



Financial Literacy Among Female Entrepreneurs in Ghana: Evidence from Traditional Markets

Godwin Ahiase^{1*}, Maya Sari², Nugraha Nugraha³, Denny Andriana⁴, Percy Chris Kpodo⁵, Philipina Ampomah⁶

^{1,2,6} Department of Management, Faculty of Economics and Business Education, Universitas Pendidikan Indonesia, Bandung, Indonesia

^{3,4} Department of Accounting, Faculty of Economics and Business Education, Universitas Pendidikan Indonesia, Bandung, Indonesia

⁵ Department of Education, College of Education and Human Development, Health and Behaviour Studies, University of North Dakota, Grand Forks, USA

⁶ Department of Management and Administration, School of Business and Management, Cape Coast Technical University, Cape Coast, Ghana

Abstract

This study examines the financial behaviour and utilisation of e-finance among female entrepreneurs in traditional marketplaces in Ghana. The researchers collected data from 385 female entrepreneurs using a quantitative research method. The data was collected through a descriptive survey design and analysed using ordinary least squares regression models. The results show significant correlations between e-finance adoption, financial literacy, and financial behaviour. This highlights the importance of financial literacy in enabling women to participate in the market. The study also found that financial literacy had a greater impact on the financial behaviour of younger women, suggesting the need for targeted interventions that leverage technology. Additionally, the study found that the level of education had a significant impact on the adoption of electronic finance. This emphasises the importance of improving digital literacy to bridge the skills divide. Based on these findings, the study suggests the need for tailored financial education programmes and comprehensive initiatives to promote responsible financial practices and the adoption of modern financial technologies by female entrepreneurs in traditional markets.

Article Info

Correspondence:

Godwin Ahiase
(godwinahiase@upi.edu)

Article History:

Submitted: 15-02-2024
Revised: 07-03-2024
Accepted: 09-04-2024
Published: 17-04-2024

JEL Classification:

E44; G53; L26

Keyword:

Female Entrepreneurs;
Financial Behaviour;
Financial Literacy;
Traditional Markets;
Use of e-Finance

1. INTRODUCTION

Financial literacy plays a crucial role in the economic empowerment of female entrepreneurs, who have a significant impact on national progress (Kirschning & Mrożewski, 2023). In Ghana, women make up the majority of small and medium-sized enterprises (SMEs), accounting for 70% of the country's GDP and 50%-60% of employment (Ghana Statistical Service, 2021). This study investigates the level of financial literacy among female entrepreneurs in traditional markets in Ghana. The study has three main objectives: 1) to assess the extent of financial literacy among market women, 2) to investigate the relationship between financial literacy and their financial behaviour, and 3) to determine the influence of financial literacy on their use of electronic finance (e-finance).



Female entrepreneurs have been instrumental in driving social progress and economic growth in Ghana (Franzke et al., 2022). They make significant contributions to the country's GDP and employment rates, particularly in the SME sector (Damoah & Peprah, 2021). However, female entrepreneurs in developing countries face various challenges, including a lack of financial management expertise, which hinders the growth of their businesses (Munyuki & Jonah, 2021).

Previous studies have highlighted the negative consequences of insufficient financial literacy among female entrepreneurs (Ansari et al., 2023; Desai et al., 2023). However, most of the existing literature on financial literacy in Ghana has focused on university students, leaving a significant knowledge gap regarding the level of financial literacy among female entrepreneurs especially those operating in the traditional markets in Ghana, therefore, necessitating this current study

Financial literacy not only influences decision-making but also has a significant impact on financial behaviour and the adoption of financial technologies, such as e-finance solutions (Hasan et al., 2022; Ziegler et al., 2021). Higher levels of financial literacy are associated with better financial management practices, including budgeting and securing external funding for business expansion (Aman et al., 2024). Many female entrepreneurs struggle with basic accounting concepts and face challenges in distinguishing between personal and business funds, making it difficult to monitor business performance (Kass-Hanna et al., 2022a). Although some studies have provided insights into the extent of financial literacy among female traders in Ghana, there is a lack of research specifically focusing on traditional markets and the relationship between financial literacy and financial conduct among female entrepreneurs (Boldar et al., 2022; Goyal & Kumar, 2021; Kandpal et al., 2023).

The increasing acceptance and use of digital financial services globally, including in Ghana, highlight the importance of financial literacy in promoting the adoption of e-finance by market women (Hermawan et al., 2022). However, research on this specific relationship is limited, emphasizing the need for further investigation. This study aims to contribute to the existing knowledge on the level of financial literacy among women in Ghana, specifically focusing on female entrepreneurs. The variables that are associated with financial literacy, such as financial risk management, e-finance, age, income, and marital status, along with financial know-how and competence, are examined in this research (Panos & Wilson, 2020).

The study departs from previous investigations by utilizing financial literacy indicators that are not commonly used in recent research (Hermawan et al., 2022; Jennah, 2022). Additionally, the research explores the subcontracts that have an influence on financial literacy indicators among female entrepreneurs. To achieve the objective of the study, exploratory principal component analysis is employed, followed by a regression analysis using factor loadings to determine the influence of financial literacy on the financial conduct of market women. The study specifically focuses on female entrepreneurs in Accra, Kumasi, and Ho, which are the capitals of the Ashanti, Greater Accra, and Volta regions in Ghana. By using empirical data from Ghana, this research endeavours to contribute to the existing corpus of knowledge.

