Should Financial Literacy in Ghana be in Levels?

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Abstract
According to survey reports, a significant number of individuals lack the financial literacy necessary to participate actively in the financial market. This study examines survey data from 532 individuals to explore the importance of financial literacy levels. We also investigate how socioeconomic factors and financial investments affect basic financial literacy. The findings indicate disparities in test scores between basic and advanced financial literacy, highlighting the need for a tiered financial literacy approach. Logistic regression analysis revealed that marital status, employment status, utilization of bank loans, education level, and number of financial investments influenced higher levels of basic financial literacy. Based on these results, this study recommends a deliberate and committed provision of tiered financial literacy targeted at the general population by financial institutions and service regulators in Ghana. Providers of financial literacy programs should assess the existing financial literacy levels of their target markets and audiences to allocate resources effectively and address crucial financial literacy requirements.

Introduction

Active participation and advantageous involvement in the financial market necessitates a comprehensive understanding of financial transactions. Financial independence, which refers to the ability to sustain oneself financially based on accumulated funds without relying on income-generating activities, is a common aspiration among many individuals. However, according to Fisher et al. (2009), many individuals do not achieve financial independence One significant contributing factor to this lack of financial independence is an insufficient understanding of the basic financial literacy concepts, specifically in areas such as interest, compounding,

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inflation, and diversification (Lusardi & Mitchell, 2014).

The lack of financial literacy among individuals has significant consequences, leading to misallocation of investable funds, suboptimal retirement plans, inadequate or excessive borrowing, incorrect debt contracts, and subsequent challenges in managing debt obligations. Extensive evidence suggests that individuals with low financial literacy are prone to debt-related issues (Lusardi & Tufano, 2009). Moreover, individuals with low financial literacy are vulnerable to becoming victims of fraudulent investment schemes, including Ponzi schemes (Amoah, 2018). Familiarity with financial concepts attained through financial literacy can foster a sense of confidence and comfort among consumers of financial services, as they engage with financial service providers. Empirical evidence from around the world indicates that financial literacy contributes to increased financial depth (Grohmann et al. 2018). At the macroeconomic level, economies characterized by a large population with low financial literacy struggle to accumulate funds from savings, pension funds, and investment companies, hindering the execution of numerous potential infrastructural projects.

The detrimental consequences of low financial literacy highlight the critical importance of financial literacy for both individuals and the state. However, empirical evidence indicates that many individuals lack a basic understanding of financial literacy (Lusardi and Mitchell 2014). Financial literacy is recognized globally as a crucial lifelong skill for individuals and households to enhance their daily financial wellbeing. According to Klapper, Lusardi, and Van Oudheusden (2015) in the S&P Global Financial Literacy Survey, numerous developing economies have high rates of financial illiteracy among adults. Africa and South Asia, in particular, have a significant adult population with low levels of financial literacy compared with other continents. For instance, Yemen has a financial literacy rate of only 13 percent among its adults. Similarly, a survey found that 68 percent of adults in Ghana lacked financial literacy. The authors also note that, while national income, as measured by GDP per capita, has some influence on financial literacy levels, it can only be considered a partial explanation. The evidence reveals that even in affluent countries, there are instances of low financial literacy rates among adults. Moreover, in poorer countries, national income does not correlate with financial literacy.

Ghana's financial market encompasses four major industries: a deposit-taking industry regulated by the central bank, the Bank of Ghana; an active capital market overseen by the Securities and Exchange Commission, Ghana; a growing pension fund industry under the National Pension Regulatory Authority; and an insurance industry under the National Insurance Commission. However, the state of financial education in Ghana has been neglected and has lacked coordination. Notably, financial literacy is not a subject educational curricula.

To address this issue, the Ghanaian government initiated the Ghanaian Financial Literacy Week in 2008. Ghana was among the pioneering countries in Africa in developing and implementing a National Strategy for Financial Literacy and Consumer Protection in the Microfinance Sector in 2009. Furthermore, in 2015, the Ministry of Finance in Ghana launched a six-month nationwide campaign to raise awareness and promote

financial literacy, aligning with the comprehensive financial inclusion strategy of the Ghanaian government. Regrettably, these initiatives have gradually lost their momentum. Consequently, the current state of financial education in Ghana is sporadic and lacks coordination. While some financial institutions offer limited financial education as part of their service marketing, non-governmental organizations with an interest in financial education also provide targeted financial literacy initiatives that have very little, if any, impact.

