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Digital Financial Literacy and Entrepreneurial Resilience of Women Entrepreneurs: A Moderated Model of Overconfidence



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ABSTRACT

Resilience has been known as an essential element in sustaining women's entrepreneurship in MSMEs in developing countries. This study aims to investigate the influence of digital financial literacy on entrepreneurial resilience and the impact of overconfidence in this relationship on female entrepreneurs in Indonesia. A total of 494 women entrepreneurs from MSME participated in this cross-

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sectional survey. Before examining the proposed relationships, CFA was used to evaluate the quality of the measurements. While controlling for demographic characteristics, the impacts of digital financial literacy, overconfidence, and their interactions are assessed using multiple regression analysis and the PROCESS Macro Ver. 4.2 for SPSS. The results emphasize the significance of digital financial literacy and overconfidence in enhancing the resilience of women entrepreneurs. Furthermore, the findings indicate that entrepreneurs with high overconfidence are more adept at leveraging their digital financial literacy to foster greater resilience.

KEYWORDS: women entrepreneurs, digital financial literacy, overconfidence, entrepreneurial resilience

Introduction

The entrepreneurship journey is often filled with uncertainties, challenges, and obstacles, requiring individuals to demonstrate resilience to overcome them and succeed (Kotsios, 2023; Panjaitan et al., 2022). This holds particularly true for female entrepreneurs, who encounter unique barriers and challenges in pursuing entrepreneurship (Hernández et al., 2024). Throughout history, women entrepreneurs have grappled with various obstacles, including financial constraints, limited expertise, worklife balance dilemmas, sociocultural impediments, and inadequate governmental endorsement (Abdulla & Ahmad, 2023). Nevertheless, more and more women are choosing to start their own businesses, propelled by a yearning for autonomy, self-fulfillment, and financial stability (ICRW, 2019).

Entrepreneurial resilience (ER) is typically conceptualized as a preemptive capacity that allows entrepreneurs to navigate potential crises, adversities, or obstacles more effectively (Korber & McNaughton, 2018). It is necessary to be aware of the factors that impact how entrepreneurs cultivate resilience and to identify potential actions or training initiatives that can be implemented to foster the augmentation of ER, especially within the realm of small businesses (Halonen & Virkkala, 2023). Understanding the determinants contributing to ER among women is crucial for supporting their success and growth (Cardella et al., 2020). The lack of empirical findings on the resilience of women entrepreneurs is the driving force behind this current research.

As the digital landscape continues to evolve, the importance of digital literacy is increasingly recognized for entrepreneurial success and enhancing

organizational resilience in a competitive business environment (Awad & Martín-Rojas, 2024). Despite recognizing the importance of information technology skills for their employability and entrepreneurship in the 21st century, women often feel underrepresented in the digital era (Pappas et al., significance Concurrently, of financial the literacy entrepreneurship is widely acknowledged for its role in facilitating financial access and improving the performance of small businesses (Anshika & Singla, 2022). Recent research indicates that both financial literacy and digital literacy play separate but crucial roles in driving resilience in micro and small enterprises (Ariana et al., 2024). The findings of those previous studies highlight the important impact of financial literacy and digital literacy on strengthening business resilience.

The question "Does digital financial literacy matter for women entrepreneurs?" remains relevant today (Hasan et al., 2023). Research on digital financial literacy (DFL) has evolved from focusing on predictors and relationships with sociodemographic factors to financial factors (Yadav & Banerji, 2023). Regrettably, there is presently limited empirical evidence regarding the relationship between DFL and ER. advancements in digital technology present new opportunities to supplement female entrepreneurs with the prominent knowledge and tools to proficiently navigate the intricate financial landscape, thereby increasing their capacity to withstand challenges.

