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The Influence of Entrepreneurial Competencies, Entrepreneurial Orientation, Entrepreneurial Self-Efficacy, Entrepreneurial Network, and Government Business Support on MSME Performance: The Moderating Role of External Environment

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ABSTRACT

This study aims to analyze the influence of entrepreneurial competencies, entrepreneurial orientation, entrepreneurial self-efficacy, entrepreneurial network, and government business support on the performance of Micro, Small, and Medium Enterprises (MSMEs), considering the role of the external environment as a moderating variable. A quantitative approach was employed by distributing questionnaires to MSME actors across various industrial sectors. Data analysis was conducted using multiple regression methods and moderation interaction tests to examine the direct and indirect influences among variables. The results show that all independent variables have positive and significant effects on MSME performance. Additionally, the external environment significantly moderates the relationships between entrepreneurial factors and MSME performance, either strengthening or weakening these effects depending on the external environment dynamics faced. These findings provide important implications for MSME actors, policymakers, and business support institutions in designing strategies that empower and strengthen MSMEs based on their internal potential and external support.

KEYWORDS *Entrepreneurial Competencies, Entrepreneurial Orientation, Entrepreneurial Self-Efficacy, Entrepreneurial Network, Government Support, MSME Performance, External Environment.*

INTRODUCTION

In today's increasingly dynamic and competitive market environment, organizations across various sectors face significant pressure to enhance their adaptive capabilities and innovation to sustain competitive advantage. Rapid market responsiveness and continuous innovation implementation have been identified as critical factors for organizational performance, particularly in highly competitive industries (McGee & Peterson, 2019; Wijaya & Nuringsih, 2022). In this context, *Resource-Based Theory* (RBT) has traditionally provided an explanation for competitive advantage, emphasizing valuable, rare, inimitable, and non-substitutable internal resources (Ahmad & Latif, 2012). However, RBT possesses inherent limitations; primarily, it overly concentrates on internal factors while inadequately addressing external environmental dynamics (Alkahtani et al., 2020; Pulka et al., 2021). Specifically, RBT does not explicitly articulate mechanisms for integrating internal resources with external environmental shifts, resulting in limited explanatory power in highly dynamic contexts (Barragan & Becker, 2024).

Dynamic Capabilities Theory (DCT) complements RBT by addressing these gaps, emphasizing organizations' ability to proactively sense opportunities, seize resources, and reconfigure operational processes in response to environmental volatility (Afthanorhan et al., 2020; Ahimbisibwe et al., 2023). By integrating both RBT and DCT, this research seeks to provide a holistic perspective that captures the complexity of internal-external interactions

crucial for sustaining organizational performance amidst rapid environmental changes (Barragan & Becker, 2024).

Micro, Small, and Medium Enterprises (MSMEs) play a critical role globally and nationally, comprising approximately 90% of global businesses and significantly contributing to employment and economic growth (Bongomin et al., 2020). In Indonesia, MSMEs are vital contributors to GDP and employment yet frequently face resource and managerial limitations, affecting their overall performance (Bate & Pittaway, 2024). Empirical research has identified several internal entrepreneurial factors crucial to MSME performance: entrepreneurial competencies, entrepreneurial orientation, entrepreneurial networks, and government business support. Entrepreneurial competencies facilitate knowledge management, innovation, and adaptive risk-taking, which enable MSMEs to sustain competitiveness in dynamic markets (Appietu-Ankrah et al., 2024). Entrepreneurial orientation, characterized by innovativeness, proactiveness, and risk-taking, empowers MSMEs to exploit new opportunities and quickly adapt to market changes (Chaudhary et al., 2024; Cannavale et al., 2020). Entrepreneurial networks provide strategic access to external information, resources, and market opportunities, thereby supporting MSME growth and innovation. Meanwhile, government business support, through policy interventions and resource accessibility, alleviates internal barriers, enhancing MSME resilience and sustained performance in competitive environments (Abiodun, 2020; Iskamto et al., 2024).

Despite acknowledging these variables' importance, prior studies present inconsistent findings regarding their direct impact on MSME performance, indicating unresolved gaps in comprehending the precise interactions between internal factors and dynamic external environments (Arifiani et al., 2022; Barel-Shaked, 2023). Furthermore, existing literature insufficiently explores cognitive-psychological factors that could moderate the efficacy of entrepreneurial strategies. *Entrepreneurial Self-Efficacy* (ESE), representing entrepreneurs' confidence in their abilities to recognize opportunities, manage risks, and make strategic decisions, is introduced into this model as an urgent and previously underexplored dimension (Eniola, 2020). ESE is posited to amplify the conversion of internal resources and strategic intentions into tangible performance outcomes, particularly within uncertain and complex market conditions (Gonzalez-Tamayo et al., 2024).

Indonesia's food and beverage MSMEs, significantly impacted by recent infrastructural developments such as the *Bogor-Ciawi-Sukabumi (BOCIMI)* toll road, exemplify the urgent need for such comprehensive modeling. This infrastructure project has drastically diverted customer traffic, significantly reducing revenue streams and challenging MSMEs' sustainability in the affected areas (Cárdenas-Gutiérrez et al., 2021). The research gap becomes particularly pronounced here, as existing models fail to simultaneously integrate the aforementioned internal factors—including the novel cognitive dimension of ESE—with external environmental moderation explicitly within the MSME context affected by infrastructural disruptions.

Addressing this critical gap, this research constructs and empirically tests an integrative conceptual model incorporating entrepreneurial competencies, entrepreneurial orientation, entrepreneurial networks, government business support, entrepreneurial self-efficacy, and external environment moderation. Ultimately, the model aims to clarify how these variables jointly influence MSME performance and how their impacts vary according to external

environmental conditions. This research promises to provide both theoretical contributions to entrepreneurial and strategic management literature and practical insights for MSME stakeholders navigating significant environmental disruptions.

METHOD

This study employed a quantitative approach with a single cross-sectional design to examine the causal relationships among variables influencing MSME performance. The research population consisted of food and beverage MSMEs operating along the Bogor–Ciawi–Sukabumi (BOCIMI) toll road corridor in West Java, Indonesia. Using purposive sampling, 363 respondents were selected based on criteria including operation in the food/beverage subsector, a fixed location within the study area, an annual turnover below IDR 50 billion, and willingness to participate. This sample size exceeded the minimum requirement of 350, as per the SEM rule of thumb (5 times the 70 indicators used).

