DIGITAL FINANCIAL LITERACY AND THE PERFORMANCE OF FEMALE ENTREPRENEURS IN NIGERIA

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Abstract

This cross-sectional study investigates the interplay between entrepreneurial knowledge dimensions—Digital Knowledge (DK), Financial Knowledge (FK), Awareness of Digital Finance Risk (ADFR), Digital Finance Risk Control (DFRC), and Knowledge of Digital Finance Systems (KDFS)—and the Performance of Female Entrepreneurs (PFE) in the context of digital finance. A survey research method with purposive sampling through an online questionnaire of 94 female entrepreneurs in Kaduna state has been employed. The study found that digital knowledge (DK), financial knowledge (FK), awareness of digital finance risk (ADFR), digital finance risk control (DFRC) and knowledge of digital finance systems (KDFS) have positive and significant impact on the performance of female entrepreneurs (PFE). The study acknowledges limitations such as the cross-sectional design and the absence of mediators and moderators in the analysis. Practically, the study underscores the importance of cultivating positive attitudes and enhancing perceived control among female entrepreneurs in the digital finance realm.

Keywords: digital knowledge; financial knowledge; awareness of digital finance risk; digital finance risk control; knowledge of digital finance systems, resource-based view
JEL Codes: M30, M31, M37

Introduction

In Sub-Saharan Africa, the number of female micro-entrepreneurs have increased dramatically. This is due to the fact that female entrepreneurs usually commit practically all of their personal time, energy, and resources to generating income to remain afloat and expand their wealth (Pandey & Gupta, 2018). Furthermore, entrepreneurship allows women to thrive autonomously, lessening their concerns about their abilities to care for their children and, as a result, promoting other women to pursue personal, financial, or autonomous choices to advocate for themselves (Kevehazi, 2020). Sadly, many female

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entrepreneurs are still unable to reach their full potential (Hassan & Mugambi, 2013). Probably, as a consequence of not having enough exposure to financial education, adequate bookkeeping skills, cash flow forecasting, having poor social networks, gender-based discrimination, family obligations, work-life conflicts and general cultural prejudice (Liu, Pacho & Xuhui, 2019).

The entrepreneurship world is changing due to digital revolution. The digital revolution has had a profound impact on how businesses function in the quickly changing economic environment of today, particularly Small- and Medium-sized Enterprises (SMEs) (Oktasavira & Ismanto, 2022). In addition to altering how SMEs carry out their daily business, the digital sphere has also revolutionised the financial scene by providing new opportunities for expansion and success (Gosal & Nainggolan, 2023). But one essential component is necessary for navigating this digital financial landscape successfully: digital financial literacy. Female entrepreneurs need to be digitally literate in order to manage their finances, business operations, and minimise risks. Moreover, the fact that self-driven financial literacy via Fintech is going to grow even more crucial in our global economy is underscored by the world becoming more digital (Wil & Leslie, 2022; Stanoevska, Danevska, Sadiku & Dmitrieska, 2023).

Prasad, Meghwal and Dayama (2018) described digital financial literacy (DFL) as the comprehension of the online payment and banking systems for the purpose of expenditure and accumulation of funds. Azeez and Akhtar (2021) viewed it as taking into account digital monetary risks, improved use of knowledge about digital financial products, the fundamentals of risk control, comprehensive understanding of consumer rights and redress channels. To Lyons and Kass-Hanna (2021), DFL is financially literate on digital platforms which combines digital and financial literacy. Additionally, Xiao et al. (2014) noted that metrics of both financial and digital literacy/knowledge are used to conceptualise digital financial literacy. They described financial knowledge (FL) as being aware of financial services and products as well as having the application skills and literacy necessary to manage financial resources and attain excellent financial health, while being proficient with digital technologies is seen as digital literacy/knowledge.

It is noteworthy to mention that digital financial literacy is a relatively novel idea, existing at the nexus of digital and financial knowledge, and allowing users to fully benefit from digital financial services. As far as the researchers are aware, not many studies have been conducted in these areas, hence this study is proactive rather than reactive because the variables employed in it are novel. As such, this study included a portion of Ravikumar, Suresha, Prakash, Vazirani and Krishna (2022) dimensions of digital financial literacy such as digital knowledge, financial knowledge, awareness of digital financial risk, knowledge

of digital financial services, digital financial risk control which are newly proposed measures.