One common psychological attribute that has long attracted substantial attention from entrepreneurship researchers is overconfidence (Salamouris, 2020). Entrepreneurial overconfidence Singh, is typically characterized and evaluated as entrepreneurs' exaggerated beliefs about their entrepreneurial abilities, as a form of increased entrepreneurial self-efficacy, and overestimation of positive outcomes in their business decisions (Szerb & Vörös, 2021). Recently, Zhang et al. (2024) conducted an analysis using data from listed Chinese companies and showed that managers' overconfidence positively influences company resilience. Meanwhile, existing research has shown that overconfidence can be a major driver of entrepreneurial activity and venture performance (Cheng & Liao, 2017; Invernizzi et al., 2017). Thus, an entrepreneur's level of overconfidence emerges as a crucial factor contributing to resilience. Additionally, Fatma et (2021) suggested that certain psychological traits, overconfidence, exert a more pronounced influence on new businesses done by female entrepreneurs than their male counterparts.

Furthermore, overconfidence has been documented as a moderating factor in some studies examining the relationship between corporate characteristics and outcomes (Nur et al., 2023), financial literacy, and investor decisions in investing (Seraj et al., 2022), and entrepreneurial attitudes and entrepreneurial intentions (Fitzsimmons & Douglas, 2006). Guerrero and Walsh (2023) examined the moderating role of entrepreneurial confidence in the relationship between entrepreneurial persistence and resilience. Further investigation of the potential moderating influence of overconfidence may offer an additional understanding of the intricate dynamics impacting the association between DFL and ER among female entrepreneurs.

Our research aims to study the relationship between DFL and ER, and the moderating role of overconfidence that may impact it among female entrepreneurs engaged in micro, small, and medium enterprises (MSME) in a developing country, Indonesia. The uncertain environment in which small businesses operate in developing countries should not be overlooked; therefore, learning to be resilient in such an environment can yield crucial insights for ensuring the continuity and expansion of a business (Kromidha & Bachtiar, 2024). Enhancing women's ER can be achieved by leveraging expert insights to empower entrepreneurs' attributes, such as psychological capital, as well as developing their competencies in areas like digital literacy and financial management (Hazudin et al., 2023).

Literature Review

Entrepreneurial Resilience

A significant amount of academic research focuses on investigating the connection between entrepreneurship and resilience. The term "resilience" pertains to the ability to adapt and bounce back from adversity (Hedner et al., 2011). In the context of entrepreneurship, it involves bouncing back from challenges and achieving positive outcomes despite hardships (Lee & Wang, 2017). Three crucial aspects of the ER process, which captures the dynamic nature of resilience; capability, which focuses on specific skills and traits; and resource, which includes tangible and intangible assets supporting resilience (Halonen & Virkkala, 2023).

ER is not a steady characteristic but a dynamic and evolving action that adapts to changing environmental factors and individual experiences, as

emphasized by Awad and Martín-Rojas (2024). They interpret ER using dynamic capability theory, indicating ongoing adaptive behaviors and competencies that enable entrepreneurs to recognize, seize, and reconfigure resources to address emerging challenges (Teece et al., 1997). It is necessary to realize that dynamic capabilities allow firms to effectively integrate, build, and reconfigure both external and internal resources to not only adapt to but also influence a constantly evolving business landscape (Teece, 2017). This framework offers valuable perspectives on the significance of ER in the progression and expansion of ventures.

Digital Financial Literacy and Entrepreneurial Resilience

Several studies have highlighted the correlation between financial literacy and the achievement of small businesses (Li & Qian, 2020), underscoring the critical role that sound financial management plays in ensuring the viability and resilience of entrepreneurial ventures. Meanwhile, the emergence of digital financial technologies can potentially disrupt innovation barriers (Xia et al., 2024), providing women entrepreneurs with unprecedented opportunities to gain the necessary financial skills and knowledge to navigate the often-daunting world of business finance. Entrepreneurs in the MSME sector benefit significantly from digital literacy and financial literacy, as it enables them to effectively handle finances, including budgeting, cash flow management, billing, and record-keeping, empowering them to make the right decisions, mitigate financial risks, and enhance the company's overall financial well-being (Ariana et al., 2024; Putra et al., 2023). DFL fosters greater financial inclusion and access to capital for female entrepreneurs (Hasan et al., 2023). Through online lending platforms, digital banking services, and crowdfunding opportunities, people can also circumvent traditional barriers to securing financing, such as the lack of collateral or credit history, and unlock new avenues for funding their businesses (Kass-Hanna et al., 2022). As such, digital financial platforms and applications provide personalized guidance and tailored recommendations, empowering women to develop a deeper awareness of financial strategies and concepts tailored to their unique challenges as entrepreneurs.

