

THE IMPACT OF ENTERPRISE RISK MANAGEMENT TO ORGANIZATIONAL PERFORMANCE: THE MEDIATING ROLE OF TOP MANAGEMENT SUPPORT

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Abstract:

This study explores the relationship between Enterprise Risk Management (ERM) and organizational performance (OP), focusing on the mediating role of Top Management Support (TMS) in the context of increasing technological and environmental uncertainty. Although ERM is widely promoted as a strategic management tool, its adoption in Vietnamese enterprises remains limited. Survey data from 251 firms were analyzed using PLS-SEM. The results indicate that TMS fully mediates the relationship between ERM and OP, suggesting that ERM practices alone may not lead to improved performance without managerial commitment and integration into decision-making processes. These findings highlight the importance of aligning ERM with leadership practices, particularly as firms face challenges related to digital transformation, emerging technologies, and global disruptions. The study suggests that Vietnamese enterprises should consider enhancing leadership involvement in ERM, not only in formal governance but also in shaping risk awareness and resource allocation. In light of increasing complexity and volatility, strengthening the link between leadership and ERM may support better organizational outcomes.

Research Purpose:

This research seeks to investigate how TMS mediates the relationship between ERM and OP in the context of increasing technological and environmental uncertainties in Vietnamese firms.

Research Motivation:

Although ERM is gaining traction globally, its impact on performance remains ambiguous, especially in emerging markets. This research is driven by the necessity to explore how leadership support influences ERM effectiveness in the face of digital transformation, AI, and volatile global risks.

Research Design, Approach, and Method:

This research employs a quantitative approach, collecting survey responses from 251 mid- and senior-level managers in Vietnamese firms. Key constructs were measured with 5-point Likert scales adapted from established instruments. The data were analyzed with PLS-SEM in SmartPLS 4 to evaluate measurement validity and structural relationships.

Main Findings:

The study's findings indicate that TMS fully mediates the effect of ERM on OP. Additionally, a well-developed ERM process enhances top management's commitment, suggesting a reciprocal interaction between ERM and TMS.

Practical/Managerial Implications:

To enhance performance through ERM, Vietnamese firms must develop top management's capacity to lead under uncertainty, particularly in digital and AI-driven environments. This includes embedding ERM into governance structures, linking risk ownership to strategic roles, and investing in leadership development for digital risk navigation.

Keywords: Enterprise risk management, Top management support, Organizational performance, Risk management, Leadership

1. INTRODUCTION

In the era of globalization and growing uncertainties, organizations are increasingly exposed to a wide range of risks, including regulatory and technological disruptions, volatile markets, and fierce competition (Blanco-Mesa, 2019). In particular, rapid advances in artificial intelligence, digital platforms, and data-driven decision-making are introducing new forms of uncertainty that traditional risk frameworks often struggle to address (Faroldi, 2024). These risks challenge firms' ability to achieve strategic objectives, maintain market positions, and, more importantly, their organizational survival. As a response, many companies have turned to Enterprise Risk Management (ERM), a structured and integrated approach that enables firms to anticipate, assess, and mitigate risks across the enterprise as a strategic solution (Quon et al., 2012; Berry-Stölzle and Xu, 2018). ERM enhances not only risk mitigation but also strategic adaptability and long-term value creation (COSO, 2017).

Initially developed as a compliance and financial risk tool in the 1990s, ERM has evolved into a core component of corporate governance and strategic management. According to COSO (2017), ERM is no longer confined to internal control or compliance, especially amid the complexity of digital transformation, but is redefined as an integrated process with organizational strategy, helping to identify and manage risks within acceptable risk appetite limits. This enhances decision making, achieves objectives, and creates long-term value. Unlike traditional models, COSO ERM 2017 emphasizes that risk is not just a threat to be eliminated, but also an inevitable part of growth if properly identified and managed.

However, a practical issue is that not all organizations achieve effective implementation of ERM. Contemporary scholarly discussions focus on two key issues: the effectiveness of ERM and its influence on Organizational Performance (OP) (Bromiley et al., 2015). While several studies report a positive association (Gordon et al., 2009; Florio & Leoni, 2017), others fail to establish a definitive connection. For example, González et al. (2020) reported that the adoption of ERM did not lead to notable improvements in the performance of Spanish firms. Khalil-Oliwa (2019) also found that ERM does not always deliver the expected financial results. Such inconsistent findings imply that the ERM–OP link is likely shaped by mediating mechanisms rather than a straightforward linear relationship (Al-Nimer et al., 2021).

