Financial Inclusion and Firm Performance: The Moderating Effect of Financial Literacy Among Women Entrepreneurs in India

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Abstract

According to the World Economic Forum's Gender Gap Report, the growth rate of women entrepreneurs in India surpassed that of men from 2016 to 2021. Nevertheless, the scholarly narration evidence that women entrepreneurs fail to access finance due to their lower demand for funds, supply-side discrimination, and perceived structural barriers. In 2019, the Reserve Bank of India's expert committee signaled that access to financial resources, effective and efficient utilization, and investment are critical for MSME competitiveness and survival. Hence, financial inclusion is indispensable for ensuring the sustainability of women's entrepreneurial endeavors. Financial literacy is vital for financial inclusion and its survival. The study gauges financial Inclusion among Indian women entrepreneurs and its effect on firm performance with the moderating effect of financial literacy. It also assesses the level of financial literacy in the fintech era. The data was collected from 130 women entrepreneurs through a structured questionnaire on the LinkedIn platform. The questionnaire was developed based on the OECD/INFE survey instrument to measure entrepreneurs' financial literacy. The study revealed that financial literacy can moderate financial inclusion and Firm performance. Further, there is evidence that women entrepreneurs fall low in financial literacy. Accordingly, the study underscores the importance of financial literacy for financial inclusion in line with the drastic shift in the financial sector. It urges policy reformers, financial institutions, entrepreneurial educators, and government bodies to promulgate policies and training programs on financial literacy that enable women's entrepreneurial sustainability.

Keywords: *Financial Inclusion, Financial literacy, Firm performance, women entrepreneurship, India*

JEL classification: D25, G02,

Introduction

Women's entrepreneurial financial inclusion has become a global research agenda(De Simone et al., 2021). Women's entrepreneurial financial inclusion" refers to integrating women entrepreneurs into the financial system, ensuring access to financial services, resources, and opportunities to support and grow their businesses(Kedir & Kouame, 2022). This topic has gained significant attention on the global research agenda for several reasons. Financial inclusion initiatives aim to address gender disparities in access to financial services. Historically, women have faced more significant challenges in accessing formal financial services. Enhancing women's entrepreneurial financial inclusion holds substantial ramifications for the economy. The efficacy of microfinance initiatives in Asian (Kedir & Kouame, 2022) and African (Mossie, 2023) nations underscores a constructive correlation between empowering women and fostering economic advancement. Nevertheless, the absence of access to formal finance places women entrepreneurs at risk of financial perils, including money laundering (Csordás et al., 2022). Emerging nations have implemented regulatory measures to mitigate inherent biases within financial institutions while assessing loan applications (Blanco-oliver et al., 2021); however, these efforts have yet to yield the desired outcomes. Banks provide women with a fair evaluation when they possess ample financial collateral or maintain a significant cash balance (Bongomin et al., 2020). However, this often becomes a limiting factor hindering their aspirations for business expansion.

Financial literacy encompasses the skills and knowledge necessary for entrepreneurs to make informed business decisions (OECD, 2020; Yoopetch, 2021). Entrepreneurs' ability to access finance positively impacts the growth of the national economy (Harpriya et al., 2022). Financial inclusion involves guaranteeing access to suitable financial products and services at reasonable costs (Hussain et al., 2018). In 2019, Grilli identified multiple challenges that impede the initiation or expansion of a business, highlighting access to finance as a predominant hurdle faced by women entrepreneurs in both developed and developing nations(Alam et al., 2022; Rafatnia et al., 2020; Tuffour et al., 2022). The absence of transaction history, requirement of collateralized assets, and loan charges are attributed to the primary hurdles women entrepreneurs encounter in accessing finance through traditional channels (OECD, 2017). Therefore, women entrepreneurs predominantly favor bootstrap financing through informal lending sources such as friends, family members, and moneylenders (Block & Fisch, 2022; Osei-Assibey et al., 2012; Singh et al., 2023; Villaseca et al., 2020)