DFL also contributes to the overall resilience of women entrepreneurs by enhancing their decision-making capabilities and fostering a greater sense of financial autonomy (Pappas et al., 2018). When women entrepreneurs have a strong understanding of digital financial concepts and tools, they are better prepared to anticipate and mitigate potential financial risks, adapt to changing market conditions, and make strategic decisions that ensure the long-term sustainability of their businesses (Hazudin et al., 2023). This enhances their capacity to endure and bounce back from difficulties, such as economic recessions, supply chain interruptions, or unforeseen personal hardships, ultimately enhancing their resilience and enhancing their chances for long-term success.

H₁: DFL increases ER

Overconfidence and Entrepreneurial Resilience

Entrepreneurship has become a topic of great interest and research, as scholars and practitioners alike seek to understand the motivations, behaviors, and impacts of entrepreneurs and their ventures. An individual's tendency to overestimate the likelihood of favorable outcomes relative to unfavorable outcomes in a given situation is defined as overconfidence, which is a cognitive bias (Invernizzi et al., 2017). Scholarly research has corroborated the prevailing belief that entrepreneurs tend to exhibit greater optimism and overconfidence than the general population (Koudstaal et al., 2015). Although females are generally considered to have lower entrepreneurial abilities than males, Jennings et al. (2023) showed that this does not mean that females are less confident in their entrepreneurial potential and that females are as capable as males of accurately assessing their skills for starting a business.

Kraft et al. (2022) demonstrated that overconfidence can stimulate key entrepreneurial activities, such as opportunity identification, venture startup, and venture innovation. However, overconfidence can also negatively affect venture performance at more advanced stages. These findings suggested that overconfidence has varying effects across the entrepreneurial process. Meanwhile, some researchers suggest that entrepreneurial overconfidence may play a constructive role by enabling entrepreneurs to overcome setbacks better, stimulating both entrepreneurial initiation and termination, bolstering resilience, and motivating the pursuit of more ambitious objectives (Hayward et al., 2010; Simon & Shrader, 2012). It was argued by Hayward et al. (2010) that even if they are overconfident, highly confident entrepreneurs can elicit positive emotions, enhance their ability to overcome obstacles, and prompt them to make greater investments in their future endeavors.

H₂: Overconfidence increases ER

The study of ER should consider the interconnections between the individual, the firm, and the broader environmental contexts in which they operate (Awad & Martín-Rojas, 2024; Teece, 2017). There is increasing awareness of various issues central to the overconfidence problem, which is widely regarded as common and potentially more harmful than other decision biases (Ilieva et al., 2018). When entrepreneurs view their interactions with the environment as encouraging and fruitful, their welfare improves, leading to increased resilience, which shields them from the challenges of starting a new venture (Yang & Danes, 2015). In this context, if overconfidence increases the effect of increasing DFL on ER, then the interaction between the two should be positive.

H₃: Overconfidence has a moderating effect on the link between DFL and ER

Methods

Sample and Procedures

The study utilized a quantitative approach and distributed a crosssectional survey to collect data. It is known that the majority of Indonesian women entrepreneurs do not run large businesses but rather run small and medium businesses (Sutrisno et al., 2022). We undertook a study that specifically focused on female entrepreneurs operating within the MSME sector in the Special Region of Yogyakarta, Indonesia. The sampling method employed quota sampling to ensure respondents were distributed across the region's five districts, aiming for a proportional representation. As Hair Jr. et al. (2020) explain that the purpose of quota sampling, which is done based on convenience, is for the overall sample to have a proportional representation of the target population strata.

