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Enterprise Risk Management and Business Performance: Mediating Role of Business Model Innovation

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ABSTRACT

Objective: This study aimed to investigate the mediating role of business model innovation (BMI) in the relationship between enterprise risk management (ERM) practices and the performance of small and medium-sized enterprises (SMEs) in the Kumasi Metropolis, given the persistent underdevelopment of risk management strategies despite policy efforts to improve SME performance.

Methods: An explanatory research design was employed, and data were collected from a sample of 206 SMEs using a structured questionnaire. The data were analyzed using SPSS version 25 and LISREL version 8.50. Structural equation modeling (SEM) was applied to test the study hypotheses and examine the mediating effects.

Results: The findings revealed that ERM did not have a direct effect on operational performance. However, ERM had a positive and significant effect on BMI, which in turn positively and significantly influenced operational performance, indicating that BMI fully mediated the relationship between ERM and operational performance. In contrast, ERM had a positive and significant direct effect on financial performance and also indirectly influenced financial performance through BMI, suggesting partial mediation.

Conclusion: The study concludes that BMI plays a critical mediating role in translating ERM practices into improved SME performance. Specifically, BMI fully mediates the effect of ERM on operational performance and partially mediates its effect on financial performance. Therefore, SMEs should integrate ERM with BMI to enhance overall performance, ensure financial stability, and strengthen resilience and innovation, ultimately contributing to job creation, improved product quality, customer satisfaction, and economic development.

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1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) are foundational to the global economy, contributing substantially to employment, gross domestic product (GDP), and the overall business landscape (Pedraza, 2021). Globally, MSMEs constitute about 90% of all businesses, generate 40% of GDP and create about 50% of all jobs (Arshad et al., 2023). In sub-Saharan Africa (SSA), MSMEs contributions are even higher, accounting for about 95% of all businesses, and 70-90% of total employment (Endris & Kassegn, 2022). Nonetheless, MSMEs continue to confront performance and sustainability growth challenges, particularly in SSA with an alarming startup failure rate of about 54% (Ajah, 2023). Although the start-up failure rate differs across countries, Ghana's rate of 74%, and the 75% of Ethiopia and Rwanda ranks among the three highest in SSA. The operation in a highly volatile, complex and dynamic business environment exposes MSMEs to high level of uncertainties related to financial constraints, regulatory changes, market competition, and operational risks (Buganová et al., 2023). These challenges make effective risk management a critical factor for the survival and success of MSMEs. Consequently, Enterprise Risk Management (ERM) has emerged as an essential tool for enhancing resilience, ensuring sustainable growth, and optimizing performance among MSMEs.

Enterprise Risk Management is a coordinated approach to addressing the full spectrum of a firms' significant risks (Ulupui et al., 2024). It provides comprehensive framework for businesses to identify, assess, manage, and monitor potential risks in a structured manner (Anton & Afloarei Nucu, 2020). Unlike traditional risk management, which are reactive, and typically addresses risks in isolation (Ulupui et al., 2024), ERM is proactive and considers the interconnections among various types of risks, including operational, financial, strategic, and compliance risks (Ahmad & Teo, 2024). In today's business environment, MSMEs are confronted by complex and interconnected risks that cut across multiple departments and areas (Buganová et al., 2023). ERM presents an opportunity to proactively address uncertainties, enabling them to make informed decisions and maintain stability in volatile environments. Effective ERM implementation can improve resource allocation, reduce potential losses, and enhance stakeholder trust (Yuwono & Ellitan, 2023), factors that are directly linked to improved business performance. However, many MSMEs are still in the early stages of adopting ERM practices, often due to limited resources and expertise, lack of awareness, or perceived complexity (Erdiaw-Kwasie et al., 2023).

The application of ERM through traditional methods may be challenging for MSMEs due to their unique operational and structural characteristics (Syrová & Špička, 2023). Business model innovation (BMI) has gained attention as a critical driver of competitive advantage and an amplifier of the effects of ERM (Latifi et al., 2021). Business model innovation refers to the process of adapting or redesigning a company's business model to better capture, create, and deliver value in response to market needs or environmental changes (Salamzadeh et al., 2023). BMI equip MSMEs to adopt innovative approaches that are better suited to their scale and dynamic environments (Mattos et al., 2024). Through BMI, MSMEs can optimize processes, adopt new revenue models, and leverage digital technologies to increase efficiency and enhance customer value (Jingwen et al., 2022). By innovating their business models, MSMEs can better respond to risk exposures identified through ERM, aligning their operations and strategies with emerging opportunities and threats (Salamzadeh et al., 2023). Therefore, BMI may serve as a crucial link between ERM practices and improved performance outcomes for MSMEs.

However, although ERM has been linked to various performance metrics, such as financial stability, operational efficiency, and strategic adaptability (Syrová & Špička, 2023), the mechanisms through which ERM influences these outcomes, particularly in MSMEs, are underexplored. BMI is a potential mechanism that could mediate this relationship, as it allows MSMEs to respond proactively to risks and adapt to market shifts by innovating their business models (Salfore et al., 2023). Despite this, limited research addresses the mediating role of BMI between ERM and MSME performance. Studies mainly focus on BMI's direct effect on competitiveness (Wang et al., 2024), leaving gaps in understanding its interaction with ERM, especially in resource-constrained MSMEs like those in Ghana. Research shows that ERM can foster innovation by identifying strategic opportunities amid risks (Al-Nimer

et al., 2021), but the specific influence of ERM on BMI in MSMEs is not well understood. This gap is critical, as MSMEs often depend on innovative models to overcome resource constraints and navigate uncertainties (Li et al., 2023). Also, most ERM studies focus on large corporations (Dömötör, 2023), which have more resources and established frameworks, creating a knowledge gap on effective ERM practices for MSMEs that need adaptable, cost-effective strategies to survive in volatile environments.