This study is motivated by the presence of complex financial products and services offered by banks, capital markets, and the fund management industry, including mutual and pension funds. There is a pressing need for continuous financial education in all aspects of financial literacy among retail market participants. This is crucial for retail investors and financial product consumers. Lander (2018) emphasizes the significance of financial counselling, especially for low- and moderate-income households. Therefore, financial counseling providers and institutions must reassess their approaches and adopt modern strategies to better serve their consumers. The problem necessitating this study is that Ghana, a frontier market characterized by four major financial sector industries with a 68 percent of financially illiterate adult population, poses a potential challenge of underutilization of these industries by market participants. To address the issue of financial illiteracy, a key question arises: should financial education providers concentrate on basic financial literacy, or should they adopt a comprehensive approach that equips retail investors with essential knowledge to effectively engage in all four sectors of the financial market? This study aimed to achieve three main objectives: first, to evaluate the level of financial literacy; second, to identify and discuss the areas of difficulty in basic and advanced financial literacy; and third, to examine the socioeconomic factors associated with basic financial literacy. By addressing these objectives, this study seeks to contribute to the empirical evidence of financial literacy challenges for financial service consumers and provide insights into potential solutions to the prevalent financial illiteracy challenge. The significance of this study lies in its provision of empirical evidence on challenging concepts in personal finance education, which can be valuable to financial institutions and regulators responsible for public education in financial markets. The findings of this study offer insights into the perspectives of the sampled individuals who represent potential clients. The findings of this study can guide institutions to effectively present personal finance terminology to facilitate transactions with clients.

The remainder of this paper is structured as follows: Section 2 provides a literature review, while Section 3 outlines the methodology employed in this study. Section 4 presents the results, and Section 5 contains the discussion and analysis of the findings.

Literature Review

Many definitions of financial literacy in the empirical literature have been questioned and classified as lacking well-defined standards (Gerrans and Heaney 2019). The authors identified two issues: first, the different measures of financial literacy and financial literacy and financial education interventions. The first focuses on different financial literacy assessment test items, while the second focuses on the

experimental and quasi-experimental methods used in financial literacy studies, leading to conflicting conclusions. Remund (2010) notes that many measurement approaches to financial literacy pose a significant challenge to researchers in this area of study. Not surprisingly, financial literacy, education, and knowledge are used interchangeably in extant literature. Financial literacy is the ability to make informed financial choices regarding saving, investing, borrowing, and other financial decisions (Klapper, Lusardi, & Van Oudheusden, 2015). According to the OECD (2018), financial literacy is a combination of the awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately achieve individual financial well-being. According to Remund (2010), there are five categories of financial literacy: (1) the individual's knowledge of financial concepts, (2) the individual's ability to communicate about financial concepts, (3) the individual's aptitude in managing personal finances, (4) the individual's skill in making appropriate financial decisions, and (5) the individual's confidence in planning effectively for future financial needs. On their part, Van Rooij, Lusardi and Alessie (2011) categorize financial literacy into basic and advanced levels. Basic financial literacy includes numeracy, inflation, compounding interests, money illusion, and diversification.

Advanced financial literacy includes the functions of the stock market, knowledge of mutual funds, interest rates and bond prices, stock and mutual fund funds, long-period returns, volatility of investment returns, and risk diversification. Financial education is defined by the OECD (2005) is "the process by which financial consumers/investors improve their understanding of financial products and concepts and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being" (p. 26). Financial knowledge, on the other hand, is information that is learned, organized, represented, and stored in memory, and is expected to be used by individuals to make financial decisions (Alba & Hutchinson, 1987).

Although related, these definitions have some distinctions. Financial literacy covers five areas of personal financial management: awareness, knowledge, skills, attitudes, and behavior. Financial education discusses the process of acquiring personal finance concepts through formal educational or informal channels, whereas financial knowledge discusses what has been acquired in personal finance through a formal learning approach. Furthermore, financial literacy requires financial education, which provides financial knowledge, that is, the concepts and skills in personal finance for one to become financially literate. Hence, these three factors should have taken place to make an individual financially literate. The financially literate individual should be able to manage the daily personal financial decisions and those of the household. This results in improved financial or economic well-being for individuals or households. Bandura's (1997) self-efficacy theory aligns with the concept of financial literacy because it depends on an individual's ability to remain committed to a decision based on the skills and knowledge that individuals possess in a particular matter of interest.