We collected research data by distributing questionnaires for respondents to complete themselves, using either a paper copy or an online form. The questionnaire covered demographic data about the respondents and the measurement of research variables. Data collection was conducted in July 2024 with coordination by the second and third authors with the assistance of ten student assistants who visited the respondents' locations and met directly with the female entrepreneurs. We asked for the willingness of respondents to fill out the research questionnaire. Respondents were not asked to fill in their names or any identities. All respondents who completed the questionnaire received small souvenirs as a thank you.

A total of 494 questionnaires were completed and obtained from research respondents. Of the total respondents, 91.3% (451) completed the survey in written form, while 8.7% (43) participated via an online survey. All respondents were women managing MSMEs. The majority were middle-aged (26.01 to 40.00 years; 39.7%), married (69.8%), had a high school education (50.8%), and employed fewer than 10 people (93.1%).

Measures

The study investigates three types of research variables: independent (DFL), dependent (ER), and moderator variables (overconfidence). Respondents were asked to provide closed responses on a 5-point Likert scale, expressing their agreement or disagreement with statement items related to the research variables. We calculated the average score to construct a summation scale for each variable of interest (Hair Jr. et al., 2019).

This study utilized a four-item scale to assess DFL, which was adapted from previous research by Ravikumar et al. (2022). The statement items are as follows: "I know about digital or online financial transaction methods"; "I am aware of various risks such as phishing and spyware when I make digital financial transactions"; "I can overcome errors that occur in digital financial transactions"; and "I understand that there is an appropriate forum or procedure if I become a victim when making digital financial transactions". The scale's Cronbach's alpha was 0.833.

The ER scale, adapted from Santoro et al. (2020), consisted of four items. They are "I actively seek ways to compensate for losses I encounter in business"; "I believe that I can grow positively in the face of difficult situations"; "I seek creative ways to change difficult situations"; and "Regardless of what happens to me, I believe I can control my reaction to it." The scale's Cronbach's alpha was 0.787.

The overconfidence behavior, adapted from Iram et al. (2023), included five items. The items are "I am an experienced entrepreneur"; "When I decide to invest, I feel that my knowledge and actions influence the outcome"; "I expect my investment decisions to be wiser than others"; and

"I feel more confident in my own investment decisions"; and "I tend to invest in things I believe in." The scale's Cronbach's alpha was 0.801.

Data Analysis

Initially, descriptive analysis was conducted to gain an initial understanding of the research variables. The next step involved confirmatory factor analysis (CFA), a robust statistical method utilized to examine the fundamental framework of a concept by assessing the proposed connections between observable variables and their corresponding underlying factors (Hair Jr. et al., 2019). By testing the fit of the proposed factor structure, researchers can enhance the one-dimensionality and construct validity of their measures, which are essential for drawing meaningful conclusions from the data. We conducted confirmatory factor analysis using the statistical software Stata 17. Stata utilizes the SEM Builder option or command language to construct a model path diagram (Ramlall, 2017).

Hypotheses 1 and 2 were tested by applying multiple regression analysis. Multiple regression analysis is especially helpful for explanatory research as it simultaneously includes all independent variables in the regression equation to assess the impact of two or more variables on the dependent variable (Keith, 2019). Multiple regression was used to determine the extent to which DFL and overconfidence influence ER while controlling for several variables. Previous empirical studies have used several demographic characteristics in the study of organizational resilience (Croitoru et al., 2017; Kipkosgei, 2022). Accordingly, the control variables examined in this research include age, education level, marital status, number of employees, and length of service. These variables were measured using ordinal categories. The data were analyzed using SPSS Ver. 27 as well as Stata 17.

