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Risk Processes and Effective Enterprise Risk Management in Malaysian Islamic Banks

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Abstract

Enterprise Risk Management (ERM) effectiveness depends not only on formal governance structures but also on how risk processes are enacted in organisational practice. This study examines the relationships between Risk Identification, Integrated Risk Assessment, Risk Control and Risk Monitoring and perceived effective ERM implementation in Malaysian Islamic banks. Drawing on an organisational routines perspective, a cross-sectional survey of 183 employees was analysed using partial least squares structural equation modelling. Integrated Risk Assessment exhibited the largest positive structural coefficient ($\beta = .386$, $p < .001$), followed by Risk Monitoring ($\beta = .302$, $p < .001$) and Risk Identification ($\beta = .201$, $p = .014$). Risk Control was positive but not statistically significant ($\beta = .106$, $p = .087$). The model accounted for 86.9% of the in-sample variance in perceived effective ERM. Several constructs were highly interrelated, so the coefficients are interpreted as conditional associations within an interconnected ERM process system. The findings provide process-level evidence from Malaysian Islamic banking and highlight the organisational relevance of integrated assessment, continuing monitoring and systematic risk identification while recognising the systemic role of risk control.

Keywords: Enterprise Risk Management, Effective ERM, Risk Processes, Risk Assessment, Risk Monitoring, Islamic Banking, PLS-SEM

Introduction

Enterprise Risk Management (ERM) integrates material risks across an organisation rather than managing exposures solely within functional silos. Its value lies in linking risk information to organisational objectives and decision-making (Nocco & Stulz, 2006). However, formal ERM structures do not by themselves establish effective implementation. Policies, committees and reporting arrangements become useful only when risk-related activities are consistently enacted in organisational practice.

The distinction between ERM architecture and ERM functioning is important because enterprise-wide frameworks are intended to support coordinated judgement, not merely to document risk responsibilities. Nocco and Stulz (2006) argue that ERM can improve organisational decisions by providing an integrated view of risk and by linking risk-taking to strategic choices. In practice, however, this potential depends on whether risk information reaches the people who make and implement decisions. A process-level analysis is therefore useful because it examines the organisational activities through which formal ERM expectations become visible in everyday practice.

This distinction is especially relevant in banking, where operations depend on interconnected processes, technologies, employees and external relationships. Banking guidance therefore treats risk identification and assessment, monitoring and reporting, and control and mitigation as connected elements of sound operational risk management (Basel Committee on Banking Supervision [BCBS], 2021).

An organisational routines perspective helps explain how formal risk arrangements become operational. Feldman and Pentland (2003) view routines as recurring patterns of action that connect formal understandings with actual performance. Applied to ERM, this perspective suggests that implementation depends on repeated organisational activities through which risks are identified, assessed, addressed and monitored. ERM research supports this process view: Arena et al. (2010) describe ERM as an organisational practice shaped by interactions among actors and technologies, while Jemaa (2022) shows that enterprise-wide risk management involves interacting structures, routines and tools and may become disconnected from everyday practice.

The broader ERM literature has concentrated heavily on adoption, governance, implementation antecedents and organisational outcomes (Anton & Afloarei Nucu, 2020). Less attention has been given to whether individual risk processes display different relationships with implementation effectiveness when examined simultaneously. This matters because Risk Identification, Risk Assessment, Risk Control and Risk Monitoring are interconnected but perform different functions. Their systemic interdependence does not require them to exhibit equivalent conditional relationships with perceived effective ERM.

A process-level perspective also avoids assuming that all stages of ERM carry the same informational or behavioural weight. Identification creates awareness, assessment converts awareness into judgement, control converts judgement into treatment, and monitoring closes the loop by generating feedback. These functions are complementary, but complementarity does not require equal statistical contribution. Examining them in the same structural model therefore provides a more discriminating test of how ERM is perceived to work inside organisations.