This paper therefore explored the understudied link between ERM and MSME performance, with a focus on BMI as a mediator. It fills a critical gap in understanding how ERM can proactively drive growth in resource-constrained MSMEs by fostering innovative business models. By providing empirical evidence on the impact of ERM on BMI and MSME performance, especially within resource-constrained and volatile environments like Ghana, this study offers tailored insights for MSMEs to optimize resources, adapt risk management strategies, and leverage ERM not merely as a defense, but as a strategic enabler of competitive resilience and adaptability.

2. Theoretical Background and Hypotheses Development

The Resource-Based Theory (RBT) and Dynamic Capability Theory (DCT) both provide a strong foundation for exploring how ERM impacts MSME performance, particularly through BMI. Penrose's (2009) RBT posits that firms' internal resources—such as knowledge, skills, and capabilities—are essential for achieving competitive advantage. ERM can be viewed as a valuable intangible resource that strengthens an MSME's capacity to identify, assess, and mitigate risks, thereby enhancing resilience and overall performance. By effectively leveraging ERM, MSMEs are better positioned to protect and optimize their resources, creating a stable base from which they can pursue strategic opportunities and adapt to evolving market demands.

DCT complements the RBT perspective by emphasizing a firm's ability to adapt, reconfigure, and evolve its resources in response to dynamic environments. According to Teece (2022), the ability to reconfigure and apply resources flexibly is vital for sustaining growth, especially for MSMEs operating in uncertain and competitive markets. When applied as a dynamic capability, ERM enables MSMEs not only to manage risks but also to identify areas where innovation—particularly in their business models—is necessary. ERM practices support MSMEs in exploring and testing new business models, allowing them to align their offerings with shifting market conditions and customer needs. As a mediating factor, BMI enhances adaptability by enabling MSMEs to create new revenue streams or refine existing ones based on insights derived from ERM. Therefore, RBT and DCT together underscore how ERM enhances both the resource base and dynamic capabilities of MSMEs, driving their capacity to innovate and achieve a sustained competitive advantage. These theories thus provide a solid foundation for the conceptual model in Figure 1.

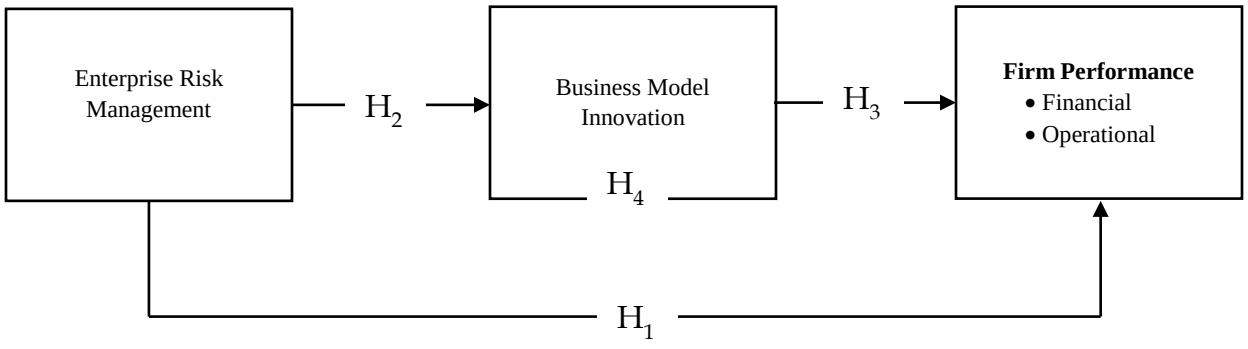


Figure 1. Conceptual Model

2.1 Enterprise Risk Management and Firm Performance

ERM enhances firm performance by mitigating risks and optimizing strategic planning, decision-making, and resource allocation, which improves operational efficiency, agility, and innovation (Jidda et al., 2025). Studies indicate that effective ERM can reduce operational costs, stabilize returns, and increase profitability (Madushanki & Ekanayake, 2023; Saeidi et al., 2021). A comprehensive ERM system minimizes total risk and boosts shareholder value, as shown in research linking ERM to improved financial outcomes across various settings, including family firms and SMEs in Indonesia, Tanzania, and the Czech Republic (Anugerah et al., 2023; Ntare et al., 2022; Syrová & Špička, 2023). The agency theory supports ERM's role in enhancing firm value by protecting against risks, while the Resource-Based View (RBV) underscores ERM's function as a strategic asset that strengthens competitive advantage (Idris & Norlida Abdul, 2016). Consequently, this study posits that:

H_{1a}: ERM positively impacts operational performance.

H_{1b}: ERM positively impacts financial performance.