One of the potential mediating factors that has received little attention is Top Management Support (TMS). TMS not only plays a role in creating strategic vision and resource commitment but also acts as a catalyst for ERM to be internalized into management decisions (Beasley et al., 2005). Without TMS, ERM is likely to be “suspended” at the policy level without any practical impact on operations or performance.

In the context of Vietnam, an emerging economy characterized by constraints in institutions, legislation, and resources, firms have begun to view ERM as an important strategic instrument (Trần Thị Phương et al., 2022). However, the actual implementation is still formal, failing to generate significant changes in performance. The main reasons come from the lack of commitment at the management level, the lack of understanding of the ERM system, as well as the lack of a truly effective promotion mechanism.

Therefore, this study is among the first to empirically investigate how TMS mediates the ERM-performance relationship within Vietnamese enterprises. This study offers two primary contributions to the literature. The first is that, by examining the mediating function of TMS, it advances theoretical insights into the mechanisms through which ERM affects organizational performance, moving beyond simple direct impacts and addressing calls for further investigation of mediators in ERM research (Bromiley et al., 2015). Second, we enrich the management control literature by showing that TMS not only supports ERM implementation but is itself reinforced by the maturity of ERM systems. This reciprocal relationship suggests that more robust ERM frameworks heighten risk awareness among top managers, which in turn strengthens their commitment and support.

Overall, this study highlights that ERM’s organizational impact cannot be evaluated in isolation. Its effectiveness depends on leadership behavior, institutional structures, and cultural fit. From this perspective, we argue that the ERM-TMS-OP nexus should be viewed as an integrated triad, where risk management is both an outcome and a driver of leadership support and organizational capability.

2. THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1. Upper echelon theory and Resource-Based View

UET explains how the personal traits of managers, including their cognitive background and values, influence strategic decision-making (Manner, 2010). This theory stresses that organizational decisions are not completely objective but are shaped by the perceptions and value systems of decision-makers, especially top executives (Hambrick and Mason, 1984). Meanwhile, the RBV provide the mechanism to explain the role of distinctive resources inside organizations that can produce competitive advantages. Those firms own such distinctive resources likely have better OP (Barney, 1991).

ERM serves as a critical governance approach, offering structures and processes that enable firms to recognize, assess, and address risks within a complex environment. From the perspective of the RBV, ERM can be viewed as a strategic resource of the firm. Since ERM constitutes a unique strategic asset for each enterprise, its systems are inherently difficult to replicate, providing firms with a competitive advantage.

Furthermore, as outlined by Hambrick (2007), the personal characteristics of top executives, including experience, age, gender, and risk-taking propensity, can be viewed as dependent variables. A comprehensive understanding of ERM processes enables leaders to make risk-informed decisions, thereby reducing reliance on personal intuition and promoting more accurate strategic planning to improve OP. As a result, UET explains that TMS functions as a mediator, enhancing the link between ERM and OP.

2.2. Enterprise risk management and Top management support

ERM integrates all individual risk management activities within an organization into a unified framework. This helps identify dependencies among different types of risks and their impact on overall performance (Hoyt and Liebenberg, 2011; Sax and Torp, 2015). As a result of this integrated approach, ERM demonstrates greater effectiveness compared to conventional risk management practices (Jean-Jules and Vicente, 2020).

ERM plays a key role in aligning with strategic planning and enhancing decision-making processes. This perspective acknowledges the importance of contributions and knowledge shared by employees across all hierarchical levels within the organization (COSO, 2004). Therefore, companies prioritize their resources to identify, assess, measure and report risk effectively (Braumann et al., 2024). It is undeniable that ERM represents a superior approach when contrasted with traditional risk management practices.

The systematic reviews of ERM research conducted by Anton and Nucu (2020) for the period 2008–2019 and by Adhillah et al. (2025) for 2016–2025 identify major research directions such as ERM adoption, driving factors, and implementation impacts. However, these studies largely overlooked the supporting role of top management. So far, the direct link between ERM and TMS has not been explicitly examined.

