Financial Resilience in Women Owned Micro Enterprises: Owner Agility as a Digital Capability Moderator

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Abstract

Women-owned micro and small enterprises (MSEs) play a significant role in promoting inclusive economic growth, yet they remain highly vulnerable to financial instability caused by limited resources, weak financial management practices, and increasing environmental uncertainty. Strengthening financial resilience has therefore become essential to ensure business continuity and long-term sustainability. This study investigates the effects of financial record-keeping quality, owner financial literacy, and business digitalization on financial resilience among women-owned MSEs in Indonesia while examining the moderating role of owner agility. A quantitative survey was conducted involving 102 women entrepreneurs affiliated with the Women Small Business Network (JARPUK) in Surakarta, Indonesia. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that financial record-keeping quality significantly improves financial resilience, whereas financial literacy, business digitalization, and owner agility do not exert significant direct effects. However, owner agility significantly strengthens the relationship between business digitalization and financial resilience, indicating that digital technologies generate greater resilience benefits when accompanied by adaptive entrepreneurial capabilities. The study extends the Resource-Based View and Dynamic Capabilities Theory by demonstrating that financial resilience is created through the interaction between strategic organizational resources and owner capabilities rather than through resource availability alone. These findings provide practical implications for policymakers and business development organizations in designing integrated financial capability and digital transformation programs for women-owned MSEs.

Keywords: Financial resilience, Women owned micro enterprises, Financial record keeping, Business digitalization, Owner agility

INTRODUCTION

Micro and small enterprises (MSEs) constitute the backbone of economic development in many emerging economies by generating employment, reducing poverty, and promoting inclusive growth. In Indonesia, more than 66 million MSEs account for over 99% of all business entities, contribute approximately 60% of national gross domestic product, and employ more than 97% of the national workforce (Adam et al., 2024; Dela Cruz et al., 2025). Despite their significant economic contribution, many MSEs remain financially vulnerable because they operate with limited liquidity, unstable cash flows, weak financial management systems, and restricted access to external financing. Such structural weaknesses reduce their ability to withstand economic disruptions, including inflation, supply-chain disturbances, and market uncertainty.

Recent studies have increasingly recognized financial resilience as a critical capability enabling enterprises to maintain financial stability, recover from adverse events, and sustain long-term business performance (Salignac et al., 2022; Legenzova et al., 2025). Unlike financial performance, which measures current business outcomes, financial resilience emphasizes firms' capacity to anticipate, absorb, and adapt to financial shocks.

Previous research has identified financial literacy, financial behavior, accounting practices, and digital transformation as important factors supporting resilience (Hamid et al., 2023; Borromeo et al., 2024; Kamble et al., 2025). Meanwhile, the growing adoption of digital technologies has expanded opportunities for MSEs to improve operational efficiency, strengthen customer relationships, and enhance organizational adaptability (Bouwman et al., 2019; Trinugroho et al., 2022). These studies demonstrate that both organizational resources and managerial capabilities are essential for improving business sustainability.

Nevertheless, the existing literature presents several important limitations. First, financial resilience research has predominantly focused on households and individuals, while empirical evidence at the enterprise level remains limited, particularly among women-owned micro enterprises (Salignac et al., 2019; Legenzova et al., 2025). Second, previous studies generally examine financial literacy, accounting practices, or digitalization independently, providing limited understanding of how these organizational resources interact to strengthen financial resilience. Third, although Dynamic Capabilities Theory suggests that managerial capabilities determine how firms transform resources into superior organizational outcomes (Teece, 2007), relatively few studies have examined whether owner agility enhances the effectiveness of digitalization in building financial resilience among women-owned MSEs. These gaps indicate the need for a more integrated theoretical perspective that explains financial resilience through the interaction between strategic resources and adaptive capabilities.

Addressing these gaps is particularly important for women-owned micro enterprises in Indonesia. Besides contributing substantially to local economic development, women entrepreneurs frequently manage both business and household finances while operating under resource constraints and rapidly changing market conditions (Purwoto et al., 2025; OECD, 2023). Consequently, identifying the organizational resources and entrepreneurial capabilities that strengthen financial resilience has important implications for business sustainability, financial inclusion, and public policy aimed at supporting women entrepreneurship.