Next, hypothesis 3 testing regarding moderation analysis was conducted in this study. In accordance with Igartua and Hayes (2021), Figure 1 depicts a conceptual model with one moderating variable, overconfidence, which alters the relationship between DFL and ER. In this case, the statistically significant regression coefficient of DFL × overconfidence supports the claim explained in the moderation model. We estimate the moderation model using the PROCESS macro for SPSS by requesting model = 1 and providing several valuable output options for visualizing and investigating interactions (Hayes, 2018).

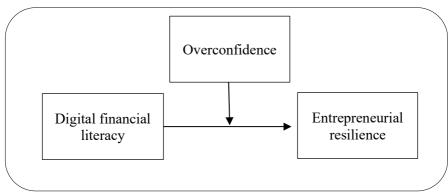


Figure 1: Conceptual model

Source: Authors

Results and Discussion

Confirmatory Factor Analysis

Prior to examining the proposed connections, we performed a CFA to assess the effectiveness of our survey tools. The outcomes presented in Table 1 reveal that the assumed three-factor measurement model displayed a strong correspondence with the data, surpassing the accuracy of several alternative two-factor and one-factor models. Specifically, the three-factor model produced a χ^2 (62) = 199.57, SRMR = 0.04, RMSEA = 0.07, CFI = 0.94, and TLI = 0.93, all meet the recommended criteria (Keith, 2019). These findings support the construct validity of our key measures, stating that the items effectively captured the intended underlying constructs in this research.

High Cronbach's alpha values indicate that the individual items within each scale are closely related and measure the same underlying construct, instilling confidence in the internal consistency of the measurement instrument used in the study. The Cronbach's alpha values for DFL, ER, and overconfidence were 0.833, 0.787, and 0.801, respectively, all surpassing the recommended threshold of 0.7, signifying relatively high reliability. This implies that the scales employed in the study effectively and consistently measured the intended constructs.

Model Df **RMSEA SRMR CFI** TLI Three-factor model 199.57 62 0.067 0.043 0.941 0.926 (DFL, ER, O) Two-factor model 578.95 64 0.128 0.088 0.780 0.732 (DFL+ER, O) Two-factor model 445.68 64 0.110 0.069 0.837 0.802 (DFL, ER + O)Two-factor model 505.45 64 0.118 0.079 0.812 0.771 (DFL+O, ER) One-factor model 775.43 65 0.149 0.097 0.697 0.636

Table 1: CFA results

N = 494.

Source: Authors' calculation

Descriptive Statistics

Table 2 presents descriptive statistics for the main variables. The results show that the respondents' mean DFL score was 3.72, with a standard deviation of 0.77, indicating a moderate level of DFL among the sample. The mean overconfidence score was 3.80, with a standard deviation of 0.56, also suggesting a moderate level of overconfidence. Additionally, the mean ER score was 4.03, with a standard deviation of 0.51, indicating a relatively high level of ER within the sample.

Table 2: Descriptive statistics

Variable	Mean	SD	Min.	Max.	DFL	0
DFL	3.72	0.77	1.00	5.00	1	
O	3.80	0.56	1.00	5.00	0.4993***	1
ER	4.03	0.51	2.25	5.00	0.3917***	0.4750***

N = 494. ***p < 0.001.

Source: Authors' calculation

As anticipated, ER exhibited positive associations with DFL (r = 0.392; p < 0.01) and overconfidence (r = 0.475; p < 0.01). These findings provide initial support for Hypotheses 1 and 2, which proposed positive relationships between these key variables. Additionally, Table 2 shows that no pair of independent variables is highly correlated. The results of the study also showed that the variance inflation factor (VIF) value ranges from

1.03 to 2.09 in the estimation with control variables; this indicates that multicollinearity is not a problem in our analysis (Daniels & Minot, 2020).