Theoretical Framework, Literature Review and Hypotheses Development

a. Theoretical framework

The present study is grounded in the Resource-Based View Theory (RBVT) and the Theory of Reasoned Action (TRA). Female entrepreneurs in Ghana, particularly those involved in traditional markets, play a vital role in the economy. However, their access to and utilisation of digital financial services (DFS) remains limited. The RBV suggests that organisations can attain a competitive advantage by acquiring and effectively controlling valuable resources (Yang & Konrad, 2011). For Women entrepreneurs, financial knowledge serves as a crucial resource. It equips them with the expertise and skills to proficiently manage intricate financial products, make informed decisions, and steer clear of costly mistakes (Barney, 1991). This knowledge empowers them to access superior financial

products, make well-informed investment choices, and build trust with clients and suppliers (Yang & Konrad, 2011). Ultimately, this results in improved financial stability and a competitive edge (Wernerfelt, 1995).

On the other hand, the TPB concentrates on predicting intentions and behaviour (Conner & McMillan, 1999). It identifies three influential factors—attitude, subjective norm, and perceived behavioural control—that shape an individual's inclination to engage in a specific behaviour (Ajzen, 2011). Female entrepreneurs who hold positive attitudes towards adopting DFS, perceiving them as easy and secure, are more inclined to utilise these services. Furthermore, the influence of family and community (subjective norm) can shape their perceptions and either encourage or discourage adoption (Chorlton et al., 2012). Ultimately, if market women perceive DFS as accessible and accompanied by readily available support, they are more likely to overcome barriers and utilise these services.

By integrating these two theoretical perspectives, the study provides a deeper understanding of the factors that influence the adoption of DFS among Ghanaian market women. Financial literacy, as a valuable resource, has the potential to significantly impact individuals' attitudes, perceptions of societal norms, and perceived control over financial decisions. This, in turn, leads to a higher intention and actual implementation of DFS (Bongomin & Ntayi, 2020). The integration of this framework may guide actions and policies that seek to enhance financial inclusion and empower female entrepreneurs through the implementation of specific financial literacy programs.

b. Literature Review and Hypotheses Development

Financial Literacy Level of Female Entrepreneurs

Female entrepreneurs lack financial knowledge, especially compared to formal sector women, which is alarming globally. Limited access to financial education tools and dependence on physical cash may explain the gap (Atkinson & Messy, 2020). This emphasises the need for tailored financial literacy initiatives for informal sector workers, who often lack access to standard financial services and education. A large body of research shows that women are less financially literate and able to make educated decisions than males (Graña-Alvarez et al., 2024). The gap is most noticeable among female market sellers, who make up a large component of the female informal sector workers (Graña-Alvarez et al., 2024). Reducing this gender gap is essential for women's economic empowerment and financial inclusion (Singh & Mallick, 2024).

Several nations have developed financial literacy programmes for vulnerable communities, including market women. These efforts have shown mixed outcomes (Jana et al., 2024). This emphasises the need to personalise financial education to demographic groups' needs and concerns (Jana et al., 2024). These projects must suit informal sector workers' different situations to be successful. Financial education for the largely female workforce is crucial due to its socioeconomic effects. According to Adomako and Ahsan (2022), female entrepreneurs operating in traditional markets are confronted with considerable barriers owing to insufficient government banking services. This restricts their access to structured financial data and these organisations' services. However, Wealth and Sivotwa (2023) show that targeted financial education interventions may considerably enhance female entrepreneurs' financial literacy. This shows that knowledge may empower people and imply that well-designed efforts can overcome understanding gaps.

Demirgüç-Kunt et al. (2022) research how social networks affect female entrepreneur's financial knowledge and conduct, focusing on informal learning. The results emphasise the relevance of informal learning routes like peer and community networks in financial literacy. This emphasises the need to augment formal financial education with social frameworks. Boateng and Boateng (2018) examine the economic effects of financial literacy among female entrepreneurs in Ghana, both urban and rural. Their study shows that closing the financial literacy gap improves individual and business decision-making. This highlights the many advantages of solving this problem.

Financial Literacy and Financial Behaviour of Female Entrepreneurs

Financial literacy plays a crucial role in the money management habits of female market sellers. Several studies conducted in different geographical locations have consistently shown a strong association between financial decision-making and financial literacy among female entrepreneurs. One study by Rai et al. (2019) examined the financial literacy of employed women in Delhi and found that financial literacy was closely related to their attitudes and actions. Similarly, Shanmugam et al. (2023) found that the big five personality traits positively influenced financial literacy, attitude, behaviour, knowledge, and decision-making among women in Madurai, Coimbatore, Tiruchirappalli, and Chennai.

Andarsari and Ningtyas (2019) conducted a study in Malang, Indonesia, and found that financial literacy was correlated with spending tendencies among female entrepreneurs. Atkinson and Messy (2020) emphasized the importance of sensible financial behaviours, such as budgeting and financial stability, in improving financial literacy. Widati et al. (2023) found that financial literacy was crucial for financial inclusion, while Kass-Hanna et al. (2022b) discovered that individuals lacking financial management confidence exhibited lower financial risk-taking. Research conducted in Nigeria, India, and Indonesia also supports the findings from Ghana. (Watanapongvanich et al., 2021) found a strong correlation between financial literacy and the willingness of market women in India to save and regulate their finances. David-West et al. (2019) found that financially savvy market women in Nigeria were less likely to borrow money at high rates and more likely to use formal financial services.

Cross-border studies have also shown that financial literacy significantly influences market investment choices among female entrepreneurs. Yang et al. (2020) found that financially literate Chinese market women were more inclined to invest beyond their traditional income sources, which helps them diversify their financial resources and withstand economic downturns. Bongomin et al. (2020) found that personalized financial education workshops improved market understanding and behaviour among female entrepreneurs in Uganda. Furthermore, financial knowledge has a universal impact on risk management. Aman et al. (2024) found that people worldwide seek insurance to protect their income, highlighting the importance of financial literacy in managing financial risks. Based on the reviewed studies, the following hypotheses are formulated as follows:

H1. Market women with a high level of financial literacy are likely to engage in favourable financial behaviours.