Data were collected via structured questionnaires using a 7-point Likert scale, comprising 70 items measuring seven latent variables: entrepreneurial competencies (5 items), entrepreneurial orientation (10 items), entrepreneurial network (6 items), government business support (10 items), entrepreneurial self-efficacy (20 items), external environment (14 items), and MSME performance (5 items). Questionnaires were administered both online (Google Forms) and offline. Prior to the main survey, wording tests and a pre-test with 50 respondents were conducted to ensure clarity, validity (factor loadings > 0.5), and reliability (Cronbach's alpha ≥ 0.6).

Data analysis utilized Partial Least Squares Structural Equation Modeling (SEM-PLS). The process involved evaluating the measurement model (composite reliability, convergent and discriminant validity via HTMT) and the structural model (path coefficient significance through bootstrapping, R-square, VIF, and effect size f^2). While the cross-sectional design limits generalizability and the capture of long-term dynamics, rigorous methodological procedures were applied to ensure the validity, reliability, and replicability of the findings.

RESULT AND DISCUSSION

Initial validity and reliability analyses were conducted through pre-testing involving 50 respondents, confirming that the instrument was both valid and reliable. Kaiser Meyer Olkin (KMO) values and factor loadings were consistently above 0.5, while Cronbach's Alpha values exceeded the recommended threshold of 0.6, indicating satisfactory internal consistency for all variables.

Table 1. Validity and Reliability Test Results

Variable	Item	KMO	Component Matrix	Cronbach's Alpha
Entrepreneurial Competencies	EC1	0.707	0.884	0.850
	EC2		0.836	
	EC3		0.874	
	EC4		0.810	
	EC5		0.778	
Entrepreneurial Orientation	EO1	0.783	0.787	0.884
	EO2		0.674	
	EO3		0.771	
	EO4		0.755	
	EO5		0.818	
	EO6		0.668	

	EO7		0.758	
	EO8		0.565	
	EO9		0.816	
	EO10		0.660	
	EO11		0.780	
	EO12		0.655	
Entrepreneurial Network	EN1	0.753	0.795	0.846
	EN2		0.576	
	EN3		0.669	
	EN4		0.821	
	EN5		0.847	
	EN6		0.721	
	EN7		0.708	
Govt. Business Support	GBS1	0.723	0.609	0.854
	GBS2		0.706	
	GBS3		0.681	
	GBS4		0.671	
	GBS5		0.638	
	GBS6		0.687	
	GBS7		0.636	
	GBS8		0.619	
	GBS9		0.660	
	GBS10		0.773	
	GBS11		0.594	
Entrepreneurial Self-Efficacy	ESE1	0.752	0.566	0.941
	ESE2		0.772	
	ESE3		0.833	
	ESE4		0.647	
	ESE5		0.666	
	ESE6		0.550	
	ESE7		0.695	
	ESE8		0.850	
	ESE9		0.665	
	ESE10		0.745	
	ESE11		0.748	
	ESE12		0.623	
	ESE13		0.683	
	ESE14		0.651	
	ESE15		0.782	
	ESE16		0.760	
	ESE17		0.725	
	ESE18		0.634	
	ESE19		0.720	
	ESE20		0.762	
	ESE21		0.726	
	ESE22		0.602	
External Environment	EE1	0.752	0.720	0.853
	EE2		0.626	
	EE3		0.572	
	EE4		0.563	
	EE5		0.715	
	EE6		0.589	
	EE7		0.698	
	EE8		0.611	
	EE9		0.446	
	EE10		0.752	
	EE11		0.726	
	EE12		0.540	

	EE13		0.593	
	EE14		0.589	
	EE15		0.620	
	EE16		0.590	
	EE17		0.627	
MSME *Performance*	SP1	0.578	0.760	0.832
	SP2		0.843	
	SP3		0.798	
	SP4		0.701	
	SP5		0.786	

Source: Data Processed, 2025

Descriptive analysis was conducted with data collected from 363 MSME respondents operating in the food and beverage sector along the BOCIMI corridor. Respondents predominantly represented micro-scale businesses, primarily engaged in ready-to-eat food services, with limited capital investment, and annual turnovers typically under IDR 500 million.

Table 2. Characteristics of Research Samples

Characteristics	Sum	Percentage
Location		
Ciawi Subdistrict	72	19.8%
Cijeruk Subdistrict	57	15.7%
Caringin Subdistrict	87	24.0%
Cigombong Subdistrict	60	16.5%
Cicurug Subdistrict	87	24.0%
Total	**363**	**100%**
Business Type		
Ready-to-serve food & beverages	218	60.1%
Packaged processed food products	54	14.9%
Packaged processed beverage products	91	25.1%
Total	**363**	**100%**
		(*continued*)
Workforce Scale		
1 - 5	233	64.2%
6 - 10	73	20.1%
11 - 20	36	9.9%
> 20	21	5.8%
Total	**363**	**100%**
Initial Capital (IDR)		
< 100 million	212	58.4%
100 – 500 million	115	31.7%
500 million – 1 billion	36	9.9%
> 1 billion	0	0.0%
Total	**363**	**100%**
Annual Turnover (IDR)		
< 100 million	21	5.8%
100 – 500 million	267	73.5%
500 – 1 billion	70	19.3%
> 1 billion	5	1.4%
Total	**363**	**100%**

Source: Data Processed, 2025

PLS-SEM analysis revealed an R-squared of 0.899 for MSME performance, suggesting that approximately 89.9% of the variance in MSME performance could be explained by the model's predictors, demonstrating a strong explanatory power.