2.2 Enterprise Risk Management and Business Model Innovation

ERM significantly influences BMI by guiding how organizations manage risks and pursue opportunities. ERM minimizes uncertainties associated with investing in new business models and enhances firms' strategic agility by addressing risks that could disrupt value creation (Wirahadi & Pasaribu, 2021). Risk assessments reveal potential areas for innovation, encouraging firms to adopt adaptable business models responsive to changing market conditions. The insights gained from ERM allow companies to design more resilient models, leveraging flexibility to quickly innovate in response to evolving conditions (Salamzadeh et al., 2023).

ERM also optimizes resource allocation by prioritizing high-impact risks and opportunities, freeing up resources for strategic innovation (Khaddam et al., 2021). This resource optimization supports investments in innovative models capable of mitigating specific risks. Empirical studies confirm ERM's positive impact on BMI, as demonstrated in Danish companies where ERM in the innovation process reduced uncertainty risks (Taran et al., 2014). The study of Yoshikuni et al. (2025) therefore emphasizes on the importance of integrating ERM with strategic management practices like BMI to bolster organizational performance. The Resource-Based View (RBV) supports this by suggesting that risk management is a valuable resource that firms can use to gain competitive advantage through BMI (Jingwen et al., 2022). These insights lead to the hypothesis that ERM positively influences BMI, driving firm performance.

H_2: ERM positively and significantly affects BMI

2.3 Business Model Innovation and Firm Performance

Business Model Innovation significantly impacts firm performance by enhancing competitiveness, operational efficiency, and long-term growth (Salfore et al., 2023). BMI is essential for firms to adapt to market changes, drive sustainable growth, and deliver increased customer value (Meroño-Cerdan et al., 2024). Through BMI, firms can differentiate themselves with unique value propositions, reach new market segments, and leverage emerging technologies, creating a strong competitive advantage (Latifi et al., 2021). BMI allows for process optimization, digital innovation, and efficient resource allocation, which together improve productivity, reduce costs, and boost overall firm performance (Jain, 2023).

Empirical studies support the positive impact of BMI on performance across various contexts, such as Ethiopian manufacturing SMEs, where adjustments to BMI components like value creation and value capture showed significant performance improvements (Bashir et al., 2023). Similarly, studies confirm that BMI enhances crisis management and firm resilience, further boosting performance (Salamzadeh et al., 2023). The Resource-Based View (RBV) theory aligns with this evidence, suggesting that BMI leverages unique, internal resources and capabilities,

which are difficult for competitors to replicate, thereby enabling firms to achieve sustained competitive advantage (Jingwen et al., 2022).. Accordingly, this study posits that BMI has a positive and significant effect on firm performance.:

H_{3a}: BMI positively and significantly affects operational performance

H_{3b}: BMI positively and significantly affects financial performance

2.4 Mediating Role of Business Model Innovation

ERM, as a strategic approach, can enhance firm performance by improving decision-making, operational efficiency, and proactive risk management. Through ERM, firms benefit from optimized resource allocation, lower capital costs, and better risk mitigation, which ultimately supports stronger performance (Saeidi et al., 2021; Madushanki & Ekanayake, 2023). However, achieving higher performance through ERM alone may be limited; BMI plays a crucial mediating role by translating risk insights into actionable, value-creating strategies. BMI enables firms to tap into new markets and leverage technological innovations, thereby crafting unique value propositions that elevate competitive advantage (Jain, 2023). Empirical evidence further supports BMI's significant impact on performance by facilitating adaptation and responsiveness in changing environments (Al-Nimer et al., 2021; Bashir et al., 2023). Therefore, this study posits that:

H_{4a}: BMI mediates the effect of ERM on operational performance.

H_{4b}: BMI mediates the effect of ERM on financial performance.

3. Methods

3.1 Design, Population, Sample Size and Sampling Method

The reliance on the RBT and the DCT implies that this research is grounded in an objectivist worldview and, consequently, aligns with the positivist paradigm. In accordance with this philosophical orientation, an explanatory design was considered appropriate based on the purpose of the study. A cross-sectional design was also deemed suitable in terms of the time horizon, as data were collected at a single point in time. The target population comprised all MSMEs within the Kumasi Metropolis. However, many of these SMEs are not registered with national institutions such as the Ghana Revenue Authority (GRA), Kumasi Metropolitan Assembly (KMA), or the NSSBI, making them difficult to locate and access. Therefore, the accessible population consisted of the 1,863 MSMEs registered with the KMA. In Ghana, MSMEs are classified by size based on turnover and staff count: Micro (1–5 employees, ≤ GHS 200,000), Small (6–30 employees, GHS 200,000–5 million), and Medium (31–100 employees, GHS 5 million–20 million) (Ghana Enterprises Agency, 2020). From the accessible population (N = 1,863), a sample size (n = 329) was determined using Yamane's (1967) formula:

$$n = \frac{N}{1 + N(e)^2}$$

With a 5% margin of error. To account for clusters within the population, sub-sample sizes were also calculated using Krejcie and Morgan's (1970) formula based on firm category and industry. Sample units—including owners, managers, owner-managers, and executives of MSMEs—were selected through a multistage sampling technique. A sampling frame obtained from the Kumasi Metropolitan Assembly included the names, registration numbers, locations, employee sizes, and investment capital of all registered MSMEs. Due to the heterogeneity of MSMEs, the multistage sampling process was necessary. In the first stage, stratified sampling was conducted based on sub-metropolitan areas within Kumasi, including Asokwa, Bantama, Kwaadaso, Manhyia, Nhyiaeso, Oforikrom, Suame, Subin, and Tafo. In the second stage, firms within each sub-metropolitan area were further stratified by employee size: micro, small, and medium. A third level of stratification was then applied based on industry. Since firms within

each industry were considered homogeneous, simple random sampling was used to select the appropriate number of firms through a balloting procedure.