A number of studies, e.g. Khwatenge & Muchelule, 2023; Ojobo, Orga, & Okechukwu, 2023; Widiastuti, Kurniasih & Sri Martini, 2021; Fauzi, Antoni & Suwarni, 2020, demonstrated that the effect of digital knowledge on the performance of SMEs is direct and significant. The ability to read and comprehend information, especially when it comes to digital formats, goes hand in hand with the capacity to gather information. Digital technology may be a useful tool for SMEs in a number of ways, including cost reduction, strengthening customer networks and connections, enabling market niches, and stimulating innovation. In addition to increasing organizational competitiveness, ICT adoption can be a potent tactical and strategic weapon that boosts firm performance (Ranatunga, Priyanath, & Megama, 2020).

In the same vein, previous studies, e.g. Tuffour, Amoako & Amartey, 2022; Frimpong, Agyapong & Agyapong, 2022; Wati, Sumiati & Andarwati, 2021; Ye & Kulathunga, 2019; Games & Rendi, 2019; Lusardi, Michaud & Mitchell, 2017; Adomako, Danfo & Ofori, 2016; Eniola, Entebang, & Law, 2015, have displayed a positive and influential connection between financial knowledge and performance of SMEs. This base on the assertion that highly knowledgeable entrepreneurs in finance will be incentivised to actively participate in the management of the company's finances or offer financial guidance in order to address financial issues which will ultimately boost firm performance.

Awareness of digital financial risk refers to being knowledgeable and cautious about potential risks and threats related to financial transactions conducted online. It is critical to comprehend the privacy policies, security precautions, and potential frauds or scams related to digital financial transactions. When conducting business online, female entrepreneurs are advised to keep themselves educated and adopt the appropriate security measures to safeguard their financial and personal data. A number of researches (Ismanto, Widiastuti, Muharam & Pengestuti, 2021; Tuffour, Amoako & Amartey, 2022) discovered a direct and impactual connection between financial risk and performance of SMEs. In contrast, Amenawo, Chris, and James (2019) and Gayan and Koperunthevy (2016) discovered that there is no meaningful connection between SMEs' performance and financial risk.

Digital financial risk control is a continuous, monitored, controlled, and integrated formal process that defines objectives, identifies points of uncertainty, analyses unpredictability of uncertainty, and develops management capabilities in order to achieve a suitable balance of opportunity and risk. Similarly, risk control is a continual process that may assist in improving processes, desired outcomes, and resources; ensure statutory compliance; achieve performance objectives; promote financial stability; and, ultimately, avoid loss and damage to the organisation (Dickinson, 2001). Numerous studies, e.g. Ajayi

& Osasona, 2023; Yakob, Syah, Yakob & Raziff, 2019; Yang, Muhammad & Muhammad, 2018; Gayan & Koperunthevy, 2016; Yaakub & Mustafa, 2015; Yusuf & Dansu, 2013, found a positive and significant effect of financial risk control on performance of SMEs.

Knowledge of digital financial services can significantly boost the accessibility of fundamental financial services to people of all ages particularly the poor in an affordable, feasible, as well as safe setting using advanced technologies such as digital payment platforms, digital currency models, and mobile devices phone-enabled solutions. To make efficient use of digital financial services, the entrepreneur must be digitally literate. Digital financial services provide financial clients with both benefits and problems. According to the Alliance for Financial Inclusion (2021), problems include accepting complicated technology-based financial products and managing sophistication, whereas opportunities include personalised financial products and services, faster transactions, and convenient access to financial products. According to the OECD (2018), digital financial services encompass a range of financial operations that leverage digital technology, such as branch-less banking, i-teller, mobile and online financial services, electronic money, and mobile financial services. For female entrepreneurs, knowledge of digital financial services is essential since it is a prerequisite for both obtaining and using other expertise. Many studies, e.g. Zulqarnain, Mustehsan & Balouch 2023; Tuffour, Amoako & Amartey, 2022; Yuyi, 2022; Fernanda & Rodrigo, 2022, have found positive and significant impact of digital financial services on performance of SMEs.

Meanwhile, performance is described as the completion of a work to specified, acknowledged criteria of timeliness, completeness, cost, and accuracy. According to McNamara (2018), performance in a contract is defined as the accomplishment of a duty in a way that absolves the performer of all contractual obligations. It involves applying knowledge, skills, and abilities to complete a task. With new opportunities and difficulties, the integration of digital tools into financial processes has become a revolutionary force. Women entrepreneurs must have a sophisticated understanding of financial technologies and how to use them in order to successfully navigate this digital landscape.

