Journal : **Journal of Management and Innovation Entrepreneurship (JMIE),**
Publisher : **Yayasan Nuraini Ibrahim Mandiri**
ISSN : **e-ISSN 3026-6505**
Volume / Issue / Year/ Page : **4/ 1/ 2026: October /737-751**

BUSINESS SUSTAINABILITY MODEL: THE MEDIATING ROLE OF FINANCIAL RESILIENCE AND DYNAMIC CAPABILITIES IN MADURA FISH PROCESSING UNITS

Mila Rafel Lina[1], Prasetyo Nugroho[2], Aprilina Susandini[3]
University of Trunodjoyo Madura, Indonesia
[1]230211100195@student.trunojoyo.ac.id,
[2]prasetyo.nugroho@trunojoyo.ac.id,
[3]aprilina.susandini@trunojoyo.ac.id
* Coresponding Author

Article Information

Submission	:	06-09-2026
Review	:	10-09-2026
Revised	:	11-10-2026
Accepted	:	27-10-2026
Published	:	31-10-2026

Keywords:
Business sustainability, Dynamic capabilities, Financial resilience, Fish processing industry, Coastal small business

Abstract

The fishery product processing sector on Madura Island faces operational vulnerabilities due to maritime climate anomalies, fluctuations in fishermen's catch supply, and surge in raw material price volatility. This study aims to test and analyze the influence of dynamic capabilities on business sustainability with financial resilience as a mediating variable in fishery product processing business units on Madura Island. This study uses an explanatory quantitative approach to 70 respondents who are leaders and managers of business units in Sumenep Regency and Pamekasan Regency who were selected through purposive and snowball sampling techniques. Primary data was collected using a 5-point Likert scale structured questionnaire and analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM) with SmartPLS 4.1 software. Outer model evaluations confirmed indicator reliability, convergent validity (AVE > 0.50), and discriminant validity across constructs. The results of the structural model evaluation prove that dynamic capabilities have a positive and significant effect on financial resilience (β= 0.723; t = 8.928; p= 0.000) and business sustainability (β= 0.572; t= 4.669; p= 0.000). On the other hand, financial resilience has a positive and insignificant effect on business sustainability (β= 0.193; p= 0.152) and does not mediate the relationship between dynamic capabilities and business sustainability (β= 0.139; p= 0.166). These findings confirm the occurrence of the phenomenon of direct effect dominance, where business continuity is more directly determined by the agility of product diversification innovation, adaptation of post-harvest processing methods, and supply chain loyalty with local fishers rather than the accumulation of liquidity cash reserves alone. This study recommends that business units prioritize upgrading the quality of value-added products and urges local governments to develop mentoring programs focusing on operational innovation capacity rather than solely providing capital assistance..

How To Cite: Lina, M. R., Nugroho, P., & Susandini, A. (2026). Business sustainability model: The mediating role financial resilience and dynamic capabilities in Madura fish processing units. *Journal of Management a Innovation Entrepreneurship (JMIE)*, 4(1), 737–751. https://doi.org/10.70248/jmie.v4i1.4747

DOI : https://doi.org/10.70248/jmie.v4i1.4747
This is an open access article under https://creativecommons.org/licenses/by/4.0/
Copyright© 2026 by Author. Published by Yayasan Nuraini Ibrahim Mandiri

INTRODUCTION

The Fishery Products Processing Industry Sector on Madura Island plays a vital role in absorbing local labor and driving the economic wheels of the coastal area (Rohimah *et al.,* 2025; Setiani & Laelia, 2024). Despite having a real economic

contribution, business units in this region operate in the midst of increasingly dynamic external risk exposure, the dynamics of maritime climate anomalies trigger extreme weather uncertainty that has a direct impact on the decline in fishermen's catch volume, daily stock scarcity, and a surge in the price volatility of raw fish raw materials (Illahi *et al*., 2023; Rizkina *et al*., 2023). This supply instability is confirmed from the empirical records of the Badan Pusat Statistik, (2024), where total fishery production on Madura Island shows a fluctuating pattern throughout the 2019-2024 period. Production, which was originally recorded at 105,978 tons in 2019, had slowed down before jumping 9.35% in 2023 to 115,964 tons, but experienced a sharp growth deceleration again in 2024 with an increase rate of only 0.72% (116,796 tons). These fluctuations prove that the availability of fishery raw materials in Madura is in a vulnerable condition, so it is the main trigger for operational uncertainty for fisheries processing business units (Jacobsen *et al.,* 2022; Maflahah *et al.,* 2025).

This condition severely undermines the survival capacity of coastal fish processing units when confronted with supply chain shocks and seasonal market contractions (Karuntu *et al.,* 2026). When the cost of raw materials soars or demand suddenly weakens, business units often experience a cash flow liquidity deficit that disrupts the daily production cycle and threatens the survival of the business (Ivanov, 2024). This situation demands strengthening strategic adaptation capacity and solid financial resilience to maintain long-term business existence (Legenzova, 2025).

Theoretically, business sustainability encompasses the organization's integrated capacity to balance economic performance stability, operational efficiency, and environmental sustainability, and social relations on an ongoing basis (Andersson *et al.,* 2022). Based on the Resource-Based View (RBV) perspective, the sustainability and competitive advantage of a business entity is determined by the ownership and ownership of valuable, scarce, and hard-to-replicate internal assets and resources (Barney, 1991). However, in a maritime market environment polarized by high uncertainty, the ownership of internal resources alone is no longer adequate and requires guidance with Dynamic Capabilities Theory (Teece, 2007). This theory articulates that the achievement of business sustainability in a volatile environment is highly determined by the organization's dynamic capabilities, namely the capacity to identify market threats and opportunities (sensing), seize opportunities for value-added processed innovation (seizing), and reconfigure asset configurations and production processes (transforming) (Engelmann, 2023; Hadi, 2023). Mastering dynamic capabilities facilitates business actors to be more responsive in diversifying processed lines, adjusting alternative production formulations, and strengthening working capital structures when the supply of fresh fish is disrupted (Fredrich *et al.,* 2022).