The sampled empirical evidence on

financial literacy for the purpose of this study includes Korkmaz et al. (2021), who posit that in China, financial literacy has the chance to decrease the inconsistency between risk propensity and risk behavior, stating that financial literacy increases the inconsistency for risk-averse individuals and decreases the inconsistency for risk-seeking individuals by increasing risk-taking behavior. There is also evidence that financial literacy positively influences financial inclusion through savings accumulation for the future and the use of wealth-creation financial products (van Rooij, Maarten, Lusardi, & Alessie, 2012; Berry, Karlan, & Pradhan, 2018). According to Lusardi and Mitchell (2011a), age is positively associated with financial literacy, as sample data from the United States show that older individuals tend to have a lower level of financial knowledge than younger individuals. From sample data on Bosnia and Herzegovina, Halilovic et al., (2019) recommend that financial literacy should be introduced to individuals at a young age, as this would go a long way to influence positively savings, consumption, and retirement planning habits. According to Li, et al., (2023), spousal relationship influences financial literacy, using multilevel actor-partner interdependence regression models the author reveal that husbands' education was associated with wives' financial literacy, but wives' education was not associated with husbands' financial literacy. The authors recommend that a couple-based approach for providing financial literacy is not out of place.

In the research paper of Akoto et al., (2017), cocoa farmers in the Assin Foso and Twifo Praso Districts of the Central Region of Ghana have a lower level of financial literacy. The authors hold that the factors with a high chance of influencing financial literacy among these farmers are geographical location, age, and educational level. Similarly, Shimizutani and Yamada (2020) found that financial literacy is influenced by educational level, and that individuals with higher financial literacy are more likely to purchase financial investments. These observations were made using data from Japanese and Americans. Niu et al. (2020) used data from sampled Chinese and concluded that financial literacy has a positive and statistically significant impact on retirement planning. The nature of public pensions and their association with financial literacy provides another dimension of the effects of financial literacy. By contrast, Crossan et al. (2011) report that financial literacy does not influence retirement planning in New Zealand, plausibly because the generous nature of public pensions makes retirement planning unattractive.

Empirical literature on financial literacy in Ghana cuts across many domains; however, for the purpose of this study, only a few relevant studies are presented. Adam et al., (2018) provide evidence that male retirees in the Cape Coast metropolis of Ghana have higher financial literacy scores than female retirees. In their financial literacy assessment, male respondents scored seven out of ten questions correctly, while female respondents scored three out of ten questions correctly. According to the authors, the most challenging area of assessment for females was computational questions. According to Sarpong-Kumankoma et al. (2023), gender gaps exist in financial literacy scores, such that males scored higher than females in Ghana, which might be due to unobserved behavioral and psychological traits as well as cultural and social norms regarding

gender roles in financial decision-making. For stock market participation, Akpene Akakpo, et al., (2022) opine that financial literacy is positive and statistically significant determinant of financial inclusion. The authors further note that financially literate investors are less likely to participate in listed stocks in Ghana even in the presence of stock conversion opportunities. To answer the question of how financial literacy affects the performance of small-scale enterprises in Ghana, Tuffour et al., (2022) used a structural equation model to show that managers' financial literacy exerts a significant positive effect on both the financial and non-financial performance of small enterprises. The authors recommended capacity-building programs in financial literacy for managers and owners of small-scale enterprises. To strengthen the case of financial literacy training, Koomson et al. (2023) used treatment effect models to show that in Ghana, financial literacy training plays a significant role in the accumulation of both financial and productive durable assets. In this case, the effect of financial literacy was stronger for male and younger household heads. According to Karakara et al. (2022), financial literacy reduces the chances of individuals experiencing financial distress, as socioeconomic factors contribute to individual financial hardship in Ghana.

Hypothesis

From the literature review, the following hypothesis can be presented in relation to the difference between basic and advanced financial literacy, education, and the number of financial investments:

1. *Test Scores: There is a difference between the test scores for basic financial literacy and advanced financial literacy.*
2. *Gender: Being a male influence the level of basic financial literacy*
3. *Level of Education: The Level of education influences basic financial literacy.*
4. *Number of Financial Investments: Financial investments influence basic financial literacy.*

A better understanding of the relationship between these factors and financial literacy should help policymakers design effective interventions to enhance stakeholder financial literacy campaigns. The importance of financial literacy in literature has been well established. What is yet to be achieved is the financial literacy content and how education should be provided. As of now, a few studies such as (Van Rooij, Lusardi and Alessie, 2011; Remund, 2010; and the OECD 2018), have provided some knowledge set that should form the teaching contents and assessment of financial literacy levels. Evidence suggests that financial literacy levels are low across the world, especially in developing countries. This makes an interesting case for this study on whether to provide financial literacy; the contents should be in levels or unpacked in a single-course model and what socioeconomic factors contribute to financial literacy. This study examines whether financial literacy should be at a certain level using test scores from basic and advanced financial literacy as the basis. In addition, this study brings to the fore socioeconomic factors that determine basic financial literacy.