This study aims to expand on past research findings and probe further into the intricate connection between digital financial literacy and the success of female entrepreneurs in Nigeria. The purpose of this study is to look at how knowledgeable female entrepreneurs are about digital financial tools, their ability to use these tools, and what effect this has on their financial health and development potential, with the ultimate goal of increasing female entrepreneurs' prosperity and resilience in the digital era. Therefore, on the basis of the aforementioned literature gaps, the study hypothesised that:

H01: Digital Knowledge does not have significant influence on performance of female entrepreneurs in Nigeria.

H02: Financial Knowledge does not have significant influence on performance of female entrepreneurs in Nigeria.

H03: Awareness of digital financial risk does not have significant influence on performance of female entrepreneurs in Nigeria.

H04: Digital finance risk control does not have significant influence on performance of female entrepreneurs in Nigeria.

H05: Knowledge of digital financial services does not have significant influence on performance of female entrepreneurs in Nigeria.

Theory of Resource-Based View

This research is based on the Resource-Based View (RBV). Digital financial literacy is crucial for improving female entrepreneurial success, especially when seen through the perspective of the firm's resource-based view (RBV). According to this theoretical approach, a company's productivity and success are heavily influenced by its distinctive resources and competencies (Barney, 1991). For female entrepreneurs, digital financial literacy is a valuable, unusual, distinctive, and not replaceable resource that has the potential to provide a competitive edge. For example, understanding and using digital financial tools allows these entrepreneurs to better manage their finances, access online financing sources, assess market trends, and make educated choices that are critical for company survival and development (Lusardi & Mitchell, 2014). Furthermore, digital financial literacy empowers women by breaking down conventional barriers to financial markets and networks, which often results in better company performance in terms of profitability, long-term viability, and sustainability. Thus, in the context of RBV, increasing digital financial literacy among female entrepreneurs is critical because it provides them with crucial skills and information that serve as strategic resources for improving their company success.

Methodology

The study used a quantitative research design, including survey and cross-sectional research methods, to evaluate digital financial literacy among female entrepreneurs in Kaduna State. The target respondents consisted of female entrepreneurs with postsecondary educational backgrounds and access to electronic mail, since digital financial literacy was thought to need formal educational literacy and technology competency. The study aims to gather perspectives from female entrepreneurs with postsecondary education and email capabilities, since they are more likely to have the necessary skills for navigating digital financial systems. To collect data, an online questionnaire was sent to 120 female entrepreneurs. Out of the 106 pieces of questionnaire received, 12 were removed because

of missing or incomplete information, leaving a final sample size of 96 respondents for analysis. This resulted in an overall response rate of 80%, showing a high degree of engagement within the targeted sample. Furthermore, the use of a snowball sampling approach aided in the identification of new participants through existing relationships, possibly increasing the sample size and diversity of opinions represented in the study.

Measures

This study used research instruments from prior studies to evaluate the research instruments. First, multidimensional scale digital financial literacy was measured using Ravikumar, et al (2022) digital financial literacy scale adapted to suit the Nigeria context. Digital Knowledge (DK) was assessed using 5-item with Cronbach's alpha of 0.823 depicting the consistency of the instrument. A sample of the question is: "I use internet banking". Financial Knowledge (FK) was measured using 6-item with Cronbach's alpha of 0.716 showing that the instrument is consistent. One of the sampled items is: "I prepare a budget for my personal finance every month". Knowledge of Digital Financial Services (KDFS) with 4-items was used to measure the construct. The reported Cronbach's alpha was 0.721 showing that the instrument is appropriate for this study. One of the research items is: "I am aware of digital payment methods such as Konga, Jumia, Alibaba and so on". Awareness of Digital Finance Risk (ADFR) was measured employing 4-items with reported Cronbach's alpha of 0.701 displaying that the instrument is dependable. A sample question is "I am aware that I am exposed to various risks such as phishing, and spyware when I perform a digital financial transaction". Digital Finance Risk Control (DFRC) with reported Cronbach's alpha of 0.792 and 4-items. "I can resolve errors that happen in a digital financial transaction" was utilised to measure the last dimension of financial digital literacy. The criterion variable Performance of Female Entrepreneurial (PFE) was measured using 8-items of Spillan and Parnell (2006) with reported Cronbach's alpha of 0.764. A sample of the question is: "Profit goals have been achieved".

Research Findings

The research employed a structural equation model (SEM) to examine the hypothesised relationship between the constructs, as well as to assess their validity and reliability. The item loadings, reliability, and validity (convergent and divergent validity) were assessed using the SEM measurement model. The influence of the predictor on the criterion variable was determined using the structural model.