Malaysian Islamic banking provides a relevant institutional setting. The Islamic financial services industry reached approximately USD3.88 trillion in assets in 2024, with Islamic banking accounting for the largest share of industry assets (Islamic Financial Services Board [IFSB], 2025). Islamic banks face conventional banking risks while operating within Shariah governance requirements. In Malaysia, BNM's Shariah Governance Policy Document emphasises closer integration of Shariah considerations with business and risk strategies

(Bank Negara Malaysia [BNM], 2019). Malaysian studies likewise demonstrate the relevance of governance and systematic risk-management practices in Islamic banks (Embi & Shafii, 2018; Mohd Ariffin, 2022). The present study does not measure Shariah risk separately; Islamic banking is the institutional context in which the general ERM processes are examined.

The Islamic banking setting also introduces a governance environment in which risk processes must operate alongside Shariah oversight, product structures and reputational expectations. Hassan et al. (2024) show that the Islamic banking risk literature encompasses financial, operational, governance and Shariah-related concerns, reinforcing the need for integrated organisational responses. This does not make the present measures Shariah-specific, but it strengthens the relevance of studying how general ERM processes function within institutions that face both prudential and Shariah governance demands.

Accordingly, this study asks: To what extent are Risk Identification, Integrated Risk Assessment, Risk Control and Risk Monitoring associated with effective ERM implementation when considered simultaneously in Malaysian Islamic banks? The study contributes by applying an organisational routines perspective to process-level ERM, comparing the conditional relationships of four connected risk processes, and extending such evidence to Malaysian Islamic banking.

Literature Review and Hypothesis Development

Effective ERM and Organisational Routines

ERM differs from traditional silo-based risk management through its enterprise-wide orientation and its integration with organisational decisions (Nocco & Stulz, 2006). Effective ERM, however, concerns substantive functioning rather than the mere presence of a formal programme. In this study, eERM represents employees' perceptions that risk management creates value, is integrated into organisational processes and decisions, addresses uncertainty systematically, responds to change and supports continual improvement.

Perceived ERM effectiveness is therefore conceptually broader than the success of any single risk tool. An ERM programme can contain sound identification procedures yet still be regarded as ineffective if risk information is not incorporated into decisions or if the organisation fails to respond to changing conditions. Conversely, effective ERM should reflect a degree of integration across multiple recurring activities. This broader outcome is appropriate for the present study because the objective is to compare the conditional relationships of several process routines with employees' overall perceptions of ERM functioning.

The organisational routines perspective is used as an interpretive lens rather than as a directly measured theory. Feldman and Pentland (2003) distinguish formal understandings of routines from their enactment, while Arena et al. (2010) and Jemaa (2022) show that ERM develops through organisational practice rather than through formal design alone. Risk Identification, Integrated Risk Assessment, Risk Control and Risk Monitoring are therefore treated as recurring, interconnected processes through which ERM is enacted.

Using routines as an interpretive lens also helps reconcile two features of the model: the processes are analytically distinguishable, yet they are expected to be empirically related.

Organisational routines rarely operate as isolated mechanisms. Identification may trigger assessment, assessment shapes control, and monitoring may prompt new identification or reassessment. The theoretical expectation is therefore one of interdependence rather than independence. This expectation later becomes important when interpreting discriminant-validity and collinearity diagnostics.

Risk Identification and Effective ERM

Risk Identification is the systematic recognition of potential exposures, sources, events and areas of impact. It provides the informational entry point to ERM because risks that remain unidentified cannot subsequently be assessed, treated or deliberately monitored. Repeated identification also allows risk profiles to be updated as organisational conditions change. Evidence from Malaysian Islamic banking similarly identifies systematic risk identification as a relevant element of risk-management practice (Mohd Ariffin, 2022).

The quality of identification can influence the rest of the ERM cycle because incomplete or outdated risk recognition constrains subsequent analysis. In banking environments, emerging exposures may arise from operational changes, technology, products, counterparties or regulatory developments. Recurrent identification routines help organisations refresh risk profiles rather than relying on static lists. They also facilitate communication across functions by creating a common basis for discussing potential exposures before treatment decisions are made.

From a routines perspective, identification embeds recurring organisational attention to uncertainty. Accordingly, H1 proposes:
H1: Risk Identification is positively associated with effective ERM implementation.