Financial Literacy and Use of e-Finance by Women Entrepreneurs

The literature review examines the relationship between female entrepreneur's use of e-finance and their financial literacy. The study by Yang et al. (2020) using data from the China Household Finance Survey found that many Chinese families have limited financial knowledge, which may explain the low adoption rate of digital financial services. However, households led by women, those with higher incomes, wealth, and younger members are more likely to benefit from improved financial literacy in using digital financial services. Van Nguyen et al. (2022) analyzed the influence of cultural characteristics, internet and smartphone use, demography, socioeconomic level, and banking procedures on Vietnamese families' financial literacy. The results showed that higher-income individuals are better at managing their savings and finances, and those with a cultural background that encourages "uncertain avoidance" are better at budgeting, saving, and investing. Males also outperform women in credit management, insurance, and general financial performance (Prasad et al., 2018).

Irrinki et al. (2023) found a strong association between women entrepreneurs' financial literacy and their use of digital financial services. The study highlighted that market women who have a deep understanding of the advantages of these platforms and how they can improve their finances are more motivated to use them. This finding is consistent with research conducted in Kenya and Bangladesh, indicating that financial knowledge is a universal facilitator for market women in adopting modern technology. The

literature review also emphasizes that financial literacy gives female entrepreneurs in the market sector the confidence to use electronic financing systems. Studies by H. Banna and M. R. Alam (2021) show that financially literate individuals are better at using digital financial interfaces, conducting secure transactions, and optimizing e-finance technology. Furthermore, financial knowledge plays a crucial role in financial management improvement (Saif et al., 2022). Studies conducted worldwide demonstrate that female entrepreneurs with a strong financial background are more adept at using electronic finance tools to manage their income, monitor their spending, and optimize their savings (Koskelainen et al., 2023; Muchandigona & Kalema, 2022). Thus, the following hypothesis is proposed as follows:

H2. Market women with high levels of financial literacy have the propensity to increase the use of e-finance transacting business.

Conceptual Framework

The conceptual framework depicts the interrelationship between financial literacy, financial behaviour and the use of e-finance.

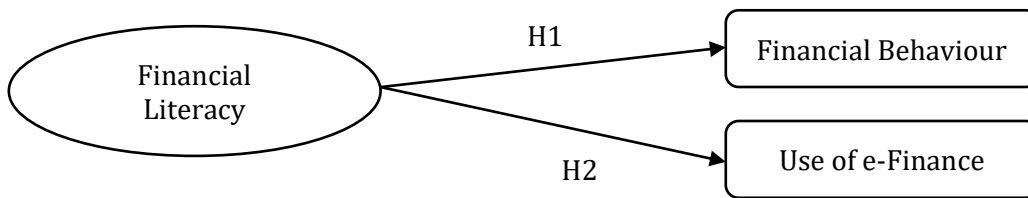


Figure 1. Conceptual Framework
Source: Authors' Creation

2. METHODS

2.1. Data and Sampling Techniques

The study employed a quantitative research approach grounded in positivist and analytical principles, using statistics, logical reasoning, and objectivity to address the research questions. This approach focuses on gathering verifiable and reliable data, contrasting with qualitative research that emphasizes comprehensive and convergent reasoning (Dannels, 2018). A descriptive survey design is used to gain a comprehensive understanding of the financial literacy of female entrepreneurs in the market. This approach allows for the analysis of frequencies and identification of patterns in the collected data, providing valuable insights into the overall financial literacy environment of the individuals being studied (Basias & Pollalis, 2018). The survey includes all female entrepreneurs operating in traditional markets in Ghana. Since the population size is unknown, a sample size of 385 female entrepreneurs is chosen using a method for an infinite sample size.

$$\text{Infinite population: } n = \frac{z^2 \times \hat{p}(1 - \hat{p})}{\epsilon^2}$$

Where: z = the Z-score, ϵ = the margin of error, n = the population size, \hat{p} = the population proportion.

The sample was selected from primary markets in Kumasi, Accra, and Ho, which represent the regions of Ashanti, Greater Accra, and Volta in Ghana. Simple random sampling was employed to ensure equal opportunities for all female traders in the three markets (Makola, Kejetia, and Ho main markets) to participate, thus preventing any bias in participant selection. Out of the 385 questionnaires that were administered, 350 were retrieved, resulting in a response rate of 90.9%. The data collection occurred between November 14th, 2023, and January 7th, 2024. Primary data were collected by administering

standardised questionnaires to the participants with the help of field research assistants. Written consent was obtained from the market executives, and each participant received a clear explanation of the study's purpose. Their informed consent was obtained prior to commencing the survey.

2.2 Variable measurement

The study focuses on two main dependent variables: *financial behaviour* and the use of e-finance. To assess financial behaviour, respondents are asked to complete a 7-point Likert scale questionnaire. The scale consists of nine (9) questions derived from a previous study (Rai et al., 2019). For example, one question asks if the respondent maintains a business savings account and deposits funds monthly. The use of *e-finance* is assessed using six (6) criteria, also on a 7-point scale. These criteria were originally proposed by Yang et al. (2020) but have been modified to fit the specific conditions of this research. An example question asks if the respondent uses mobile financial services to conduct remittances to their clientele. *Financial literacy*, the independent variable, is assessed using eleven questions on a standardized seven-point scale. These questions measure the respondent's knowledge and understanding of basic financial concepts. Examples of statements include the respondent's ability to perform financial calculations and their awareness of the changing purchasing power of money over time.