Measurement Model

Figure no. 1 Pictorial display of Measurement Model
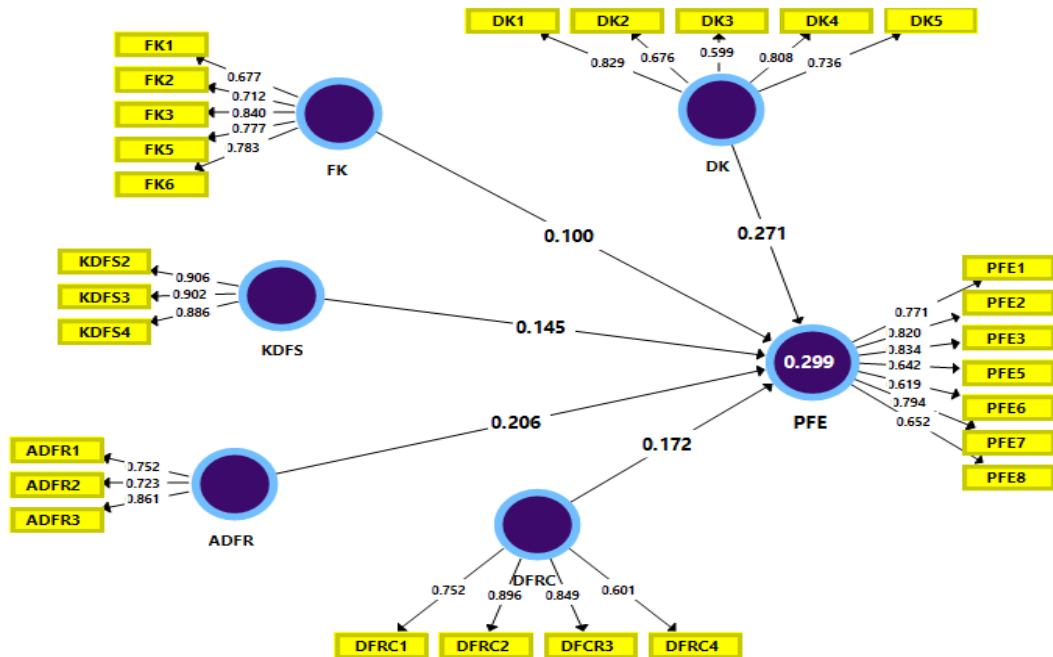
Source: Authors' systemisation of Smart-pls output

The research analysis commenced by determining item loadings. According to Hair, Risher, Sarstedt, and Ringle (2019), for subsequent analyses, only items that have a loading of 0.70 or higher should be held and utilised. However, owing to the practicality of possessing loadings that are below 0.7, Hulland (1999) argued for retaining loadings of 0.5 and higher while taking into account the influence of the threshold on convergent validity and reliability. As a result, loadings of 0.5 were preserved, whereas those of less than 0.5, such as FK4, KDFS1, ADFR4, and PFE4, were expunged (see Table 1 and Figure 1). The study was evaluated for convergent validity using Average Variance Extracted (AVE). Hair et al. (2021) advised an AVE value of 0.5 or above to demonstrate that the concept has convergent validity. The fact that all of the constructs' AVE values in Table 1 exceed the 0.5 threshold indicates that the constructs have convergent validity. A value of 0.7 or above is suggested by Hair, Page, and Brunsveld (2020) to indicate consistency and reliability in the construct. It is evident from Table 1 that the composite reliability values are higher than the 0.7 threshold. Thus, the constructs are reliable.

Table no. 1 - Item Loadings, Reliability and Convergent Validity

Constructs	Items	Loadings	Composite Reliability	AVE
Awareness of Digital Finance Risk	ADFR1	0.752	0.824	0.610
	ADFR2	0.723		
	ADFR3	0.861		
	DFCR3	0.849		
Digital Finance Risk Control	DFRC1	0.752	0.861	0.613
	DFRC2	0.896		
	DFRC4	0.601		
Digital Knowledge	DK1	0.829	0.853	0.540
	DK2	0.676		
	DK3	0.599		
	DK4	0.808		
	DK5	0.736		
Financial Knowledge	FK1	0.677	0.872	0.578
	FK2	0.712		
	FK3	0.840		
	FK5	0.777		
	FK6	0.783		
Knowledge of Digital Financial Services	KDFS2	0.906	0.926	0.807
	KDFS3	0.902		
	KDFS4	0.886		
Performance of Female Entrepreneurs	PFE1	0.771	0.892	0.545
	PFE2	0.820		
	PFE3	0.834		
	PFE5	0.642		
	PFE6	0.619		
	PFE7	0.794		
	PFE8	0.652		