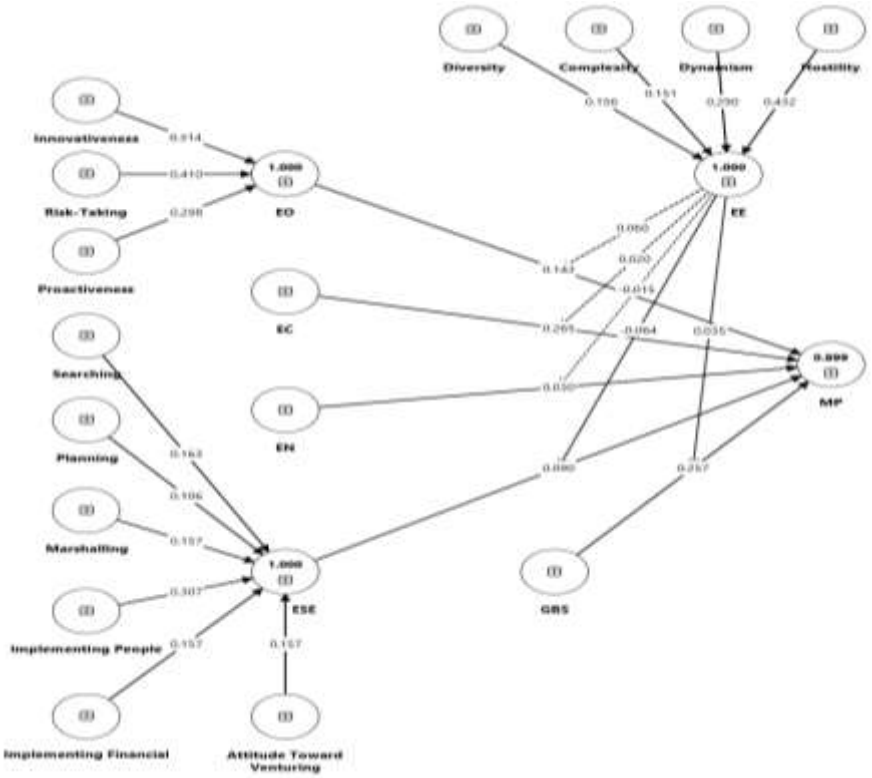

Figure 1. Structural Model Analysis
Source: Data Processed, 2025

These empirical findings confirm the robustness of the proposed theoretical model, effectively integrating Resource-Based View (RBV) and Dynamic Capability Theory (DCT) to understand the determinants of MSME performance amidst dynamic environmental changes.

Construct Reliability Test

Construct reliability was assessed through Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). All constructs recorded Cronbach's alpha coefficients of 0.94 or higher, comfortably surpassing the 0.70 benchmark and confirming strong internal consistency. Composite reliability values likewise exceeded 0.95, providing further evidence of substantial measurement precision within the SEM-PLS framework. Convergent validity was established by AVE scores above 0.70 for every construct, indicating that a substantial share of indicator variance is captured by its respective latent variable. Taken together, these statistics demonstrate excellent reliability and convergent validity across the measurement model, eliminating the need for indicator or construct revision and supporting its use in subsequent structural analyses.

Table 3. Construct Reliability

Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
EC	0.975	0.975	0.980	0.908
EE	0.980	0.980	0.982	0.795
EN	0.941	0.947	0.953	0.774
EO	0.978	0.978	0.980	0.834
ESE	0.981	0.981	0.982	0.732
GBS	0.982	0.982	0.984	0.862

Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
MP	0.967	0.967	0.974	0.882

Source: Data Processed, 2025

Discriminant Validity Test

Discriminant validity was evaluated using the heterotrait–monotrait (HTMT) ratio. Following the guideline proposed by Henseler et al. (2015), an HTMT value below 0.90 indicates adequate discriminant validity. As shown in Table 4, the highest HTMT coefficient for every construct—including the interaction terms—remains below this cutoff (e.g., EC = 0.847; EE = 0.899; EN = 0.692; and MP = 0.619). These results confirm that each latent variable captures a distinct conceptual domain and that no construct overlap or multicollinearity is present. Accordingly, the measurement model demonstrates robust discriminant validity, providing a sound empirical and theoretical foundation for subsequent structural analyses.

Table 4. Heterotrait-Monotrait Ratio

Construct	Maximum HTMT with Another Construct	Result
EC	0.847	Valid
EE	0.899	Valid
EN	0.692	Valid
EO	0.822	Valid
ESE	0.812	Valid
GBS	0.875	Valid
MP	0.619	Valid
EE x ESE	0.820	Valid
EE x EC	0.828	Valid
EE x EO	0.814	Valid
EE x GBS	0.784	Valid
EE x EN	0.802	Valid

Source: Data Processed, 2025

Effect Size

Effect-size analysis (f^2) revealed that entrepreneurial competencies (EC, $f^2 = 0.280$), external environment (EE, $f^2 = 0.274$), and government business support (GBS, $f^2 = 0.179$) have a medium effect on MSME performance. Entrepreneurial orientation (EO, $f^2 = 0.068$) and entrepreneurial self-efficacy (ESE, $f^2 = 0.023$) showed small effects, while entrepreneurial network (EN, $f^2 = 0.004$) and all EE interaction terms ($f^2 = 0.001$–0.014) had negligible impact. Despite their limited statistical contribution, these constructs were retained for theoretical relevance and to preserve model integrity.

Table 5. Effect Size

Variable	f-square	Interpretation
EC -> MP	0.280	Medium Effect
EE -> MP	0.274	Medium Effect
EE x EC -> MP	0.001	Not Significant
EE x EN -> MP	0.001	Not Significant
EE x EO -> MP	0.014	Not Significant
EE x ESE -> MP	0.013	Not Significant

EE x GBS -> MP	0.004	Not Significant
EN -> MP	0.004	Not Significant
EO -> MP	0.068	Small Effect
ESE -> MP	0.023	Small Effect
GBS -> MP	0.179	Medium Effect

Source: Data Processed, 2025

Model Fit Evaluation

Goodness-of-fit analysis determines whether the structural model reproduces the observed covariance structure with sufficient accuracy. Within the PLS-SEM framework, the key indices considered are the Standardized Root Mean Square Residual (SRMR), the Unweighted Least Squares discrepancy (d_ULS), the geodesic discrepancy (d_G), and, where available, incremental measures such as the Normed Fit Index (NFI).