Scholarly narration demonstrates that increased financial literacy significantly impacts women's financing behavior(Asif et al., 2023; Brixiová et al., 2020; Kiefer et al., 2022; Singh et al., 2023). Financial literacy is pivotal in fostering financial inclusion, stability, and capability(Rapp et al., 2018; Sulistianingsih & Santi, 2023; Yoopetch, 2021). It can significantly influence decision-making(Ramiah et al., 2016; Zayadin et al., 2023), risk management(Asif et al., 2023; S. Kumar & Kumar, 2020; Sulistianingsih & Santi, 2023), and overall financial behavior(Prakash et al., 2022; Serwaah & Shneor, 2021; Singh et al., 2023). Enhancing financial literacy among women entrepreneurs is crucial to securing advantageous financial decisions from the formal financial channels (Cullen, 2019; Raghuvanshi et al., 2017). Facilitating financial literacy among women presents a formidable challenge, primarily owing to the constraints imposed by social and cultural norms in emerging nations (Brixiová et al., 2020; Fauzi et al., 2021; Struckell et al., 2022). This is notably observable in India's male-dominated society, where women frequently encounter limitations in making independent financial choices.

The United Nations delineates various determinants contributing to the financial exclusion of women, encompassing aspects such as (1) income and property, (2) transaction expenses, (3) cultural norms, and (4) barriers between supply and demand(Khan et al., 2022). Insufficient financial education among women impacts their capacity to uphold essential documentation financial institutions seek during credit applications, consequently elevating transaction costs(Prakash et al., 2022; Sulistianingsih & Santi, 2023). Cultural norms further contribute to these costs by constraining women's mobility(Jha & Alam, 2022; Sara et al., 2023; Vershinina et al., 2020). Additionally, limitations imposed by the supply side often hinder women from owning assets (Bongomin et al., 2020). However, the advent of the digital financial revolution allows women to surmount these obstacles.

Information and communication technologies (ICTs) have been recognized as a valuable means to diminish the gender gap and overcome entrepreneurial barriers (Cabeza-García et al., 2019; Razen et al., 2021; Srhoj et al., 2022). However, while existing research underscores the significance of financial literacy in women's financial inclusion, there remains a dearth of exploration into how financial literacy directly impacts the capacity of women entrepreneurs to attain financial inclusion within the evolving digital landscape(Qiao et al., 2023; Sultan & Sultan, 2020), empowering them to attain higher returns. To address this gap, we investigate how financial literacy among women entrepreneurs influences their financial inclusion and subsequently guarantees sustainable firm performance. While previous studies have delved into women's financial inclusion(Kedir & Kouame, 2022; Serwaah & Shneor, 2021) and financial literacy (Melubo & Musau, 2020) as separate entities, none have thoroughly examined the interplay between these two critical phenomena in the new normal perspective. While financial inclusion initiatives aim to enhance access to financial services, the actual impact on firm performance might vary based on the level of financial literacy(C-M. Yiu, 2008; Rodrigues et al., 2022). It is essential to understand how businesses with varying financial literacy interact with traditional and digital financial inclusion to achieve better financial outcomes. Therefore, exploring the impact of financial literacy as a moderating variable in the relationship between different forms of financial inclusion and firm performance could yield valuable insights with implications for policymaking, financial services design, and educational interventions.

The study revealed that financial literacy can moderate financial inclusion and firm performance. Further, there is evidence that women entrepreneurs fall low in financial literacy. Accordingly, the study underscores the importance of financial literacy for financial inclusion in line with the drastic shift in the financial sector. It urges policy reformers, financial institutions, entrepreneurial educators, and government bodies to promulgate policies and training programs on financial literacy that enable women's entrepreneurial sustainability.

The paper is structured as follows, with subsection: Section 2 gives the literature review discussing the behavioral traits that determine the financial decision-making of women-owned enterprises. It examines the literature, outlines the research framework, and presents hypotheses. Section 3 methodology outlines the study's approaches, followed by the presentation and analysis of the results. The implications for theory and practice and recommendations are then provided. The paper concludes with a summary of the key findings in the final section.

Theoretical underpinning

In our pursuit to deepen our understanding of the proposed relationship between the identified variables, we delve into the Resource-Based View (RBV) framework to explore the advantageous impact of financial literacy on the correlation between financial inclusion and firm performance(Mokbel Al Koliby et al., 2022). Our contention lies in the assertion that financial literacy positively moderates the relationship between financial inclusion and firm performance. The central inquiry propelling this investigation is: How does financial literacy influence the relationship between financial inclusion and firm performance?