According to UET, ERM provides a comprehensive view of risks, thereby helping leaders raise awareness, make sound strategic decisions, and actively support functional departments in risk management. Transparent information from the ERM system offers senior leaders a solid basis for more efficient resource allocation, enabling innovation and organizational improvement. This clarifies the role of ERM in fostering genuine support from top management.

To address this gap, the current research investigates the ERM process as an enabling mechanism for TMS, aiming to enhance OP.

H1: ERM positively influences TMS

2.3. Top management support and Organizational performance

The importance of TMS has long been recognized in the information technology research literature (Young and Jordan, 2008). It is a key factor that helps spread knowledge, enables innovation, and improves OP (Singh et al., 2021). Wang and Noe (2010) contend that leaders who prioritize and promote knowledge sharing foster a positive work climate, where employees feel recognized and exhibit greater commitment. Likewise, Wang and Wang (2012) demonstrate that leadership-driven knowledge sharing within organizations enhances innovation and overall performance.

Lee et al. (2016) also emphasize that leadership support is critical for the success of software process improvement initiatives. Beyond promoting knowledge and innovation, support from top leaders helps maintain strategic alignment, allocate resources properly, and increase the organization's ability to respond to external changes.

Although prior empirical research has indicated that TMS can positively contribute to organizational performance (Nitzl et al., 2019; Tran et al., 2024), some findings suggest that excessive reliance on TMS may become counterproductive and even cause failure (Keil, 1995). Moreover, several studies highlight the presence of mediating and moderating variables shaping this relationship (García-Sánchez et al., 2017; Bourini et al., 2024; Tran et al., 2024; Fareed & Su, 2022). Building on this, we propose the following hypothesis to further substantiate the positive role of TMS in enhancing OP:

H2: TMS positively influences OP

2.4. Enterprise risk management and Organizational performance

In the context of a changing business environment, implementing an integrated risk management system like ERM has become increasingly necessary and common. The widespread adoption of ERM among firms lends support to the argument that ERM contributes to enhancing organizational performance (Gordon et al., 2009).

Risk management is not aimed at reducing or eliminating all risks a company faces, but rather at helping the organization understand, measure, and strategically allocate risks. This way, it can optimize resources and increase value for stakeholders (McShane et al., 2011).

The link between ERM and OP has received substantial scholarly attention, particularly in the context of developed economies (Anton and Nucu, 2020). While numerous studies document a positive association between ERM adoption and OP (Gordon et al., 2009; Florio and Leoni, 2017; Anton, 2018; Lechner and Gatzert, 2018; Bohnert et al., 2019; Sax and Andersen, 2019; Malik et al., 2020), other empirical investigations have changed this relationship, suggesting that ERM implementation does not always lead to measurable performance gains (Agustina and Baroroh, 2016; Alawattagama, 2018; González et al., 2020; Li et al., 2014).

Despite the mixed evidence, the growing use of ERM is still advocated by academics and practitioners alike, underscoring its recognized strategic importance. In line with this view, a number of influential studies demonstrate that ERM can enhance performance by fostering greater risk awareness and facilitating more informed decision-making (Hoyt and Liebenberg, 2011; McShane et al., 2011; Ai et al., 2018). Moreover, ERM helps improve organizational reputation through transparency and control, which increases trust from investors, customers, and stakeholders.

On the other hand, according to UET, a comprehensive implementation of ERM will help to enhance the risk awareness of top management, so that they can increase their support in implementing strategies that increase OP. Therefore, this study proposes that TMS plays a mediating role in the relationship between ERM and OP.

H3: ERM positively influences OP

H4: TMS mediates the relationship between ERM and OP

Figure 1 presents the conceptual model along with the associated hypotheses.