Integrated Risk Assessment and Effective ERM

Risk Assessment is conceptualised as an integrated measurement-evaluation process. Measurement characterises likelihood, consequences and organisational impacts, while evaluation interprets this information for judgement, prioritisation and response. Although distinct conceptually, the two activities are sequential and closely connected in practice. The present study therefore specifies the original Risk Measurement and Risk Evaluation indicators as an Integrated Risk Assessment construct, preserving both content domains while representing them as one analytical routine.

The analytical value of assessment lies in reducing ambiguity around identified exposures. Measurement provides a structured basis for considering the probability and consequences of risk events, while evaluation compares those assessments with organisational priorities and tolerance. When these activities are closely linked, risk information is more likely to support ranking, escalation and resource allocation. This integration is particularly important where organisations face multiple concurrent exposures and cannot treat every identified risk as equally urgent.

Integrated assessment converts risk visibility into decision-relevant information. It enables organisations to distinguish material exposures, prioritise attention and allocate resources. From an organisational routines perspective, it represents a recurring information-to-

judgement process. The BCBS (2021) likewise treats risk identification and assessment as connected to monitoring, reporting, control and mitigation. Accordingly:

H2: Integrated Risk Assessment is positively associated with effective ERM implementation.

Risk Control and Effective ERM

Risk Control comprises organisational responses used to manage exposures, including acceptance, avoidance, reduction and transfer. Controls translate risk judgements into action and operate within a wider process that also requires assessment and monitoring. Governance evidence from Malaysian Islamic banks further underlines the importance of sound risk-management practices (Embi & Shafii, 2018). From a routines perspective, recurring control activities institutionalise organisational responses to risk. Accordingly:

Control routines are also where formal risk decisions become observable organisational action. Their value depends not simply on whether a control exists but on whether the chosen treatment is proportionate to the assessed exposure and is implemented consistently. In this sense, control is both dependent on upstream assessment and dependent on downstream monitoring for evidence that the treatment remains suitable. This functional position within the ERM cycle suggests a positive relationship with effective implementation even if its unique contribution may overlap with other processes.

H3: Risk Control is positively associated with effective ERM implementation.

Risk Monitoring and Effective ERM

Risk Monitoring provides continuing feedback on exposures, indicators, control effectiveness and changing conditions. Without monitoring, earlier assessments and responses can become outdated. Monitoring therefore supports an iterative ERM process in which new information can trigger reassessment and corrective action. Continuing oversight is also recognised in Malaysian Islamic banking risk-management practice (Mohd Ariffin, 2022). Accordingly:

Monitoring also supports organisational learning. Feedback from indicators, incidents and control reviews can reveal whether previous assumptions remain valid and whether risk treatments need to be strengthened or revised. In a dynamic banking environment, this continuing feedback is necessary because a well-designed control can become ineffective when technology, customer behaviour or operational arrangements change. Monitoring therefore sustains the relevance of the broader ERM process over time.

H4: Risk Monitoring is positively associated with effective ERM implementation.

Conceptual Model

The model specifies four parallel relationships with perceived effective ERM as the endogenous construct: RID → eERM, Integrated RA → eERM, RC → eERM and RMO → eERM. The model does not assume that these processes operate independently; it evaluates their conditional relationships within an interconnected ERM system.

Methodology

Research Design and Sampling

A quantitative cross-sectional survey design was used. The individual employee was the unit of analysis because the study examined perceptions of how risk processes and ERM function in organisational practice. ERM activities are not confined to dedicated risk departments and may operate across procedures, controls, reporting and decision-making in multiple functions.

The study focused on employee-level perceptions because ERM is enacted across functions rather than only at the senior-management or risk-department level. Employees may encounter risk policies through operational procedures, escalation channels, control requirements, reporting routines and management decisions. Their responses therefore provide evidence about the organisational functioning of ERM processes, although the design does not permit aggregation to objective bank-level performance without additional institutional data.

A non-probability purposive sampling approach recruited employees working in Malaysian Islamic banking environments relevant to risk-management implementation. This approach matched the study's eligibility requirements while access to a complete employee-level sampling frame meeting those criteria was limited. The questionnaire was administered online via Google Forms. Of 185 responses received, two observations were excluded during screening, producing a final analytical sample of 183.