Consequently, our objective is to contribute substantially to the literature on entrepreneurship and dynamic capabilities. This study aims to explore an unexplored yet significant factor that moderates the relationship between financial inclusion and firm performance within the Resource-Based View (RBV) framework. By delving into this contingency, we introduce a theoretically meaningful aspect that has received limited research attention. According to the Resource-Based View (RBV) established by Barney in 1991 and further developed by Makadok in 2001, resources that are valuable, rare, and difficult to imitate can potentially serve as sources for gaining a competitive advantage. Given the perception of managers' financial expertise as a valuable, rare, and difficult-to-replicate resource (Barney,1991), the presence or absence of strategically important resources, like access to financial avenues, significantly shapes managers' capacity to make financing decisions. Hence, the accessibility or limitation of such resources plays a pivotal role in determining the extent to which managers can effectively navigate financial decision-making processes. Within the Resource-Based View (RBV) framework, this research investigates the role of financial literacy as a moderator in the connection between financial inclusion and firm performance. Our study presents a theoretical justification for understanding how financial inclusion interacts with financial literacy, serving as a pivotal dynamic capability crucial for augmenting firm performance. By integrating the concept of financial inclusion into the realm of dynamic capabilities theory, we aim to elucidate the specific resources and capabilities that contribute significantly to fostering substantial firm performance. This study holds significance as it examines the moderating influence of financial literacy on the relationship between financial inclusion and firm performance within the context of a developing country, where financial inclusion has been identified as a primary impediment to firm growth (Robson and Obeng 2008).

Literature Review

Financial literacy is a "combination of consciousness or a series of processes or activities designed to enhance the knowledge (P. Kumar et al., 2023; Serwaah & Shneor, 2021), skills, attitude, and behavior necessary to make informed financial decisions and ultimately achieve personal financial status"(Tuffour et al., 2022). According to Staschen and Nelson (2013), financial literacy refers to the ability to comprehend essential information about financial products and services, enabling individuals and businesses to make prudent financial choices (Struckell et al., 2022). Additionally, possessing financial literacy aids in making prudent financial choices for organizations. As highlighted by Hussain et al. (2018), the concept of financial literacy encompasses both external and internal dimensions. External financial literacy extends beyond mere access to financial information. It involves combining fundamental financial understanding with a wider spectrum of abilities, such as networking, communication, and cognitive skills. This holistic approach enables managers to synergize basic financial knowledge with diverse competencies, thereby enhancing their capacity to attain targeted objectives. Internal financial literacy plays a pivotal role in empowering managers to optimize the utilization of limited resources by implementing an adept and proficient financial management framework(Prakash et al., 2022; Rai et al., 2019). Enhanced financial literacy equips managers with the capacity to leverage credit and debt, monitor budgets, ensure timely procurement of raw materials, manage production, handle fixed and variable costs, and efficiently manage inventory usage (Reich & Berman, 2015).

According to Bire et al. (2019), the significance of financial literacy extends beyond its benefits to society; it impacts financial institutions. Financial literacy encompasses a wide spectrum, including saving habits, credit management, income generation strategies, utilization of financial technology, protective measures, and understanding interest mechanisms(Ahamed et al., 2021; Alam et al., 2022). The existing body of financial literacy literature demonstrates its influence primarily within the realm of Traditional financial inclusion, lacking sufficient representation or evidence concerning its implications within the sphere of digital financial inclusion.

Sujlana and Kiran (2018) defined financial inclusion as ensuring access to appropriate financial products and services among the various sectors of society(Ahamed et al., 2021; Bentancor, 2022; Cardella et al., 2020). Enabling consistent daily expenditure payments, this service provides reliable access to credit, supporting individuals in financing their small-scale income-generating endeavours. The advantages stemming from financial inclusion demonstrate a wide array of potential benefits. According to Grohmann et al. (2018), numerous obstacles hinder financial inclusion, with various studies delving into supply-side elements like high transaction cost, uncertainty, information asymmetry, and limited physical accessibility(Munyuki & Jonah, 2022; Panda, 2018). These aspects collectively impede the efficient utilization of financial services. Studies examining financial literacy consistently highlight the correlation between enhanced financial literacy and the ability to make prudent financial choices. According to Grohmann and Menkhoff (2017), the universal aspiration across nations involves maximizing financial service inclusion for all(Bongomin et al., 2020). A primary benchmark for assessing financial inclusion lies in the possession of a bank account. Iram et al., 2021, supported the notion that individuals utilizing formal financial services, including bank accounts and credit cards, may indicate possessing an elevated degree of financial literacy.