Many studies on business sustainability have been conducted, but most of them are still concentrated in large corporations and the high-tech manufacturing sector (Alkaraan *et al.,* 2023; Moursellas *et al.,* 2023). A study by Supramono *et al*., (2025) examining dynamic capabilities and financial performance after the pandemic, but has not placed financial resilience as a mediator in the maritime sector. In addition, the majority of micro business resilience research in East Java focuses on the dimensions of general financial literacy and generic marketing digitalization (Widyastuti *et al.,* 2025), without considering the unique characteristics of people's fisheries processing businesses that are highly tied to seasonal factors and natural weather.

This empirical gap underlies the importance of testing integrative models that place dynamic capabilities and financial resilience in explaining business sustainability

Journal : Journal of Management and Innovation Entrepreneurship (JMIE),
Publisher : Yayasan Nuraini Ibrahim Mandiri
ISSN : e-ISSN 3026-6505
Volume / Issue / Year/ Page : 4/ 1/ 2026: October /737-751

(Asmawati *et al.,* 2025; Bhadra *et al.,* 2024). Based on theoretical studies and existing empirical evidence, the hypothesis proposed in this study concludes that dynamic capabilities have a positive effect on financial resilience (Bughin, 2026; Mawardi *et al.,* 2025), dynamic capabilities have a positive effect on business sustainability (Harun *et al.,* 2023; Maulidina *et al.,* 2023), financial resilience has a positive effect on business sustainability (Burc *et al.,* 2024), and financial resilience mediates the indirect influence between dynamic capabilities and business sustainability (Bunyamin & Mauludin, 2026). The causality relationship between these hypotheses is mapped into the conceptual framework of the research Figure 1.

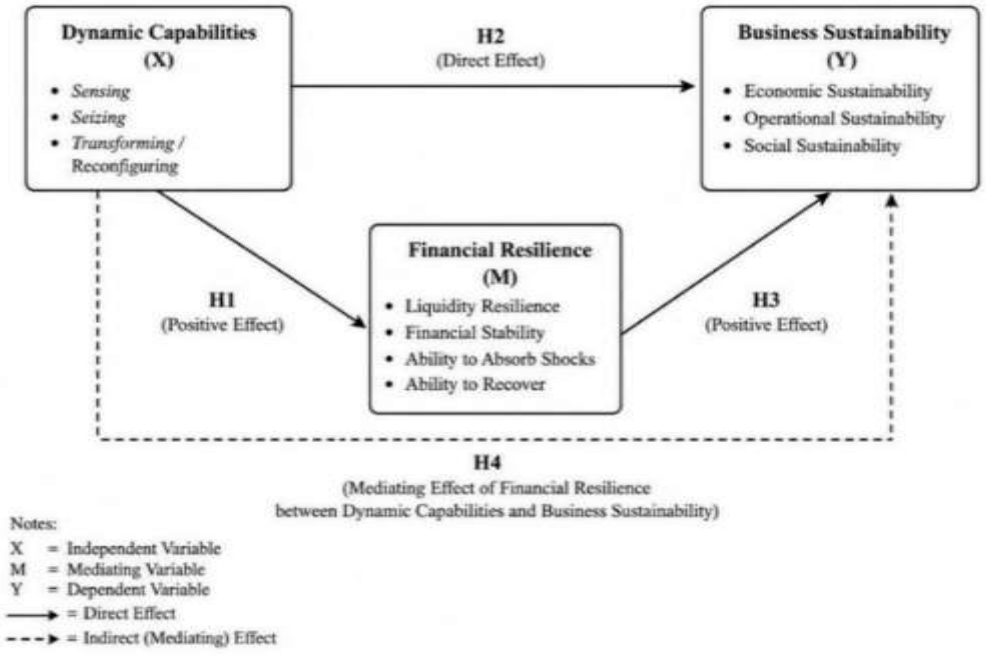


Figure 1. Conceptual Framework

This study aims to test and analyze the influence of dynamic capabilities on business sustainability with financial resilience as a mediating variable in fishery product processing business units on Madura Island. The results of this study are expected to make a theoretical contribution in enriching the literature on strategic management and finance of coastal resource-based micro-medium enterprises, as well as providing practical guidance for the formulation of risk mitigation strategies and strengthening business resilience for local fishery processing actors.

RESEARCH METHODS

This study employs a quantitative approach with an explanatory design to test the direct and indirect relationships among hypothesized variables. The research focuses on fishery product processing business units on Madura Island, with the study locations set in Sumenep Regency and Pamekasan Regency. The study population encompasses business units actively engaged in fishery product processing across micro, small, and medium scales. The business entities examined range from sole proprietorships to corporate forms such as CV and PT. This diversity reflects the condition of the fishery processing sector, which exhibits variations in production scale and business management (Ibrahimy, 2021; Rozi & Insani, 2023). The business scale classification refers to the annual turnover criteria stipulated in Government

Journal : Journal of Management and Innovation Entrepreneurship (JMIE),
Publisher : Yayasan Nuraini Ibrahim Mandiri
ISSN : e-ISSN 3026-6505
Volume / Issue / Year/ Page : 4/ 1/ 2026: October /737-751

Regulation Number 7 of 2021. The respondent and business unit profiles are presented in Table 1.

