise
Mother's Edu3	1 if the participant's mother has an OND/HND, 0 otherwise
Mother's Edu4	1 if the participant's mother has a university degree, 0 otherwise
Mother's Edu5	1 if the participant's mother has no formal education, 0 otherwise
Income1	1 if the participant's family average monthly income is below ₦50,000, 0 otherwise
Income2	1 if the participant's family average monthly income is between ₦50,000 -200,000, 0 otherwise
Income3	1 if the participant's family average monthly income is between ₦201,000 -500,000, 0 otherwise
Income4	1 if the participant's family average monthly income is above ₦500,000, 0 otherwise

Results and Discussion

Brief Descriptive Profile of Respondents

Table 3 reveals that more than half of the respondents are male (56.4%) while 43.6% are female. Also, majority of the respondents are in their first year (29.8%) and very few of them in their fifth year (7.8%). The latter percentage is low mainly because only two (Agriculture and Technology) out of the 7 faculties considered

operate five-year course programs. Also, 14.2%, 22.7% and 25.5% of respondents are in second, third and fourth years respectively. The table further shows that a significant proportion of respondents are full-time students who are neither employed nor self-employed. This represents 79.4% of the total number of students that participated in the survey. Only 5% of respondents are working students, and 15.6% are

students as well as self-employed. Close to 45% of respondents have their average family monthly income fall between ₦50,000-₦200,000 (42.6%),

followed by monthly family income above ₦500,000 (19.9%).

Table 3: Sample Characteristics (N=282)

Faculty	FREQUENCY	PERCENTAGE	CUMULATIVE PERCENTAGE
Social Sciences	40	14.2	14.2
Science	49	17.4	31.6
Education	48	17.0	48.6
Technology	38	13.5	62.1
Agriculture	36	12.8	34.8
Economics	27	9.6	84.4
Arts	44	15.6	100.0
Total	282	100.0	
Gender			
Male	159	56.4	56.4
Female	123	43.6	100.0
Total	282	100.0	
Level			
100	84	29.8	29.8
200	40	14.2	44.0
300	64	22.7	66.7
400	72	25.5	92.2
500	22	7.8	100.0
Total	282	100.0	
Status			
Full time student	224	79.4	79.4
Student and employed	14	5.0	84.4
Student and self-employed	44	15.6	100.0
Total	282	100.0	
Work Experience			
No	138	48.9	48.9
Yes	143	50.7	100.0
Total	281	99.6	
Missing System	1	.4	
Total	282	100.0	
Family's Monthly Average Income			
Below 50k	35	12.4	12.4
50k-200k	120	42.6	55.0
201k-500k	52	18.4	73.4
Above 500k	56	19.9	93.3
Total	263	93.3	100.0
Missing system	19	6.7	
Total	282	100.0	

Source: Authors' compilation

Financial Literacy and Its Covariates (ANOVA results)

The results in Table 4 show the presence of gender differences in FL. Result of the analysis

reveals that male students are more financially knowledgeable than female students. This finding is corroborated by Lusardi and Mitchell (2009), Chen and Volpe (2002), and Driva, et al. (2015).

On average male (female) students answered 49.06% (42.28%) of the survey questions correctly. The result of the ANOVA indicates that difference in FL between genders is statistically significant at the 1% level ($F= 9.93$, $p< 0.01$), therefore the study did not accept the null hypothesis which states that this difference is not statistically important.

As expected, students in the faculty of Economics (62.17%) are more financially knowledgeable than students in other faculties. This finding is consistent with the result of Beal and Delpachitra (2013), and Ansong and Gyensare (2012). On the other hand, students in the faculty of Arts (37.66%) appear to be the least knowledgeable, followed by those in faculty of Education (40.03%). The difference in the level of FL between faculties is statistically significant ($F= 7.22$, $p<0.01$). The findings suggest that final year students (in 400 and 500 level) are more financially knowledgeable than those at earlier stages of their studies (See Sarigul (2014) and Altintas (2011) for congruent evidences). As anticipated, students who are also employees display more financial knowledge than full time students and those students who are self-employed. The reason for this outcome might be because working students more often find themselves in situations where they have to make decisions about their finances, therefore, become more aware about financial issues and matters like savings, investment, income tax, budget etc. Findings also suggest that students with some work experiences are more financially knowledgeable than those without. It is hypothesized that increase in work experience goes with knowledge accumulation from practical life experiences.