Table 6 reports the relevant statistics. Both the saturated and estimated models yield an SRMR of 0.036—well below the 0.08 threshold recommended by Henseler, Ringle, and Sarstedt (2015) and Hair et al. (2021)—indicating only trivial average residuals between the model-implied and empirical covariance matrices. This result signals an excellent overall fit for the data drawn from food-and-beverage MSMEs along the BOCIMI toll corridor.

Table 6. Model Fit

	Saturated model	Estimated model
SRMR	0.036	0.036
d_ULS	8.617	8.639
d_G	n/a	n/a
Chi-square	∞	∞
NFI	n/a	n/a

Source: Data Processed, 2025

The estimated model's d_ULS value (8.639) is almost indistinguishable from that of the saturated model (8.617), underscoring the stability and precision of the parameter estimates. Although d_G and NFI are not reported, contemporary guidelines suggest that a combination of SRMR and discrepancy measures is sufficient to judge model adequacy in PLS-SEM applications. The tendency for the chi-square statistic to diverge toward infinity in large samples or highly parameterised models is a well-known limitation of SEM; consequently, alternative fit indices are preferred for practical evaluation (Schenone, Grimaccia, & Vichi, 2024).

Given the exceptionally low SRMR and the minimal d_ULS discrepancy, the structural model demonstrates robust goodness of fit. It is therefore well suited to explaining the relationships among the study variables in the context of toll-road-affected MSMEs in the food-and-beverage sector.

Hypothesis Testing

Hypothesis evaluation followed the Partial Least Squares Structural Equation Modeling (PLS-SEM) procedure. Paths were judged statistically significant at the 5 % level when the bootstrap t-value exceeded 1.96 and the associated p-value was below 0.05 (Hair, Black, Babin, & Anderson, 2018). The analysis assessed (i) the direct effects of entrepreneurial competencies (EC), entrepreneurial orientation (EO), entrepreneurial network (EN), government business support (GBS), and entrepreneurial self-efficacy (ESE) on MSME performance (MP) and (ii)

the moderating role of the external environment (EE) on these relationships. Bootstrapping with 5,000 resamples provided stable estimates for all paths.

Table 7. Total Effects Ranked by Magnitude on MSME Performance

Rank	Hypothesis / Path	Original Sample (O)	t-value	p-value	Decision
1	EC → MP (H1)	0,265	9,953	0,000	Supported
2	GBS → MP (H4)	0,257	8,560	0,000	Supported
3	EO → MP (H2)	0,143	4,205	0,000	Supported
4	ESE → MP (H5)	0,090	2,570	0,010	Supported
5	EE × ESE → MP (H10)	–0,064	2,237	0,025	Supported
6	EE × EO → MP (H7)	0,060	2,012	0,044	Supported
7	EE × GBS → MP (H9)	0,035	1,388	0,165	Supported
8	EN → MP (H3)	0,030	1,140	0,254	Rejected
9	EE × EC → MP (H6)	0,020	0,708	0,479	Rejected
10	EE × EN → MP (H8)	–0,015	0,697	0,486	Rejected

Source: Data Processed, 2025

Bootstrapping results highlight entrepreneurial competencies and government business support as the strongest determinants of food-and-beverage MSME performance along the BOCIMI toll corridor, with coefficients of 0.265 and 0.257, respectively (both $p < 0.001$). Entrepreneurial orientation follows with a coefficient of 0.143 ($p < 0.001$), while entrepreneurial self-efficacy contributes a more modest yet still positive effect of 0.090 ($p = 0.010$). In contrast, entrepreneurial network exhibits no significant direct influence ($p = 0.254$), implying that existing informal ties do not yet provide substantial strategic resources.

Moderation analysis reveals a nuanced role for the external environment. The positive interaction EE × EO (0.060; $p = 0.044$) suggests that proactive and innovative orientations yield additional performance gains under heightened environmental dynamism. Conversely, the negative interaction EE × ESE (–0.064; $p = 0.025$) points to an over-confidence trap: high self-efficacy, absent adequate adaptation, can erode performance when market uncertainty rises. Interactions involving EC, EN, and GBS are nonsignificant, indicating limited moderating influence of the external environment on those particular pathways.

Collectively, these findings underline the primacy of internal competencies and governmental support, while also illustrating how environmental conditions selectively amplify or dampen entrepreneurial behaviors and cognitions.

Influence of Entrepreneurial Competencies on MSME Performance

The direct-effect analysis reveals a robust link between entrepreneurial competencies and MSME performance ($\beta = 0.265$; $t = 9.953$; $p < 0.001$). This coefficient indicates that improvements in entrepreneurs' competencies translate into higher sales growth, stronger competitive standing, and more resilient operations.

In this study, entrepreneurial competencies encompass the ability to cultivate long-term customer relationships, negotiate strategically, and adapt swiftly to market shifts. Within a resource-based view (RBV) framework, such intangible capabilities constitute valuable, rare, and hard-to-imitate assets that can generate sustainable competitive advantage.

The findings align with earlier evidence underscoring the pivotal role of entrepreneurial skills in small‐business success. Mitchelmore and Rowley (2010) report that owners possessing strong managerial and interpersonal competencies respond more agilely to external change, whereas Chatterjee et al. (2022) show that market knowledge and negotiation expertise enhance value creation under resource constraints. Similarly, Man, Lau, and Chan (2002) demonstrate that entrepreneurial competencies bolster organizational agility in turbulent

environments. For food-and-beverage MSMEs confronting traffic rerouting along the newly operational BOCIMI toll road, these competencies prove especially critical. As customer flows shift to toll exits and rest areas, only highly competent owners can rapidly re-map market potential, retain patron loyalty, and recalibrate products, locations, or business models. The results therefore reinforce the strategic imperative of investing in entrepreneurial competency development to safeguard MSME performance amid structural changes in market landscapes.

Effect of Government Business Support on MSME Performance

The structural estimates reveal a strong, positive association between government business support (GBS) and MSME performance ($\beta = 0.257$; $t = 8.560$; $p < 0.001$). Thus, greater intensity in fiscal incentives, training, financing, or market facilitation programs empirically elevates the performance of food-and-beverage MSMEs located along non-toll segments of the BOCIMI corridor.