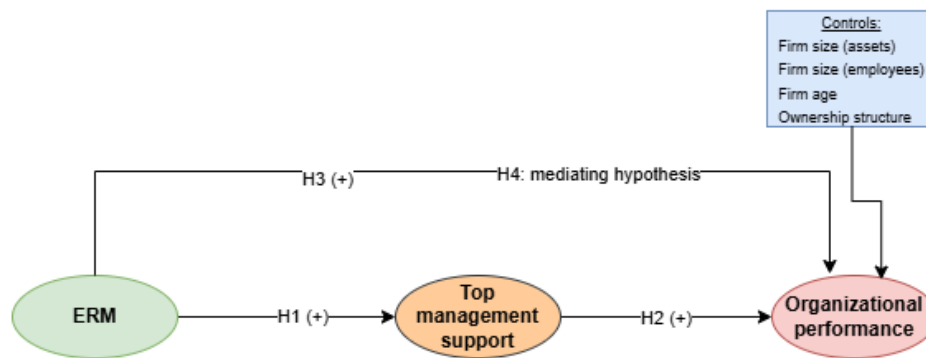


Figure 1: Proposed model and hypotheses

3. RESEARCH METHOD

3.1. Research site

Although ERM is recognized as a strategic instrument for achieving corporate objectives and addressing stakeholders' expectations, its adoption in Vietnam - the setting of this study - remains limited. This is largely due to the absence of binding regulatory mechanisms and insufficient commitment to governance enhancements within firms. Most Vietnamese firms are young, and the promotion of internal control, risk management, or corporate governance in this country have just been introduced lately (Hoai and Nguyen, 2022). This situation creates an urgent need to study the status of ERM in Vietnam and its effects on business performance.

3.2. Instruments and analysis procedure

All observed variables were assessed using a five-point Likert scale, anchored from 1 (Strongly Disagree) to 5 (Strongly Agree). The items were adapted from previously validated instruments and subjected to a back-translation procedure to guarantee both linguistic accuracy and contextual relevance for the Vietnamese context.

A variety of proxies have been employed in prior research to capture ERM, such as S&P ERM rating (McShane et al., 2011) or SEC filings (Hoyt and Liebenberg, 2011). Until recently, this trend continues surging by using a representative proxy with a combination of four elements of strategy, operation, reporting and compliance (Farooq et al., 2025) or a binary proxy with Chief Risk Officer's involvement (Horvey and Odei-Mensah, 2025). This shows that studies have not yet reached a consensus on how to measure it. Therefore, to avoid this heterogeneity, this study measures the effectiveness of ERM in organizations using the ERM index developed by Sax and Torp (2015), which incorporates indicators aligned with both the COSO (2004) and ISO 31000 (2009) frameworks. This approach allows the ERM process to be examined from multiple dimensions, reflecting different levels of maturity within a firm's ERM practices. The ERM scale comprising six items representing key components of the ERM process: policy, risk identification, analysis, control, reporting, and monitoring.

OP was assessed with a five-item scale originally developed by Lee and Choi (2003), focusing on comparative performance dimensions such as product innovation, market expansion, overall growth, profitability, and success. Although the scale is based on subjective assessments, this approach is widely accepted in management research when objective financial data are unavailable and has shown reliability (Dess and Robinson, 1984).

TMS was measured using a scale developed by Thong et al. (1996), reflecting direct involvement of senior leadership across key project stages, from requirement analysis to implementation supervision. This scale captures "active support" rather than mere symbolic commitment, which is often overstated in studies that fail to distinguish between formal and substantive engagement.

Finally, following Zhu et al. (2014) and Hung et al. (2023), this study incorporates control variables for firm performance, namely firm size (proxied by total assets and number of full-time equivalent employees), firm age, and ownership structure (coded as 1 = no foreign capital; 2 = with foreign capital). These variables were included to rule out alternative explanations for the research findings, ensuring that observed effects are not confounded by differences in organizational age, scale, or ownership type. The detailed measurement scales are listed in Appendix 1.

The data analysis was conducted with SmartPLS 4, employing the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique. It supports advanced diagnostic procedures, such as identifying unobserved heterogeneity and managing Nonlinear effects. SmartPLS 4 allows for integrated evaluation of both measurement and structural components, including assessments of reliability, convergent and discriminant validity, and the estimation of causal relationships.

3.3. Sample and data collection

Data were collected from 251 mid- to senior-level managers, each representing a unique organization operating in Vietnam. These respondents were chosen due to their intermediary role between strategic and operational levels, giving them direct involvement in risk management implementation and performance oversight.

To assess the adequacy of the sample, a power analysis was performed using G*Power 3.1 with the following parameters: medium effect size ($f^2 = 0.15$) as suggested by Cohen (2013), significance level $\alpha = 0.05$, statistical power = 0.80, and 20 predictors. The analysis indicated a minimum required sample size of 157. Since 251 valid responses were collected, the sample size surpasses this requirement, thereby ensuring adequate statistical power in line with the guidelines Hair et al. (2013) and Kang (2021).