3.2 Data Collection Method

This research relied exclusively on primary data collected through a survey, using a structured questionnaire. Three key constructs were measured: Enterprise Risk Management, Business Model Innovation, and firm performance. ERM was assessed using a 6-item scale adapted from Sax and Torp (2015). The mediating variable, BMI, was measured using a 9-item scale commonly applied in the extant literature due to its high validity and reliability (Guo et al., 2013; Anwar et al., 2019). Items related to both ERM and BMI were rated on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.' Firm performance was evaluated using two sub-dimensions: financial performance and operational performance. Financial performance was measured with 10 items adapted from Nataya (2018) and (2020), while operational performance was assessed using 10 items drawn from Rajapathirana and Hui (2018), and Sukardi et al. (2021). These items were rated on a 7-point Likert scale ranging from 'much worse' to 'much better.'

3.3 Data Analysis

Data were edited, coded, and entered into Microsoft Excel 2016, and subsequently imported into IBM SPSS Statistics 25 for preliminary analysis. The dataset was then transferred in a free-text format to LISREL 8.50 for confirmatory factor analysis (CFA). Discriminant validity was assessed using the Fornell-Larcker criterion and the heterotrait-monotrait (HTMT) ratio. The hypotheses were tested using partial least squares structural equation modeling (PLS-SEM).

4. Results

4.1 Measurement Model Analysis

LISREL 8.50 and the maximum likelihood estimation method were used to test the validity and reliability of all measurement scales through confirmatory factor analysis (CFA). To avoid violating the minimum sample size–to–parameter ratio rule, the conventional approach of first analyzing the scales in subsets was adopted. In the final stage, all measured subscales were analyzed collectively as part of the final CFA model. The factor loadings are presented in Table 1. Additionally, the computed values for composite reliability (CR), average variance extracted (AVE), Cronbach's Alpha (CA), and model fit indices are also reported in Table 1.

The final CFA model demonstrated a good fit, as all indices met the recommended thresholds. The Chi^2/df ratio of 1.53 was well within the acceptable limit of 3.00, while the RMSEA and SRMR values were below the 0.07 threshold. Additionally, the NNFI, CFI, IFI, and GFI all exceeded the 0.95 benchmark (Hair J. F. et al., 2022), indicating strong model fit. The factor loadings were all positive and statistically significant, supporting the establishment of convergent validity (Cheung et al., 2023). Moreover, the composite reliability (CR) and Cronbach's Alpha (CA) values for all constructs were above 0.70 (Muhammad et al., 2019), indicating good internal consistency. The average variance extracted (AVE) values also exceeded the 0.50 threshold (Hair et al., 2022), indicating convergent validity.

However, since AVE alone is not a sufficient measure of discriminant validity, further assessment was conducted using the Fornell-Larcker criterion and the heterotrait-monotrait (HTMT) ratio. According to the Fornell-Larcker criterion, the square roots of the AVE (shown on the diagonal in Table 2) were all greater than the corresponding inter-construct correlations in their rows and columns, supporting discriminant validity. Nonetheless, the Fornell-Larcker method is known to lack sensitivity and may produce biased results when used with variance-based structural equation modeling such as traditional partial least squares (Rönkkö & Evermann, 2013). Due to its greater robustness, the HTMT criterion was also applied. As shown in Table 2, all HTMT values were below the threshold

of 0.85 (Rönkkö & Evermann, 2013), thereby confirming the discriminant validity of the constructs and supporting the Fornell-Larcker results.

Table 1. Validity and Reliability of Constructs

	Constructs	**Loadings(t-value)**
	Enterprise Risk Management (CR=.873, AVE=.618, CA=.869)	
ER1	Firm has a policy for handling major risks affecting ability to reach strategic goals	.79(Fixed)
ER2	Firm has standard procedures in place for identifying major risks and opportunities	.85(11.97)
ER4	Firm has standard procedures in place for launching risk-reducing measures	.79(11.07)
ER5	Firm regularly prepare risk reports for the top management & board of directors	.75(10.46)
	Business Model Innovation (CR=.821, AVE=.626, CA=.827)	
BI1	Business model offer new combinations of products, services and information	.78(Fixed)
BI4	Business model bonds participants together in novel ways	.75(10.22)
BI9	Firms' business model is novel	.80(10.86)
	Operational Performance (CR=.893, AVE=.586, CA=.888)	
OP1	The extent of flexibility in production/service delivery processes	.77(Fixed)
OP2	The time it takes to serve customers	.85(12.16)
OP5	The nature of product/service support to customers	.81(11.40)
OP6	Resource utilisation (e.g. human skills, time)	.81(11.52)
OP8	The time it takes to introduce new products/service offerings	.61(8.31)
OP10	The ability to handle varied customer/market needs	.72(9.91)
	Financial Performance (CR=.900, AVE=.644, CA=.907)	
FP5	Return on investment (ROI)	.81(Fixed)
FP6	Return on sales (ROS)	.81(12.27)
FP8	Growth in ROI	.82(12.42)
FP9	Growth in ROS	.78(11.61)
FP10	Growth in market share	.80(12.01)

Chi2	***df***	***Chi2/df***	***RMSEA***	***NNFI***	***CFI***	***IFI***	***GFI***	***SRMR***
197.37	129	1.53	0.054	.96	.96	.96	.90	.046

Note: Adjusted Goodness of Fit Index (AGFI), Standard Root Mean Square Residual (SRMR), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), Incremental Fit Index (IFI).