2.3 Model specification

The study employed the Ordinary Least squares regression model to estimate the relationship between financial literacy, financial behaviour and e-finance. The empirical model is stated as follows:

$$FB = \alpha + \sigma_1 FL + \sigma_2 Age + \alpha_3 MS + \alpha_4 EducL + \alpha_5 MktS + \varepsilon \quad (1)$$

$$UeFin = \alpha + \sigma_1 FL + \sigma_2 Age + \alpha_3 MS + \alpha_4 EducL + \alpha_5 MktS + \varepsilon \quad (2)$$

Where *FB* and *UeFin* are the dependent variables: financial behaviour and use of e-finance respectively, *FinL* is the independent variable: financial literacy, *MS*: marital status, *MktS*: market segment are the control variables, ε_{it} is the error term and $\sigma_1 - \alpha_5$ are the coefficients of the variables in the model.

3. RESULT AND DISCUSSION

3.1. Results

a. Demographics

Table 1. Demographic Information on Respondents

		Frequency	%
Age (in years)	19-29	98	28.0
	30-39	97	27.7
	40-49	86	24.6
	50 and above	69	19.7
Marital Status	Married	171	48.9
	Not Married	145	41.4
	Divorced	16	4.6
	Widowed	12	3.4
	Refuse to answer	6	1.7
Education Level	S.H.S	177	50.6
	Diploma	44	12.6
	Degree	48	13.7
	Masters	14	4.0
	None	67	19.1
Market Segment	Commodity	112	32.0

Textile and clothing	98	28.0
Cosmetics	51	14.6
Kitchenware	52	14.9
Provisions	37	10.6

N= 350

Source: Data Processed (2024)

The study participants comprise a diverse group of female entrepreneurs, representing various age groups, marital statuses, and educational levels. The majority of participants fall within the age range of 29-39, closely followed by the 40-49 age group. In terms of marital status, there is a nearly equal distribution between single and married participants. The educational attainment levels reveal that a significant proportion of the population lacks formal education, while the majority have completed senior high school. However, it is important to note that a considerable percentage of participants hold degrees, indicating a significant presence of highly educated individuals in the market. The market segments primarily consist of commodities and textiles/clothing, followed by supplies, kitchenware, and cosmetics. These findings offer valuable insights into the characteristics of female market participants and establish a foundation for further investigations into their financial literacy and understanding.

b. Descriptive Statistics

Table 2. Descriptive Statistics

	Min	Max	Mean	Std. Dev	Skewness	Kurtosis
Financial Literacy	3.43	7.00	5.508	0.605	0.052	2.758
Financial Behaviour	2.00	7.00	4.666	0.898	0.021	3.028
Use of e-Finance	1.00	7.00	3.898	1.791	0.058	2.836

Source: Data Processed (2024)

The findings reveal intriguing results. The respondents possess an average financial literacy score of 5.5, indicating a moderate level of understanding. However, there is variation in the scores, suggesting that certain individuals exhibit a higher degree of financial literacy while others may benefit from additional guidance. The average diversity of financial behaviour is 4.6, signifying the need for improvement in fund management efficiency. This implies that some respondents may not be making the most optimal financial decisions. Surprisingly, the average score for e-finance usage is even lower at 3.9. This indicates that despite the potential advantages of digital financial instruments, the female entrepreneurs surveyed are not fully capitalizing on them.

c. Factor Analysis (Principal Component Analysis)

Table 3. Results of Factors Analysis

Factor name	Variables	Factor loading	% of Variance explained	Cronbach's alpha
Financial Literacy	FL5	0.541	32.408	0.748
	FL6	0.638		
	FL7	0.640		
	FL8	0.373		
	FL9	0.807		
	FL10	0.829		
	FL11	0.568		
	KMO = 0.657			
	Bartlett's test of sphericity	Chi-squared = 381.378	p-value = 0.000	

Financial Behaviour	FB12	0.718	42.803	0.831	
	FB13	0.649			
	FB14	0.698			
	FB15	0.764			
	FB16	0.718			
	FB17	0.677			
	FB18	0.593			
	FB19	0.856			
	FB20	0.725			
		KMO = 0.678			
	Bartlett's test of sphericity	Chi-squared =	p-value =		
		539.788	0.000		
Use of e-Finance	UeFin21	0.684	61.029	0.872	
	UeFin22	0.758			
	UeFin23	0.764			
	UeFin24	0.887			
	UeFin25	0.792			
	UeFin26	0.789			
		KMO = 0.855			
		Bartlett's test of sphericity	Chi-squared =	p-value =	
		990.053	0.000		

Note: FL: Financial literacy, FB: Financial behaviour, UeFin: Use of e-finance
Source: Data Processed (2024)

Factor analysis using the Principal Component Analysis (PCA) was employed to investigate the factors that influence the financial literacy, use of e-finance, and financial behaviour of women entrepreneurs. The analysis demonstrated that financial literacy is a coherent concept, accounting for 32.4% of the variability. It is grounded in fundamental knowledge such as budgeting skills, principles of savings, and awareness of investment options. This underscores the significance of equipping female entrepreneurs with the necessary resources to navigate the financial landscape effectively. The study also revealed that financial behaviour is significantly influenced by financial literacy, explaining 42.8% of the variability. This encompasses competencies such as financial management, decision-making, and future planning. It is crucial to empower female entrepreneurs with the means to responsibly apply their financial expertise. Furthermore, the implementation of electronic finance emerged as an independent and noteworthy factor, accounting for 61.0% of the variability. This is driven by the adoption of digital services, the utilisation of mobile money, and access to online banking platforms. To fully capitalise on digital financial solutions, market women need to feel comfortable and confident with technology. The findings of the study, which demonstrated strong internal consistency, provide a valuable framework for developing targeted interventions to address the unique challenges and needs of market women in their pursuit of financial security.