The realised sample was cross-functional: 50.3% of respondents were from operations-related functions, 15.8% from finance and investment, and 10.9% from management, administration or human-resource functions, with additional respondents from information technology, procurement and other areas. Some 45.9% reported more than 20 years of service. These characteristics describe the realised sample and are not used to claim statistical representativeness.

The cross-functional composition is relevant to the research question because it reduces reliance on a single professional group when evaluating organisation-wide risk processes. At the same time, the purposive design means that the sample reflects respondents who were reachable and met the study criteria rather than a probability sample of the full employee population. The study therefore emphasises analytical relationships within the realised sample and avoids claims of sector-wide prevalence.

Measurement

All substantive measures used a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). The risk-process measures were based on AS/NZS 4360:2004 (Standards Australia & Standards New Zealand, 2004) and the instrument employed by Ismail et al. (2012). Risk Identification comprised seven indicators; Risk Control five; Risk Monitoring seven; and Effective ERM 11.

The use of an established risk-management instrument provided continuity with prior empirical work while allowing the present study to focus on a narrower direct-effects model. The item content was retained to preserve the substantive domains of identification,

measurement, evaluation, control, monitoring and overall ERM effectiveness. No new Shariah-specific indicators were introduced because the purpose of the article is to examine general ERM processes within an Islamic banking context rather than to construct a separate Shariah risk-management scale.

For the present analysis, seven original Risk Measurement indicators and eight Risk Evaluation indicators were specified as a 15-item Integrated Risk Assessment construct. The specification reflects their sequential conceptual relationship: measurement characterises likelihood, consequences and impacts, whereas evaluation interprets that information for organisational judgement and prioritisation. It also accords with the substantial empirical proximity observed between the original dimensions. The integration does not imply that measurement and evaluation are conceptually identical.

Effective ERM captures employees' perceptions that the risk-management programme creates value, is integrated into organisational processes and decisions, operates systematically, responds to change and supports continual improvement. It therefore represents perceived implementation effectiveness rather than objective bank performance. All constructs were specified reflectively.

Data Analysis

The model was estimated using PLS-SEM in SmartPLS 4. Following Hair et al. (2019), the measurement model was assessed before the structural model. Internal consistency was evaluated using Cronbach's alpha, rho_A and composite reliability, and convergent validity using AVE. Discriminant validity was examined primarily using HTMT with bootstrapped confidence intervals, supplemented by the Fornell-Larcker criterion (Henseler et al., 2015).

PLS-SEM was appropriate for estimating several latent constructs simultaneously while assessing both measurement quality and structural relationships. The analysis did not treat a single index as sufficient evidence of model adequacy. Reliability, convergent validity, discriminant validity, collinearity, coefficient stability and explanatory power were considered together so that strong structural coefficients were not interpreted without reference to measurement overlap.

The structural model was evaluated using inner VIF, standardised path coefficients, R^2, adjusted R^2 and f^2. Final inference used 5,000 bootstrap subsamples, two-tailed testing at .05 and bias-corrected 95% confidence intervals. The analysis was restricted to the direct relationships specified in the conceptual model.

Results

Reliability and Convergent Validity

All constructs demonstrated high internal consistency and adequate convergent validity. Cronbach's alpha ranged from .878 to .955, composite reliability from .911 to .961, and all AVE values exceeded .50. Integrated Risk Assessment retained adequate convergent validity despite containing 15 indicators.

The reliability pattern was consistent across alpha, rho_A and rho_C, reducing dependence on any single reliability coefficient. The comparatively lower AVE for RA (.538) is

understandable given the breadth of its 15 indicators, but it still exceeded the conventional .50 criterion. The high reliability of eERM also indicates that its 11 indicators capture a closely related domain of perceived ERM functioning.

Table 1
Construct Reliability and Convergent Validity

Construct	Cronbach's α	rho_A	rho_C	AVE
Integrated Risk Assessment (RA)	.938	.943	.945	.538
Risk Control (RC)	.878	.889	.911	.672
Risk Identification (RID)	.923	.924	.939	.689
Risk Monitoring (RMO)	.936	.937	.948	.724
Effective ERM (eERM)	.955	.956	.961	.690

Discriminant Validity and Inter-Construct Proximity

HTMT values for RA-RMO (.932), RA-eERM (.946) and RMO-eERM (.941) exceeded the conservative .90 benchmark. None of the bootstrapped 95% HTMT confidence intervals included 1.00; however, the Fornell-Larcker criterion was not satisfied for several construct pairs. These findings indicate considerable inter-construct proximity. Discriminant validity was therefore treated as a qualification in interpreting the structural relationships rather than as unambiguously established across all conventional criteria.