Table 2. Discriminant Validity Criterion

		1	2	3	4
	(A) Fornell-Larcker Criterion				
1	Enterprise Risk Management	**.786**			
2	Business Model Innovation	.425	**.791**		
3	Operational Performance	.307	.704	**.766**	
4	Financial Performance	.528	.625	.641	**.802**
	(B) Heterotrait-monotrait				
1	Enterprise Risk Management	1			
2	Business Model Innovation	.498	1		
3	Operational Performance	.352	.722	1	
4	Financial Performance	.591	.823	.715	1

Note: Square-root of the average variance extracted are in the diagonal; HTMT values are required to be lower than .85

4.2 Common Method Bias Analysis

Although multiple sources were used to collect data on most of the variables, the potential for common method bias was statistically tested following the approach proposed by Cote and Buckley (1987). Three competing models were estimated: the method-only model, in which all observed variables were loaded onto a single construct; the trait-only model, where all items were loaded onto their respective latent constructs; and the trait-and-method model, which simultaneously tested both the method and trait structures. As shown in Table 3, the model fit indices indicated that both the trait-only and trait-and-method models outperformed the method-only model. Among them, the trait-only model demonstrated the best fit, suggesting that the variance in the data is better explained by the traits (constructs) rather than any systematic method bias. Thus, method bias does not appear to be a significant concern in this study.

Table 3. Common Method Bias (CMB)

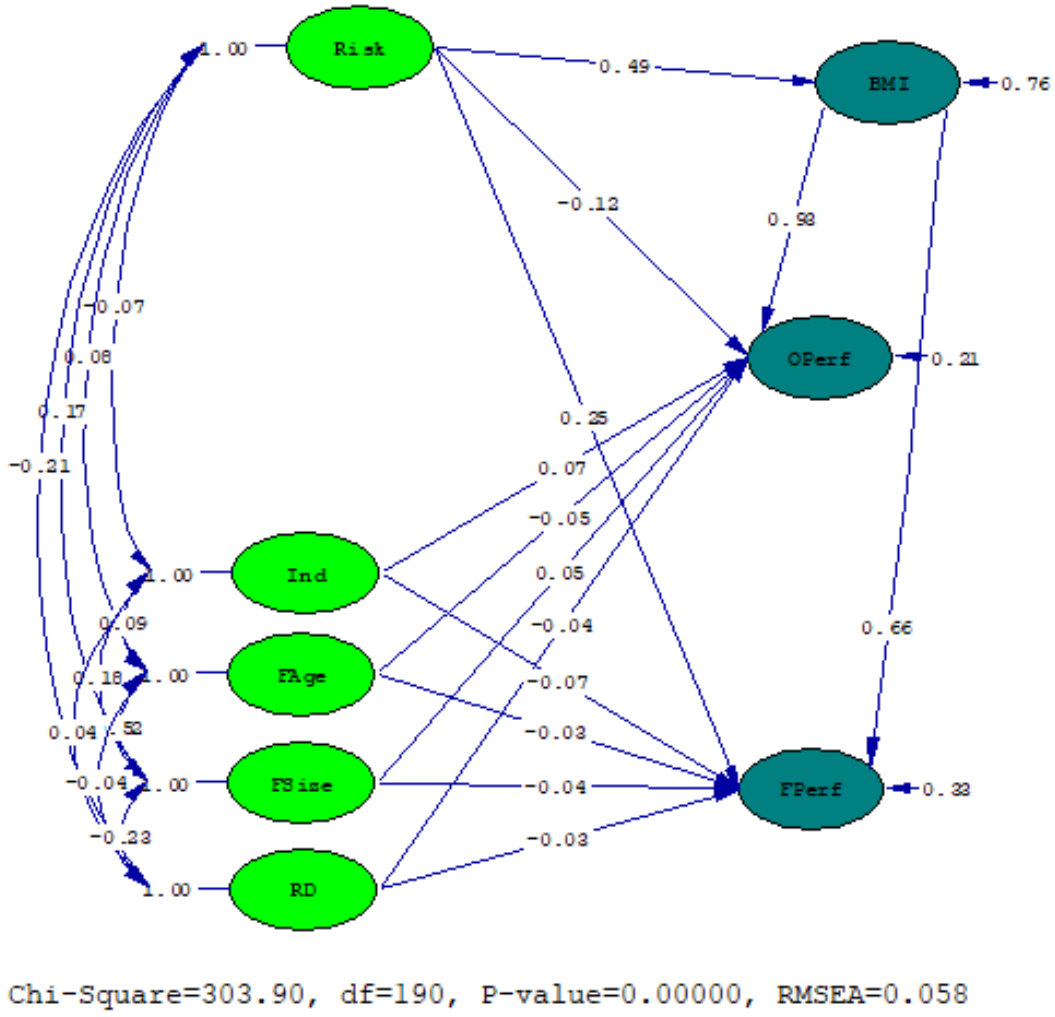
CMB	Chi2	df	df/Chi2	RMSEA	NNFI	CFI	IFI	SRMR
Method Only	3190.16	560	5.70	0.161	0.63	0.65	0.65	0.100
Trait-Only	197.37	129	1.53	0.054	0.96	0.96	0.96	0.046
Trait and Method	1783.64	532	3.35	0.110	0.72	0.75	0.76	0.083