Table 1. Respondent Characteristics

Features	Category	Frequency (n)	Percentage %
Gender	Male	17	24,29
	Female	53	75,71
Operational Area	Sumenep Regency	50	71,43
	Pamekasan Regency	20	28,57
Form of Business Entity	Individual Business/ Commercial Enterprise(UD)	63	90,00
	CV	6	8,57
	PT	1	1,43
Long Operating	1-10 Years	40	57,14
	11-20 Years	18	25,71
	21-30 Years	10	14,29
	31-40 Years	2	2,86
Annual Turnover & Business Scale (PP No. 7 Year 2021)	**Micro Enterprises (<Rp 2 Billion)**		
	IDR 12,000,000-IDR 120,000,000 (IDR 1-10 million/month)	38	54,29
	IDR 132,000,000-IDR 240,000,000 (IDR 11-20 million/month)	18	25,71
	IDR 252,000,000-IDR 360,000,000 (IDR 21-30 million/month)	6	8,57
	IDR 372,000,000-IDR 480,000,000 (IDR 31-40 million/month)	2	2,86
	IDR 481,000,000-IDR 2,000,000,000 (> IDR 40-166 million/month)	4	5,71
	Small Business (> IDR 2 Billion- IDR 15 Billion)		
	>IDR 2,000,000,000 (> IDR 166 million/month)	2	2,86
Total		**70**	**100,00**

Source: Primary Data processed by researchers, 2026

Sampling was conducted using a non-probability technique through a combination of purposive sampling and snowball sampling. Purposive sampling was used to select respondents based on criteria aligned with the research objectives, while snowball sampling was employed to identify additional prospective respondents through recommendations or prior respondent networks. The combination of these two techniques was chosen because the exact population size of fishery product processing business units, particularly informal businesses in coastal areas, has not been precisely identified.

The sample selection criteria include: (1) business units actively operating in the fishery product processing sector, such as salted fish, shrimp paste, boiled fish (pindang), fish crackers, or frozen processed products; (2) business units located and operating in Sumenep Regency or Pamekasan Regency; (3) business units having operated for a minimum of one year; and (4) respondents being owners, leaders, or managers actively involved in decision-making regarding operations, product innovation, and business finance. These criteria were established to ensure that respondents possess relevant operational experience and managerial knowledge in

providing information regarding dynamic capabilities, financial resilience, and business sustainability.

Primary data were collected during August 2026 using a structured questionnaire with a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Questionnaire completion was conducted face-to-face with researcher assistance, supplemented by direct interviews to clarify respondents' understanding of financial management and ensure the alignment of answers with actual business operational conditions. Data collection during this period yielded 70 valid responses meeting the research criteria. Because data collection was conducted directly rather than through questionnaire distribution for subsequent return, the number of questionnaires distributed and returned is not reported separately. All valid responses were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS 4.1.

Sample size adequacy was planned based on a statistical power analysis using G*Power 3.1 (Faul et *al.,* 2009). The analysis utilized the F-test for multiple linear regression (fixed model, R^2 deviation from zero), with a significance level of 0.05, a statistical power of 0.80, a medium effect size (f^2 = 0.15), and two predictors for the business sustainability construct. Based on these parameters, the minimum required sample size is 68 respondents. Consequently, the 70 valid responses exceed the minimum requirement based on these assumptions. This calculation serves as a sample adequacy benchmark for the regression model with two predictors and does not inherently guarantee sufficient statistical power to detect small mediation effects.

The operationalization of research variables covers three main constructs: dynamic capabilities as the exogenous variable, financial resilience as the mediating variable, and business sustainability as the endogenous variable. All indicators were measured using a five-point Likert scale. The conceptual dimensions, indicator codes, and operational definitions of each construct are presented in Table 2.

Table 2. Operationalization of Variables and Measurement Indicators

Variable	Dimensions	Code	Indicator
Dynamic Capabilities (X)	Sensing	DC1	Sensitivity detects changes in market taste trends and fluctuations in the supply of fish raw materials.
	Seizing	DC2	Agility captures market opportunities through processed innovation and diversification of value-added products.
	Transforming	DC7	Ability to align and reconfigure processing processes and operational chain efficiency.
Financial Resilience	Economic Resources	ER	Availability of cash reserves, debt management capacity, and emergency funds.
	Financial Resources	FS	Ability to access external financing and availability of financial protection mechanisms.
	External Support	ES	Ability to obtain external support, both social and institutional assistance, in the face of financial pressure.
Business Sustainability	Environmental Sustainability	BS_EVN	Commitment to energy/resource efficiency, treatment waste management, and compliance with environmental standards.
	Social Environment	BS_SOC	Concern for the welfare and safety of workers, contribution to the surrounding community, and maintenance of good relations with the social environment.

Source: Primary Data processed by researchers, 2026

Journal : Journal of Management and Innovation Entrepreneurship (JMIE),
Publisher : Yayasan Nuraini Ibrahim Mandiri
ISSN : e-ISSN 3026-6505
Volume / Issue / Year/ Page : 4/ 1/ 2026: October /737-751

Operationally, dynamic capabilities are measured as the strategic capabilities of business units in detecting supply and market fluctuations, executing value-added processed innovation opportunities, and adaptively reconfiguring the production operational chain (Houessou *et al.,* 2023; Kitsao & Prakash, 2025). Furthermore, financial resilience reflects the level of monetary resilience of business units as measured by the adequacy of internal cash reserves, access to external financing, and the ability to utilize institutional support in the face of financial pressures (Legenzova, 2026; Sumail *et al.,* 2026). Finally, business sustainability is operationalized as long-term business sustainability achieved through a balance between commitment to environmental resource efficiency and concern for the welfare and social relations of coastal communities (Supramono *et al.*, 2025; Wiranthi *et al.,* 2024).

In the PLS-SEM analysis, the measurement model (outer model) evaluation was conducted to assess indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Indicator reliability was evaluated through outer loading values, with a value of 0.70 or higher as a reference. Convergent validity was assessed using Average Variance Extracted (AVE), with values above 0.50 as the criterion. Internal consistency reliability was evaluated via Composite Reliability (CR), with a minimum value of 0.70, alongside Cronbach's alpha as a supplementary measure. Discriminant validity was examined using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio, with an HTMT value below 0.90 as a reference. Multicollinearity was checked via Variance Inflation Factor (VIF) values, with values below 3.3 serving as the threshold used in this study.