In practice, GBS spans a suite of interventions that broaden access to critical resources—entrepreneurial training that enhances managerial capacity, affordable capital, legal-licensing guidance, and supportive infrastructure. These measures operate as a "shock absorber" when traffic flows and consumer behavior shift after toll-road activation, while simultaneously serving as a "recovery engine" by stabilizing cash-flow and rebuilding customer bases.

From a Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT) perspective, GBS constitutes an external resource that complements internal assets. Access to training, funding, and infrastructure fortifies sensing, seizing, and transforming capabilities, enabling resource-constrained firms to adopt digital tools, pivot products, and expand distribution networks with greater agility.

The present findings accord with recent evidence: Tan, Tan, and Ramakrishna (2022) show that proactive governmental interventions boost MSME survival and profitability under market stress, while Purwana, Widyastuti, and Respati (2023) document accelerated sales growth in F&B firms facing infrastructure-driven demand shifts. This convergence strengthens the conclusion that GBS is a strategic catalyst for performance enhancement.

Nevertheless, some respondents noted that available support is unevenly distributed and often short-lived. Long-term impact will depend on program designs that account for geographic context, firm scale, and sector-specific needs.

Overall, the positive influence of GBS underscores the government's role as a strategic partner in the entrepreneurial ecosystem. Future policy should improve program quality and continuity, broaden inclusive financing channels, and institute ongoing evaluation to ensure that initiatives effectively address the unique challenges confronting MSMEs along the BOCIMI corridor and similar regions.

Effect of Entrepreneurial Orientation on MSME Performance

Structural‐path estimates confirm that entrepreneurial orientation (EO) has a positive, statistically significant effect on MSME performance ($\beta = 0.143$; $t = 4.21$; $p < 0.001$). In practical terms, higher levels of proactiveness, innovativeness, and risk‐taking translate into faster revenue growth, wider profit margins, and greater resilience amid rapid market change. This finding corroborates earlier work documenting the performance benefits of EO across diverse industries.

Conceptually, EO embodies strategic agility: the willingness to pursue new opportunities, launch trend-aligned products, and challenge competitors through disruptive moves. For food-and-beverage MSMEs facing traffic rerouting after the BOCIMI toll road's opening, such proactivity and innovation differentiate survivors from exiters. Highly EO-

oriented owners more readily relocate closer to toll access points, adopt online sales platforms, or revise menus to match evolving tastes—actions shown to lift sales volumes substantially.

Within the Dynamic Capabilities framework, EO serves as a trigger for sensing and seizing opportunities. Entrepreneurs who detect market signals early can reconfigure resources so their business models remain relevant after infrastructure shocks. Shirokova et al. (2022) demonstrate that EO strengthens small-firm resilience during post-shock recovery by encouraging product experimentation and strategic partnerships.

Descriptive evidence from the present sample indicates high mean scores for proactiveness and innovativeness but comparatively lower scores for risk-taking. This pattern suggests that many owners already possess an entrepreneurial mindset, yet remain cautious about investing in high-uncertainty initiatives. Targeted training in risk management and data-driven decision-making is therefore warranted to balance EO's three dimensions and unlock its full performance potential.

Overall, EO emerges not merely as an attitude but as a concrete strategic posture that enhances MSME success in dynamic environments. By combining proactiveness, innovation, and calculated risk-taking, entrepreneurs can convert external pressures into enduring competitive advantage—echoing the conclusion of Wales et al. (2020) that EO is pivotal both for long-term growth and for swift recovery after major disruptions such as infrastructure projects or natural disasters.

Effect of Entrepreneurial Self-Efficacy on MSME Performance

The structural model indicates that entrepreneurial self-efficacy (ESE) exerts a positive, statistically significant influence on MSME performance ($\beta = 0.090$; $t = 2.570$; $p = 0.010$). Thus, owners who hold stronger beliefs in their entrepreneurial abilities achieve higher revenue growth, superior profit margins, and greater staying power in volatile markets.

ESE captures the entrepreneur's confidence in executing core tasks—identifying opportunities, making strategic decisions, leading teams, and managing risk. This psychological capital encourages decisive and proactive behaviour, enabling swift, accurate responses to environmental turbulence. Among food-and-beverage MSMEs affected by traffic diversion to the BOCIMI toll road, high-ESE owners were better equipped to spot new demand pockets, reinforce their brands, and reconfigure operations even as foot traffic along traditional routes declined. Many expanded into alternative locations, embraced digital sales channels, or diversified menus, actions that directly bolstered performance.

Three interrelated mechanisms explain these outcomes. First, resilience: confident entrepreneurs persevere after early setbacks, continually experimenting with marketing, product lines, and strategic alliances. Second, learning orientation: high-ESE individuals embrace innovation because they trust their capacity to master new skills. Third, mental stamina: elevated self-belief enhances tolerance for financial strain, customer pressure, and regulatory demands, safeguarding operational stability.

ESE also amplifies the benefits of other entrepreneurial resources. When owners trust their own competence, they engage more readily in strategic partnerships, leverage external information, and pursue product innovations—findings consistent with Zhao and Wibowo (2021) and prior work by McGee et al. (2009) and Urban (2020). Within a Dynamic Capabilities framework, heightened self-efficacy sharpens sensing of market signals, accelerates seizing of emerging opportunities, and facilitates transforming of structures and processes, making the firm more agile.

These insights carry clear policy implications. Empowerment programmes for MSMEs should extend beyond technical upskilling to cultivate entrepreneurial mind-set and confidence through mentoring, coaching, and peer learning. Strengthening ESE will better prepare owners

to adapt to infrastructure shocks and market disruptions, ultimately sustaining growth trajectories for food-and-beverage MSMEs along the BOCIMI corridor and in similar contexts.

Moderating Role of the External Environment in the Entrepreneurial Self-Efficacy–Performance Link

The interaction test confirms that the external environment (EE) significantly moderates the association between entrepreneurial self-efficacy (ESE) and MSME performance (β = –0.064; t = 2.237; p = 0.025). Although ESE on its own enhances performance, the magnitude of that enhancement depends strongly on contextual turbulence.