Source: Authors' systemisation of SmartPLS output (2024)

Furthermore, the study checked for divergent validity as recommended by Hair et al., 2019; Kline, 2011. The study checked for divergent validity using heterotraits-monotratraits correlation ratio as recommended by Henseler, Ringle and Sarstedt (2015)

owing to the inability of the previous used methods of Fornell and Larcker Criterion and Cross-loading to detect lack of discriminant validity among constructs. Meanwhile, two benchmarks were advocated for by scholars Kline, 2011; Henseler et al., 2021. Kline advocated for a strictly threshold of < 0.85 for construct that are conceptually different while Henseler et al. (2015) recommended a more relax threshold of < 0.90 for construct that are conceptually similar. As such, since the constructs of study are conceptually similar, threshold of < 0.90 was utilised. Therefore, since the correlations between constructs are less than 0.90, divergent validity is hereby confirmed.

*Table no. 2 - Heterotrait-Monotrait (HTMT) Ratio of Correlations Discriminant Validity*

Constructs	ADFR	DFRC	DK	FK	KDFS	PFE
ADFR						
DFRC	0.148					
DK	0.222	0.271				
FK	0.299	0.229	0.496			
KDFS	0.337	0.196	0.219	0.416		
PFE	0.358	0.287	0.461	0.394	0.354	

Source: Authors' systemisation of SmartPLS output (2024)

Structural Model

The assessment of the direct correlation between the exogenous and endogenous variables is covered in detail in this section. Furthermore, assessments were made of the predictive relevance (Q^2), effect size (f^2), and coefficient of determination (R^2).

Figure no. 2 Pictorial display of Structural Model
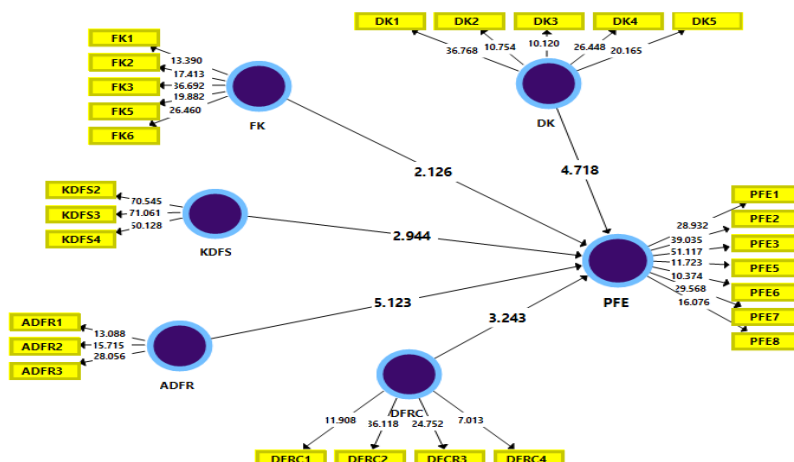
Source: Authors' systemisation of Smart-pls output

Hypotheses	Relationship	Beta	Standard Deviation	T Statistics	P Values	Decision
H_{01}	DK->PFE	0.271	0.057	4.718	0.000	Rejected
H_{02}	FK->PFE	0.100	0.047	2.126	0.034	Rejected
H_{03}	ADFR->PFE	0.206	0.040	5.123	0.000	Rejected
H_{04}	DFRC->PFE	0.172	0.053	3.243	0.001	Rejected
H_{05}	KDFS->PFE	0.145	0.049	2.944	0.003	Rejected
	$R^2=0.299$					

Source: Authors' systemisation of SmartPLS output (2024)