The structural model (inner model) evaluation encompasses the coefficient of determination ($R^2$and R^2Adjusted), effect size (f^2), and predictive relevance (Q^2). f^2 values of 0.02, 0.15, and 0.35 were used as references for small, medium, and large effects, respectively (Henseler *et al.,* 2016) . Q^2 values above zero indicate predictive relevance in the employed testing procedure. Hypothesis testing was performed through non-parametric bootstrapping with 5,000 resamples at a 5% significance level. Effects are considered significant if the p-value is below 0.05; a t-statistic above 1.96 was used as the reference for two-tailed testing at this significance level. The mediating role of financial resilience was tested via specific indirect effects to determine whether dynamic capabilities influence business sustainability indirectly through financial resilience.

RESULTS AND DISCUSSION

Measurement Model/Outer Model Evaluation Results

Evaluation of the measurement model was carried out to test the convergent validity, construct reliability, and discriminant validity of the research instrument using the PLS-SEM algorithm on SmartPLS 4.1. This stage ensures that the operationalized measurement metrics exhibit adequate psychometric properties before proceeding to the structural model evaluation. Rigorous measurement assessment is essential in empirical business research to minimize measurement errors and ensure that the survey items accurately capture the underlying theoretical dimensions. Adhering to established PLS-SEM analytical protocols, all construct specifications were systematically evaluated prior to hypothesis testing. The complete statistical output of the outer model evaluation is summarized in Table 3.

Journal : Journal of Management and Innovation Entrepreneurship (JMIE),
Publisher : Yayasan Nuraini Ibrahim Mandiri
ISSN : e-ISSN 3026-6505
Volume / Issue / Year/ Page : 4/ 1/ 2026: October /737-751

Table 3. Measurement Model/Outer Model Evaluation Results

Variable	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability (ρ_c)	Average Variance Extracted (AVE)
Business Sustainability	BS_EVN	0,874	0,504	0,798	0,665
	BS_SOC	0,752			
Dynamic Capability	DC1	0,808	0,679	0,823	0,608
	DC2	0,740			
	DC7	0,790			
Financial Resilience	ER	0,787	0,595	0,783	0,547
	ES	0,753			
	FS	0,674			

Source: Primary Data processed by researchers, 2026

Based on the test results in the table above, most indicators have an outer loading value above the ideal criterion of 0.70. The FS indicator on the Financial Resilience construct has an outer loading value of 0.674, which is maintained in the model because the AVE value of the construct has reached 0.547 (exceeding the minimum threshold limit of 0.50). All constructs prove the fulfillment of the convergence validity requirement with an AVE value above 0.50, which is 0.665 for Business Sustainability, 0.608 for Dynamic Capability, and 0.547 for Financial Resilience.

The construct reliability assessment indicates that the Composite Reliability (ρ_c) values for all variables exceed the threshold of 0.70, recording 0.798 for Business Sustainability, 0.823 for Dynamic Capability, and 0.783 for Financial Resilience. Although the Cronbach's Alpha value for the Business Sustainability construct is 0.504, this parameter remains acceptable in PLS-SEM estimation because Cronbach's Alpha is highly sensitive to scale length and tends to underestimate internal consistency for constructs measured by a small number of indicators (here evaluated via two core sub-dimensions, BS_EVN and BS_SOC). Given that Composite Reliability achieved 0.798 (≥ 0.70) and AVE reached 0.665 (≥ 0.50), internal consistency reliability and convergent validity are fully established (Hair *et al.,* 2021). Similarly, although the cronbach's Alpha for Financial Resilience is 0.595 (marginally below the 0.60 threshold), it remains acceptable in PLS-SEM because its Composite Reliability (0.783) and AVE (0.547) robustly satisfy the requirements for internal consistency and convergent validity.

Multicollinearity examination yielded Variance Inflation Factor (VIF) values for all indicators between 1.128 and 1.415, well below the critical threshold of 3.3, confirming the absence of multicollinearity bias. To evaluate discriminant validity, both the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio were calculated, as presented in Table 4.

Table 4. Discriminant Validity Evaluation (Fornell-Larcker Criterion and HTMT Ratio)

Construct	Business Sustainability	Dynamic Capability	Financial Resilience
Business Sustainability	**(0.815)**	0.732	0.582
Dynamic Capability	0.712	**(0.780)**	0.811
Financial Resilience	0.602	0.723	**(0.740)**

Source: Primary Data processed by researchers, 2026

Note: Bold values in parentheses on the diagonal represent the square root of AVE for Fornell-Larcker evaluation. Off-diagonal values below the diagonal represent latent variable correlations, while values above the diagonal represent HTMT ratios.

As shown in Table 4, the square root of AVE for each construct (diagonal values) is greater than its highest correlation with any other construct. Furthermore, all HTMT

Journal : Journal of Management and Innovation Entrepreneurship (JMIE),
Publisher : Yayasan Nuraini Ibrahim Mandiri
ISSN : e-ISSN 3026-6505
Volume / Issue / Year/ Page : 4/ 1/ 2026: October /737-751

values remain strictly below the conservative threshold 0.85 (and well below 0.90), establishing robust discriminant validity across constructs.

Results of Structural Model Evaluation (Inner Model)

The evaluation of the structural model aims to assess the explanatory capacity of the framework through the coefficient of determination (R^2, Adjusted R^2) and relative predictor contribution via effect size (f^2).