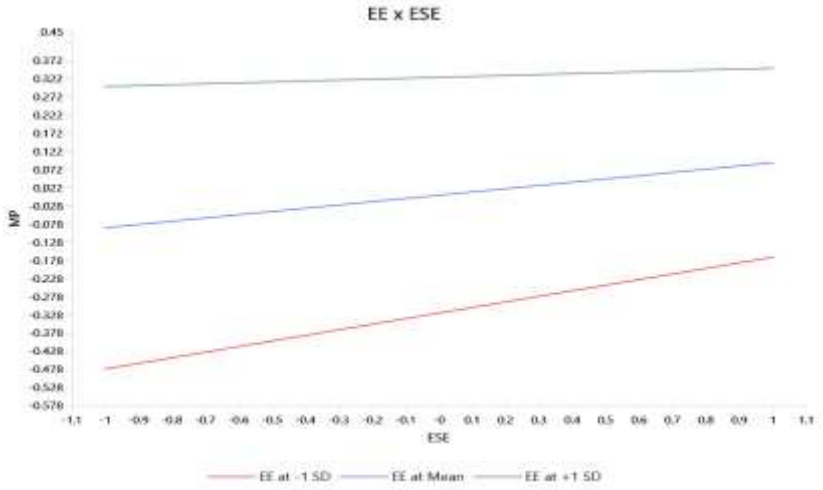

Figure 2. Interaction Effect of the External Environment and Entrepreneurial Self-Efficacy on MSME Performance
Source: Data Processed, 2025

Figure 2 plots simple-slope lines for three levels of EE (–1 SD, mean, +1 SD). All slopes are positive, indicating that higher ESE generally improves performance. Yet the slope steepness diminishes as EE intensifies: the line is steepest under benign conditions (–1 SD) and flattest under highly dynamic conditions (+1 SD). This pattern—captured by the negative interaction coefficient—shows that environmental volatility attenuates the beneficial impact of self-efficacy.

A negative coefficient implies that as regulatory shifts, technological disruptions, or competitive pressures mount, the positive ESE–performance linkage weakens. High self-belief may create a gap between managers' confidence and market realities; without adaptive mechanisms, decision quality can deteriorate. Consistent with contingency logic and dynamic-capabilities reasoning, internal strengths translate into superior outcomes only when they are aligned with environmental demands. In relatively stable settings, ESE drives innovation and expansion; in turbulent ones, dynamic capabilities are required to convert confidence into actual gains.

The BOCIMI toll-road context illustrates this contingency. Shifting traffic patterns, new logistics routes, and denser local competition oblige F&B MSMEs to revamp value propositions, supply chains, and distribution channels. Owners who rely solely on high ESE—without corresponding adaptive strategies—often see performance erode.

Overconfidence risk also arises: entrepreneurs may cling to outdated business models despite contrary market signals. Such misalignment stems from strong ESE untempered by external validation, leading to misguided expansions, pricing errors, or over-investment.

Maximum benefit accrues when ESE is coupled with entrepreneurial orientation and dynamic capabilities. Self-efficacy provides psychological fuel; proactiveness, innovation, and

risk-taking supply strategic direction; dynamic capabilities secure agile execution. Together they prevent the overconfidence trap and leverage confidence into competitive advantage.

Policy makers and support agencies should therefore complement technical training with programmes that strengthen adaptive mindsets and provide real-time market intelligence. Stable regulations, transparent information flows, flexible financing, and data-driven mentoring will raise the ceiling on what ESE can achieve, ensuring that entrepreneurial confidence translates into durable performance improvements.

Moderating Influence of the External Environment on the Entrepreneurial-Orientation–Performance Relationship

The moderation test for H7 indicates that the external environment (EE) intensifies the positive link between entrepreneurial orientation (EO) and MSME performance ($\beta = 0.060$; $t = 2.012$; $p = 0.044$). In other words, while EO consistently enhances performance, its payoff is greatest under highly dynamic environmental conditions.

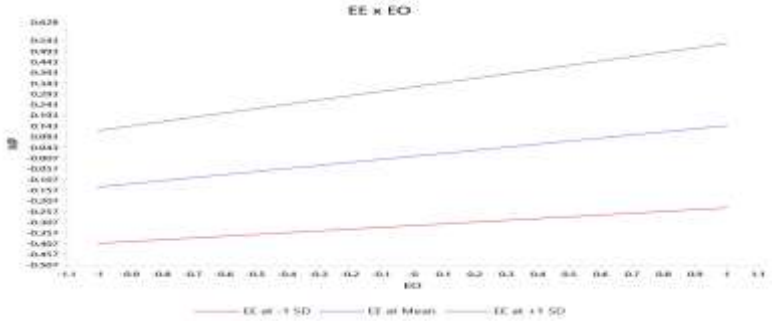

Figure 3. Interaction Effect of the External Environment and Entrepreneurial Orientation on MSME Performance
Source: Data Processed, 2025

Figure 3 displays simple-slope lines for EO at three EE levels (–1 SD, mean, +1 SD). All slopes are upward, confirming that proactiveness, innovativeness, and risk-taking foster higher performance across contexts. Yet the green line (EE + 1 SD) is uniformly above the blue (mean) and red (–1 SD) lines, signifying that identical increases in EO yield the largest performance gains when competitive intensity, regulatory flux, and technological turbulence are highest.

These findings align with contingency perspectives suggesting that EO's strategic value escalates in uncertain or high-risk settings. Within the BOCIMI corridor, traffic diversion to toll routes, emerging rest-area outlets, and shifting regulations compel F&B MSMEs to amplify EO in order to survive and grow. In benign environments, EO still pays off, yet the marginal benefit is far smaller than in harsh contexts, where stagnation is riskier than innovation.

Dynamic Capabilities Theory sheds further light on the interaction: heightened EE triggers the sensing of market shifts, EO promotes seizing emergent opportunities through proactive and innovative moves, and both processes facilitate transforming internal resources to sustain competitiveness. The tiered but parallel slopes in Figure 3 illustrate that these dynamic capabilities become more potent as environmental volatility rises.

Capacity-building programmes should pair EO development with systematic environmental scanning. Entrepreneurs who understand external signals can channel their proactiveness and risk-taking toward well-timed innovations, thereby converting environmental pressure into superior performance rather than misdirected ventures.