d. Regression analysis using OLS

Diagnostic testing on e-finance models and financial behaviour provides valuable information. All variant inflation factors (VIF) are less than 10, indicating multicollinearity among independent variables. These findings suggest that multicollinearity is not a major issue. The chi-square tests for homoskedasticity show that financial behaviour and e-finance model use are 2.28 and 1.45, respectively. The associated p-values exceed 0.05, suggesting insufficient evidence to reject the null hypothesis of homoskedasticity. Financial literacy, conduct, and e-finance usage ratings also appear to follow a normal distribution, according to normality tests. The diagnostic measures of the regression models indicate that the Financial Behaviour Model and the Use of e-Finance Model provide strong explanatory power. The independent variables account for 94.74% and 30.45% of the variance in the dependent variables, respectively, based on their R-squared values of 0.3045 and 0.9474. However, the corrected R-squared values, which are considered predictors, decrease

significantly but still indicate a well-fitting model. Both models have very low F-statistic p-values of 0.000, strongly rejecting the null hypothesis that the independent and dependent variables are uncorrelated. In conclusion, the complete diagnostics demonstrate the statistical significance and strong explanatory power of the regression models in predicting the use of electronic finance and financial behaviour.

Table 4. OLS Result of Financial Literacy, Financial Behaviour and Use of e-Finance

Variable	Financial Behaviour Model			Use of e-Finance Model		
	Coeff.	Std. Err.	P-value	Coeff.	Std. Err.	P-value
Constant	4.019	0.093	0.000	0.402	0.051	0.000
Financial Literacy	0.321	0.041	0.000	0.076	0.023	0.001
Age	0.094	0.021	0.000	0.267	0.012	0.000
Marital Status	-0.016	0.023	0.492	0.190	0.013	0.000
Educational Level	0.044	0.024	0.066	0.273	0.013	0.000
Market Segment	0.057	0.026	0.030	0.220	0.014	0.000
R ²	0.3045			0.9474		
Adjusted R ²	0.2944			0.9467		
F-Statistics	30.12			1239.99		
Prob>F	0.000			0.000		

Note: P-values significant at 5% and 10%

Source: Data Processed (2024)

The results obtained from OLS regression provide valuable insights into the factors that impact the financial behaviour and e-finance adoption of market women. It is clear from the financial behaviour model that increased financial literacy significantly influences financial behaviour for the better ($\beta=0.321$, p-value < 0.000). This demonstrates that financial knowledge and skills are crucial in helping female entrepreneurs in the market effectively manage their finances and make informed financial decisions. An age-dependent relationship exists ($\beta=0.094$, p-value < 0.000), suggesting that older women in the market exhibit a greater degree of financial responsibility. This may be due to age-related financial stability gains or the accumulation of experience. The findings of the model do not suggest that marital status and educational level significantly impact financial behaviour. While the influence of the market sector is marginal ($\beta = 0.057$, p-value = 0.030), further research is necessary to fully understand the specific differences among segments. Additionally, the e-finance model shows that financial literacy is a significant and positive predictor of e-finance adoption ($\beta=0.076$, p-value = 0.001). This highlights the idea that a solid understanding of financial principles promotes confidence and proficiency when using digital financial tools. Furthermore, the financial behaviour model reveals a substantial and noteworthy positive impact of age ($\beta = 0.267$, p < 0.000). According to these findings, younger market women are more likely to adopt e-finance solutions, possibly due to their greater technological proficiency. Marital status has a significantly positive effect ($c=0.190$, p-value = 0.000) on the adoption of e-finance, suggesting that married women may have greater access to resources and engage in collaborative decision-making processes that encourage electronic finance adoption. Moreover, there is a statistically significant correlation ($\beta=0.273$, p-value < 0.000) between higher levels of education and the utilization of e-finance. This indicates that education provides women with the confidence and skills needed to effectively use digital platforms. Both the market segment and financial behaviour paradigm significantly influence the adoption of electronic finance, with the market segment having a p-value of 0.000 and a beta coefficient of 0.220. These findings highlight the need for further investigation into distinct attributes specific to different market segments.

d. Robustness Testing and Sensitivity Analysis

The study conducted robustness testing and sensitivity analysis using ordered logistic regression and incorporating the moderating effects of age and educational level on the relationship between financial behaviour and the use of e-finance.

Table 5. Ordered Logistics Result of Financial Literacy, Financial Behaviour, Use of e-Finance and Moderating Effects of Age and Education Level

Variable	Financial Behaviour Model			Use of e-Finance Model		
	Coeff.	Std. Err.	P-value	Coeff.	Std. Err.	P-value
Financial Literacy	1.760	0.695	0.011	-2.939	0.562	0.000
Age	0.437	0.108	0.000	1.169	0.101	0.000
lnFL×Age	-0.653	0.260	0.012			
Educational Levels	0.140	0.066	0.034			
lnFL×EduL				1.418	0.189	0.000
Marital Status	-0.058	0.062	0.356	0.618	0.077	0.000
Market Segment	0.263	0.081	0.001	1.068	0.102	0.000
/cut1	-0.413			-0.721		
/cut2	-0.177			-0.362		
/cut3	0.325			0.220		
/cut4	0.770			0.817		
/cut5	1.293			2.115		
/cut6	1.623			4.017		
/cut7	1.986			4.198		
LR chi ²	67.55			470.97		
Pseudo R2	0.0528			0.366		
Prob > chi ²	0.000			0.000		
Log-likelihood	-605.820			-407.986		

Note: P-values are significant at 5% and 10%. lnFL×Age: log of financial literacy ×Age, lnFL×EduL: log of financial literacy and education levels.