Table 5. Results of Structural Model Evaluation (Inner Model)

Endogenous Variable	R^2	R^2 Adjusted	Predictor	Effect Size (f^2)	Effect Category
Financial Resilience	0,523	0,516	Dynamic Capability	1,097	Large
Business Sustainability	0,524	0,510	Dynamic Capability	0,328	Medium
			Financial Resilience	0,037	Small

Source: Primary Data processed by researchers, 2026

The value of the determination coefficient (R^2) in the Business Sustainability construct was recorded at 0.524 (R^2_{adj} = 0.510). This indicates that 52.4% of the variance in business sustainability in the fishery product processing business units in Sumenep and Pamekasan can be explained by a combination of dynamic capability and financial resilience, while the remaining 47.6% is influenced by other factors outside the research model. Meanwhile, the value (R^2) for Financial Resilience is 0.523 (R^2_{adj} = 0.516), proving that 52.3% of the variation in financial resilience can be explained independently by dynamic capability.

The evaluation of the effect size (f^2) shows a very strong dominance of dynamic capability on financial resilience with an f^2 value of 1.097 (large effect), as well as a strong influence on business sustainability with an f^2 value of 0.328 (a medium effect approaching the large category threshold of 0.35). On the other hand, financial resilience contributes a small effect to business sustainability with an f^2 value of 0.037. Visualization of the relationship between variables, path coefficient values, and model R^2 values is presented in full in Figure 2.

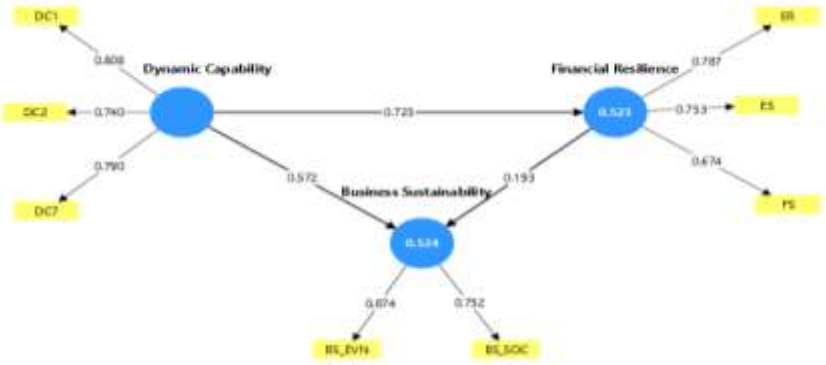


Figure 2. PLS-SEM Path Diagram of Measurement and Structural Model

Hypothesis Testing

Testing of the hypothesis was direct effect and indirect effect was estimated through the bootstrapping procedure with a significance level of 5% (t -table = 1.96).

Journal : Journal of Management and Innovation Entrepreneurship (JMIE),
Publisher : Yayasan Nuraini Ibrahim Mandiri
ISSN : e-ISSN 3026-6505
Volume / Issue / Year/ Page : 4/ 1/ 2026: October /737-751

Table 6. Hypothesis Test Results

Hypothesis	Relationship Pathway	Line Coefficient (β)	Standard Deviation	t-Statistics	p-value	Verdict
H_1	Dynamic Capability→ Financial Resilience	0,723	0,081	8,928	0,000	Accepted
H_2	Dynamic Capability→ Business Sustainability	0,572	0,122	4,669	0,000	Accepted
H_3	Financial Resilience→ Business Sustainability	0,193	0,135	1,432	0,152	Rejected
$\boldsymbol{H_4}$	Dynamic Capability→ Financial Resilience→ Business Sustainability	0,139	0,101	1,385	0,166	Rejected

Source: Primary Data processed by researchers, 2026

Based on the results of the structural model evaluation in Table 6, hypothesis testing shows that dynamic capability has a positive and significant effect directly on financial resilience (β= 0.723; t= 8.928; p= 0.000), thus H_1 is accepted. Similarly, dynamic capability has a positive and significant effect directly on business sustainability (β= 0.572; t= 4.669; p= 0.000), thus H_2 is accepted. On the other hand, financial resilience has a positive but not significant effect directly on business sustainability (β= 0.193; t= 1.432; p= 0.152 $>$ 0.05), therefore H_3 is rejected. Furthermore, the results of the indirect influence test confirmed that financial resilience was not able to mediate the relationship between dynamic capability and business sustainability significantly (β= 0.139; t= 1.385; p= 0.166 $>$ 0.05), therefore H_4 is rejected.

DISCUSSION

The first hypothesis test proves that dynamic capabilities are directly proportional and have a dominant role in strengthening financial resilience in fishery product processing business units on Madura Island. Contextually, this finding explains that the environmental sensitivity (sensing) of business processing in Sumenep and Pamekasan Regencies in anticipating maritime climate anomalies and fluctuations in fishermen's catch supply is the main key to their financial stability. When there is a supply shortage, adaptive managers are able to plan working capital allocation and control receivables preventively. These empirical findings are in line with the results of a previous study by Chari *et al.,* (2024) and Supramono *et al.,* (2025), while strengthening the Dynamic Capabilities Theory (Teece, 2007) which articulates that dynamic capabilities facilitate organizational agility in securing financial resilience through disciplined asset management when dealing with environmental uncertainty.

The second hypothesis test confirms that dynamic capabilities have proven to be the main drivers of business sustainability directly. The sustainability of local fisheries processing business units in Madura is highly dependent on the agility of seizing innovation opportunities and reconfiguring the production process (transforming). The alignment of product diversification indicators such as frozen anchovy processing, improved hygiene of shrimp paste and peas, and airtight packaging is the main fortress of business units in maintaining market share amid soaring raw material prices. These results support empirical findings Gruchmann *et al.,* (2021) and Zuhri *et al.,* (2026) , while also confirming the correlation of the Resource-Based View (Barney, 1991) and Dynamic Capabilities Theory that the competitive advantage and long-term survival of the agro-maritime business are determined by the courage of the organization to

continuously update its internal operational capacity to effectively adapt to environmental volatility.