External Environment as a Moderator of the Government-Business-Support–Performance Relationship

The moderation test for H9 indicates that the external environment (EE) does not alter the impact of government business support (GBS) on MSME performance ($\beta = 0.035$; $t \approx 1.39$; $p \approx 0.16$). Hence, the performance gains associated with greater GBS remain statistically unchanged regardless of environmental turbulence triggered by the BOCIMI toll-road project.

Figure 4 plots simple-slope lines for GBS at three EE levels (–1 SD, mean, +1 SD). All slopes are positive and nearly parallel, demonstrating that additional government support improves performance across contexts. Yet the gradients are virtually identical, confirming the absence of a significant interaction. Only the intercepts differ: firms in more benign settings (EE + 1 SD) start from a higher performance baseline, whereas those in harsher contexts (EE – 1 SD) begin lower. The parallelism of the lines visually corroborates the statistical finding.

GBS in this study includes concessional funding, training, tax incentives, market-access facilitation, and regulatory simplification—interventions that, in principle, should offset the loss of traffic on non-toll routes. Their failure to moderate EE, however, suggests two shortcomings. First, many programmes remain supply-driven and generic, offering little alignment with the specific disruptions (e.g., declining footfall, entry of large rest-area chains, volatile input costs) confronting local F&B MSMEs. Second, numerous firms lack the information, administrative capacity, or strategic know-how to convert available support into competitive advantage.

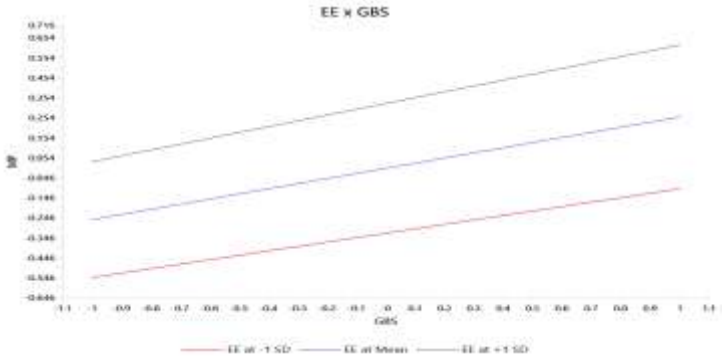

Figure 4. Interaction Effect of the External Environment and Government Business Support on MSME Performance

Source: Data Processed, 2025

Under the Resource-Based View, public assistance becomes strategic only when mobilised and combined with internal assets. Dynamic-capability logic further stipulates that sensing, seizing, and transforming capacities are prerequisites for translating external resources into superior performance. Without these capabilities, even generous support fails to shift the GBS–performance slope under rising environmental pressure.

These results echo Welter and Smallbone's (2011) contention that policy effectiveness hinges on contextual fit, and Thanh Dinh and Nguyen's (2023) finding that generic programmes lose traction in volatile markets. The BOCIMI corridor thus reinforces the call for locally tailored interventions.

Policymakers should redesign GBS instruments to be evidence-based, location-specific, and user-friendly. Key steps include: (i) Targeted design – align incentives with traffic shifts, supply-chain volatility, and intensified competition. (ii) Process simplification – streamline application procedures and expand information outreach. (iii) Adaptive training – offer coaching on digital channels, market analytics, and collaborative supply networks.

Only when such reforms are in place can government support be internalised as a strategic capability and, ultimately, make a measurable contribution to MSME performance amid fast-changing external conditions.

Effect of Entrepreneurial Networks on MSME Performance

Hypothesis testing reveals that entrepreneurial networks do not yet exert a measurable influence on the performance of food-and-beverage MSMEs along the BOCIMI toll corridor ($\beta = 0.030$; $t = 1.140$; $p = 0.254$). Although network ties are theorised to facilitate information exchange and resource mobilisation, the present evidence indicates that such connections alone are insufficient to enhance firm outcomes.

Entrepreneurial networks, in principle, grant access to market intelligence, strategic alliances, and social support. In this sample, however, most ties remain local and homogeneous—limited to family members, neighbours, or nearby business peers—thereby restricting exposure to novel opportunities. This pattern mirrors findings by Sefiani et al. (2016), who report that narrowly bounded, informal networks tend to generate redundant information rather than pathways to new markets, technologies, or finance.

Viewed through a Dynamic Capabilities lens, strategic networks should augment sensing and seizing by broadening information horizons and accelerating value-chain collaboration. Yet without links to key actors—large-scale suppliers, financial institutions, e-commerce platforms, or logistics partners—the adaptive capacity derived from networking remains muted, explaining the nonsignificant effect observed here.

The paucity of "weak ties" that bridge local boundaries further limits access to product innovation, modern distribution channels, and up-to-date managerial practices. Consequently, networks provide little insulation against supply disruptions, input-cost volatility, or shifts in consumer preferences.

These findings highlight that merely expanding the number of contacts is inadequate; the quality, diversity, and productive orientation of those ties are decisive. Effective network-building initiatives should therefore prioritise linking MSMEs to finance providers, technology vendors, online marketplaces, and logistics networks, whether through targeted networking training or government-sponsored partnership programmes.

In sum, network ownership enhances performance only when connections are strategic, diversified, and utilitarian. Absent a qualitative transformation, entrepreneurial networks risk becoming echo chambers of repetitive information, incapable of driving revenue growth, operational efficiency, or market expansion. The insignificant result for H3 thus signals not the irrelevance of networking, but the need for substantive upgrades to the network structures of MSMEs in the study region.

External Environment as a Moderator of the Entrepreneurial-Competencies–Performance Relationship

Moderation analysis finds no evidence that the external environment (EE) alters the effect of entrepreneurial competencies (EC) on MSME performance ($\beta = 0.020$; $t = 0.708$; $p = 0.479$). Hence, the direct contribution of EC to firm outcomes remains stable across both placid and turbulent settings.