The study also identified another category of variations in FL labelled as “family characteristics.” Under this category, we considered factors such as parent’s educational attainment and family’s average monthly income. Surprisingly, the results in Table 4 show that students whose fathers finished only elementary school are more financially literate than other students whose fathers finished their secondary school education or obtained a university degree. Although it was observed that there is no statistically significant difference between the mean percentage of the different categories under father’s educational attainment ($F=0.46$, $p>0.05$). In terms of mother’s education, students with mothers who have obtained a university degree are more financially knowledgeable than those whose mothers attained lower academic achievements. Though the difference in level of FL for both father and mother’s educational attainment is statistically insignificant, student’s financial knowledge may still vary among different parents’ educational attainment because of the possibility that some parents are more likely than others to pass down financial knowledge and practices to their offspring.

Going further, students with family monthly income between ₦201,000-₦500,000 display more financial knowledge than students with other income levels. However, students with family income below ₦50,000 (48.16%) interestingly answered more questions correctly than those with family income above ₦500,000 (46.56%). This is likely because students belonging to the former category may tend explore other sources of income rather than sole dependence on their parents thereby acquiring more financial knowledge.

Table 4: Mean Percentage of Correct Responses to Each Section by Sub-groups and ANOVA

	No of observation	Basic Financial Literacy (BFL)	Advanced Financial Literacy (AFL)	For the entire sample
A1. Gender				
i. Male	159	64.78	42.77	49.06
ii. Female	123	56.91	36.42	42.28
A2. Faculty				
i. Social Sciences	40	61.25	44	48.93
ii. Sciences	49	70.92	39.59	48.54
iii. Education	48	47.92	36.86	40.03
iv. Technology	38	61.18	37.89	44.55
v. Agriculture	36	66.67	40	47.62
vi. Economics	27	74.07	57.41	62.17
vii. Arts	44	53.41	31.36	37.66

A3. Level of Study					
i.	100	84	55.06	38.69	43.47
ii.	200	40	57.5	35.50	41.79
iii.	300	64	63.67	36.09	43.97
iv.	400	72	67.71	44.72	51.29
v.	500	22	64.77	49.09	53.57
A4. Status					
i.	Full- time student	224	61.61	39.87	46.08
ii.	Student and employed	14	64.29	41.43	47.96
iii.	Student and self-employed	44	59.09	40.23	45.62
A5. Work Experience					
i.	Yes	143	62.24	43.64	48.95
ii.	No	138	60.33	36.16	43.06
A6. Father's Educational Attainment					
i.	No education	9	50	46.67	47.62
ii.	Elementary	22	62.5	44.09	49.35
iii.	Secondary	44	57.95	38.41	43.99
iv.	OND/HND	66	59.85	39.09	45.02
v.	University degree	138	63.77	40.14	46.89
A7. Mother's Educational Attainment					
i.	No education	14	48.2	44.29	45.41
ii.	Elementary	23	58.70	43.04	47.52
iii.	Secondary	66	59.09	37.58	43.72
iv.	OND/HND	79	59.81	40.63	46.11
v.	University degree	96	66.41	40	47.54
A8. Family's Average Monthly Income					
i.	Below ₦50,000	35	60.71	43.14	48.16
ii.	₦50,000-₦200,000	120	59.58	36.83	43.33
iii.	₦201,000-₦500,000	52	66.35	44.23	50.55
iv.	Above ₦500,000	56	60.71	40.89	46.56

ANALYSIS OF VARIANCE (ANOVA)			
Variable	Partial SS	F- stat	R-squared
Gender (A1)	3188.127	9.93* (0.0018)	0.0343
Faculty (A2)	12660.052	7.22* (0.0000)	0.1360
Level of Study (A3)	4828.5206	3.79* (0.0051)	0.0519
Status (A4)	58.771741	0.09 (0.9156)	0.0006
Work Experience(A5)	2433.7569	7.50* (0.0066)	0.0262
Father's Education (A6)	608.88051	0.46 (0.7655)	0.0067
Mother's Education (A7)	625.96156	0.47 (0.7548)	0.0069
Family's Average Monthly Income	2108.6253	2.10 (0.1001)	0.0238

*Significant at 1% level of significance

Logistic Regression Results

In the logistic regression model, the binary variable (lower knowledge and higher knowledge) represented the dependent variable i. e. FL, and is explained by a number of predictors including: gender, faculty, level of study, status, work

experience, parents' educational attainment and family's average monthly income. The reference category for gender is 'male'; faculty is 'Economics'; level of study is '100'; status is 'full-time student'; work experience is 'no work experience'; father and mother's educational

attainment is ‘no formal education’ and family’s income is ‘below ₦50,000’. The results of logistic regression is shown in Table 5.