On the other hand, the third hypothesis test shows that financial resilience does not have a significant effect on business sustainability. The rejection of this hypothesis is the most crucial finding in the study. Based on the evaluation of indicators and respondent profile data, this phenomenon occurs due to the dominance of micro business structures in the research site (reaching more than 90% of the sample) which has fundamental limitations in the indicators of economic resources and financial resources. Data shows that most managers only have small-scale cash reserves that are passive for daily operational needs or family consumption, not a strategic emergency fund cushion that is able to support long-term business growth. In addition, institutional incentive support (external support) has not been optimally utilized for waste management and occupational safety standards. In the fishery food processing industry with a very high level of raw material perishability, business sustainability is determined more by the rapid turnover of physical supplies and the flexibility of fishermen's supply networks, rather than the accumulation of passive monetary assets that are vulnerable to being eroded by daily operations. These results differ from the conventional assumptions of corporate studies (Burc *et al.,* 2024), but reinforcing the argument Lestari *et al.* (2024) and Othman *et al.* (2025) related to the resilience of micro businesses in the midst of limited resources.

These internal conditions also answer the reason for the rejection of the fourth hypothesis, where financial resilience is proven to be unable to mediate the relationship between dynamic capabilities and business sustainability. In contrast to the findings Bunyamin & Mauludin (2026) in MSMEs in the digital sector, this study confirms the occurrence of the phenomenon of direct effect dominance in the maritime sector. Dynamic capabilities transmit their impact directly and fully (full direct transmission) on business sustainability without the need for the accumulation of cash reserves as intermediaries. For fishery processing business units on the coast of Madura, the agility of responding to the market, the speed of product modification, and the loyalty of the supply chain with local fishermen act as the main anchor of defense. This contributes an important novelty to the maritime entrepreneurship literature: in a high-risk agro-maritime environment, operational adaptive capabilities are much more decisive for business survival than simply an internal fund-raising mechanism.

CONCLUSION

Dynamic Capabilities play a crucial role in supporting the Business Sustainability business unit of processing Madura coastal fishery products directly, and has been proven to have a positive and significant effect on increasing Financial Resilience. On the other hand, Financial Resilience has no significant effect on Business Sustainability and is unable to mediate the relationship between Dynamic Capabilities and Business Sustainability. These findings confirm the phenomenon of direct effect dominance, where the continuity of coastal small businesses is more directly determined by the agility of product diversification innovations, post-harvest processing adaptation, and the flexibility of supply chain reconfiguration than the accumulation of passive cash reserves. The results of this study also enrich the literature on Resource-Based View and Dynamic Capabilities Theory by proving that in the context of extreme vulnerability, operational adaptive capabilities are far superior in ensuring business continuity than financial resilience alone. In practical terms, strengthening the

sustainability of fisheries business units should be focused on increasing innovation capacity and operational flexibility rather than just capital assistance interventions.

This study has a number of limitations. The cross-sectional research design only captures the dynamics of the relationship between variables at a single point in time, so it cannot comprehensively measure changes in business adaptive behavior when there is a change in the fishing season. In addition, the limited coverage of the area focusing on 70 respondents in Sumenep and Pamekasan Regencies with purposive techniques and snowball sampling makes generalization of findings on the entire population of fishery business units on Madura Island must be carried out carefully. The use of self-reported questionnaire-based primary data by business managers also still has the potential for common method bias, even though the quality testing of the measurement model has met the required criteria for validity and reliability.

Future research is recommended to adopt a time-based research design (longitudinal study) to temporally observe how adaptive capabilities and financial resilience develop in the face of climate turmoil cycles. Further researchers are also encouraged to expand the scope of areas and sample sizes in probability across districts on the coast of East Java. In addition, the integration of maritime contextual variables such as supply chain flexibility, digital technology adoption, or environmental dynamism as moderation variables is highly recommended to test the sensitivity limits of the influence of Dynamic Capabilities on business sustainability.

Statement on the Use of Artificial Intelligence.

In connection with the preparation of this manuscript, artificial intelligence is used solely to assist with language refinement, grammar checking, and editing to improve the clarity and readability of the text. The author remains solely responsible for the accuracy, originality, integrity, and all academic content in this manuscript, where all content assisted by artificial intelligence has been independently reviewed and verified prior to submission of the manuscript.

Conflicts of interest

The author confirms that there are no financial, commercial, or personal conflicts of interest with external parties that can affect the objectivity of the results and interpretation in this study. The entire process of research, preparation, and publication of articles is carried out independently without any potential conflict of interest in any form.

Author contributions

Conceptualization, Mila Rafel Lina and Prasetyo Nugroho; methodology, Mila Rafel Lina; data collection, Aprilina Susandini; data validation, Prasetyo Nugroho and Aprilina Susandini; formal analysis, Mila Rafel Lina; preparation of original drafts, Prasetyo Nugroho and Aprilina Susandini; review and editing, Mila Rafel Lina and Aprilina Susandini; visualization, Prasetyo Nugroho. All authors have read and approved the published version of the manuscript.

Acknowledgments

This research was held with the support of the Institute for Research and Community Service (LPPM) and the Management Study Program, Faculty of Economics and Business, Trunodjoyo University Madura. The author expresses his deep appreciation

and gratitude for the support of facilities, resources, and academic guidance provided for the smooth completion of this research. We would also like to express our gratitude to the Fisheries Service and the Cooperatives and MSMEs Office of Pamekasan Regency and Sumenep Regency for the valuable facilitation. The highest appreciation is also addressed to all leaders, owners, managers of business units, and actors of fishery product processing business units in Sumenep Regency and Pamekasan Regency who have been willing to take the time and participate as respondents in this study.