The study employed snowball sampling, starting from known managerial contacts and expanding via referrals. Although this method may introduce selection bias due to network homogeneity (Noy, 2008), it was considered appropriate given the difficulty of accessing mid-level managers and above through random sampling. Each participant represented a distinct organization, preserving observation independence - a key requirement in structural equation modeling (SEM) analysis.

The Data presents the demographic characteristics of the 251 survey respondents. The sample predominantly consists of mid-level managers (61.35%) working in large-scale enterprises, in which 68.92% of firms have total assets exceeding VND 500 billion, and 58.57% employ more than 200 full-time staff. A significant portion of these firms are foreign invested (78.88%). Most respondents have less than five years of tenure (61.76%) and operate across various sectors, primarily manufacturing, services, and trading. This sample composition is appropriate for examining the relationship between ERM-TMS-OP, as large and foreign-invested firms are more likely to adopt structured ERM and TMS practices, thus providing a suitable context for analysis. However, the overrepresentation of large and foreign-invested enterprises may limit the generalizability of the findings to small and medium-sized enterprises (SMEs).

4. RESULTS AND DISCUSSION

4.1. Scale evaluation

The measurement model was assessed using standard criteria, including indicator reliability (outer loadings or outer weights), internal consistency reliability (Cronbach's alpha and composite reliability), and construct validity, which encompasses both convergent (AVE) and discriminant validity (HTMT) (Hair et al., 2021).

Table 1. Measurement model overview: Loadings and Reliability

Indicator	ERM	Indicator	OP	Indicator	TMS
ERM1	0.786	OP1	0.815	TMS1	0.796
ERM2	0.704	OP2	0.824	TMS2	0.696
ERM3	0.603	OP3	0.774	TMS3	0.733
ERM4	0.746	OP4	0.733	TMS4	0.622
ERM5	0.724	OP5	0.813	TMS5	0.769
ERM6	0.809				
Construct	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)		
ERM	0.828	0.879	0.592		
OP	0.853	0.894	0.628		
TMS	0.773	0.846	0.526		

All outer loadings for OP indicators ranged from 0.733 to 0.824, exceeding the 0.70 threshold, thus confirming indicator reliability (Hair et al., 2021). For TMS, most items met the criterion (TMS1: 0.796; TMS3: 0.733; TMS5: 0.769), while TMS2 (0.696) and especially TMS4 (0.622) fell below, raising concerns regarding convergent validity (see Table 1). Despite this, TMS2 was retained because its loading (0.696) was close to the 0.70 threshold and its content – “Top management involvement in information requirements analysis” - is conceptually central to the construct of TMS during system implementation. In contrast, TMS4, with a much lower loading of 0.622, was removed due to both statistical weakness and limited added conceptual value beyond what was already captured by TMS3 (consultant review) and TMS5 (monitoring). Moreover, eliminating TMS4 slightly improved the AVE and did not compromise the overall reliability of the construct, which remained acceptable (Cronbach's alpha = 0.773; composite reliability = 0.846; AVE = 0.526), indicating that convergent validity was still achieved without TMS4 (Fornell and Larcker, 1981).

For the ERM construct, all retained indicators (ERM1, ERM2, ERM4, ERM5, and ERM6) exhibited strong loadings, ranging from 0.704 to 0.809, exceeding the 0.70 threshold and affirming indicator reliability. ERM3, which showed a substantially low loading of 0.603, was excluded from the model due to statistical inadequacy. The removal of ERM3 improved the average variance extracted (AVE) while maintaining internal consistency (Cronbach's alpha = 0.828;

composite reliability = 0.879; AVE = 0.592). As a result, the construct of ERM satisfies the requirements for convergent validity without compromising its theoretical coverage.

Discriminant validity was examined using the Heterotrait–Monotrait Ratio (HTMT), shown to outperform traditional criteria in sensitivity and specificity (Henseler et al., 2015). Generally, HTMT values lower than 0.90 are commonly accepted (Hair et al., 2021), though stricter thresholds of 0.85 are recommended by Kline (2016), Clark and Watson (1995), and adopted by SmartPLS as default. In this study, the HTMT value TMS-OP = 0.355, ERM-OP = 0.311 and ERM-TMS = 0.678 well below the strictest cut-off, confirming discriminant validity.