Source: Data Processed (2024)

The findings indicate that age and financial literacy influence financial behaviour. Younger individuals are more influenced by financial literacy and are more likely to change their financial behaviours based on their level of financial knowledge. This aligns with previous research that suggests younger individuals are more receptive to financial education. Education is also found to be a significant factor in electronic finance utilization. Higher education is associated with increased usage of e-finance services and higher levels of financial literacy. This suggests that higher education may help individuals adopt and utilize electronic finance tools. The study highlights the importance of adapting financial literacy interventions to different educational attainment and age groups. It suggests that youth financial education should focus on promoting good financial practices and modern technologies, as younger individuals are more open to new financial concepts. The analysis emphasizes the reliability and relevance of the study's findings. Sensitivity analysis and robustness testing were conducted to ensure the validity of the results. The findings remained consistent across different assumptions and measurements, supporting their dependability. This suggests that the results may apply to other populations.

3.2. Discussion

The insights obtained from the OLS regression analysis regarding the factors that impact the financial behaviour and adoption of e-finance among market women are valuable. Theories including the Resource-Based View Theory and the Theory of Reasoned Action are consistent with these results. The findings underscore the critical importance of financial literacy in empowering market women to effectively manage their finances and make informed financial decisions (Barney, 1991; Yang & Konrad, 2011). This statement further underscores the RBVT's conviction that knowledge is an indispensable resource in

achieving a competitive advantage. Further elucidating the relationship between financial literacy and individuals' propensities to adopt digital financial services are the TRA's focal points on attitudes, subjective norms, and perceived behavioural control (Ajzen, 2011; Conner & McMillan, 1999).

The correlation between age and e-finance adoption and financial behaviour is apparent, with younger market women exhibiting a greater propensity to utilise e-finance solutions, likely attributable to their enhanced technological competence (Andarsari & Ningtyas, 2019). This finding is consistent with other research that underscores the influence of age on technological adoption and financial decision-making. Moreover, the correlation between educational attainment and marital status and the adoption of electronic finance underscores the impact of social and educational variables on the financial conduct of individuals. This is consistent with the Theory of Reasoned Action's emphasis on perceived control and subjective norms (Bongomin & Ntayi, 2020).

According to Atkinson and Messy (2020), the research findings support these findings and underscore the necessity of tailored financial literacy initiatives targeting individuals engaged in the informal sector, with a particular emphasis on female entrepreneurs. Research has shown that financial education initiatives facilitate the reduction of the gender disparity in financial literacy and empower women to make well-informed financial decisions; thus, these initiatives ultimately promote women's financial inclusion and economic empowerment (Adomako & Ahsan, 2022; Irrinki et al., 2023; Wealth & Svotha, 2023). Furthermore, a study has demonstrated a robust correlation between financial literacy and prudent financial behaviour among female entrepreneurs across various geographical areas (David-West et al., 2019; Rai et al., 2019). This provides additional support for the hypotheses formulated in this research.

Additionally, among female entrepreneurs, the research validates the correlation between e-finance usage and financial literacy. Research indicates that market women are more likely to effectively utilise digital financial services platforms when they possess a thorough understanding of them (Irrinki et al., 2023). Additionally, the attainment of financial literacy enhances individuals' confidence when it comes to employing automated financial tools, consequently leading to improved methods of managing one's finances (Hasanul Banna & Md Rabiul Alam, 2021).

4. CONCLUSION

In conclusion, this study highlights the importance of financial literacy in influencing the financial behaviour and adoption of electronic finance among female entrepreneurs in the traditional markets in Ghana. The study emphasizes the need for tailored financial literacy programs that address the unique circumstances and requirements of different demographic cohorts. It suggests targeting youth through individualized financial education programs to encourage the adoption of prudent financial practices and the incorporation of digital technologies. Policymakers and practitioners are recommended to prioritize the development and implementation of comprehensive financial literacy initiatives for women in the marketplace, considering the specific socio-demographic characteristics identified in the study. The primary goal of these initiatives should be to enhance the financial acumen and capabilities of women, fostering responsible financial conduct and proficiency in utilizing digital financial technologies. Furthermore, future research should delve deeper into the distinctive attributes that impact the adoption of electronic finance among market women in different segments. It should also explore innovative methodologies to enhance financial literacy and promote financial inclusion within this vulnerable population. Regular robustness testing and sensitivity analysis are crucial to ensure the reliability and applicability of research findings. By advancing the understanding of financial literacy and promoting the utilization of electronic finance among women in the marketplace, this

research contributes to the overall goal of empowering women economically and promoting financial inclusion.