REFERENCE

Alkaraan, F., Elmarzouky, M., Hussainey, K., Venkatesh, V. G., Shi, Y., & Gulko, N. (2023). Reinforcing green business strategies with Industry 4.0 and governance towards sustainability: Natural-resource-based view and dynamic capability. *Business Strategy and the Enviroment*, *33*(4), 3588–3606. https://doi.org/10.1002/bse.3665

Andersson, S., Svensson, G., Molina-Castillo, F.-J., Otero-Neira, C., Lindgren, J., Karlsson, N. P. E., & Laurell, H. (2022). Sustainable development direct and indirect effects between economic, social, and environmental dimensions in business practices. *Corporate Social Responsibility and Enviromental Management*, *29*(5), 1158–1172. https://doi.org/10.1002/csr.2261

Asmawati, Laba, A. R., Dewi, A. R. S., & Alamzah, N. (2025). *The influence of dynamic capabilities, financial literacy, and financial inclusion on sustainability of MSMEs in East Kalimantan, Indonesia: The mediating role of financial performance*. Global Business & Finance Review. https://doi.org/10.17549/gbfr.2025.30.10.216

Badan Pusat Statistik. (2024). *Volume produksi dan nilai produksi perikanan tangkap menurut kabupaten/kota dan jenis penangkapan di provinsi Jawa Timur, 2024*. Badan Pusat Statistik.

Barney, J. (1991). Journal of Management. *Firm Resources and Sustained Competitive Advantage*, *17(1)*(Journal of Management), 99–120. https://doi.org/10.1177/014920639101700108

Bhadra, K. V, Kamalanabhan, T. J., & Singh, S. K. (2024). Evolution of dynamic capabilities for business sustainability performance: Evidence from the Indian manufacturing sector. *Business Strategy and the Environment*, *33*(6), 5583–5605. https://doi.org/10.1002/bse.3767

Bughin, J. (2026). European Research on Management and Business Economics Robustness and Renewal as key dynamic capabilities for corporate resilience. *European Research on Management and Business Economics*, *32*(2), 100308. https://doi.org/10.1016/j.iedeen.2026.100308

Bunyamin, & Mauludin, H. (2026). Behavioral dynamic capabilities and financial resilience in digital MSMEs: The dual role of financial sustainability. *International Journal of Accounting and Finance in Asia Pacific (IJAFAP)*, *9*(2), 491–510.

Burc, V., Bogdan, O., Bunget, O., & Dumitrescu, A.-C. (2024). Corporate financial performance vs . corporate Sustainability performance, between earnings management and process improvement. *Sustainability*, *16*(7744), 1–43.

Chari, A., Despeisse, M., Johansson, B., Morioka, S., Gohr, F., & Stahre, J. (2024). Resilience compass navigation through manufacturing organization uncertainty A dynamic capabilities approach using mixed methods. *CIRP Journal of Manufacturing Science and Technology*, *55*(October), 375–389. https://doi.org/10.1016/j.cirpj.2024.10.014

Engelmann, A. (2023). A performative perspective on sensing, seizing, and transforming

in small-and medium-sized enterprises. *Entrepreneurship & Regional Development*, *36*(5–6), 632–658. https://doi.org/10.1080/08985626.2023.2262430

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G * Power 3 . 1 : Test for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Fredrich, V., Gudergan, S., & Bouncken, R. B. (2022). Dynamic capabilities, internationalization and growth of small- and medium_sized enterprises: The roles of research and development intensity and collaborative intensity. In *Management International Review* (Vol. 62, Issue 4). Springer Berlin Heidelberg. https://doi.org/10.1007/s11575-022-00480-3

Gruchmann, T., Timmer, V., Gold, S., & Ge, C. (2021). *Dynamic capabilities for sustainable change in the food processing industry : A multilevel perspective*. *311*(April). https://doi.org/10.1016/j.jclepro.2021.127534

Hadi, P. (2023). Improving firm sustainability through dynamic capability: The mediation role of ambidexterity. *International Journal of Professional Business Review*, *8*(5), 1–24.

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*. Classroom Companion: Business.

Harun, M. D., Hogset, H., & Mwesiumo, D. (2023). *Dynamic capabilities and sustainability performance : Exploring the moderating role of environmental dynamism in the Norwegian fishing industry*. *February*, 2636–2655. https://doi.org/10.1002/sd.2536

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research : Updated guidelines. *Industrial Management & Data Systems*, *116*(1), 2–20. https://doi.org/10.1108/IMDS-09-2015-0382

Houessou, A. M., Aoudji, A. K. N., Biaou, G., & Floquet, A. (2023). Heliyon Market opportunities seizing capability and fish farming firm performance : A dynamic managerial capability perspective. *Heliyon*, *9*(8), e19019. https://doi.org/10.1016/j.heliyon.2023.e19019

Ibrahimy, U. (2021). Analisis kinerja usaha kecil dan menengah pengolahan hasil perikanan di kabupaten Situbondo pada masa pandemi covid-19. *Jurnal DinamikA*, *2*(2), 81–98.

Illahi, R. W., Syahputra, A. F., Aida, G. R., & Prajasti, C. N. (2023). Pengaruh perubahan iklim terhadap produksi perikanan tangkap di laut Jawa Timur Indonesia. *Jurnal Agrimanex*, *3*(2), 178–188.

Ivanov, D. (2024). Cash flow dynamics in the supply chain during and after disruptions. *Transportation Research Part E*, *185*(103526), 1–12. https://doi.org/10.1016/j.tre.2024.103526

Jacobsen, N. S., Marshall, K. N., Berger, A. M., Grandin, C., & Taylor, I. G. (2022). Climate-mediated stock redistribution causes increased risk and challenges for fisheries management. *ICES Journal of Marine Science*, *79*(4), 1120–1132. https://doi.org/10.1093/icesjms/fsac029

Karuntu, M. M., Jan, A. B. H., & Poluan, J. G. (2026). Supply chain resilience and competitive advantage in fish-processing firms: digital technology as a mediating capability from an environmental health perspective. *Jurnal Ilmiah PLATAX*, *14*(1), 316–324.