4.2. Structural model and hypothesis testing results

To assess the adequacy of the structural measurement model, this study examines several criteria including multicollinearity among independent variables (inner VIF), the statistical significance of the model's path coefficients, the coefficient of determination (R^2), and effect sizes reflected by the f-squared (f^2) values.

Table 2. Assessment of the Structural Model

Path	β	t-value	P values	f-square	VIF
Age → OP	-0.185	2.783	0.005	0.035	1.197
Assets → OP	0.175	2.359	0.019	0.025	1.498
Emp → OP	0.096	1.218	0.223	0.007	1.635
ERM → OP	0.074	0.663	0.508	0.004	1.583
ERM → TMS	0.558	9.893	0.000	0.452	1.000
OST → OP	0.154	1.044	0.297	0.004	1.171
TMS → OP	0.211	2.539	0.011	0.035	1.519
	R-square		R-square adjusted		
OP	0.172		0.151		
TMS	0.311		0.309		

The results of the structural model in Table 2 reveal that ERM does not have a statistically significant direct effect on OP ($\beta = 0.074$, $p = 0.508$), thus rejecting Hypothesis 3 which proposed a positive direct influence of ERM on OP. However, ERM exhibits a strong and significant positive effect on TMS ($\beta = 0.558$, $p < 0.001$), confirming Hypothesis 1. This finding aligns with both the RBV and the UET. From the RBV perspective, ERM represents a valuable intangible resource that can enhance OP only when effectively leveraged by capable leadership. In line with UET, ERM enhances top executives' cognitive framing of risks and alignment with organizational goals—key enablers in fast-changing environments shaped by digital disruption and innovation.

Additionally, TMS has a significant positive impact on OP ($\beta = 0.211$, $p = 0.011$), supporting Hypothesis 2, and highlighting how leadership support becomes more critical in the context of the digital economy, where firms must adapt to AI-driven risks, cybersecurity threats, and emerging technologies like blockchain (Frick et al., 2021; Van Quaquebeke & Gerpott, 2023). This also implies the mediating role of TMS in the ERM - OP relationship (H4), suggesting that ERM's influence on OP operates primarily through enhancing TMS. Specifically, while ERM strongly predicts TMS ($\beta = 0.558$, $p < 0.001$), it does not have a direct significant effect on OP ($\beta = 0.074$, $p = 0.508$). These results indicate full mediation, implying that ERM contributes to OP only when supported by strong top management systems. This finding aligns with UET and RBV, which emphasize that leadership behaviors and intangible resources like TMS are critical in converting ERM from a compliance mechanism into a source of organizational value.

Effect size (f^2) values indicate a large effect of ERM on TMS (0.452), whereas the impact of TMS on OP is small to medium (0.035), underscoring the key mediating function of TMS in the model. The variance inflation factor (VIF) values range between 1.0 and 1.653, well below the critical threshold of 3.3 recommended by Kock (2015) to detect common method bias (CMB). This confirms the absence of significant CMB in the model, thereby strengthening the validity and reliability of the results.

The model explains 17.2% of the variance in OP and 31.1% in TMS, demonstrating moderate explanatory power.

Firm age negatively affects performance ($\beta = -0.185$, $p = 0.005$), suggesting older firms may face rigidity or declining efficiency. In contrast, firm size (assets) has a positive impact ($\beta = 0.175$, $p = 0.019$), indicating resource advantages. However, employee size ($\beta = 0.096$, $p = 0.223$) and ownership structure ($\beta = 0.154$, $p = 0.297$) are not significant, implying these factors alone do not enhance performance. Overall, control variables explain a small portion of variance in performance ($R^2 = 0.172$), emphasizing the importance of strategic and managerial factors like ERM and top management support.

In summary, as presented in Table 3, the results substantiate the mediating role of TMS in translating ERM initiatives into enhanced OP, consistent with both the UET and the RBV, as well as prior empirical evidence (Dutton et al., 1997; Sax and Torp, 2015). This underscores that OP in digital economies is not solely a matter of ERM maturity, but also of

leadership mindset. Particularly in Vietnam, the strategic value of ERM lies in its ability to support leadership as they steer through complex, tech-driven risk landscapes.