In Table 3 above, H01 indicates a positive connection between Digital Knowledge (DK) and Female Entrepreneurial Performance (PFE), which is supported by a significant beta coefficient of 0.271, T Statistics of 4.718, and a P-Value of 0.000. This shows that the increased digital knowledge has a beneficial impact on female entrepreneurs' performance. As such, H01 was rejected. Hypothesis 2 (H02) investigates the effect of Financial Knowledge (FK) on PFE and finds a beneficial association with a beta value of 0.100. The T Statistics of 2.126 and a P-Value of 0.034 confirm the relevance of this association, emphasising the importance of financial knowledge in moulding the performance of female entrepreneurs. Thus, H02 is rejected. Hypothesis 3 (H03) investigates the positive connection between Awareness of Digital Finance Risk (ADFR) and PFE, as shown by a significant beta coefficient of 0.206, T Statistics of 5.123, and a P-Value of 0.000. This underscores the importance of risk awareness in shaping the performance of female entrepreneurs in the digital financial ecosystem. Therefore, H03 is likewise rejected. Hypothesis 4 (H04) looks at the beneficial influence of Digital Finance Risk Control (DFRC) on PFE, which is supported by a beta coefficient of 0.172, a T statistic of 3.243, and a P value of 0.001. These results show the need to apply digital finance risk management strategies to improve female entrepreneurs' success. As a result, hypothesis H4 is rejected. Finally, Hypothesis 5 (H05) investigates the positive link between Knowledge of Digital Finance Systems (KDFS) and PFE, as shown by a beta coefficient of 0.145, a T statistic of 2.944, and a P value of 0.003. This highlights the importance of digital finance system expertise in affecting the performance results of female entrepreneurs. Consequently, H5 is rejected.

Meanwhile, the R^2 value of 0.299 indicates that the combined influence of Digital Knowledge (DK), Financial Knowledge (FK), Awareness of Digital Finance Risk (ADFR), Digital Finance Risk Control (DFRC), and Knowledge of Digital Finance Systems (KDFS) can explain approximately 30% of the variation in Female Entrepreneurs' (PFE) performance. As Chin (1998) points out, this shows a modest degree of explanatory ability. It also means that the model does not account for all of the variables that contribute to the remaining 70% of unexplained variability in female entrepreneurial performance. Researchers and practitioners should recognise these possible additional variables in order to have a more complete understanding of the dynamics that affect female entrepreneurs' success in the setting of digital finance.

Effect Size (f^2)

The f-square (f^2) in an ANOVA or regression model, is the amount of variance in an endogenous variable that can be explained by every single exogenous variable (Hair, Black, Babin, & Anderson, 2014). The f-square is the ratio of explained variance to total variance, which indicates the strength of the link between variables (Mustapha, Ojeleye & Salisu, 2022). A higher f-square value indicates a bigger effect size, implying that the target independent variable accounts for a greater share of the variability in the dependent variable. Researchers utilise effect size to supplement statistical significance tests, giving them a more complete picture of the practical or substantive relevance of observed correlations (Ojeleye, Ojeleye, Karem, & Abdullahi, 2023). Cohen (1988) defines effect sizes of 0.02, 0.15, and 0.35 as small, medium, and large, respectively, providing useful insights into the practical implications of study results that go beyond statistical significance.

Table no. 4 - Effect Size (f^2)

Constructs	PFE (f^2)	Effect Size
ADFR	0.055	Small
DFRC	0.039	Small
DK	0.085	Small
FK	0.010	Nill
KDFS	0.025	Small

Source: Authors' systemisation of SmartPLS output (2024)

The table presents the effect sizes (f^2) for various constructs in relation to the Performance of Female Entrepreneurs (PFE). The effect sizes quantify the proportion of variance in PFE explained by each construct. The Awareness of Digital Finance Risk (ADFR) demonstrates a small effect size of 0.055, indicating a modest impact on PFE.

Similarly, Digital Finance Risk Control (DFRC) and Knowledge of Digital Finance Systems (KDFS) exhibit small effect sizes of 0.039 and 0.025, respectively, suggesting relatively modest contributions to PFE variance. Digital Knowledge (DK) shows a slightly larger effect size of 0.085, implying a slightly more substantial influence on PFE. Conversely, Financial Knowledge (FK) has a negligible effect size of 0.010, indicating minimal impact. These effect sizes provide insights into the practical significance of the relationships, with ADFR, DFRC, DK, and KDFS showing small effects, while FK appears to have a negligible impact on the performance of female entrepreneurs.

Predictive Relevance (Q^2)

Hair et al. (2014) define Predictive Relevance (Q^2) as a model's ability to accurately anticipate future observations based on known connections. A positive Q^2 value suggests that the model's predictions outperform the mean of the dependent variable. Higher Q^2 values indicate that the model effectively captures and explains the variability in the dependent variable. Q^2 is used by researchers and practitioners to measure a model's generalizability and reliability in predicting outcomes beyond the sample data used for estimate (Ojeleye et al., 2023).