Kitsao, B. H., & Prakash, A. (2025). Dynamic capabilities and organizational

competitiveness: A bibliometric analysis approach. *International Journal of Economics and Business Administration*, *XXIII*(2), 144–170.

Legenzova, R. (2025). How prepared are SMEs for market disturbances ? a dynamic approach to SMEs' financial resilience. *Cogent Business & Management*, *12*(1), 1–22. https://doi.org/10.1080/23311975.2025.2520463

Legenzova, R. (2026). Exploring the gap in the dynamic financial resilience of urban and rural SMEs. *Economies*, *14*(5), 1–22.

Lestari, E. D., Hamid, N. A., Shamsuddin, R., Kurniasari, F., & Yaacob, Z. (2024). Investigating the factors of SMEs' business resilience in the post-pandemic crisis of COVID-19 with technology adoption as a quasi-moderator: A multigroup analysis of Indonesian and Malaysian SMEs. *Cogent Business & Management*, *11*(1), 1–35. https://doi.org/10.1080/23311975.2023.2301135

Maflahah, I., Omar, E. N., Firmansyah, R. A., Asfan, D. F., & Hadiguna, R. A. (2025). Mathematical modelling of engineering problems evaluation of the performance of the halal supply chain in fish processing SMEs: An empirical study utilizing the PLS-SEM approach. *International Information and Engineering Technology Association*, *12*(3), 957–970. https://doi.org/doi.org/10.18280/mmep.120322 Received:

Maulidina, S. H., Harri, M., Fitriati, T. K., & Subagja, K. (2023). Dynamic capabilities and innovation implications for business sustainability. *Management Analysis Journal*, *12*(4), 456–462.

Mawardi, A. A. K., Farida, L., Endhiarto, T., & Apriliana, T. (2025). Resilient MSMEs in the digital era: Managing environmental uncertainty through dynamic capabilities. *BISMA (Bisnis Dan Manajemen)*, *X*(X), 131–158. https://doi.org/10.26740/bisma.v18n1.p131-158

Moursellas, A., De, D., Wurzer, T., Skouloudis, A., Reiner, G., Chaudhuri, A., Manousidis, T., Malesios, C., Evangelinos, K., & Dey, P. K. (2023). Sustainability practices and performance in European-small_and_medium enterprises : insights from multiple case. *Circular Economy and Sustainability*, *3*(2), 835–860. https://doi.org/10.1007/s43615-022-00224-3

Othman, N. H., Aziz, N. A. A., & Halim, N. F. (2025). The impact of financial resources on business survival: The mediating role of government support in Malaysia. *Journal of Information Systems Engineering and Management*, *10*(278), 744–752.

Rizkina, F. D., Fauzi, N. F., Assadam, A., Hapsari, T. A., & Ramad, S. A. (2023). Analisis risiko dan struktur biaya rantai pasok ikan lemuru segar di pelabuhan Banyuwangi. *Journal of Fisheries and Marine Science (JFMarSci)*, *7*(1), 30–56.

Rohimah, A., Setiani, Priyanto, M. W., & Wijayanti, D. E. (2025). Fishermen's perceptions of climate change impacts on livelihoods: A weighted average index (WAI) analysis in Bangkalan, Madura island. *Agriekonomika*, *14*(2), 200–210.

Rozi, A., & Insani, S. A. (2023). Kelayakan dasar UMKM pengolahan ikan di kecamatan Pulau Banyak, Aceh Singkil. *Jurnal Pengolahan Hasil Perikanan Indonesia*, *26 (3)*. https://doi.org/http://dx.doi.org/10.17844/jphpi.v26i3.46013

Setiani, & Laelia, W. N. (2024). The role of coastal women in increasing household income in Kamal distric, Bangkalan regency, Madura island. *ECSOFiM: Journal of Economic and Social of Fisheries and Marine*, *12*(01), 111–122.

Sumail, L. O., Oktrivina, A., & Sunarsih, U. (2026). Performance of small enterprises: The role of growth preparedness. *Journal of Open Innovation: Technology, Market, and Complexity*, *12*(3), 1–11. https://doi.org/10.1016/j.joitmc.2026.100819

Supramono, S., Damayanti, T. W., & Adhitya, D. (2025). Dynamic capabilities and

financial behavior to accelerate MSME performance recovery and its impacts on business sustainability. *Journal of Innovation and Entrepreneurship*, *14*(10), 1–22. https://doi.org/10.1186/s13731-024-00456-7

Teece, D. J. (2007). Explicating dynamic capabilities : The nature and microfoundations of (sustainable) enterprise perfomance. *Strategic Management Journal*, *1350*(August), 1319–1350. https://doi.org/10.1002/smj.640

Widyastuti, M., Ferdinand, D. Y. Y., & Kunang, M. Z. N. (2025). Financial performance and business sustainability through financial literacy and inclusion among east java MSME actors. *International Journal of Applied Business & International Management (IJABIM)*, *10*(2), 294–312.

Wiranthi, P. E., Toonen, H. M., & Oosterveer, P. (2024). Flexibility through bundles of capital : The capabilities of Indonesian small-scale handline tuna fishers under voluntary sustainability certification. *Marine Policy*, *168*(July), 106296. https://doi.org/10.1016/j.marpol.2024.106296

Zuhri, N. M., Abdullah, Z., Puspita, N., Rozaki, Z., Aini, N., & Wilis, R. (2026). *Operational resilience as a dynamic capability for achieving sustainable agribusiness MSMEs*. *12*(1), 5–31.