Drawing upon the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT), this study proposes that financial resilience is shaped not only by strategic organizational resources but also by entrepreneurs' capability to mobilize and reconfigure those resources in response to environmental change. Specifically, this study examines the effects of financial record-keeping quality, owner financial literacy, and business digitalization on financial resilience while investigating the moderating role of owner agility among women-owned micro enterprises in Indonesia. Unlike previous studies that primarily examine these variables separately, this research integrates RBV and DCT into a single conceptual framework to explain how organizational resources and adaptive managerial capabilities jointly influence financial resilience. Accordingly, the study contributes to the literature by extending the concept of financial resilience from household finance to the enterprise context and by providing empirical evidence from women-owned micro enterprises in an emerging economy.

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RESEARCH METHODOLOGY

This study employed a quantitative research design using a cross-sectional survey to examine the determinants of financial resilience among women-owned micro enterprises in Indonesia. The study focused on members of Jaringan Perempuan Usaha Kecil (JARPUK), a women entrepreneurs' association in Surakarta that provides business networking, entrepreneurial training, and capacity-building programs for micro enterprises. JARPUK was selected because its

members represent resource-constrained women entrepreneurs operating in highly dynamic business environments, making them an appropriate context for examining financial resilience.

A purposive sampling technique was applied following the recommendations of Hair et al. (2022). Respondents were required to satisfy four criteria: (1) actively operating a micro enterprise during the survey period; (2) having operated the business for at least one year; (3) employing one to four workers, consistent with the Indonesian MSME classification; and (4) directly managing both business operations and financial decision-making. Based on these criteria, 102 women-owned micro enterprises participated in the study.

Data were collected using a structured questionnaire consisting of previously validated measurement scales adapted to the context of Indonesian micro enterprises. Financial resilience was measured using indicators adapted from Salignac et al. (2019) and Legenzova et al. (2025). Financial record-keeping quality was developed based on the International Financial Reporting Standard for Small and Medium-sized Entities (IFRS for SMEs) and the Indonesian Financial Accounting Standards for Micro, Small, and Medium Entities (SAK EMKM). Owner financial literacy was measured using the OECD/INFE Financial Literacy Toolkit (2022), while business digitalization was adapted from Bouwman et al. (2019) and Trinugroho et al. (2022). Owner agility was measured using indicators derived from Dynamic Capabilities Theory proposed by Teece (2007) and further operationalized by Li et al. (2022). All constructs were assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The proposed research model was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software. PLS-SEM was selected because it is appropriate for predictive research involving multiple latent constructs, relatively small sample sizes, and moderation analysis (Hair et al., 2022). The analysis was conducted in two stages. First, the measurement model was evaluated by examining indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Second, the structural model was assessed through collinearity diagnostics, path coefficients, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and hypothesis testing using a bootstrapping procedure with 5,000 resamples. The moderating effect of owner agility on the relationship between business digitalization and financial resilience was estimated using the product indicator approach recommended for PLS-SEM moderation analysis (Hair et al., 2022).

Table 1. Measurement of Constructs

Construct	Source	Number of Indicators
Financial Resilience	Salignac et al. (2019); Legenzova et al. (2025)	5
Financial Record-Keeping Quality	IFRS for SMEs; SAK EMKM	7
Owner Financial Literacy	OECD/INFE (2022)	8
Business Digitalization	Bouwman et al. (2019); Trinugroho et al. (2022)	5
Owner Agility	Teece (2007); Li et al. (2022)	6

RESULTS AND DISCUSSION

RESULTS

Respondent Profile

The study involved 102 women-owned micro enterprises affiliated with *Jaringan Perempuan Usaha Kecil* (JARPUK) in Surakarta, Indonesia. All respondents fulfilled the sampling criteria, including actively operating their businesses for at least one year, employing one to four workers, and directly managing both business operations and financial decisions. These characteristics indicate that the respondents represent resource-constrained micro enterprises operating in dynamic business environments

where financial resilience is particularly important.