Table no. 5 - Assessment Predictive Relevance

Constructs	SSO	SSE	Q^2 (=1-SSE/SSO)
PFE	2,779.000	2,371.550	0.147

Source: Authors' systemisation of SmartPLS output (2024)

Table 5 shows the Predictive Relevance scores for the different variables, with an emphasis on Female Entrepreneurs' Performance (PFE). The Sum of Squares entire (SSO) depicts the entire variability in PFE, while the Sum of Squares Error (SSE) measures unexplained or residual variance. The Q^2 score for PFE is 0.147, suggesting that the model predicts more variation than the mean. The model's positive Q^2 indicates predictive usefulness, explaining 14.7% of female entrepreneurs' performance variability. The evaluation emphasises the model's capacity to produce meaningful predictions about PFE, which helps to improve knowledge of its forecasting accuracy and generalisation beyond the sample data used for the model estimate.

Discussions

Hypothesis 1 (H01) investigates the complex link between Digital Knowledge (DK) and the Performance of Female Entrepreneurs. The findings reveal a significant beneficial

influence, demonstrating that as female entrepreneurs increase their digital expertise, so does their performance. The outcomes of the study are congruent with prior research of Khwatenge and Muchelule (2023); Ojobo, Orga, and Okechukwu (2023); Widiastuti, Kurniasih, and Sri Martini (2021); and Fauzi, Antoni, and Suwarni (2020). This finding is consistent with the broader understanding that, in an increasingly digital business landscape, entrepreneurs with enhanced digital knowledge are better positioned to leverage technology, optimise operational efficiency, and tap into digital markets, thereby influencing their overall performance. Furthermore, this finding underlines the critical role that digital literacy plays in the success of female entrepreneurs, emphasising the need of promoting digital education and skill development efforts to empower women in the entrepreneurial sphere.

Financial knowledge improves the performance of female entrepreneurs (PFE). These data indicate that the observed association was unlikely to arise by coincidence. The findings are consistent with past research of Tuffour, Amoako, and Amartey (2022); Frimpong, Agyapong, and Agyapong (2022); Wati, Sumiati, and Andarwati (2021); Ye and Kulathunga (2019); Games and Rendi (2019); Lusardi, Michaud, and Mitchell (2017); Adomako, Danfo, and Ofori (2016); and Eniola, Entebang, and Law (2015). This is consistent with long-held beliefs that financial literacy is an important predictor of company success, since entrepreneurs with a solid grasp of financial concepts are better able to make educated choices, manage resources efficiently, and overcome economic problems. The moderate effect size and statistical significance highlight the practical importance of financial knowledge for female entrepreneurs, emphasising the potential benefits of targeted financial education programmes in improving their business acumen and overall performance in the entrepreneurial landscape.

Hypothesis 3 investigates the association between Awareness of Digital Finance Risk (ADFR) and Performance of Female Entrepreneurs (PFE). The large beta value of 0.206 suggests a significant positive effect, meaning that increased knowledge of digital financial hazards is linked to better entrepreneurial success among women in Kaduna state. The findings are consistent with earlier research, such as Tuffour, Amoako, and Amartey (2022); Ismanto et al. (2021). This finding is consistent with current business perspectives that emphasise the critical role of risk management in the digital era, implying that entrepreneurs who are aware of potential financial risks associated with digital transactions are better positioned to proactively mitigate challenges and seize opportunities. The significant impact size emphasises the practical importance of risk awareness, as well as its potential role in determining the performance results of female entrepreneurs. These results add to the wider discussion of risk perception in entrepreneurship, emphasising the

significance of developing risk intelligence among female entrepreneurs in order to increase their resilience and success in the digital financial ecosystem.

The association between Digital Finance Risk Control (DFRC) and Female Entrepreneurs' Performance (PFE) was significant. The hypothesis proposes that efficient management of digital finance risks is linked to improved entrepreneurial success among women in Kaduna state. The findings contradict earlier research, including those of Ajayi and Osasona (2023), Yakob, Syah, Yakob, and Raziff (2019), Yang, Muhammad, and Muhammad (2018), Gayan and Koperunthevy (2016), Yaakub and Mustafa (2015), and Yusuf and Dansu (2013). The concept of risk control is especially pertinent in the context of digital finance since it suggests proactive steps that entrepreneurs may take to limit possible hazards connected with financial transactions in the digital arena. Successful digital finance risk control techniques may include technology protections, secure financial procedures, and effective management practices. A positive validation of this hypothesis would imply that female entrepreneurs who are skilled at navigating and managing digital finance risks may have better overall company success. This study might have an impact on company strategy by emphasising the significance of risk management in the context of digital financial transactions for female entrepreneurs, eventually leading to a more resilient and successful entrepreneurial environment.