Table 5: Logistic Regression Analysis of Financial Literacy

Variable	Coefficient	Std. Err.	z	P>z
Gender				
Female	-1.28201*	0.32864	-3.9	0.000
Faculty				
Social sciences	-0.69566	0.667978	-1.04	0.298
Science	-0.84015	0.610266	-1.38	0.169
Education	-2.42696*	0.648394	-3.74	0.000
Technology	-2.5227*	0.74932	-3.37	0.001
Agriculture	-1.38094***	0.716307	-1.93	0.054
Arts	-2.0326*	0.647642	-3.14	0.002
Level of Study				
200	-0.17428	0.515876	-0.34	0.735
300	0.352219	0.416669	0.85	0.398
400	0.032097	0.455212	0.07	0.944
500	1.545681**	0.719575	2.15	0.032
Status				
Student and employed	0.120835	0.670183	0.18	0.857
Student and self-employed	-0.67938	0.438747	-1.55	0.122
Work experience				
Yes	0.752559**	0.338502	2.22	0.026
Father’s Education				
Elementary	-1.35809	1.380416	-0.98	0.325
Secondary	-1.3669	1.39044	-0.98	0.326
OND/HND	-1.18723	1.361012	-0.87	0.383
University degree	-1.09734	1.382295	-0.79	0.427
Mother’s Education				
Elementary	1.205775	1.165931	1.03	0.301
Secondary	0.613287	1.102703	0.56	0.578
OND/HND	0.656223	1.108116	0.59	0.554
University degree	0.982068	1.10798	0.89	0.375
Family’s Income				
₦50,000-200,000	-0.35109	0.483301	-0.73	0.468
₦201,000-500,000	0.457225	0.551318	0.83	0.407
Above ₦500,000	0.108512	0.554801	0.2	0.845
Constant	1.814385***	1.040391	1.74	0.081
LR chi-square (25)	69.62			
Prob>chi-square	0.0000			
Number of obs.	259			
Pseudo R ²	0.1947			

*Significant at 0.01 level, **significant at 0.05 level, ***significant at 0.10 level

As seen in Table 5, the coefficient for female gender is negative which suggests that female students are less financially knowledgeable than their male counterparts. This coefficient is significant at the 1% level which implies that when controlling for FL, gender has a significant impact on FL. The studies by Almenberg and Dreber (2012), Xu and Zia (2012) both support this submission.

The logistic regression results also shows that relative to students studying Economics the most financially literate are those in the faculties of Science and the Social Sciences, while the remaining faculties trail. Generally, this result implies that the academic discipline of students affects their FL level. This finding is in line with the result of Chen and Volpe (1988) as well as Sarigul (2014). Under the level of study category, coefficient of '200 level' is negative while the rest are positive. This implies that relative to the base category (100 level students), 200 level students are less financially knowledgeable. However, those at higher levels of study (300, 400, and 500) are more financially literate than the reference category.

The positive but insignificant coefficient for the predictor 'student and employed' shows that full time students are less knowledgeable than students who are employed. On the flip side, the result revealed that full time students are more financially knowledgeable than self-employed students. The positive and significant coefficient for 'Work Experience', ($p < 0.05$), indicates that students with work experience are overall more financially literate than their colleagues without work experience in consonance with the findings by Ansong and Gyensare (2012) and Beal and Delpachitra (2003).

Intriguingly, the coefficient for all variables under Father's Education category are negative which indicates that students whose fathers have no formal education are more knowledgeable than those whose fathers have either completed their secondary education, obtained OND/HND, or a university degree. This confirms the ANOVA result that Father's Education is

statistically not significant. Therefore, student father's educational attainment does not affect their FL level. The above discovery confirms the finding by Ansong and Gyensare (2012) but contradicts that of Altintas (2011). The coefficient for all variables under Mother's Education is positive but not significant. As expected, findings show that students whose mothers have no formal education are less knowledgeable than those whose mothers have obtained a higher diploma degree or University degree. Taken together, mother's educational attainment is a more potent predictor of the FL of their children.

In terms of income profile, students from families where average monthly income is between ₦200,000 - ₦500,000 and above tend to be more financially knowledgeable than those with lower monthly income. The coefficient for 'Family Income' is nonetheless not significant at any of the conventional levels. This runs contrary to the results by Oseifual, et al. (2018) and Altintas (2011). To sum up here, the logistic regression analysis shows that gender, faculty, level of study, and work experience determines FL level of undergraduate students in the University of Ibadan. On the other hand, both parents' educational attainment and family's average monthly income do not seem to broadly affect the level of FL of the students.