Table 3. Summary of Hypothesis Testing Results and Theoretical Alignment

Hypothesis	Path Relationship	Result (β , p-value)	Hypothesis Status	Alignment with Theory and Prior Research
H1	ERM $\rightarrow$ TMS	$\beta = 0.558$, $p < 0.001$	Accepted	Consistent with RBV, UET; ERM as catalyst for leadership support (Hoyt and Liebenberg, 2011; Sax and Torp, 2015)
H2	TMS $\rightarrow$ OP	$\beta = 0.211$, $p = 0.011$	Accepted	Consistent with UET; Supports leadership's role in innovation and performance (Frick et al., 2021; (Van Quaquebeke & Gerpott, 2023)
H3	ERM $\rightarrow$ OP (direct)	$\beta = 0.074$, $p = 0.508$	Rejected	Consistent with the studies of Agustina & Baroroh (2016), Alawattagama (2018), González et al. (2020), Li et al. (2014)
H4	ERM $\rightarrow$ TMS $\rightarrow$ OP (mediated)	Supported by above paths	Accepted	Confirms mediation role of TMS (Dutton et al., 1997); aligns with UET framework

4.3. Nonlinear effects

To examine potential nonlinear associations between latent constructs in the model, this study incorporated quadratic terms (Quadratic Effect – QE) within the PLS-SEM framework. The results, presented in Table 4, reveal several important findings.

Table 4. Assessment of nonlinear effects

	Original sample (O)	T statistics (O/STDEV)	P values
QE (ERM) $\rightarrow$ OP	-0.188	1.727	0.001
QE (ERM) $\rightarrow$ TMS	-0.056	2.191	0.504
QE (TMS) $\rightarrow$ OP	-0.003	0.071	0.960

First, the analysis reveals a significant negative association between QE(ERM) and OP ($\beta = -0.188$, $t = 1.727$, $p = 0.001$). This finding clearly contradicts the linear assumption that “more ERM leads to better performance.” Instead, it suggests a nonlinear, inverted U-shaped effect, in which increasing ERM improves performance only up to a certain point, beyond which further intensification becomes counterproductive. Possible reasons include increased bureaucracy, reduced agility, and higher control costs. Organizations overly focused on formalizing risk processes may create exceedingly clear boundary that prevents innovation and responsiveness, leading to a form of symbolic or formal compliance rather than real performance gains.

Second, the nonlinear relationship between QE(ERM) and TMS is also negative but statistically insignificant ($\beta = -0.056$, $t = 2.191$, $p = 0.504$). Despite the relatively high t-statistic, the non-significant p-value suggests no reliable evidence for a quadratic effect in this link. In practical terms, this indicates that while fluctuations may exist, there is no consistent nonlinear pattern by which ERM intensity affects TMS. Thus, any perceived decline in support at higher levels of ERM may be context-dependent or due to other moderating and mediating factors not captured here.

Third, the relationship between QE(TMS) and OP is clearly non-significant ($\beta = -0.003$, $t = 0.071$, $p = 0.960$), reaffirming a purely linear relationship between TMS and performance. In other words, more support from leadership consistently correlates with better performance, with no evidence of diminishing or negative returns, even at high levels of involvement.

In summary, only the quadratic term for ERM $\rightarrow$ OP exhibits a statistically significant nonlinear effect. This highlights a critical threshold issue: while ERM is valuable, its over-application may backfire. Thus, practitioners and policymakers should be cautious in assuming that expanding ERM practices will always lead to better outcomes. Instead, efforts should focus on adaptive, context-sensitive ERM designs that balance formalization with operational flexibility. Further research across different organizational types and industries is necessary to pinpoint the turning point where ERM becomes excessive.

5. CONCLUSIONS

5.1. Conclusions

The findings indicate that TMS serves as a full mediator in the relationship between ERM and OP. This means that ERM activities alone do not have a direct impact on OP without the commitment, guidance, and active support from top leaders. Leaders not only determine the priority of ERM programs but also play a key role in securing resources, fostering a culture of reasonable risk acceptance, and establishing an appropriate implementation structure within the organization. This empirical evidence strengthens the importance of the human factor, especially top management, in transforming risk management systems into tangible operational results.