Panos & Wilson, 2020 recently emphasized the pivotal role of digital financial inclusion concerning women entrepreneurs, drawing from the resources-based theory. Their research sheds light on the significant obstacles faced by women entrepreneurs in accessing digital financial services due to a lack of essential digital skills and inadequate ICT infrastructure(Oggero et al., 2020; Ravikumar et al., 2022; Saba et al., 2022). These challenges align with the observations made on Indian entrepreneurs. Despite these insights, there remains a noticeable gap in the literature concerning our specific research inquiry. Consequently, in an effort to bridge this gap, we have formulated the following hypothesis to explore and provide empirical evidence on the pivotal role of digital financial inclusion in ensuring financial access for among women entrepreneurs.

Grohmann and Menkhoff (2017) discovered a significant correlation between increased levels of financial literacy and enhanced financial inclusion within well-established economic frameworks(Panos & Wilson, 2020). Conversely, within nations experiencing lower levels of economic development, access to financial support hinges upon financial literacy(Kedir & Kouame, 2022). Moreover, the research suggests that heightened financial literacy is closely linked to improved financial inclusion. Additionally, in tandem with the evolution of financial institutions, an increased emphasis on financial literacy can complement these institutions, encouraging greater utilization of financial services. These findings imply that numerous countries could integrate these insights into their economic policies. Encouraging the development of financial institutions alongside proactive efforts to enhance financial literacy could yield substantial benefits(Hasan et al., 2022; Ji et al., 2021; Yue et al., 2022).

Panos & Wilson, 2020 suggest that as financial depth increases, the marginal benefit of financial literacy in obtaining financial services, particularly bank accounts, diminishes, implying that these two factors act as substitutes. Addressing the significance of resources, (Panda, 2018) argue that access and availability of resources are pivotal for both male and female entrepreneurs, highlighting challenges related to industry-specific resources and entry choices; for instance, females tend to favor the services and retail sectors. Kedir & Kouame, 2022 illustrate the hurdles women encounter in accessing financial resources from formal institutions and safeguarding their rights within government systems. The global limitations on women's property ownership hamper their access to financial resources, compounded by restrictions on involvement in political, labour, and business realms (Liñán & Chen, 2009; Resmi et al., 2019)

Several previous studies have delved into the relationship between financial literacy and financial inclusion among women entrepreneurs. Brixiová et al., 2020 highlighted that a lack of financial knowledge restricts the women entrepreneur's access to financial services. Similarly, (GEM, 2022) concluded in their research that women possessing higher levels of financial literacy in the United States exhibit a greater tendency towards self-employment compared to men. Building upon these insights,(Alshebami & Alzain, 2022) found that proficiency in financial and numerical skills contributes to fostering an entrepreneurial culture among women. Despite these findings, the inquiry remains centered on how financial literacy facilitates the relationship between financial inclusion and firm performance among women entrepreneurs. Recently, there has been growing interest in exploring this relationship further (Brixiová et al., 2020).

In the decade since Fairlie and Robb's study in 2009, there has been a noticeable surge in interest concerning the correlation between gender dynamics and performance outcomes(Khan et al., 2022). Various research endeavours have delved into this area, exploring gender's implications in managing dynamic capabilities (Islam & Muzi, 2022). Additionally, studies have scrutinized the effects of stereotypes and biases on both actual and perceived firm performance(Rodrigues et al., 2022; Sellappan & Shanmugam, 2023). Furthermore, investigations have examined how gender influences the connection between leadership within firms and their performance(Vershinina et al., 2020).

Previous studies investigating the comparative performance between businesses initiated by women and men suggest a more intricate relationship than initially presumed. Herijanto & Rahadi, 2020 conducted an analysis exploring the impact of three distinct firm attributes—namely resources, industry type, and geographical location—on the performance of companies established by male and female entrepreneurs. Their findings revealed notable disparities: male-led enterprises tend to possess higher firm assets, frequently engage in high-technology manufacturing sectors, and are more commonly situated in densely clustered regions, in contrast to female-led firms(Alshebami & Alzain, 2022). This suggests that the relationship between the genders concerning firm performance is multifaceted and influenced by several nuanced factors beyond a straightforward comparison. The results indicate that the relationship between entrepreneur gender and firm performance is fully mediated by firm resources and contextual characteristics. Moreover, the findings indicate that gender does not hold substantial influence as a determinant of either domestic or international firm performance. While scholars persist in exploring the significance of gender within the realm of business, limited attention has been directed toward investigating the precise longitudinal shifts or developments in this area.