5. REFERENCES

- Adomako, S., & Ahsan, M. (2022). Entrepreneurial passion and SMEs' performance: Moderating effects of financial resource availability and resource flexibility. *Journal of Business Research*, 144, 122-135. <https://doi.org/10.1016/j.jbusres.2022.02.002>
- Ajzen, I. (2011). The theory of planned behaviour: reactions and reflections. *Psychology & Health*, 26(9), 1113-1127. <https://doi.org/10.1080/08870446.2011.613995>
- Aman, H., Motonishi, T., Ogawa, K., & Omori, K. (2024). The effect of financial literacy on long-term recognition and short-term trade in mutual funds: Evidence from Japan. *International Review of Economics & Finance*, 89, 762-783. <https://doi.org/10.1016/j.iref.2023.10.006>
- Andarsari, P. R., & Ningtyas, M. N. (2019). The role of financial literacy on financial behaviour. *Journal of accounting and business education*, 4(1), 24-33.
- Ansari, Y., Albarrak, M. S., Sherfudeen, N., & Aman, A. (2023). Examining the relationship between financial literacy and demographic factors and the overconfidence of Saudi investors. *Finance Research Letters*, 52(2), 103582. <https://doi.org/10.1016/j.frl.2022.103582>
- Atkinson, A., & Messy, F.-A. (2020). Measuring financial literacy: Results of the OECD/International Network on Financial Education (INFE) pilot study. *Online library of the Organisation for Economic Cooperation and Development*, 23(1), 1-11. <https://doi.org/10.1787/20797117>
- Banna, H., & Alam, M. R. (2021). Impact of digital financial inclusion on ASEAN banking stability: implications for the post-Covid-19 era. *Studies in Economics and Finance*, 38(2), 504-523. <https://doi.org/10.1108/SEF-09-2020-0388>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. <https://doi.org/10.1177/014920639101700108>
- Basias, N., & Pollalis, Y. (2018). Quantitative and qualitative research in business & technology: Justifying a suitable research methodology. *Review of Integrative Business Economics Research*, 7(3), 91-105.
- Boateng, K. (2018). Ghana's progress in reaching out to the unbanked through financial inclusion. *International Journal of Management Studies*, 5(2), 1-10. <http://doi.org/10.18843/ijms/v5iS2/01>
- Boldar, J., Omanwa, C., & Baimwera, B. (2022). *Promotion of Financial Literacy through Financial Education Partnership for Financial Inclusion in Kenya: Case of Commercial Banks*. *Journal of International Business, Innovation and Strategic Management* 6(2), 70-88
- Bongomin, G. O. C., & Ntayi, J. M. (2020). Analyzing the relationship between financial literacy and financial inclusion by microfinance banks in developing countries: social network theoretical approach. *International Journal of Sociology and Social Policy*, 40(11/12), 1257-1277. <https://doi.org/10.1108/IJSSP-12-2019-0262>
- Bongomin, G. O. C., Woldie, A., & Wakibi, A. (2020). Microfinance accessibility, social cohesion and survival of women MSMEs in post-war communities in sub-Saharan Africa: Lessons from Northern Uganda. *Journal of Small Business and Enterprise Development*, 27(5), 749-774.
- Chorlton, K., Conner, M., & Jamson, S. (2012). Identifying the psychological determinants of risky riding: An application of an extended Theory of Planned Behaviour. *Accident Analysis Prevention*, 49(2), 142-153. <https://doi.org/10.1016/j.aap.2011.07.003>
- Conner, M., & McMillan, B. (1999). Interaction effects in the theory of planned behaviour: Studying cannabis use. *British Journal of Social Psychology*, 38(2), 195-222. <https://doi.org/10.1348/014466699164121>

- Damoah, O. B. O., & Peprah, A. A. (2021). Synthesis of small and medium enterprise research in Ghana. *Journal of Global Entrepreneurship Research*, 34(2), 451-468. <https://doi.org/10.1007/s40497-021-00286-x>
- Dannels, S. A. (2018). Research design. In *The reviewer's guide to quantitative methods in the social sciences* (pp. 402-416). Routledge.
- David-West, O., Iheanachor, N., & Umukoro, I. O. (2019). Mobile money as a frugal innovation for the bottom of the pyramid—Cases of selected African countries. *Africa Journal of Management*, 5(3), 274-302. <https://doi.org/10.1080/23322373.2019.1652023>
- Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. books.google.com.<https://books.google.com/books?hl=en&lr=&id=ZtiVEAAAQBAJ&oi=fnd&pg=PT14&dq=digital+financial+inclusion&ots=htbl3P1rae&sig=u9L5eNsVX19fA-9Mty7SRoEmEYA>
- Desai, R., Bhatt, K., & Raval, A. (2023). Financial Literacy and Its Impact on Financial Inclusion: Moderating Role of Gender. *The Journal of Wealth Management*, 25(1), 1-22. <https://doi.org/10.3905/jwm.2023.1.192>
- Franzke, S., Wu, J., Froese, F. J., & Chan, Z. X. (2022). Female entrepreneurship in Asia: a critical review and future directions. *Asian Business & Management*, 21, 343-372 (2022). <https://doi.org/10.1057/s41291-022-00186-2>
- Ghana Statistical Service, G. (2021). *2021 Population Housing Census. Provisional results* (1682-1750).
- Goyal, K., & Kumar, S. (2021). Financial literacy: A systematic review and bibliometric analysis. *International Journal of Consumer Studies*, 45(1), 80-105. <https://doi.org/10.1111/ijcs.12605>
- Graña-Alvarez, R., Lopez-Valeiras, E., Gonzalez-Loureiro, M., & Coronado, F. (2024). Financial literacy in SMEs: A systematic literature review and a framework for further inquiry. *Journal of Small Business Management*, 62(1), 331-380. <https://doi.org/10.1080/00472778.2022.2051176>
- Hasan, M. M., Yajuan, L., & Khan, S. (2022). Promoting China's inclusive finance through digital financial services. *Global Business Review*, 23(4), 984-1006. <https://doi.org/10.1177/0972150919895348>
- Hermawan, A., Gunardi, A., & Sari, L. M. (2022). Intention to use digital finance MSMEs: the impact of financial literacy and financial inclusion. *Jurnal Ilmiah Akuntansi Dan Bisnis*, 17(1), 171-182.
- Irrinki, M. K., Kalyani, C. V., Mahalakshmi, K., Reddy, T. M. V., & Sricharan, D. (2023). Connotation of financial literacy on financial inclusion—a study in west Godavari district. *Journal of Pharmaceutical Negative Results*, 14(2), 1738-1750. <https://doi.org/10.47750/pnr.2023.14.02.219>
- Jana, D., Sinha, A., & Gupta, A. (2024). Determinants of financial literacy and use of financial services: an empirical study amongst the Unorganized sector workers in Indian scenario. *Iranian Journal of Management Studies*, 12(4), 657-675. <https://doi.org/10.22059/IJMS.2019.268945.673392>
- Jennah, H. (2022). *OECD/INFE Toolkit for Measuring Financial Literacy and Financial Inclusion 2022*. <https://policycommons.net/artifacts/3806897/oecdinfe-toolkit-for-measuring-financial-literacy-and-financial-inclusion-2022/4612813/>
- Kandpal, V., Chandra, D., Dalei, N. N., & Handoo, J. (2023). Financial Literacy for Promoting Sustainability. In *Financial Inclusion in Circular Economy: A Bumpy Road Towards Sustainable Development* (pp. 79-89). Cham: Springer International Publishing.
- Kass-Hanna, J., Lyons, A. C., & Liu, F. (2022). Building financial resilience through financial and digital literacy in South Asia and Sub-Saharan Africa. *Emerging Markets Review*, 51, 100846. <https://doi.org/10.1016/j.ememar.2021.100846>