The pattern of results is important for interpretation. HTMT inference did not indicate that any pair was statistically indistinguishable because all upper confidence bounds remained below 1.00, yet the magnitude of several ratios and the Fornell-Larcker results show that the constructs are not cleanly separated in every conventional sense. The most defensible interpretation is therefore that the processes retain analytical distinctions while sharing substantial variance as parts of the same organisational risk system.

Table 2
HTMT Assessment

Construct pair	HTMT	95% CI
RA-RC	.883	[.823, .938]
RA-RID	.879	[.821, .927]
RA-RMO	.932	[.893, .967]
RA-eERM	.946	[.917, .970]
RC-RID	.683	[.583, .794]
RC-RMO	.845	[.783, .902]
RC-eERM	.832	[.756, .902]
RID-RMO	.885	[.832, .933]
RID-eERM	.891	[.814, .945]
RMO-eERM	.941	[.903, .973]

Structural Relationships and Hypothesis Testing

Inner VIF values were 6.838 for RA, 3.269 for RC, 3.922 for RID and 5.671 for RMO, indicating elevated shared variance particularly for RA and RMO. Path coefficients are therefore interpreted as conditional associations within an interconnected process system.

The collinearity diagnostics reinforce this interpretation. In particular, the elevated VIF values for RA and RMO mean that their coefficients represent the portion of association remaining after accounting for strongly related processes. This makes the relative ranking of path coefficients informative but also cautions against interpreting the estimates as independent causal contributions. The bootstrapped confidence intervals nevertheless provide evidence that the positive relationships for RA, RMO and RID are stable under the specified model.

The model accounted for 86.9% of the in-sample variance in perceived effective ERM (R^2 = .869; adjusted R^2 = .866). This high explanatory value should be interpreted alongside the shared variance among the predictors.

Table 3
Structural Relationships, Collinearity and Hypothesis Testing

Hyp.	Relationship	β	t	p	95% CI	f^2	VIF	Decision
H1	RID → eERM	.201	2.465	.014	[.033, .352]	.079	3.922	Supported
H2	RA → eERM	.386	3.544	<.001	[.177, .600]	.166	6.838	Supported
H3	RC → eERM	.106	1.713	.087	[-.014, .229]	.026	3.269	Not supported
H4	RMO → eERM	.302	3.655	<.001	[.130, .457]	.123	5.671	Supported

Integrated Risk Assessment exhibited the largest positive structural coefficient (β = .386, p < .001), followed by Risk Monitoring (β = .302, p < .001) and Risk Identification (β = .201, p = .014). Risk Control was positive but not statistically significant (β = .106, p = .087). The corresponding bias-corrected intervals supported the same inference pattern.
As a supplementary diagnostic, SRMR was .104 for both the saturated and estimated models, marginally above the commonly referenced .10 guideline. Substantive interpretation therefore emphasises measurement quality, bootstrap inference, effect sizes and explanatory power rather than a strong claim regarding global model fit.

Discussion
The findings show that the four ERM processes do not exhibit equivalent conditional relationships with perceived effective ERM. Integrated Risk Assessment showed the largest structural coefficient, followed by Risk Monitoring and Risk Identification, while Risk Control did not retain a statistically significant unique relationship after the other processes were considered simultaneously.

Taken together, the pattern is more informative than any single coefficient. The significant paths for RA, RMO and RID indicate that employees differentiate among core ERM activities even though the constructs share substantial variance. At the same time, the non-significant RC path cautions against reading ERM as a simple additive model in which every process must contribute independently. The findings instead point to a system in which some routines may carry more visible decision or feedback functions while others operate as embedded supporting mechanisms. This systems interpretation is consistent with the organisational routines perspective adopted in the study and provides a more balanced explanation of the high inter-construct relationships observed in the measurement and structural diagnostics.