Method and Data

This study employed a cross-sectional research design and collected data from a cross-section of respondents in the Greater Accra Region of Ghana. The data collection tool was a questionnaire with

demographic and other questions that were relevant to the research objectives. six (6) questions on simple and compound interest rates, inflation, money illusion, and risk diversification are used to assess the basic level of financial literacy. In the case of the advanced level, eight (8) questions, which included the functions of the stock market, knowledge of mutual funds, relationship between interest rates and bond prices, company and stock fund, long period returns, highest fluctuations, and risk diversification. These questions on financial literacy were informed by the works of Van Rooij, Lusardi and Alessie (2011). Each correct answer was assigned a value of one (1) or zero (0) if otherwise. The questionnaire was piloted, after which corrections and clarifications were made. The sampling technique was A multi-stage random sampling technique was used in this study. Six hundred questionnaires were administered to the selected districts in the Greater Accra Region of Ghana. Furthermore, all respondents had to be proficient in English because we did not want enumerators to translate the questions to respondents. None of the respondents had participated in compulsions. The survey also gave the respondents the opportunity to withdraw their consent or skip a question during data collection. Ethically, the study requested information that bothers perception and does not present a threat to participants, anybody, or animals, whatsoever.

Estimation Technique

This study adopted a logit model because basic financial literacy was categorized into low or high levels according to the number of correct answers scored by respondents. The logit is an extension of the logit model, from Stock and Watson (2007), the logit model is given as:

$$\Pr(Y=1|X1, X2,...X_K) = F(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_K X_K) \quad (1)$$

The logit model as presented in equation (1) measures the probability of the regression's coefficient predicting the dependent variable, hence the model becomes:

$$\Pr(Y=1|X1, X2,...X_K) = \frac{1}{1+e^{-(\beta_0+\beta_1 X_1+\beta_2 X_2+...+\beta_K X_K)}} \quad (2)$$

From the above equations, Y is the outcome of interest and β is the unknown coefficient to be estimated.

Empirical Model

The empirical model for this study in a functional form is given in equation (3) which is:

$$FINLITlow\ or\ high^* = \boldsymbol{X'\beta} + \varepsilon, \quad (3)$$

Where, the dependent variable, $FINLITscore^*$ is unobserved. $\mathbf{X}$ is a vector of the explanatory variables while $\boldsymbol{\beta}$ is an unknown parameter to be estimated. The error term, ε is assumed to be multivariate normal with zero mean and a constant variance. The dependent variable in equation 3, $FINLITscore^*$= is a binary variable view, respondents with score of less than 3 are have basic financial literacy, while those with 3 or more correct score have high basic financial literacy. To compare the basic financial literacy score with that of the advanced financial literacy test score, this study adapts with modification the financial literacy index following Douisa's (2020) approach. The financial literacy level was computed as:

$$\textbf{Financial Literacy level} = \frac{\text{Correct Answers}}{\text{Overall Maximum Score}} \times 100 \quad \ldots (4)$$

The maximum score obtained from the basic financial literacy question was six (6). The sixth question is the contribution of this study to the existing question on assessing basic financial literacy. This question tests the correctness of the response in differentiating between savings and investments. Respondents with scores of up to one correct answer were classified under low financial literacy; 2, 3, 4, 5, and 6 correct answers were classified as fair, average, good, very good, and excellent basic financial literacy, respectively. This process was repeated to construct advanced financial literacy, which consisted of eight (8) questions. Specifically, respondents with scores of up to one correct answer were classified as having low financial literacy, with two, three, four, five, and six or more correct answers classified as fair, average, good, very good, and excellent advanced financial literacy, respectively.

The independent variables are demographic and socioeconomic factors, including social security number, education, employment, personal retirement funds, and the total number of investments, which is the error term in the model. As our dependent variable, the basic financial literacy score, is binary, an ordered logistic regression model was used to estimate the coefficients. The detailed empirical logistic regression model is as follows:

$$\begin{aligned} &Financial\ literacy = \\ &\beta_0 + \beta_1(Sex) + \beta_2(Age) + \beta_3(Marital\ Status) + \beta_4(Education) + \\ &\beta_5(Employment\ Status) + \beta_6(Social\ Security\ Number) + \\ &\beta_7(Bank\ Personal\ Loan) + \beta_8(Bank\ Business\ Loan) + \\ &\beta_9(Personal\ Retirement\ Fund) + \beta_{10}(Total\ Investments) + \varepsilon_i \end{aligned} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (5$$

Where, β_0 is the constant term, B_i (where i= are 1, 2, 3, …, 10) are coefficients of the respective independent variables and ε_i is the error term.

Diagnostics Tests

When analyzing cross-sectional data, the two main identification challenges commonly associated with such data are multicollinearity and heteroscedasticity. We investigated the presence or absence of multicollinearity by using a pairwise correlation test. A mean VIF value of 1.40, as reported in Table 4 indicates low multicollinearity in the models. Because the F-statistics are highly statistically significant, there is evidence in this study that overall, the models have passed the fitness tests and will not produce spurious results.