Financial Literacy and Choice of Investment Instrument

Respondents were asked to choose from a variety of investment instrument (shares, bond, mutual fund, real estate and cryptocurrency) they would likely invest in, if given the sum of ₦500,000 for investment purpose only. Table 6 reveals that majority of the participants (33.85%) will choose to invest in real estate. The second most preferred investment instrument is shares (30.77%), followed by cryptocurrency (17.69%). The least preferred financial assets are bonds and mutual funds. The revealed low preference for the latter set of assets may be attributed to the low knowledge of respondents about the meaning of these assets and how they work.

Table 6: Students' Choice of Investment Instrument

Choice of Investment Instrument	Frequency	Percent	Cumulative
SHARES	80	30.77	30.77
BOND	23	8.85	39.62
MUTUAL FUND	23	8.85	48.46
REAL ESTATE	88	33.85	82.31
CRYPTOCURRENCY	46	17.69	100.00
TOTAL	260	100.00	

To determine if FL affects students' choice of investment instrument, responses were classified based on the two categories of students (those with lower FL and those with higher FL). As Table 7 shows, majority of students across the two broad categories chose investment in real estate. For both categories, the second highest investment instrument chosen is shares. It was

also observed that there is no clear difference in the choice of investment instrument between students with lower FL level and those with higher FL level (the Pearson chi-square is 7.1428 and $p > 0.05$). This implies that these Undergraduate students make decisions about investment instruments independent of their ascribed status in terms of FL.

Table 7: Influence of Financial Literacy Level on Choice of Investment Instrument

Choice of Investment Instrument	Lower Financial Literacy Level	Higher Financial Literacy Level	Total
Shares	41 (27.70%)	39 (29.10%)	80 (28.37%)
Bonds	9 (6.08%)	14 (10.45%)	23 (8.16%)
Mutual Fund	17 (11.49%)	6 (4.48%)	23 (8.16%)
Real estate	42 (28.38%)	46 (34.33%)	88 (31.21%)
Cryptocurrency	26 (17.57%)	20 (14.93%)	46 (16.31%)
Missing Response	13 (8.78%)	9 (6.72%)	22 (7.80%)
Total	148 (100.00)	138 (100.00)	282 (100.00)

Pearson chi-square = 7.4128 Pr = 0.192

Summary and Recommendations

The major thrust of this research is to examine the determinants of FL among undergraduate students in the University of Ibadan. Additionally, we determine if FL influences students' financial behaviour in relation to the choice of investment instrument. The results showed that gender, faculty, level of study, and work experience are positive determinants of FL. However, student's status (whether full-time student, working student or self-employed), both parents' educational attainment and family's average monthly income are not significant correlates of FL. We also found differences in the level of FL across disciplines. Equally, the study revealed gender differences in FL level with female students being less financially knowledgeable than their male counterpart. Result showed that students with higher financial knowledge and those with lower financial

knowledge both prefer to invest in real estate in the presence of other financial assets.

There are a number of implications arising from these findings which should be of interest to key stakeholders. First, given the large gap of financial knowledge between students in the Faculty of Economics and those in other faculties, the University management should intensify efforts towards designing educational programs that will increase the financial knowledge of students in non-business or non-finance faculties. Second, it is also recommended that thorough evaluation should be conducted after the implementation of such FL educational program to determine its effectiveness and impacts on students' FL. Also, financial service providers' especially investment-focused organisations need to widen their reach in order to connect with university students who form large pool of

potential clients. In other words, undergraduate students in Nigerian Universities are a major bloc from which marketing of their financial services may yield considerable returns. Finally, the findings of this research are useful to guide the actions of key stakeholders such as higher education institutions, Ministry of Education, Nigerian Universities Commission, financial advisory companies, parents and guardians as well as students in both secondary and tertiary levels.

To sum up, there are at least two seemingly counterintuitive results that emerge as avenues through which further enquiry may be pursued. One, the finding that students from low-income families had more financial knowledge than those from wealthier families runs against the grains of the idea that financial deprivation constitutes a binding constraint to the acquisition of financial knowledge. Further studies may therefore probe into why this submission may be so especially among university undergraduates in Nigeria and other developing countries with similar demographic characteristics. Two, mothers' educational attainment mattered for the FL of students regardless of their family income levels. Research attention may also be devoted to unpacking the elements of mothers' decision making and how such work to somewhat transfer financial management skills and knowledge to their children. For both of these surprising outcomes, qualitative data collection and analyses may be useful complements to the purely quantitative approach deployed in this study. Such mixed methods research design has been widely touted to enhance overall understanding of most social phenomena.

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