Drawing from the preceding literature, the discussion examines whether traditional and digital financial inclusion exerts a noteworthy influence on women-owned enterprises firm performance. Consequently, it is contended that these factors form the basis for the hypothesis.

Hypothesis 1: Traditional financial Inclusion significantly impacts the firm performance of women-owned enterprises.

Hypothesis 2: Digital financial inclusion significantly impacts the firm performance of women-owned enterprises.

Hypothesis 3: Financial literacy moderates the relationship between Financial inclusion and the Firm performance of women-owned enterprises.

Drawing from the preceding information, the discussion revolves around the potential influence of financial Inclusion on WOE owners' firm performance when complemented by the interventions of Financial Literacy. Consequently, the contention is made that Conceptual framework,

Methodology

This research employs a causal research methodology alongside moderation analysis to explore the impact of financial inclusion on the firm performance of women-owned enterprises, examining the moderating roles of financial literacy. A total 130 women-owned enterprise owners participated in the online Google survey through LinkedIn. These women entrepreneurs have established their operations in various regions of India and have accounts on the LinkedIn social media platform. The researcher distributed a survey instrument based on a 5-point Likert scale, containing questions about economic empowerment, financial security, and planning, access to entrepreneurial financing, service quality and affordability of traditional financial inclusion and digital financial inclusion, and financial literacy and the firm performance of women owned enterprise. The data collection instrument contains four sections with scales for the following variables: Traditional financial inclusion, digital financial inclusion, financial literacy, and Firm performance. The women-owned enterprise's firm performance is indicated by profit, turnover, and debt asset ratio.

To examine the research question, a linear regression was conducted to assess if the independent variable Traditional Financial Inclusion (TFI) and Digital Financial Inclusion (DFI) and Financial Literacy (FL) predict the dependent variable Firm performance." The following regression equation (primary effects model) will be used:

Firm performance (Y) = $\beta_0 + \beta_1$*Traditional Financial Inclusion (TFI) 1 + β_2*Digital financial inclusion (DFI) + ε,

where the β is the unstandardized beta coefficient.

Here's a breakdown of the equation elements:

Y represents the dependent variable, firm performance.

Traditional Financial Inclusion (TFI) and digital financial inclusion (DFI) are the predictor variables.

β_0 is the intercept, and β_1 and β_2 are the regression coefficients that represent the effect of each predictor variable on the dependent variable.

ε represents the error term, which accounts for unexplained variability in the dependent variable.

Andrew Hayes's moderation analysis, often implemented through the PROCESS macro in the SPSS statistical software, extends beyond Baron and Kenny's approach by allowing for a more comprehensive assessment of moderation effects in multiple steps. Hayes's approach involves several steps in examining the impact of Financial Inclusion (FI) as a predictor variable on firm performance (FP), with Financial Literacy (FL)as the moderating variable. First, it estimates the main effects model, assessing how FI independently relates to firm performance. Second, it incorporates the moderating variable, Financial Literacy, to examine its influence on the relationship between FI and FP. Lastly, the interaction term between the predictor variables (FI) and the moderating variable (FL) is added to explore the extent to which FL moderates the effects of FI on FP. Additionally, Hayes's approach offers various statistical tests and confidence intervals to ascertain the significance and strength of the moderation effects, providing a more nuanced understanding of how Financial Literacy influences the relationship between financial inclusion and firm performance. Assumptions related to regression analysis are evaluated at each step to ensure the robustness of the findings in this moderation analysis.

The reliability of the scale items for each variable was assessed using Cronbach's alpha. Evaluation of the Cronbach's alpha coefficient followed the criteria proposed by George and Mallery (2018), where scores above .9 were deemed excellent, above .8 were considered good, above .7 were considered acceptable, above .6 were considered questionable, above .5 were considered poor, and scores equal to or below .5 were regarded as unacceptable.

Table 1.

Validity and reliability of the item.