Results and Discussion

Table 1A shows a fair representation of the male and female respondents. Females made up 44.36% of the sample, and males made up the remaining 55.64 percent. In terms of employment, over 78 percent of respondents are either employed or self-employed. The remaining 21.47 percent

were unemployed. The percentage of married respondents was 32.02%, whereas that of single respondents was 67.98 percent. Approximately 72.08 percent of the respondents were either bachelor's degree holders or postgraduate certificate holders. The remaining 27.91 percent had other educational certificates. From the survey, 58.03% of the respondents had social security numbers, which corroborates the 52.54 % %employed respondents. According to the data, 28.08 percent have secured personal loans from banks, while 71.92 percent have yet to secure such facilities. For business loans, 24.61 percent indicated that they had secured business loans compared to the remaining 75.39, who responded negatively. Regarding personal retirement funds, 42.86 percent contributed to a personal retirement fund, and the remaining 57.14 percent had yet to set up such funds.

Using Douisa's (2020) approach to categorize financial literacy levels, the test scores in Table 1A show that 16.54 percent of the respondents possess low financial literacy, and 22.56 percent, 28.2 percent, 22.56 percent, 7.41%, and 2.44 percent possess fair, average, good, very good, and excellent basic financial literacy, respectively. Evidence shows lower scores in the distribution when advanced financial literacy scores are considered. Furthermore, from the test scores, 21.99 percent, 37.78 percent, 17.29 percent, 12.59 percent, 9.21%, and 1.13 percent possessed low, fair, average, good, very good, and excellent advanced financial literacy, respectively.

In Table 1B, the ANOVA statistics reveal that the full model for basic financial literacy has 16 degrees of freedom, with an F-statistic value of 2.9, which is statistically significant at the 1% level. Furthermore, there is evidence of a statistical difference in the basic financial literacy scores for employment, marital status, education, personal loans, and business loans. From the results presented in Table 1C, the ANOVA statistics for advanced financial literacy show that the full model has an F-statistics of 2.3 and is statistically significant at the 1 percent level. The independent variables that differ in advanced financial literacy levels are gender, education, and business loans.

Financial Literacy Test Score

The details in Table 2 are test scores from the survey. In Panel A, in basic financial literacy, 74.05 percent of the respondents correctly answered the question on diversification. The question on inflation was answered correctly by 44.68% of the participants, with 55.32 percent selecting the wrong choices. For the simple interest question, 54.96 percent correctly selected the correct answer, while 45.04 percent could not answer this question correctly. Regarding compound interest, 40 percent of the respondents selected the correct answer, whereas 60 percent answered this question incorrectly. For money illusion, the correct response rate was 44.55%, whereas 52.45 percent failed to answer this question. The question asking respondents to differentiate between savings and investment showed that only 29.28 percent could differentiate between savings and investment. The wrong answer accounts for 70.72%, as they view savings to be the same as an investment. Those with low basic financial literacy made up 67.29 percent, while those with high basic financial literacy scores made up 32.71 percent of our sample. The average correct and incorrect scores on the basic test were 48.28 and 51.58 percent, respectively.

Table 1A: Frequency Distribution of Response

Variable	Respondents	Frequency	Percent
Gender			
	Female	236	44.36
	Male	296	55.64
	Total	**532**	**100**
Employment			
	Unemployed	114	21.47
	Employed	279	52.54
	Self-Employed	138	25.99
	Total	**531**	**100**
	Missing		1
Marital Status			
	Single	361	67.98
	Married	170	32.02
	Total	**531**	**100**
	Missing	1	
Education			
	Others	22	4.21
	Secondary	30	5.74
	Diploma	43	8.22
	HND	51	9.75
	Bachelors	251	47.99
	Postgraduates	126	24.09
	Total	**523**	**100**
	Missing	9	
Social Security Number			
	No	220	41.98
	Yes	304	58.02
	Total	**524**	**100**

Source: Author's estimates

Table 2A Continue: Frequency Distribution of Response

Variable	Respondents	Frequency	Percent
Personal Loan			
	No	379	71.92
	Yes	148	28.08
	Total	**527**	**100**
	Missing	5	
Business Loan			
	No	389	75.39
	Yes	127	24.61
	Total	**516**	**100**
	Missing	16	
Contribute to Personal Retirement Plan			
	No	300	57.14
	Yes	225	42.86
	Total	**525**	**100**
	Missing	7	
Basic Financial Literacy			
	Low	88	16.54
	Fair	120	22.56
	Average	150	28.2
	Good	120	22.56
	Very Good	41	7.71
	Excellent	13	2.44
	Total	**532**	**100**
Advance Financial Literacy			
	Low	117	21.99
	Fair	201	37.78
	Average	92	17.29
	Good	67	12.59
	Very Good	49	9.21
	Excellent	6	1.13
	Total	**532**	**100**