4.3 Path Analysis

The SEM presented in Figure 3 reveals that the covariates industry, firm age, firm size, and the presence of a research and development unit—had no statistically significant influence on either the operational or financial performance of the MSMEs. The SEM results highlight the pivotal role of Enterprise Risk Management (ERM) in improving both operational and financial performance among MSMEs in Ghana. Although the direct effect of ERM on operational performance was not statistically significant, its indirect effect through Business Model Innovation (BMI) was significant. Specifically, ERM had a positive and significant effect on BMI ($\beta = 0.49$, $p < 0.01$), indicating that a one-unit increase in ERM practices is associated with a 49% increase in BMI practices. In turn, BMI

had a strong and significant positive effect on operational performance ($\beta = 0.93$, $p < 0.01$), suggesting that a one-unit increase in BMI practices is linked to a 93% improvement in operational performance. These results indicate that BMI fully mediates the relationship between ERM and operational performance.

In contrast, ERM had a direct and positive effect on the financial performance of MSMEs ($\beta = 0.25$, $p < 0.01$). Additionally, the indirect effect of ERM on financial performance, mediated through BMI, was also statistically significant. As before, ERM significantly influenced BMI ($\beta = 0.49$, $p < 0.01$), and BMI positively affected financial performance ($\beta = 0.66$, $p < 0.01$). This implies that a one-unit increase in ERM practices leads to a 49% increase in BMI, which in turn results in a 66% increase in financial performance. Thus, the findings suggest that BMI partially mediates the relationship between ERM and financial performance among MSMEs.



Note: Risk = ERM, OPerf = Operational Performance, FPerf = Financial Performance, Ind = Industry, Fage = Firm Age, Fsize = Firm Size, RD = Research & Development

Figure 2. Standard Coefficients of SEM model

The Sobel test analysis confirmed the mediating role of BMI in the relationship between ERM and the performance outcomes of MSMEs. The full mediation effect of BMI in the relationship between ERM and operational performance was statistically significant (Sobel test statistic = 4.62, $p < 0.01$). Similarly, the partial mediation effect of BMI in the relationship between ERM and financial performance was also statistically significant (Sobel test statistic = 2.99, $p < 0.01$). These findings provide robust statistical support for the mediating role of BMI in enhancing both operational and financial outcomes through effective ERM practices.