Hypothesis Tests

The investigation employed a multiple regression analysis technique to evaluate the influence of diverse independent variables on ER. The predictor variables included DFL and overconfidence, while the model also incorporated various control variables such as age, education, marital status, number of employees, and the length of business operations. We rejected the null hypothesis of constant variance of ER, $\chi^2(1) = 12.23$, p = 0.0005. Consequently, we run the regression with Huber–White standard errors (Daniels & Minot, 2020). The results in Table 3 indicate that after accounting for the effects of the control variables, DFL is a significant positive predictor of ER (b = 0.1446, t = 3.86, p < 0.001), thereby supporting Hypothesis 1. Similarly, overconfidence emerged as a significant positive effect of ER (b = 0.3385, t = 7.01, p < 0.001), providing further evidence in favor of H₂.

Table 3: Multiple regression model predicting ER

	Coef.	Robust SE	t	<i>p</i> -value
DFL	0.1446	0.0375	3.86***	0.000
Overconfidence	0.3385	0.0483	7.01***	0.000
Age	0.0142	0.0327	0.43	0.665
Education	-0.0211	0.0182	-1.16	0.247
Marital status	0.1078	0.0575	1.88	0.061
Number of employees	0.0551	0.0544	1.01	0.311
Length of business time	0.0209	0.0216	0.97	0.334
Constant	2.0156	0.2235	9.02***	0.000
F	15.85			
Prob > F	0.000			
R^2	0.268			

N = 494. ***p < 0.001.

Source: Authors' calculation

Next, we examined the moderating influence of overconfidence on the relationship between DFL and ER. We conducted moderation analyses

using the PROCESS Macro Ver. 4.2 for SPSS, setting the bootstrap sample to 5,000, choosing robust standard errors (Huber–White standard errors), and then setting variable centering for scaling so that the results for the regression coefficients are rendered interpretable (Hayes, 2018). As indicated in Table 4, the interaction term representing the combined effect of DFL and overconfidence was included in the regression analysis. The significant positive interaction effect suggests that overconfidence moderated the positive link between DFL and ER (b = 0.1356, t = 2.9393, p < 0.01), supporting H₃. Specifically, the results indicate that the positive relationship between DFL and ER was amplified for entrepreneurs who exhibited higher levels of overconfidence.

Table 4: Moderating effects of overconfidence

	Coeff.	SE (HC0)	t	<i>p</i> -value
DFL	0.1629	0.0374	4.3523***	0.0000
Overconfidence	0.3846	0.0435	8.8446***	0.0000
$DFL \times Overconfidence$	0.1356	0.0461	2.9393**	0.0034
Age	0.0135	0.0325	0.4140	0.6791
Education	-0.0134	0.0177	-0.7586	0.4485
Marital status	0.0968	0.0561	1.7253	0.0851
Number of employees	0.0540	0.0538	1.0039	0.3159
Length of business time	0.0095	0.0213	0.4477	0.6546
Constant	3.8193	0.1432	26.6767***	0.0000
\overline{F}	28.87			
Prob > F	0.000			
R^2	0.294			

N = 494. **p < 0.01, ***p < 0.001.

Source: Authors' calculation

More specifically, as shown in Table 5, the moderator value defining the Johnson-Neyman significance region (Igartua & Hayes, 2021) was 3.2412. This indicates that the conditional effect of DFL was significant when the level of overconfidence was higher than 3.2412. More specifically, the relationship between DFL and the outcome variable was statistically significant for individuals with an overconfidence level of 3.2412 or higher,

but not for those with a level below 3.2412. In other words, the higher the overconfidence, the higher the effect of DFL on ER.

Overconfidence	Effect	SE(HC0)	t	p			
1.000	-0.2158	0.134	-1.617	0.1065			
1.200	-0.1887	0.125	-1.514	0.1307			
1.400	-0.1616	0.116	-1.394	0.1639			
1.600	-0.1345	0.107	-1.254	0.2103			
1.800	-0.1073	0.099	-1.089	0.2769			
2.000	-0.0802	0.090	-0.890	0.3740			
2.200	-0.0531	0.082	-0.649	0.5168			
2.400	-0.026	0.074	-0.352	0.7250			
2.600	0.0012	0.066	0.018	0.9858			
2.800	0.0283	0.059	0.483	0.6293			
3.000	0.0554	0.052	1.069	0.2854			
3.200	0.0825	0.046	1.797	0.0729			
3.241	0.0881	0.045	1.965	0.0500			
3.400	0.1097	0.041	2.657**	0.0081			
3.600	0.1368	0.038	3.571***	0.0004			
3.800	0.1639	0.037	4.378***	0.0000			
4.000	0.191	0.039	4.921***	0.0000			
4.200	0.2182	0.042	5.168***	0.0000			
4.400	0.2453	0.047	5.197***	0.0000			
4.600	0.2724	0.053	5.109***	0.0000			
4.800	0.2995	0.060	4.972***	0.0000			