Source: Author's estimates

Table 1B: Basic Financial Literacy ANOVA Statistics of Variables

Variable	DF	F	Prob>F
Dependent Variable			
Basic Financial Literacy			
Model	16	2.9	0.001
Independent Variable			
Gender	1	1.3	0.252
Employment	2	3.5	0.033
Marital Status	4	2.1	0.082
Education	5	3.7	0.003
Social Security Number	1	0.6	0.424
Personal Loan	1	6.1	0.014
Business Loan	1	6.8	0.010
Contribute to Personal Retirement Plan	1	1	0.324

Source: Author's estimates

Table 1C: Advance Financial Literacy ANOVA Statistics of Variables

Advance Financial Literacy	**DF**	**F**	**Prob>F**
Model	16	2.3	0.003
Independent Variable			
Gender	1	4.4	0.036
Employment	2	1.7	0.176
Marital Status	4	0.3	0.891
Education	5	2	0.077
Social Security Number	1	2.2	0.135
Personal Loan	1	0.6	0.424
Business Loan	1	3.4	0.064
Contribute to Personal Retirement Plan	1	0.8	0.382

Source: Author's estimates

Table 2: Financial Literacy Test Score

Panel A: Basic Questions	**Correct %**	**Wrong %**	**Total**	**Count**	**Missing**
Diversification	74.05	25.95	100	524	8
Inflation	44.68	55.32	100	526	6
Simple Interest	54.96	45.04	100	524	8
Compound Interest	40	60	100	530	2
Money Illusion	47.55	52.45	100	530	2
Savings not same as Investment	29.28	70.72	100	526	6
Respondents with Low Basic Financial Literacy	*67.29*				
Respondents with High Basic Financial Literacy	*32.71*				
Average Score	*48.42*	*51.58*			
Panel B: Advance Questions	**Correct %**	**Wrong %**	**Total**	**Count**	**Missing**
Diversification	56.06	43.94	100	528	4
Function of the Stock Market	42.8	57.2	100	521	11
Riskiness of Shares	30.23	69.77	100	526	6
Mutual Funds	19.66	80.34	100	524	8
Interest rates and Bond Price	31.18	68.82	100	526	6
Shares versus Stock Mutual Funds	29.47	70.53	100	526	6
Shares return over Time	39.85	60.15	100	527	5
Shares Volatility	39.07	60.93	100	517	15
Average Score	*36.04*	*63.96*			

Source: Author's estimates

Panel B shows that the test scores for advanced financial literacy were low. Specifically, 56.06 percent of respondents answered correctly regarding diversification. However, 43.94 percent selected the incorrect answer. The function of the stock market question was answered correctly by 42.80 percent of the respondents, while 57.20 percent selected the wrong answer. The question on the riskiness of shares was correctly answered by 30.25% of respondents, with 69.77 percent selecting the wrong answer. The correct response for mutual funds was scored by 19.60 percent of the respondents, with 80.34 percent selecting the wrong choice. The percentage of respondents who correctly answered the question on interest rates and bond prices was 31.18 percent, whereas 68.82 percent chose the wrong answer. When comparing stocks to mutual funds, 29.47 percent scored correctly, while 70.53 percent failed to answer this question. 39.85% of respondents correctly answered the question on share returns over time, while 60.15 percent failed to answer this question. The question on share return

volatility was answered correctly by 39.07 percent, compared to 60.93 percent, which could not. The average correct and incorrect scores from the advanced 36.04 and 63.96%, respectively. From the test scores for both basic and advanced financial literacy, the financial literacy level of the sample respondents in this study was approximately average. This is not surprising and peculiar to Ghana, as the findings of Klapper, Lusardi, and Van Oudheusden (2015) in the S&P Global Financial Literacy Survey revealed that Africa and South Asia have adult populations with low financial literacy and that in Ghana, about 68 percent of adults are financially illiterate. Bansal and Kaur (2023) report low financial literacy levels in the Punjab region of India. The results in Table 3 are the categories of financial literacy and number of investments; the mean total investment is high for those who possess excellent basic financial literacy. This was followed by those with average and good basic financial literacy, with mean total investments of 0.9532 and 0.925, respectively. The highest variability in total investment is among those who possess average and good financial literacy, with standard deviations of 1.149 and 0.945, respectively. From the advanced financial literacy test, those with the highest mean investment of 1.667 have excellent financial literacy, with a volatility of 1.751. Those with very good advanced financial literacy had a mean total investment of 1.082, with variability of 0.812. Table 3 shows that financial literacy influences the number of investments made.