Measurement Model Assessment

The measurement model was evaluated by assessing indicator reliability, internal consistency reliability, convergent validity, and discriminant validity following the recommendations of Hair et al. (2022). As presented in Table 2, all indicator loadings exceeded the recommended threshold of 0.70. Cronbach's Alpha and Composite Reliability values were above 0.70, while Average Variance Extracted (AVE) values exceeded 0.50, indicating satisfactory construct reliability and convergent validity.

Table 2. Reliability and Convergent Validity

Construct	Cronbach's α	CR	AVE
Financial Record-Keeping Quality	0.913	0.929	0.686
Owner Financial Literacy	0.910	0.920	0.624
Business Digitalization	0.885	0.915	0.685
Owner Agility	0.955	0.961	0.780
Financial Resilience	1.000	1.000	1.000

Discriminant validity was subsequently assessed using the Heterotrait-Monotrait Ratio (HTMT). All HTMT values remained below the recommended threshold of 0.90, confirming adequate discriminant validity among the latent constructs.

Structural Model Assessment

The structural model exhibited acceptable predictive performance. The coefficient of determination indicated that the proposed model explained 24.0% of the variance in financial resilience ($R^2 = 0.240$). Furthermore, the SRMR value (0.079) suggested an acceptable model fit, while the predictive relevance ($Q^2 > 0$) confirmed that the model possessed adequate predictive capability.

Hypothesis Testing

The hypotheses were tested using the bootstrapping procedure with 5,000 resamples. The results are presented in **Table 3**.

Table 3. Hypothesis Testing Results

Hypothesis	Relationship	β	t	p	Decision
H1	FRKQ → Financial Resilience	0.339	3.083	0.002	Supported
H2	Financial Literacy → Financial Resilience	-0.082	0.530	0.596	Not Supported
H3	Business Digitalization → Financial Resilience	0.021	0.281	0.779	Not Supported
H4	Owner Agility → Financial Resilience	0.121	0.779	0.436	Not Supported
H5	Digitalization × Owner Agility → Financial Resilience	0.270	2.693	0.007	Supported

The findings indicate that financial record-keeping quality significantly improves financial resilience, supporting H1. Conversely, owner financial literacy, business digitalization, and owner agility do not exhibit significant direct effects on financial resilience, leading to the rejection of H2, H3, and H4. However, owner agility significantly strengthens the relationship between business digitalization and financial resilience, providing support for H5.

DISCUSSION

The findings suggest that financial resilience among women-owned micro enterprises is shaped by the interaction between organizational resources and entrepreneurial capabilities rather than by individual resources operating independently. This result supports the integration of the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT) proposed in this study.

The positive effect of financial record-keeping quality confirms that reliable

accounting information constitutes a strategic organizational resource that enhances managerial decision-making and financial control. This finding is consistent with RBV, which argues that valuable organizational resources improve firms' capability to manage uncertainty (Barney, 1991). It also supports previous studies by Borromeo et al. (2024) and Roffia and Dabić (2024), who reported that systematic accounting practices strengthen managerial control and organizational resilience. For women-owned micro enterprises, maintaining accurate financial records enables entrepreneurs to monitor liquidity, anticipate financial risks, and allocate limited resources more effectively, thereby improving financial resilience.

In contrast, owner financial literacy does not significantly influence financial resilience. Although previous studies identified financial literacy as an important determinant of resilience (Salignac et al., 2019; Hamid et al., 2023; Kamble et al., 2025), the present findings indicate that financial knowledge alone may not be sufficient to strengthen resilience among women-owned micro enterprises. Many respondents operate under severe financial constraints, limited working capital, and restricted access to formal financing, reducing their ability to translate financial knowledge into effective business practices. From the RBV perspective, financial literacy represents a valuable human resource; however, its strategic value depends on the availability of complementary organizational resources that enable knowledge to be implemented effectively.

Similarly, business digitalization does not directly improve financial resilience. This finding differs from previous studies reporting positive effects of digital transformation on SME performance (Bouwman et al., 2019; Trinugroho et al., 2022), but is consistent with research suggesting that technology adoption alone rarely generates organizational value (Verhoef et al., 2021; Vial, 2019). In the present study, most women-owned micro enterprises primarily utilize digital technologies for marketing, communication, and online transactions, while digital tools remain insufficiently integrated into financial planning, budgeting, and cash-flow management. Consequently, digitalization improves operational activities but does not directly strengthen financial resilience.