Table 5: The Johnson-Neyman significance region

N = 494. **p < 0.01, ***p < 0.001.

Source: Authors' calculation

5.000

Finally, the PROCESS macro for SPSS also provides a valuable tool for visualizing the conditional impact of the primary predictor variable (Hayes, 2018). By using the SPSS syntax window and executing the macro, we can generate the plot in Figure 2, which illustrates the relationship between DFL and ER at low (3.20), middle (3.80), and high (4.40) levels of overconfidence. The interaction pattern supports the anticipated result, with

0.068

4.824***

0.0000

0.3267

the relationship between DFL and ER being stronger for individuals with high overconfidence compared to those with low overconfidence.

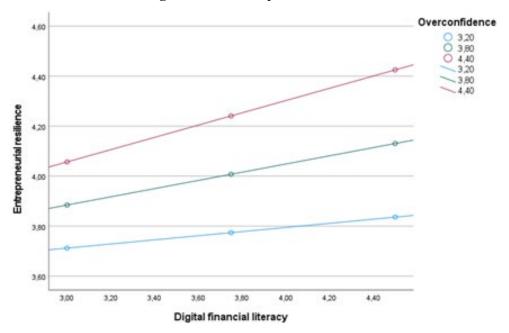


Figure 2: Visual representation

Source: Authors, using PROCESS Macro Ver. 4.2 for SPSS

Discussion

The comprehensive analysis of female entrepreneurship has expanded rapidly in recent years, gaining widespread consensus among scholars and contributing to a better understanding of women's challenges in embarking on the entrepreneurial journey (Cardella et al., 2020). The current investigation's findings underscore the critical importance of DFL in bolstering the ability of women entrepreneurs to withstand challenges and adversities. This aligns with previous research, which consistently emphasizes the pivotal role of technology and digital skills in shaping the entrepreneurial experiences and outcomes of women in the rapidly evolving landscape of the 21st century (Kamberidou, 2020), as well as the significance of financial literacy for the venture performance of women entrepreneurs (Tumba et al., 2022). Entrepreneurs require strong digital and financial capabilities to make the right decisions, access funding sources,

and manage the business effectively, making DFL an empowering factor for resilience, particularly for women. In this regard, women's financial inclusion is crucial, as it empowers women by providing opportunities to start and develop businesses, manage resources, and increase their participation in economic activities (Antonijević et al., 2024).

The impact of DFL on ER is not straightforward. The findings of this research suggest that overconfidence played a significant role in shaping ER and had a reinforcing effect on the relationship between DFL and ER. The results indicate that overconfidence influenced how DFL impacted ER, highlighting the interconnected nature of these variables. These results are consistent with prior studies that have emphasized the influence of psychological characteristics on entrepreneurs' ability to learn from failure and their capacity to rebound and thrive in the face of challenges (Zhao & Wibowo, 2021). If entrepreneurs are self-assured and determined, they can utilize the experience of failure to build ER (Guerrero & Walsh, 2023). These insights underscore the need for a more comprehensive understanding of how psychological factors interact with developing essential entrepreneurial skills such as DFL, ultimately impacting the resilience and success of women-led ventures.