5.2. Theoretical implications

RBV explains the relationship between ERM and TMS. ERM systems, by design, are complex, path-dependent, and difficult to replicate - aligning with the criteria for a valuable and rare organizational resource. However, the realization of ERM's strategic value often requires internal alignment, particularly at the leadership level. Thus, TMS emerges not as a resource, but as an internal mechanism through which the firm mobilizes and leverages the ERM resource.

Simultaneously, based on UET, this study highlights that the traits and actions of senior leaders affect OP. Moreover, the evidence that TMS fully mediates the ERM - OP relationship implies that the benefits of ERM are realized in performance improvements only when top leadership actively supports and champions these efforts. This extends UET by highlighting how the cognitive and behavioral traits of executives act as a "strategic filter" that channels formal systems such as ERM into meaningful organizational outcomes.

In summary, the interpretation shifts the theoretical locus: RBV justifies why ERM matters, and UET explains how leadership behaviors shape the extent to which that resource impacts performance. This multi-level explanation offers a deeper insight into the effectiveness of risk management and underscores the value of combining both theoretical perspectives in future studies.

5.3. Managerial implications

The findings suggest that merely implementing ERM practices may be insufficient to enhance performance unless accompanied by strong top management support. In contexts characterized by digital disruption and technological uncertainty, Vietnamese firms should focus on embedding ERM into leadership routines and governance frameworks. This includes assigning clear risk ownership to strategic roles, enhancing leadership awareness of digital risks, and investing in capacity-building for risk-informed decision-making. Strengthening this alignment can help firms navigate complexity more effectively and improve resilience in an increasingly volatile environment.

5.4. Limitations and future research

In addition to its notable contributions, this study has certain limitations. Firstly, there is a potential nonlinearity bias: while the model assumes linear relationships, the influence of TMS on OP may actually differ based on the stage of ERM implementation or the firm's growth phase. Second, the sample size and sampling method are not representative. Using snowball sampling risks selection bias, focusing mainly on firms already aware of or interested in ERM, thus limiting the generalizability of results to the entire Vietnamese business sector, especially SMEs that have not systematically implemented risk management. Third, the low R^2 for OP indicates the need to incorporate additional variables with stronger influence or more complex/indirect effects into the model to enhance predictive power and comprehensiveness. This also serves as a caution that the current model's explanatory power is limited and should not be considered complete or optimal in explaining OP.

Future research should consider non-linear models or interaction effects to better capture how TMS influences OP at different ERM levels or business stages. More representative sampling methods, especially targeting SMEs, are also needed to improve generalizability. Additionally, future models could include mediating or moderating variables such as digital capability or leadership style to enhance explanatory power and reflect more complex relationships.

6. References

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Appendix 1 – Measurement scales

Construct	Items	Notation	Source
ERM	Our firm has a policy for handling major risks that could affect the firm's ability to reach its strategic objectives	ERM1	Sax and Torp (2015)
	In our firm, we have standard procedures in place for identifying major risks and opportunities	ERM2	
	Risks and opportunities are analysed as a basis for determining how they should be managed	ERM3	
	We have standard procedures in place for launching risk-reducing measures	ERM4	
	We regularly prepare risk reports for the top management and the board of directors	ERM5	
	We have standard procedures in place for monitoring the developments in major risks and the risk-reducing measures launched	ERM6	
TMS	Top management attendance at project meeting	TMS1	Thong et al. (1996)
	Top management involvement in information requirements analysis	TMS2	
	Top management involvement in reviewing consultant's recommendations	TMS3	
	Top management involvement in decision-making	TMS4	
	Top management involvement in monitoring project	TMS5	
OP	Compared with key competitors, our company is more successful	OP1	Lee and Choi (2003)
	Compared with key competitors, our company has a greater market share	OP2	
	Compared with key competitors, our company is growing faster	OP3	
	Compared with key competitors, our company is more profitable	OP4	
	Compared with key competitors, our company is more innovative	OP5	
Assets	Total assets	Assets	Zhu et al. (2014), Hung et al. (2023)
Employees	The number of full-time equivalent employees	Emp	
Firm age	The number of years between the establishment of the firm and the date the survey was completed	Age	
Ownership	Coded as 1 = no foreign capital; 2 = with foreign capital	OST	