- Kirschning, R., & Mrożewski, M. (2023). The role of entrepreneurial absorptive capacity for knowledge spillover entrepreneurship. *Small Business Economics*, 60(1), 105-120. <https://doi.org/10.1007/s11187-022-00639-0>
- Koskelainen, T., Kalmi, P., Scornavacca, E., & Vartiainen, T. (2023). Financial literacy in the digital age—A research agenda. *Journal of Consumer Affairs*, 57(1), 507-528. <https://doi.org/10.1111/joca.12510>
- Muchandigona, A., & Kalema, B. (2022). Mobile Phone-Based Money as a Tool for Financial Inclusion in Developing Countries: A Review. Available at SSRN 4331717.
- Munyuki, T., & Jonah, C. M. P. (2021). The nexus between financial literacy and entrepreneurial success among young entrepreneurs from a low-income community in Cape Town: a mixed-method analysis. *Journal of Entrepreneurship in Emerging Economies*, 14(1), 137-157. <https://doi.org/10.1108/JEEE-01-2020-0020>
- Panos, G. A., & Wilson, J. O. (2020). Financial literacy and responsible finance in the FinTech era: capabilities and challenges. *The European Journal of Finance*, 26(4-5), 297-301. <https://doi.org/10.1080/1351847X.2020.1717569>
- Prasad, H., Meghwal, D., & Dayama, V. (2018). Digital financial literacy: A study of households of Udaipur. *Journal of Business and Management*, 5, 23-32.
- Rai, K., Dua, S., & Yadav, M. (2019). Association of financial attitude, financial behaviour and financial knowledge towards financial literacy: A structural equation modelling approach. *FIIIB Business Review*, 8(1), 51-60. <https://doi.org/10.1177/2319714519826651>
- Saif, M. A., Hussin, N., Husin, M. M., Alwadain, A., & Chakraborty, A. (2022). Determinants of the intention to adopt digital-only banks in Malaysia: The extension of environmental concern. *Sustainability*, 14(17), 11043. <https://doi.org/10.3390/su141711043>
- Shanmugam, K., Chidambaram, V., & Parayitam, S. (2023). Relationship Between Big-Five Personality Traits, Financial Literacy and Risk Propensity: Evidence from India. *IIM Kozhikode Society & Management Review*, 12(1), 85-101. <https://doi.org/10.1177/22779752221095282>
- Singh, R., & Mallick, H. (2024). Financial inclusion in India: an analysis from the user-side perspective. *International Journal of Social Economics*. <https://doi.org/10.1108/IJSE-03-2023-0162>
- Van Nguyen, H., Ha, G. H., Nguyen, D. N., Doan, A. H., & Phan, H. T. (2022). Understanding financial literacy and associated factors among adult population in a low-middle income country. *Heliyon*, 8(2), 9638-9649. <https://doi.org/10.1016/j.heliyon.2022.e09638>
- Watanapongvanich, S., Binnagan, P., Putthinun, P., Khan, M. S. R., & Kadoya, Y. (2021). Financial literacy and gambling behaviour: evidence from Japan. *Journal of Gambling Studies*, 37, 445-465. <https://doi.org/10.1007/s10899-020-09936-3>
- Wealth, E., Sivotwa, T. D., & Makanyeza, C. (2023). Impact of financial education on financial literacy and financial inclusion in Namibia. In *Financial Inclusion Regulatory Practices in SADC* (pp. 76-89). Routledge.
- Wernerfelt, B. (1995). The resource-based view of the firm: Ten years after. *Strategic Management Journal*, 16(3), 171-174. <https://doi.org/10.1002/smj.4250160303>
- Widati, S., Putri, G. A., & Arfiani, R. D. (2023, September). The Effect of Financial Inclusion and Financial Literacy on The Performance of MSMEs Batik Wonogiren (Case Study on Batik MSMEs in Wonogiri Regency). In *RSF Conference Series: Business, Management and Social Sciences* (Vol. 3, No. 3, pp. 196-207).
- Yang, J., Wu, Y., & Huang, B. (2020). Digital finance and financial literacy: An empirical investigation of Chinese households. *Applied Economics* 36(1), 19-32.
- Yang, Y., & Konrad, A. M. (2011). Understanding diversity management practices: Implications of institutional theory and resource-based theory. *Group Organization Management*, 36(1), 6-38. <https://doi.org/10.1177/1059601110390997>
- Ziegler, T., Shneor, R., Wenzlaff, K., Suresh, K., Paes, F. F. D. C., Mammadova, L., ... & Knaup, C. (2021). The 2nd global alternative finance market benchmarking report.