Factors		**Factor Loading**
Financial Inclusion		
Traditional Financial Inclusion (α = .862)		
TFi 1	Financial services impact on financing needs	.910
TFi 2	Enhance access to finance	.743
TFi 3	Relevance of loan product	.733
TFi 4	Profitability of loan terms and conditions of loan	.756
TFi 5	Security of financial services	.845
TFi 6	Affordability of account opening fees	.875
TFi 7	Cost-effectiveness of traveling to financial institutions	
Digital Financial Inclusion (**α = .862)**		
DFi 1	Digital financial services impact on financing needs	.815
DFi 2	Enhanced access to digital financial services	.729
DFi 3	Profitability of digital loan terms and conditions	.758
DFi 4	Security of digital financial services	.741
DFi 5	Affordability of account opening fees	.79
DFi 6	Accessibility to digital financial services	.7
Financial literacy		
Financial Knowledge (α =.744)		
FK 1	Knowledge on interest rate charged by bank.	.815
FK 2	Knowledge about credit score or ratings.	.763
FK 3	Knowledge about the managing business finance.	.771
FK 4	Understanding the details of my bank Statement	
Financial attitude (α =.707)		
FA 1	Confident to approach banks to obtain business finance	.721
FA 2	Set long term financial goals for the business	.731
FA 3	Influence the state of my business finances in the future	.717
FA 4	Prefer to follow my instinct rather	.718
Financial Behavior (α =.730)		
FB 1	Compare the cost of different sources of finance for the business	.815
FB 2	Decision on investment behavior.	.763
FB 3	Forecast on profitability	.771
FB 4	Monitoring external influences	.756
FB 5	Securing information about business	.703

Authors creation,2023

Table 1 presents the findings of the reliability analysis. The Cronbach's alpha coefficient for the components, including Traditional Financial Inclusion, Digital Financial Inclusion, and Financial Literacy, exceeded .70, signifying satisfactory reliability.

Analysis and results

Demographic profile

The findings in Table 2 outline the demographic profile of the women entrepreneurs concerning their enterprise and entrepreneur profiles. The entrepreneurial landscape delineates that 58% function as sole proprietors, 20% operate as firm partners, 12% embrace the cooperative business model, and 11% own limited liability partnerships. Within this spectrum, 31% represent sole proprietors or limited liability companies without employees; 57% employ 2-9 individuals, 4.9% manage 10-20 employees, and 6.7% oversee over 20 employees. As per the sectoral analysis based on the OECD 2020 report, less than 0.4% are aligned with agriculture, forestry, and fishing, while 5.8% operate in manufacturing. Moreover, 1.3% pertain to construction and real estate, and 5.4% are affiliated with accommodation, food, and beverage services. The preponderance, constituting 67%, falls within personal services encompassing Education, Health, Beauty, Repairs, and laundry. Additionally, 3.1% are associated with information and communication, while 7.6% are linked to business services such as legal, accounting, advertising, and cleaning.

Regarding the demographic specifics of the entrepreneurs, 46% of respondents are between 18-35 years old, 38% fall in the 35-50 age range, and 16% are aged 50 and above. Educational attainment reveals that 40% possess undergraduate degrees, whereas 60% have completed postgraduate studies. Among the participants, 41% have a background in commerce education, while the remaining 59% do not. Analyzing entrepreneurial experience, 19% have less than one year, 27% have 1-2 years, 32% have 2-5 years, 13% have 5-10 years, and 9.4% have over ten years of experience.

Table 2.

Demographic Profile

2.1 Enterprise profile

Characteristics		**Frequency**	**Percentage**
Ownership type	Sole Proprietorship	129	58
	Limited company	24	11
	Cooperative	26	12
	Partnership	44	20
	Total	**223**	**100**
No of employee	One person	69	31
	2-9 person	128	57
	10-19 Person	11	5
	20-49 Person	15	7
	above 50 Person	0	0
	Total	**223**	**100**
	Total	**223**	**100**
Sector	Agriculture, forestry, and fishing	1	0
	Manufacturing	13	6
	Construction and real estate	3	1
	Wholesale and retail trade	22	10
	Transportation, shipping, storage	0	0
	Accommodation, food and beverage services	12	5

	Personal services (Education, Health, Beauty, Repairs, laundry)	148	66
	Information and communication	7	3
	Business services such as legal, accounting, advertising, cleaning	17	8
	Total	**223**	**100**
	2.2 Entrepreneur profile		
Age	18-35	103	46
	35-50	85	38
	Above 50	35	16
	Total	**223**	**100**
Education	Graduation	89	40
	Postgraduation	134	60
	Total	**223**	**100**
Entrepreneurial experience	less than one year	42	19
	1-2 years	60	27
	2-5 years	72	32
	5-10 years	28	13
	>10 years	21	9
	Total	**223**	**100**

Source: Research data,2023

Impact of financial inclusion on firm performance

The study utilized linear regression analysis to examine the predictive influence of traditional financial inclusion, digital financial inclusion, and financial literacy on firm performance. The outcomes of the linear regression model, detailed in Table 3, demonstrated statistical significance (F (3,670) = 51.49, p < .001, R^2 = .18), indicating that approximately 18.61% of the variance in firm performance could be explained by traditional financial inclusion, digital financial inclusion, and financial literacy.