Integrated Risk Assessment

Integrated Risk Assessment exhibited the largest coefficient (β = .386) and a medium incremental effect size (f^2 = .166). The result suggests that the measurement-evaluation process is particularly salient in connecting risk information with perceived ERM effectiveness. Identification makes exposures visible; assessment determines their likelihood and consequences and interprets that information for prioritisation and response. From a routines perspective, assessment therefore functions as a recurring information-to-judgement process.

The finding is also consistent with the idea that assessment sits at the point where descriptive risk information becomes actionable. Organisations may identify many potential exposures, but ERM gains practical meaning when those exposures are evaluated in terms that support prioritisation. In Islamic banking, this function is relevant because decisions must often reconcile commercial objectives, prudential requirements and governance expectations. A disciplined assessment routine can therefore serve as a bridge between technical risk analysis and management judgement without implying that it operates separately from identification or monitoring.

This interpretation is consistent with ERM research emphasising the organisational use of risk information rather than mere formal compliance (Nocco & Stulz, 2006; Arena et al., 2010; Jemaa, 2022). It is also relevant to Islamic banking, where risk decisions operate alongside Shariah governance requirements (BNM, 2019). However, RA displayed elevated collinearity and high associations with RMO and eERM. Its coefficient should therefore be understood as a conditional relationship within an integrated process system, not as an independent effect.

Risk Monitoring

Risk Monitoring showed the second-largest coefficient (β = .302). Monitoring prevents ERM from becoming static by providing feedback on changing exposures and control effectiveness. It enables reassessment and corrective action when earlier risk judgements no longer reflect current conditions. This interpretation accords with the continuing oversight expected in banking risk management (BCBS, 2021) and with Malaysian Islamic banking evidence on risk monitoring (Mohd Ariffin, 2022).

The relative strength of monitoring also suggests that employees may associate effective ERM with visible feedback and follow-through. A risk framework that produces assessments but does not revisit them can quickly lose organisational relevance. Monitoring signals that the organisation continues to observe exposures after decisions have been made, which may strengthen perceptions that ERM is embedded rather than episodic. This mechanism is consistent with the routines perspective because repeated review helps reproduce and update risk-management practice over time.

RMO was also highly associated with eERM, so part of the relationship may reflect the close conceptual link between effective monitoring and employees' broader judgement that ERM is functioning well. Even so, monitoring retained a significant conditional association after the other processes were included.

Risk Identification

Risk Identification was positively associated with effective ERM (β = .201), although its incremental effect was smaller. This supports its role as the informational entry point to ERM: exposures must be recognised before they can be assessed, controlled or monitored. A smaller conditional coefficient does not imply limited organisational importance because part of identification's value may operate through downstream processes that depend on identified risks.

Its smaller effect size may reflect the fact that identification is an enabling condition whose consequences are partly realised through subsequent routines. Once a risk has been recognised, assessment and monitoring may carry more immediate decision relevance. This interpretation helps avoid equating coefficient size with organisational necessity: an entry-point routine can be essential to the process even when its unique direct relationship is more modest than those of downstream activities.

The finding is compatible with Malaysian Islamic banking evidence in which systematic identification forms part of risk-management practice (Mohd Ariffin, 2022). The present result, however, concerns general ERM and should not be extended to claim a direct effect on Shariah non-compliance risk.

Risk Control

Risk Control was positive but not statistically significant (β = .106, p = .087). This does not mean that controls are unimportant. It indicates only that RC did not explain significant additional variation in perceived eERM once identification, assessment and monitoring were considered simultaneously.

The result may also reflect the mature and regulated nature of banking controls. Core control practices can be standardised through policies, approval structures and compliance requirements, leaving less perceptual variation for the model to explain. If controls are widely embedded, differences in assessment quality or monitoring intensity may become more visible to employees than differences in the existence of basic treatment mechanisms. This remains a plausible interpretation rather than a directly tested explanation and should be examined in future research.

Controls may function as baseline organisational routines that are already embedded in established banking procedures. Their effectiveness also depends on preceding assessment and subsequent monitoring. In addition, shared variance among the ERM processes may reduce the unique RC coefficient. The result should therefore be interpreted as a non-significant unique conditional relationship, not as evidence that control lacks systemic organisational importance.