Differences in Financial Literacy

Table 3: Test Score Differences

Panel A: Financial Literacy and Number of Investments

	Basic Level		**Advance level**	
Financial Literacy	**Mean Total Investment**	**SD Total Investment**	**Mean Total Investment**	**SD Total Investment**
Low	0.455	0.772	0.598	0.789
Fair	0.742	0.874	0.746	1.058
Average	0.953	1.149	0.913	0.980
Good	0.925	0.954	0.836	0.828
Very Good	0.659	0.693	1.082	0.812
Excellent	1.000	0.707	1.667	1.751

Panel B Test of Difference in the Levels of Financial Literacy

Financial Literacy		**Rank Sum**	**Mean**	**Median**
Basic	532	331049.5	47.87	50
Advance	532	235530.5	34.77	33.33
Z		9.62		
Prob > z		0.000		
Total			41.32	44.44

Source: Author's estimates

Panel B of Table 3 shows that the mean test score of 47.87 percent for basic financial literacy differs from the mean test score of 34.77 percent for the advanced financial literacy test. The median test scores for basic and advanced financial literacy differed by 50 percent and 33.33 percent, respectively. From the Mann-Whitney U test, Z with a value of 9.62, and probability > z value of 0.0000. With this test statistic, there is evidence of a statistically significant difference in the test scores of basic financial literacy compared to the advanced financial literacy test. Therefore, financial literacy should be high.

Panel A of Table 4 shows that the descriptive statistics have a mean age of 31.3 years with an age range of 18–73 years. The average total investment is 0.795, with a maximum of five financial investments. The average score on the basic financial literacy test was 2.897, compared to 2.840 on the advanced financial literacy test. The variability in the test scores was higher in the case of advanced financial literacy, with a value of 1.780, compared to the 1.278 standard deviation in the test scores of basic financial literacy. The scores ranged from 1 to 6 for basic financial literacy and 0 to 8 for the advanced financial literacy test.

Table 4: Descriptive Statistics and Spearman's Correlation

Panel A: Descriptive Statistics										
Variable	Observation		Mean	Std. Dev.	Min		Max			
Age	517		31.3	9.28	18		73			
Total Investment	532		0.795	0.961	0		5			
Basic Financial Literacy	532		2.897	1.278	1		6			
Advance Financial Literacy	532		2.84	1.78	0		8			
Panel B: Variables	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10
(1) Gender	1									
(2) Age	0.016	1								
(3) Marital Status	-0.022	0.598	1							
(4) Education	0.032	0.066	0.069	1						
(5) Employment	0.054	0.283	0.182	-0.062	1					
(6) Social Security Number	0.011	0.4	0.369	0.09	0.106	1				
(7) Personal Bank Loan	-0.029	0.337	0.267	0.153	0.14	0.313	1			
(8) Business Bank Loan	0.088	0.208	0.19	0.077	0.255	0.175	0.501	1		
(9) Personal Retirement Fund	0.021	0.357	0.385	0.151	0.154	0.495	0.272	0.2	1	
(10) Total Investment	0.064	-0.102	-0.104	0.042	-0.152	-0.116	0.082	0.183	-0.04	1
Spearman rho = 0.309										

Source: Author's estimates

Table 5a: Logit Regression Results

	Odds Ratio	dy/dx	Odds Ratio	dy/dx
	Basic Financial Literacy	Basic Financial Literacy	Basic Financial Literacy	Basic Financial Literacy
Gender	1.480*	0.079*	1.497*	0.081*
	-0.308	-0.046	-0.314	-0.042
Age	0.981	-0.004	0.988	-0.0025
	-0.015	-0.003	-0.016	-0.003
Marital Status	1.403	0.0685	1.512	0.0833
	-0.399	-0.057	-0.435	-0.056
Education	1.496***	0.082***		
	-0.143	-0.018		
Employment Status	1.188	0.035	1.205	0.037
	-0.191	-0.032	-0.195	-0.032
Social Security Number	1.088	0.017	1.13	0.025
	-0.273	-0.051	-0.286	-0.051
Bank Personal Loan	1.486	0.08	1.508	0.083
	-0.411	-0.055	-0.416	-0.055
Bank Business Loan	0.554**	-0.119**	0.563**	-0.116**
	-0.161	-0.058	-0.163	-0.058