Notably, the analysis revealed that digital financial inclusion did not significantly forecast firm performance (B = -0.008, t (670) = - 0.35, p = .730). Therefore, based on the sample data, an increase of one unit in digital financial inclusion did not substantially impact firm performance. Consequently, the findings contradict the proposition that digital financial inclusion influences the financial behavior of women owners. However, financial literacy emerged as a significant predictor of firm performance (B = 0.26, t(670) = 9.67, p < .001). This implies that, on average, a one-unit rise in financial literacy leads to a 0.26-unit increase in the propensity for savings behavior. Thus, the results support the notion that traditional financial inclusion and financial literacy exert influence on firm performance. Overall, the analysis revealed that while digital financial inclusion did not significantly impact firm performance among women entrepreneurs, both traditional financial inclusion and financial literacy played pivotal roles in influencing their financial behavior and, subsequently, firm performance.

Table 3.

Hypothesis Testing

Hypothesis	Standardized coefficient	SE	β	t-value	p-value	Results
H_1: T Fi →Fp	0.10	0.02	0.18	3.64	<.001	Supported
H_2 :D Fi → Fp	-0.008	0.020	-0.01	-0.35	0.730	Not Supported
H_3: Fl → Fp	0.26	0.02	0.34	9.67	<.001	Supported

Source: Research data,2023

Note, Results: F(3,670) =51.49,p <.001,R^2 =.18

The moderation impact of financial literacy on financial inclusion and its impact on firm performance

Employing the Andre Hayes PROCESS macro to conduct moderation analysis, examined whether Financial Literacy moderated the relationship between Digital Financial inclusion and firm performance. We utilized factor analysis for both Financial Inclusion and Financial Literacy variables. The analysis outcomes, encompassing the simple, non-interaction, and interaction models, are detailed in Table 4, which compares these models.

The findings revealed a noteworthy result: Financial Literacy significantly moderated the impact of financial inclusion on firm performance (B = 0.16, t (670) = 2.35, p = .019, α = .05). This denotes that the influence of Financial Inclusion on firm performance was altered based on the level of Financial Literacy among participants. Furthermore, employing a partial F-test (F(1,670) = 5.54, p = .019, α = .05), we observed that the interaction model accounted for a significantly greater amount of variance compared to the non-interaction model. This suggests that the introduction of the interaction term - Financial Literacy moderating the relationship - improved the model's explanatory power.

Hence, our results support the contention that Financial Literacy is moderating in the association between financial Inclusion and Firm performance. It is important to note that the analysis omitted insignificant variables to focus on the key moderating effects."

Table 4.
Moderation Analysis with Firm performance predicted by financial inclusion moderated by financial literacy.

Model Type	Predictor Variable	Beta (B)	SE	β	T- value	P-value
Simple Effect	Financial Inclusion	0.14	0.02	0.17	4.54	<.001
Non-interaction	Financial Inclusion	.012	0.02	0.14	3.80	<.001
	Financial literacy	0.15	0.04	0.10	2.96	.002
Interaction	Financial Inclusion	.12	0.02	0.14	3.79	<.001
	Financial literacy	0.21	0.05	0.15	3.97	<.001
	Financial inclusion * Financial Literacy	.16	0.06	0.09	2.35	0.019

Discussion

The findings of the linear regression analysis shed light on the influence of traditional financial inclusion, digital financial inclusion, and financial literacy on firm performance among women owners. The overall model, as presented in Table 4, demonstrated statistical significance (F(3,670) = 51.49, p < .001, R^2 = 0.18), indicating that approximately 18.61% of the variance in Firm performance was accounted for by traditional financial inclusion, digital financial inclusion, and financial literacy collectively.