The insignificant relationship between owner agility and financial resilience also provides an important insight. Previous studies generally report that adaptive capability enhances organizational resilience (Li et al., 2022; Dubey et al., 2021); however, the present findings indicate that agility alone cannot improve financial resilience when firms operate with limited financial resources. Within micro enterprises, entrepreneurs may quickly recognize environmental changes and identify business opportunities, yet the implementation of adaptive strategies remains constrained by inadequate liquidity and limited financial capacity. Therefore, owner agility functions primarily as an enabling capability rather than an independent driver of financial resilience.

The significant moderating effect of owner agility represents the principal contribution of this study. Consistent with Dynamic Capabilities Theory, owner agility enhances the ability of entrepreneurs to transform digital technologies into strategic organizational resources. This finding supports Bouwman et al. (2019) and Li et al. (2022), who argued that digital technologies generate greater organizational value when combined with adaptive managerial capabilities. Rather than creating resilience directly, owner agility enables entrepreneurs to interpret environmental changes, exploit digital opportunities, and reconfigure organizational resources in response to uncertainty. Consequently, financial resilience emerges from the interaction between strategic resources and dynamic capabilities, rather than from resource availability alone.

Overall, this study extends previous financial resilience research in three important ways. First, it expands the concept of financial resilience from household finance to the enterprise context by focusing on women-owned micro enterprises. Second, it integrates the Resource-Based View and Dynamic Capabilities Theory into a unified framework that explains how organizational resources and entrepreneurial capabilities jointly shape financial resilience. Third, the findings demonstrate that digitalization becomes strategically valuable only when entrepreneurs possess sufficient agility to transform technological resources into adaptive managerial actions. These contributions provide a more comprehensive understanding of how financial resilience can be strengthened among resource-constrained micro enterprises in emerging economies.

CONCLUSION

This study examined the determinants of financial resilience among women-owned micro enterprises by integrating the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT). The findings demonstrate that financial record-keeping quality is the only organizational resource that directly strengthens financial resilience, highlighting the importance of reliable financial information for managing liquidity, supporting financial decision-making, and maintaining business continuity. In contrast, owner financial literacy, business digitalization, and owner agility do not exert significant direct effects, suggesting that these resources and capabilities alone are insufficient to improve financial resilience in resource-constrained micro enterprises.

The study further reveals that owner agility significantly strengthens the relationship between business digitalization and financial resilience. This finding indicates that digital technologies generate resilience benefits only when entrepreneurs possess the capability to recognize environmental changes, adapt business strategies, and effectively transform digital resources into managerial actions. Therefore, financial resilience should be viewed as the outcome of the interaction between strategic organizational resources and adaptive entrepreneurial capabilities rather than the result of resource availability alone.

Theoretically, this study extends the financial resilience literature by shifting the focus from household finance to the enterprise context and by integrating RBV and DCT into a unified framework explaining how organizational resources and dynamic capabilities jointly shape financial resilience. Practically, the findings suggest that entrepreneurship development programs should prioritize strengthening financial record-keeping practices while simultaneously enhancing entrepreneurs' adaptive capabilities to maximize the benefits of business digitalization. Such integrated interventions may contribute to improving the long-term sustainability and resilience of women-owned micro enterprises in emerging economies.

RECOMMENDATION

Based on the findings, policymakers and MSME support institutions should redesign entrepreneurship development programs by integrating financial management, digital transformation, and entrepreneurial capability development into a unified intervention framework. Training initiatives should move beyond improving financial literacy alone and place greater emphasis on strengthening financial record-keeping practices and owner agility, as these capabilities enable women entrepreneurs to transform digital technologies into effective financial management strategies. Financial

institutions are also encouraged to complement financing schemes with mentoring programs that enhance entrepreneurs' adaptive capabilities and financial decision-making.

For future research, scholars are encouraged to validate the proposed integrated framework in different institutional and cultural contexts using larger and more diverse samples. Future studies may also investigate the mediating or moderating roles of variables such as financial inclusion, access to external finance, social capital, entrepreneurial orientation, and organizational learning. Such investigations would further enrich the integration of the Resource-Based View and Dynamic Capabilities Theory in explaining financial resilience among small businesses.

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