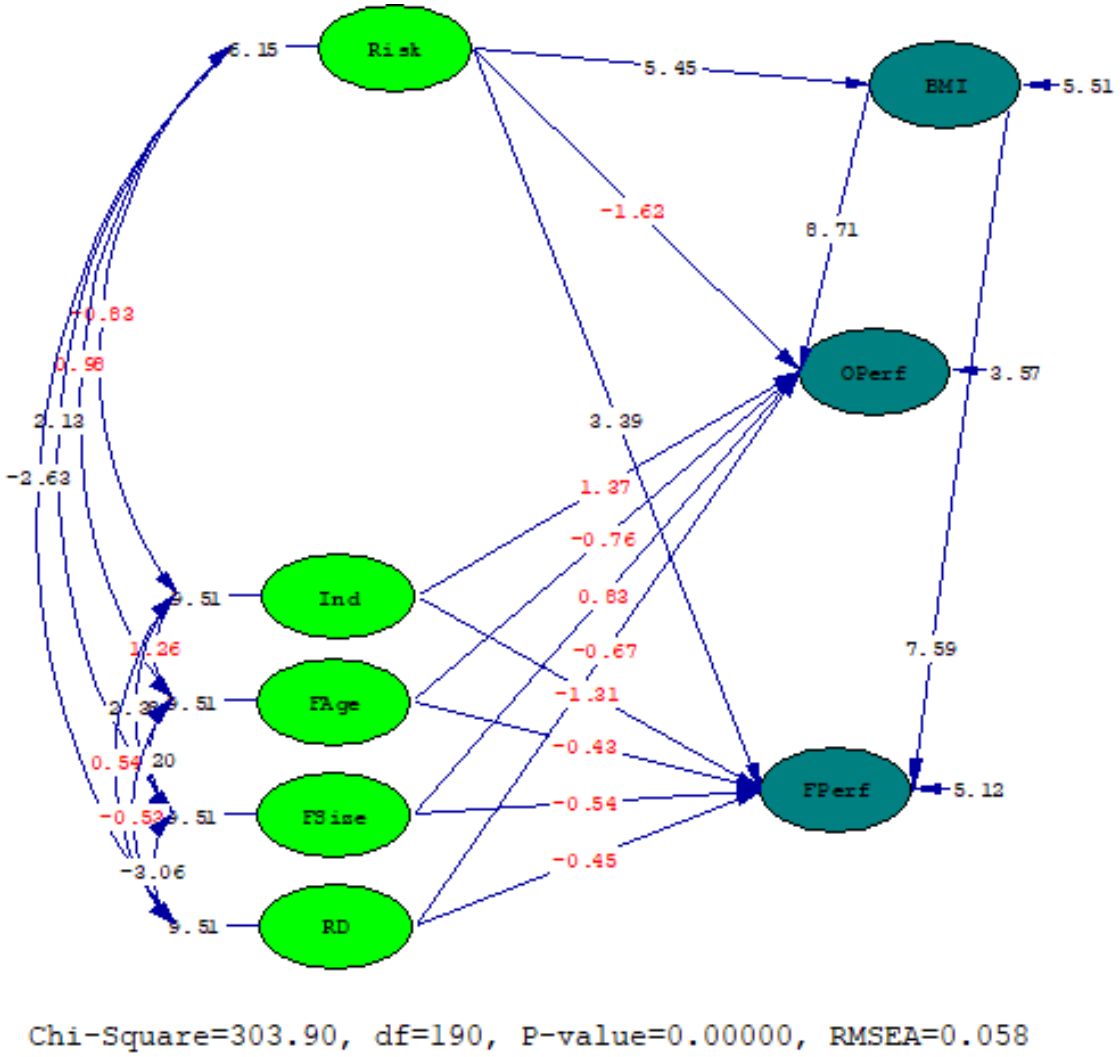


Figure 3. t-values of the SEM model

5. Discussion

The findings of this study underscore the pivotal role of ERM in enhancing organizational resilience and performance, especially within the MSME sector, where limited resources and heightened exposure to risks demand robust strategic frameworks. ERM does more than just shield firms from adverse events; it establishes a platform from which MSMEs can identify and exploit new opportunities. This dual functionality is particularly evident in the observed linkage between ERM and BMI, where risk management emerges not only as a protective mechanism but also as a catalyst for innovation and value creation. This aligns with the work of Salamzadeh et al. (2023), who argue that ERM equips firms with adaptive insights, enabling the design of resilient and flexible business models capable of responding to dynamic environments.

From a theoretical standpoint, this finding resonates with the RBV, which posits that ERM constitutes a valuable intangible resource—one that enhances strategic positioning by reducing uncertainty and enabling proactive planning (Idris & Norlida Abdul, 2016). Furthermore, as supported by Wirahadi and Pasaribu (2021), ERM facilitates the detection of innovation opportunities by illuminating high-risk areas that may benefit from strategic reinvention. Therefore, the positive relationship between ERM and BMI demonstrated in this study, consistent with earlier empirical findings (Salfore et al., 2023; Taran et al., 2014), supports the notion that risk insights are not ends in themselves but inputs into a broader process of organizational transformation.

Critically, the direct positive effect of BMI on operational performance reaffirms the importance of continuous innovation for MSMEs striving to sustain efficiency and competitiveness. As Jain (2023) notes, BMI enables firms to streamline internal processes, optimize resource use, and elevate productivity—mechanisms through which operational performance is enhanced. This is particularly vital for MSMEs operating in saturated or rapidly evolving markets, where differentiation through unique value propositions becomes a key source of competitive advantage (Latifi et al., 2021). Moreover, the contribution of BMI to financial performance highlights the broader strategic value of innovation. By facilitating the diversification of revenue streams and supporting customer-centric strategies, BMI helps MSMEs achieve greater financial stability and profitability—confirming hypothesis H3b and supporting Meroño-Cerdan et al. (2024)'s assertion that BMI drives long-term firm growth.

However, the relatively weak and statistically insignificant direct relationship between ERM and operational performance raises important interpretive considerations. While ERM clearly contributes to financial stability—primarily by mitigating market, financial, and regulatory risks—its influence on internal processes such as efficiency, adaptability, or service delivery appears to be indirect. This suggests that ERM alone may be insufficient to trigger operational enhancements unless complemented by BMI, which provides the strategic flexibility and structural transformation necessary for internal performance gains. This mediating role of BMI is reinforced by the findings of Khaddam et al. (2021), who argue that ERM optimizes strategic resource allocation and thereby creates conditions for innovation to thrive. Accordingly, the study confirms full mediation (H4a), where the operational benefits of ERM are transmitted through the innovation of business models.

On the other hand, ERM's direct impact on financial performance (H1b) remains robust and significant. As evidenced in previous studies (Madushanki & Ekanayake, 2023; Ntare et al., 2022), ERM reduces the likelihood of financial shocks, preserves assets, and supports the stability of cash flows—outcomes that are particularly crucial for MSMEs operating without the financial buffers available to larger firms. Yet, this study reveals that financial performance is also indirectly improved through the mediating role of BMI (H4b). This dual pathway—direct through risk mitigation and indirect through strategic innovation—suggests a reinforcing loop whereby ERM strengthens the financial base, enabling innovation, which in turn drives further financial returns. As noted by Jingwen et al. (2022), this synergy between ERM and BMI is a manifestation of dynamic capability, wherein firms integrate, build, and reconfigure internal resources to address changing environments (Teece, 2007).

Taken together, these findings advance theoretical contributions to both the Resource-Based View and Dynamic Capabilities Theory. ERM emerges as a foundational capability that safeguards organizational value, while BMI functions as a dynamic capability that operationalizes this foundation through responsive and forward-looking business model adjustments. Hence, this study not only empirically validates the mediating role of BMI but also demonstrates how the integration of risk management and innovation can elevate MSME performance across multiple dimensions.