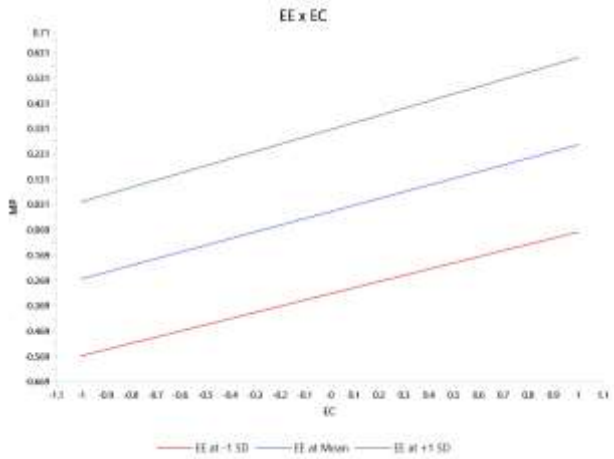

Figure 5. Interaction Effect of the External Environment and Entrepreneurial Competencies on MSME Performance
Source: Data Processed, 2025

Figure 5 depicts simple-slope lines for three EE levels (–1 SD, mean, +1 SD). All slopes are positive and virtually parallel, indicating that greater EC consistently elevates performance, yet the incremental gain per unit of competency is identical regardless of environmental volatility. Differences appear only in intercepts: firms in more benign contexts begin at slightly higher performance baselines, but the rate at which additional competencies translate into improved outcomes is uniform across conditions.

This pattern accords with the Resource-Based View, which positions internal competencies as valuable, rare, inimitable, and non-substitutable assets. Personal and managerial capabilities embedded in entrepreneurs seem sufficiently robust to drive performance autonomously, independent of external turbulence. For many F&B MSMEs along the BOCIMI corridor, market focus remains local, supply chains are relatively simple, and customer bases are loyal—conditions that dampen the immediate salience of environmental shocks.

Managerially, the findings underscore the payoff of investing directly in skill development—negotiation, adaptive decision-making, and production techniques—because such competencies yield returns irrespective of external conditions. Nevertheless, EC should not be nurtured in isolation. Integrating these competencies with dynamic capabilities—sensing, seizing, and reconfiguring—will ensure that entrepreneurs can recalibrate when external pressures intensify in the future.

External Environment as a Moderator of the Entrepreneurial-Network–Performance Relationship

Moderation analysis indicates that the external environment (EE) neither strengthens nor weakens the relationship between entrepreneurial networks (EN) and MSME performance ($\beta = –0.015$; $t = 0.697$; $p = 0.486$). Thus, shifts in environmental complexity or turbulence do not materially influence how network ties translate into firm outcomes along the non-toll segments of the BOCIMI corridor.

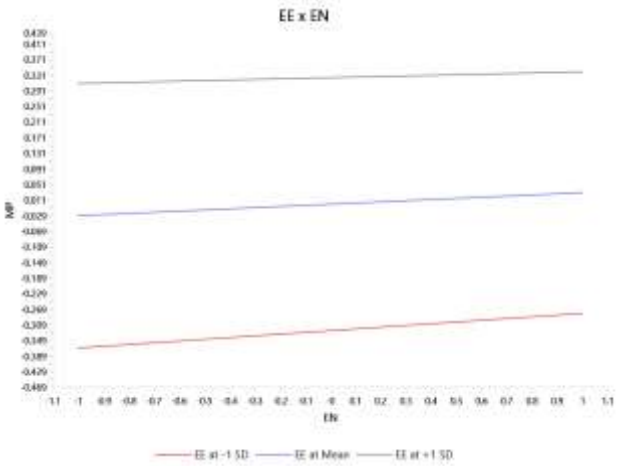

Figure 6. Interaction Effect of the External Environment and Entrepreneurial Competencies on MSME Performance
Source: Data Processed, 2025

Figure 6 presents simple-slope lines for EN at three levels of EE (–1 SD, mean, +1 SD). All slopes are positive yet virtually parallel, signifying that stronger networks yield modest performance gains irrespective of environmental hostility. Vertical separation among the lines reflects EE's main effect—firms in more benign contexts begin with slightly higher performance—but the near-identical gradients confirm the absence of a moderating influence.

Conceptually, EN encompasses entrepreneurs' ties to suppliers, customers, community groups, and public agencies, which ideally provide market information, financing avenues, and social support. In practice, however, most respondents' networks consist primarily of strong, local ties, limiting informational diversity and rapid adaptation to traffic diversion after toll-road activation. Prior studies emphasize that strategic value arises from heterogeneous networks rich in bridging social capital—conditions not met in the present sample (Abbas et al., 2019; Aftab et al., 2022).

From a Dynamic-Capabilities perspective, networks should facilitate sensing and seizing opportunities in volatile settings. Because existing ties remain narrow, many firms rely on networks merely to sustain daily operations rather than to pursue strategic adjustment. Consequently, enhancements in EN do not translate into differential performance across environmental strata.

Network upgrading must focus on cultivating weak ties—membership in broader business communities, engagement with e-commerce platforms, partnerships with logistics providers, and participation in incubator programmes. Local governments, trade associations, and entrepreneurship-support organisations can act as brokers, linking MSMEs across regions and sectors. Such initiatives would convert networks into genuine bridging capital, enabling firms to withstand external shocks while tapping new growth pathways.

CONCLUSION

This study reveals that the performance of food-and-beverage MSMEs affected by the BOCIMI toll road depends on a complex interaction between internal capabilities and external support. Entrepreneurial competencies are the strongest drivers of revenue stability and operational continuity, while government business support provides crucial resources for professionalizing and scaling operations. Entrepreneurial self-efficacy and orientation enhance performance by promoting confident, innovative, and risk-aware decisions; however, self-efficacy may become detrimental without adaptive action. Localized entrepreneurial networks offer limited benefit, highlighting the importance of broader, more diverse connections. The

external environment influences these dynamics by amplifying entrepreneurial orientation's benefits during turbulence but reducing the effectiveness of self-efficacy when adaptation is insufficient, while the impacts of competencies, networks, and government support remain stable. These insights extend Resource-Based and Dynamic Capabilities theories by illustrating how internal strengths and policy measures must align with environmental challenges. Future research should explore the development and impact of more diverse entrepreneurial networks and investigate adaptive mechanisms that balance entrepreneurial self-efficacy with flexible responses in rapidly changing contexts.

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