Source: Author's estimates

Table 5b: Logit Regression Results

	Odds Ratio	dy/dx	Odds Ratio	dy/dx
	Basic Financial Literacy	Basic Financial Literacy	Basic Financial Literacy	Basic Financial Literacy
Contribution to Personal Retirement Fund	1.06	0.012	1.13	0.024
	-0.26	-0.049	0.281	-0.05
Total Investment	0.712*	-0.069**	0.715*	-0.068**
	-0.124	-0.035	-0.124	-0.035
Other Education				
Secondary			3.443	0.085
			-4.169	-0.079
Diploma			6.0261	0.159**
			-6.696	-0.075
Higher National Diploma			8.671***	0.221***
			-9.462	-0.076
Bachelors			15.800***	0.346***
			-16.608	-0.053
Postgraduate			14.291**	0.324***
			-15.028	-0.062
Observations	482	482	482	482
Mean VIF	1.4	1.4	1.4	1.4
LR chi2(10)	38.43	38.43	42.61	42.61
Prob > chi2	0	0	0	0
Pseudo R^2	0.063	0.063	0.07	0.07

Source: Author's estimates

Discussion

The results generated for this study show that being male increases the probability of a high basic financial literacy score. This position on males is the same in Adam et al. (2018) and Sarpong-Kumankoma et al. (2023), who posit that males in Ghana have higher financial literacy scores than female retirees. How education associates with basic financial literacy in this study, is that higher academic education influences basic financial literacy, as a higher level of education is associated with greater odds of higher basic financial literacy; this finding avers that of Shimizutani and Yamada (2020) and Al-Tamimi (2009)'s evidence from the United Arab Emirates.

The results on bank business loans show that individuals with secured bank loans have lower odds of an increase in basic financial literacy levels. These individuals tend to use financial products, including loans from financial institutions, compared with those who are financially illiterate, which is supported by Lusardi and Tufano (2009). The inference from this result is that financial inclusion has the possibility of increasing the level of financial literacy, and this is not strange, as financial inclusion rests on the anchor of the usage of financial products and services. The results on the number of investments and financial literacy corroborate the finding that financially literate individuals are most likely to be financially included and purchase financial investments (van Rooij, et al., 2011a; van Rooij, Maarten, Lusardi, & Alessie, 2012; Berry, Karlan, & Pradhan, 2018). There is evidence from the logistic regression results that education matters in financial literacy. Compared with individuals with low basic financial literacy, those with a minimum bachelor's degree have higher basic financial literacy. This is comparable to the findings of Klapper et al. (2015) on education and financial literacy from world survey results.

Conclusion

This study assessed the level of financial literacy of the sampled Ghanaians. Based on the basic financial literacy test scores, the respondents had average financial literacy. The advanced financial literacy test showed that respondents had advanced financial literacy. The challenging areas of the basic financial literacy test include inflation, compound interest, and money illusion. In the case of advanced financial literacy, difficult-to-understand concepts are a function of the stock market, riskiness of shares, mutual funds, interest rates and bond prices, share returns over time, and share return volatility. In this regard, providers of financial literacy, including financial institutions such as banks, pension funds, investment/mutual fund companies, and insurance companies, should dedicate appreciable financial and nonfinancial resources to provide financial literacy knowledge to the general population in Ghana. There is evidence that differences exist in the test scores of basic and advanced financial literacy tests. This indicates that financial literacy can be taught at basic and advanced levels. In addition, there is evidence to support our second hypothesis that education level influences financial literacy. The results from the logistic regression model prove that the number of financial investments influences financial literacy level. Furthermore, a targeted approach to financial literacy with content that meets the specific needs of targeted groups

would greatly improve financial literacy in Ghana and other countries with socio-demographic characteristics. This study recommends that a general content approach in financial literacy is best suited for students, whereas a targeted and content-specific approach is preferred for non-student groups. Moreover, the socioeconomic factors associated with basic financial literacy are gender, education, bank business loans, and the total number of investments. In addition, diplomas, higher national diplomas, bachelor's degrees, and postgraduate educational levels tended to be associated with higher basic financial literacy levels.

Providers of financial literacy, including personal financial advisors, should use public campaigns on radio, television, newspapers, social media, and other special-designed financial literacy training programs. This financial education can be conducted at least once a year by targeting the adult population of Ghana, with an extension of such campaigns to the tertiary levels of education and later to lower levels of education. The content of financial literacy educational material must be in levels such that easy financial concepts are taught first, before advanced financial concepts. Public financial literacy campaigns should be conducted as part of the corporate social responsibility of these financial institutions, although we admit that financial service providers have conflicts of interest in such a pursuit in their call to action after such campaigns. Another strategy is to deploy financial literacy during these institutions' customer marketing campaigns.

The next recommendation is that financial market regulators, despite their regulatory mandate, should pool their resources together and lead the charge in providing financial literacy on the common and overlapping financial knowledge sets through collaborations with educational authorities using existing educational institutions and infrastructure. Further studies in the areas of household financial management and financial literacy can be conducted in the future.

Conflict of Interest

The authors declare that there are no conflicts of interest.

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