Theoretical Implications

The study contributes a process-level interpretation of ERM. First, the organisational routines perspective highlights that substantive ERM depends on recurring organisational action, not only formal architecture. The perspective is interpretive rather than directly tested because ostensive and performative routine dimensions were not separately measured.

The results also suggest that future ERM theory may benefit from modelling process systems rather than relying only on isolated direct effects. The substantial shared variance among RA, RMO and eERM is not merely a statistical inconvenience; it is consistent with the possibility that effective ERM emerges from bundles of mutually reinforcing routines. This interpretation provides a rationale for future higher-order or configurational models while preserving the value of the present process-level comparison.

Second, the findings show that interconnected ERM processes need not exhibit equivalent conditional relationships with implementation effectiveness. Third, the high inter-construct associations and VIF values reinforce the systemic character of ERM and suggest a useful distinction between unique statistical contribution and systemic organisational importance. A process can remain necessary to ERM even when its incremental coefficient is modest after shared variance with other processes is taken into account.

Practical Implications

For practitioners, the findings suggest particular attention to the quality of Integrated Risk Assessment. Risk measurement should not end with technical scores; information about likelihood, consequences and organisational impact should inform prioritisation and management decisions. Continuing monitoring is also important because risk registers and controls can become outdated as conditions change. Risk Identification should remain systematic and cross-functional so that emerging exposures can be recognised beyond specialist risk departments.

Managers should therefore avoid using the coefficient ranking as a simple resource-allocation league table. The practical value of the findings lies in identifying where the direct relationships appear strongest while recognising that each process depends on others. Strengthening assessment without reliable identification would weaken the information base, and monitoring without functioning controls would generate feedback without an adequate response mechanism. Process integration remains the central managerial implication.

The non-significant RC coefficient does not justify reducing attention to controls. Instead, controls should be integrated with the wider ERM cycle: treatment decisions should follow sound assessment, and monitoring should indicate whether existing responses remain appropriate. The practical message is therefore to strengthen the connections among ERM processes rather than to treat them as competing priorities.

Limitations and Future Research

The study has several limitations. Cross-sectional data do not establish temporal causality. Predictor and outcome measures were obtained from the same respondents through one questionnaire, so common method variance cannot be ruled out. Effective ERM represents employee perceptions rather than objective financial, regulatory or realised-loss outcomes. Purposive non-probability sampling also limits statistical generalisation beyond the realised sample.

A further limitation concerns the integrated specification of RA. Combining measurement and evaluation is conceptually defensible and empirically parsimonious, but future studies should independently replicate this specification in new samples rather than assume that the two

domains will always function as one construct. Such replication would help determine whether the integrated structure is stable across institutions and jurisdictions or is partly sample-dependent.

Several constructs showed considerable empirical proximity: some HTMT ratios exceeded .90, the Fornell-Larcker criterion was not met for several pairs, and VIF values were elevated for RA and RMO. Future research could test higher-order or alternative measurement specifications and combine survey perceptions with objective indicators. The organisational routines perspective was not directly operationalised; future work could measure routine frequency, ostensive structures and performative enactment. Comparative research across conventional banks, other Islamic banking jurisdictions or financial sectors could also assess the institutional contingency of these relationships.

Conclusion

This study examined four interconnected risk processes and perceived effective ERM in Malaysian Islamic banks. Integrated Risk Assessment displayed the largest conditional relationship, followed by Risk Monitoring and Risk Identification, while Risk Control did not retain a statistically significant unique association.

The findings reinforce a process-oriented understanding of ERM. Effective implementation is associated with recurring activities through which risks are recognised, interpreted, addressed and reviewed, but these activities are also strongly interconnected. Understanding ERM effectiveness therefore requires attention not only to whether formal structures exist, but to how the wider risk process functions in organisational practice.

The contribution of the study therefore lies less in ranking the four processes as competing priorities and more in showing how their conditional relationships differ within a connected organisational arrangement. For future research, this distinction is important because direct-effect models may understate the role of processes whose value is realised through interaction with other routines. Replication with alternative measurement structures and longitudinal designs would help determine whether the relative pattern observed here remains stable across institutions and over time.

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