The findings imply that women entrepreneurs who possess both strong DFL skills and a heightened sense of overconfidence can leverage these attributes more effectively to build greater resilience in the face of challenges. Hernández et al. (2024) contend that within the realm of female entrepreneurship, resilience serves not only as a method for tackling challenges but also as a vital element in establishing a more fair and varied entrepreneurial atmosphere. Therefore, entrepreneurship necessary for the sustainability of small business owners' entrepreneurial careers (Fatima et al., 2024). The existing body of literature suggests that the development of resilience is a skill that can be cultivated. It is advised to implement comprehensive training programs aimed at fostering and effectively managing resilient entrepreneurial activities (Margaça et al., 2023). In addition, the presence of human, financial, physical, and intellectual capital has a positive and significant impact on female entrepreneurs' adoption of digital technology (Feranita et al., 2024). Research on entrepreneurship education shows that providing education to female entrepreneurs can help them build self-confidence and improve their personal character (Pruett, 2023).

Policymakers and entrepreneurship support organizations should prioritize developing comprehensive DFL programs tailored to meet the specific requirements and obstacles female business owners encounter. Financial institutions and FinTech companies should actively collaborate with entrepreneurship support organizations to provide accessible and inclusive digital financial services and educational resources tailored to the unique requirements and obstacles encountered by female entrepreneurs. FinTech significantly reduces inequality directly and indirectly through financial inclusion for a panel of many countries (Demir et al., 2022). Suleiman et al. (2022) emphasize the significance of financial education programs and provide examples of how financial literacy can be integrated with product performance. This integration is particularly evident in the design of financial products tailored for individuals with low financial literacy. These initiatives have the potential to empower women in effectively navigating the intricacies of the digital financial realm, enabling them to make informed business and financial decisions. Ultimately, this equips them to develop more resilient, adaptable, and prosperous enterprises.

Conclusion

The concept of ER provides a crucial framework for understanding the mechanism through which entrepreneurs and their ventures navigate the inherent challenges and uncertainties that characterize the entrepreneurial journey. The current study holds significant importance due to its exploration of the intersection between ER, DFL, and overconfidence within the context of female entrepreneurship. By enhancing the knowledge and skills of women entrepreneurs in navigating the digital financial landscape and understanding the behavioral factors that underpin it, this study aims to empower them to establish more resilient and sustainable businesses.

This study presents significant theoretical insights into the various entrepreneurial traits and competencies essential for success in the contemporary business landscape. By constructing a robust theoretical framework and conducting a comprehensive literature review, this research effectively addresses the existing knowledge gap related to the adaptive behaviors that female entrepreneurs exhibit. Specifically, it examines how these entrepreneurs strategically utilize available resources to navigate and overcome the myriad challenges in their business endeavors.

The findings of this study offer valuable insights that can significantly contribute to the enhancement of female entrepreneurship in developing countries. Policymakers who focus on supporting female entrepreneurs must prioritize the development of psychologically solid attributes, as these traits are essential for fostering resilience among women in business. By creating programs and initiatives targeting female entrepreneurs' mental and emotional fortitude, policymakers can help these individuals navigate the challenges they face more effectively.

Additionally, financial institutions play a pivotal role in this ecosystem and should consider implementing comprehensive activity programs to improve financial literacy. These programs can be designed to incorporate the latest technological advancements, ensuring that women entrepreneurs gain a solid understanding of economic concepts and learn how to utilize modern tools and platforms to manage their enterprises. By enhancing financial literacy and technological skills, female entrepreneurs will be better equipped to make informed decisions, access capital, and succeed in their business.

It is essential to acknowledge that this study's findings are contingent upon the specific geographic context in which the research was conducted. This limitation raises questions about the applicability of the results to different regions or populations with varying cultural and economic backgrounds. Therefore, additional research must assess how these findings can be generalized beyond the original study setting.

Furthermore, future investigations should explore moderated mediation models that elucidate the complex relationships among financial literacy, personal attributes, resilience, and the pathways to achieving financial success. By examining these interconnected factors, researchers can better understand how individual characteristics and external conditions may influence economic outcomes in diverse contexts.

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