6. Conclusion and Implications

This study underscores a nuanced relationship between ERM, BMI, and the performance of MSMEs in Ghana. While ERM directly enhances financial performance by mitigating risks and safeguarding assets, its direct impact on operational performance is limited. BMI partially mediates the ERM-financial performance relationship and fully mediates the ERM-operational performance, suggesting that risk management alone, though beneficial, reaches its full potential when paired with innovative business models that adapt to market needs.

The findings of this study offer important managerial, policy, and theoretical implications. For MSME managers in Ghana and similar emerging markets, a key insight is the strategic value of integrating ERM with BMI to drive performance. While ERM contributes significantly to financial stability by proactively managing external threats and uncertainties, it is through BMI that firms realize tangible operational gains, strategic flexibility, and sustained competitiveness. Managers should therefore view ERM not merely as a defensive risk-control function but as a foundation for innovation and value creation. By leveraging ERM insights to inform and drive BMI, MSMEs can redesign their business models to better align with market demands, improve internal efficiency, and exploit emerging opportunities. This dual approach positions ERM as both a safeguard and a strategic enabler of growth. To effectively implement this integrated strategy, there is a need for capacity-building initiatives, such as targeted training programs, tools, and resources that enhance managerial competencies in both risk management and innovation. Such programs can foster a mindset shift among MSME leaders—encouraging them to embrace risk not only as something to avoid but as a source of insight for transformative change.

Policymakers in Ghana should also recognize the synergistic role of ERM and BMI in boosting MSME performance and promote policies that support this integration. Financial incentives, grants, or tax breaks for MSMEs that invest in both risk management systems and innovation initiatives could encourage this dual approach. Furthermore, public and private partnerships could provide training programs to enhance managerial competencies in ERM and BMI. By facilitating access to financial and knowledge resources, policymakers can help MSMEs not only survive but thrive amid uncertainties. This approach will contribute to a more resilient SME sector, which is crucial for economic growth and job creation in Ghana, aligning with broader national development goals.

Finally, this paper also contributes to both RBT and DCT by highlighting how ERM and BMI jointly enhance MSME performance. From an RBT perspective, ERM can be seen as a valuable organizational resource that protects financial stability, while BMI represents a unique asset that transforms this stability into operational and competitive advantages. In line with DCT, BMI functions as a dynamic capability, enabling firms to reconfigure resources to adapt to changing environments. This study suggests that while ERM provides a stable base, it is BMI, as a dynamic capability, that allows firms to leverage this stability into adaptable and efficient operations. Together, RBT and DCT provide a comprehensive framework to understand how MSMEs can harness risk management and innovation for sustainable competitive advantage.

7. Limitations and Future Research

While this study offers valuable insights into the role of ERM and BMI in enhancing MSME performance in Ghana, several limitations present opportunities for future research. First, the geographic and contextual specificity of the study—focusing solely on MSMEs in Ghana—may limit the generalizability of the findings. Ghana's unique institutional, cultural, and economic environment could influence how ERM and BMI are perceived, implemented, and linked to performance. Future research could extend the investigation to MSMEs in other developing and developed countries to assess whether similar relationships hold in different regulatory, market, and cultural contexts. Comparative cross-country studies could provide a richer understanding of how local environments mediate or moderate the impact of ERM and BMI on firm performance, particularly across regions with varying levels of institutional maturity, technological infrastructure, and access to capital. Second, the use of a cross-sectional research design restricts the ability to capture the temporal evolution of ERM practices, innovation strategies, and firm performance. ERM and BMI are inherently dynamic processes that unfold over time and are influenced by internal learning and external environmental changes. Longitudinal studies are therefore needed to explore how the implementation of ERM influences business model transformation and performance trajectories over extended periods. Such studies could also help establish causality, track adaptation cycles, and determine whether performance benefits of ERM and BMI are sustained or fluctuate in response to shifts in the external environment. Third, this study focused primarily on BMI as a single mediating mechanism. However, the relationship between ERM and firm performance is likely to be more complex and shaped by multiple intervening variables. Future research could examine other potential mediators such as strategic agility, knowledge management capabilities, or digital transformation initiatives. These elements may offer deeper insight into how firms translate risk intelligence into strategic responses.

In addition, incorporating moderating variables could enhance understanding of the boundary conditions under which ERM and BMI are most effective. For instance, organizational culture—specifically cultures that support learning, innovation, and calculated risk-taking—may amplify the impact of ERM on innovation and performance. Similarly, market conditions, including levels of competition, customer sophistication, or regulatory volatility, could either strengthen or weaken the ERM–BMI–performance nexus. Moreover, future research could adopt mixed-methods approaches that combine quantitative modeling with qualitative case studies or interviews. This would allow for a more nuanced understanding of how MSMEs interpret and apply ERM frameworks, how innovation is initiated and diffused within small firms, and how decision-makers perceive the trade-offs between risk mitigation and innovation. Such approaches could also uncover contextual factors that are difficult to capture through survey-based research alone. Lastly, the study concentrated on performance in terms of operational and financial outcomes. While these are critical dimensions, future research could explore non-financial performance indicators, such as environmental sustainability, social impact, customer loyalty, or employee engagement. Examining how ERM and BMI affect these broader outcomes could be particularly relevant in contexts where MSMEs play a vital role in inclusive and sustainable development.

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