Hypothesis 5 showed that knowledge of digital finance services (KDFS) had a significant influence on the performance of female entrepreneurs (PFE). This hypothesis argues that women's entrepreneurial success improves as their understanding of digital financial systems increases. Understanding and managing financial systems may be critical for entrepreneurs in the digital era, as they become more dependent on technology. A positive validation of this hypothesis would imply that female entrepreneurs with extensive understanding of digital finance systems had a competitive advantage, perhaps leading to more effective financial decision-making and overall company success. This study may highlight the need of digital finance literacy programmes and efforts aimed at female entrepreneurs, which seek to improve their knowledge and competence in using digital financial systems to boost performance and competitiveness in their businesses. The findings are congruent with earlier studies of Zulqarnain, Mustehsan, and Balouch (2023); Tuffour, Amoako, and Amartey (2022); Yuyi (2022); and Fernanda and Rodrigo (2022).

Implications

The hypothesis analysis results have various practical and theoretical implications for the support and growth of female entrepreneurs in the online financial space. The favourable effect of Digital Knowledge (DK), Financial Knowledge (FK), Awareness of Digital Finance Risk (ADFR), Digital Finance Risk Control (DFRC), and Knowledge of

Digital Finance Systems (KDFS) on Female Entrepreneur Performance (PFE) identifies critical areas for focused interventions. Policymakers and business support organisations might create and execute specialised training programmes to increase female entrepreneurs' digital and financial literacy, promoting a better awareness of digital finance systems, risk management methods, and financial decision-making. Furthermore, activities focused at improving knowledge of digital financial hazards and encouraging appropriate risk management techniques may enable female entrepreneurs to traverse the digital business world more confidently. Overall, these findings highlight the importance of comprehensive education and support mechanisms that go beyond traditional entrepreneurial skills, with a particular emphasis on digital and financial aspects, to foster the viability and adaptability of female entrepreneurs in a progressively technology-driven business climate.

The theoretical implications of investigating the influence of digital financial literacy on female entrepreneurial performance using the resource-based view (RBV) are significant. This strategy emphasises the idea that distinctive skills, such as digital financial literacy, constitute the basis for competitive edge and corporate success. According to RBV, not all resources are equally important; crucial assets are those that are precious, uncommon, unique, and non-substitutable, and may have a major impact on a company's success. This research emphasises the potential for female entrepreneurs to gain long-term competitive advantages by classifying digital financial literacy as a strategic resource. This emphasises the necessity of developing such abilities not just to improve individual business success, but also to promote greater financial empowerment and gender equality in the entrepreneurial environment. Additionally, this approach calls for deeper study into how different types of literacy and digital skills may be used to boost entrepreneurial endeavours, especially those headed by women, extending the conversation on entrepreneurship and resource-based strategies.

Limitations and Suggestions for Further Study

Despite giving significant insights, this research has numerous limitations that should be considered. First, the cross-sectional character of the study methodology makes it difficult to demonstrate causal linkages, impeding a more in-depth knowledge of dynamic processes across time. Furthermore, relying on survey methodologies may result in answer bias and common method variation. The particular selection of entrepreneurs using an online questionnaire may restrict the generalizability of the results since it does not reflect the experiences of a more varied and representative population. Furthermore, by focusing just on direct links and excluding possible mediators or moderators such as institutional support, entrepreneurial orientation, entrepreneurial network, self-efficacy, resilience, digital financial inclusion, management capabilities and service innovation. The research

offers a limited view on the intricate interaction of variables that influence female entrepreneurs' success in the digital finance industry. Future study should use a wider range of research methods, such as longitudinal technique and qualitative designs, to overcome these constraints and provide a more complete knowledge of the complex dynamics involved in female entrepreneurship in the digital financial ecosystem.

Conclusion

The study's findings demonstrate the importance of digital and financial knowledge, risk awareness, and risk management in determining the performance of female entrepreneurs in the context of digital finance. The good associations seen highlight the necessity of providing female entrepreneurs with the skills and knowledge required to negotiate the intricacies of the digital business sector. However, it is critical to recognise the study's shortcomings, such as its cross-sectional design, dependence on survey techniques, and the absence of possible mediators and moderators. These limitations highlight the need of exercising care when drawing causal conclusions and urge for more study to investigate the complex processes at play. Nonetheless, the practical consequences are significant, emphasising the need of focused training activities and support structures to improve the digital and financial literacy of female entrepreneurs. By addressing these results, policymakers and stakeholders may help to create a more favourable climate for female entrepreneurs' success in the changing terrain of digital finance.

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