Surprisingly, the influence of digital financial inclusion and financial literacy on firm performance the results revealed that digital financial inclusion did not significantly predict firm performance (b = -0.009, t(671) = -0.35, p = .730). This suggests that within this sample, a one-unit increase in digital financial inclusion did not significantly impact firm performance. Therefore, the findings contradict the proposed notion that digital financial inclusion significantly influences the financial behavior of women owners regarding their firms. In contrast, the analysis unveiled a significant and positive relationship between financial literacy and firm performance (B = 0.27, t(671) = 9.68, p < .001). This implies that, on average, a one-unit increase in financial literacy among women entrepreneurs is associated with a notable increase in their firm's performance. These results align with the assumption that financial literacy plays a pivotal role in shaping financial decisions and strategies, consequently contributing positively to firm performance.

Furthermore, traditional financial inclusion and its impact on firm performance, it is noteworthy that the results did not reject the argument that traditional financial inclusion, alongside financial literacy, exerts an influence on firm performance. While digital financial inclusion showed no significant effect, traditional financial inclusion maintained its potential impact in this context. The outcomes of the moderation analysis illuminate a significant relationship between Financial Literacy and the impact of financial inclusion on firm performance. Notably, the findings underscore that Financial Literacy played a pivotal role in moderating the effect of Financial Inclusion on firm performance (B = 0.16, t = 2.35, p = .019, α = .05). This outcome indicates that the extent to which Financial Inclusion influenced firm performance was contingent upon the varying levels of Financial Literacy exhibited among the participants.

The discovery of Financial Literacy as a moderator in this relationship provides valuable insights into the dynamics between financial inclusion initiatives and their impact on firm performance. It suggests that merely providing access to financial services and resources might not independently guarantee enhanced firm performance; instead, the degree of Financial Literacy among entrepreneurs or participants appears to influence the outcomes significantly. Moreover, using a partial F-test (F = 5.54, p = .019, α = .05) to compare the models—specifically, the interaction model incorporating Financial Literacy as a moderator with the non-interaction model—yielded substantial evidence. The observation that the interaction model explained a significant proportion of the variance compared to the non-interaction model signifies the importance of incorporating Financial Literacy as a moderating factor. This enhancement in the model's explanatory power emphasizes the critical role played by Financial Literacy in shaping the relationship between Financial Inclusion initiatives and subsequent firm performance.

In essence, the global research agenda on women's entrepreneurial financial inclusion seeks to unravel the complexities surrounding access to finance for women entrepreneurs, highlight its significance in achieving broader developmental goals, and identify strategies to create a more inclusive and equitable entrepreneurial ecosystem for women worldwide. The findings underscore the significance of financial literacy as a key determinant of firm performance among women entrepreneurs. Enhancing financial literacy programs and initiatives could lead to improved financial decision-making and better firm performance. However, the lack of significant influence from digital financial inclusion highlights the need for further exploration and perhaps tailored interventions to better leverage digital financial services to benefit women-owned firms.

These insights emphasize the multifaceted nature of factors influencing firm performance among women entrepreneurs, suggesting that a comprehensive approach integrating traditional financial inclusion, digital financial services, and enhanced financial literacy could be pivotal in fostering sustainable growth and success within this demographic. These findings hold several implications for policymakers, financial institutions, and entrepreneurial support programs. Recognizing the significance of Financial Literacy in moderating the effects of Financial Inclusion programs implies a need for comprehensive strategies. Efforts should focus on improving access to financial services and enhancing Financial Literacy among entrepreneurs. This dual approach can potentially amplify the positive impact of Financial Inclusion initiatives on firm performance.

However, it's essential to acknowledge the limitations of this study, such as potential measurement biases or the generalizability of findings to broader contexts. Future research could explore the specific mechanisms through which Financial Literacy moderates the relationship between Financial Inclusion and firm performance. Additionally, investigating the long-term effects and sustainability of Financial Literacy interventions in conjunction with Financial Inclusion programs would further enrich our understanding of this domain.

In conclusion, these findings underscore the significance of considering Financial Literacy as a critical factor in shaping the outcomes of Financial Inclusion initiatives, offering valuable implications for policymakers and practitioners seeking to foster entrepreneurial success through inclusive financial strategies. This research delves into the influence of financial inclusion on women-owned enterprises, aiming to elucidate the discrepancy observed between the rise in digital financial services and the struggles in firm performance. The study further explores how financial literacy moderates the relationship between financial inclusion and the firm performance of women entrepreneurs.

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