

Impact of Integrated Reporting on Risk Management Practices of SMEs in the Perspective of CSE Listed Companies

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Abstract:

This study examines the impact of Integrated Reporting (IR) on the Risk Management Practices (RMP) of Small and Medium Enterprises (SMEs) listed on the Colombo Stock Exchange (CSE) from 2015 to 2024. It addresses a literature gap concerning IR's role in SMEs within emerging economies. Employing a quantitative panel data analysis of 40 firm-year observations, the research measures RMP across three COSO-aligned dimensions (Risk Assessment, Risk Response and Monitoring, and Assurance and Disclosures) and assesses IR quality using a score based on the International Integrated Reporting Framework (IIRF). A fixed-effects regression model reveals a statistically significant positive relationship between IR adoption and RMP ($\beta = 0.0052$, $p = 0.0225$). Financial factors also prove significant, with Return on Assets (ROA) showing a positive association with RMP and leverage a negative one. However, these findings must be interpreted with caution. The research encounters substantial methodological constraints, including possible endogeneity and pronounced multicollinearity among variables, which mitigate any causal assertions. Crucially, the generalisability of the results is constrained by the specific context of listed SMEs, whose formal governance and disclosure obligations differ substantially from the vast, unlisted SME population. While providing valuable evidence from an emerging market, this study highlights critical theoretical and methodological challenges that must be addressed in future research to solidify understanding of the IR-RMP nexus before deriving regulatory implications.

Keywords: Integrated Reporting, Risk Management Practices, Colombo Stock Exchange, Risk Assessment, Corporate Disclosure

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Abbreviations

Abbreviation	Full Term	IIRF	International Integrated Reporting Framework
AD	Assurance and Disclosures	IR	Integrated Reporting
COSO	Committee of Sponsoring Organisations of the Treadway Commission	IRSCORE	Integrated Reporting Score
CSE	Colombo Stock Exchange	LEV	Leverage
D/A	Debt to Asset	RA	Risk Assessment
ERM	Enterprise Risk Management	RMP	Risk Management Practices
ESG	Environmental, Social, and Governance	ROA	Return on Assets
FS	Firm Size	RRM	Risk Response and Monitoring
GRI	Global Reporting Initiative	SMEs	Small and Medium Enterprises
IIRC	International Integrated Reporting Council		

1. INTRODUCTION

Small and Medium Enterprises (SMEs) are the undisputed engines of global economic development, constituting over 90% of businesses and generating between 50% and 60% of

total employment worldwide (OECD, 2021). Despite their systemic importance, SMEs are characterised by inherent vulnerabilities that threaten their sustainability and, by extension, broader economic stability. A central tension exists between their macroeconomic significance and their

micro-level operational fragility, particularly in the domain of risk management. This study investigates the potential for Integrated Reporting (IR)—a modern corporate governance mechanism—to address these vulnerabilities by examining the contested and complex relationship between IR adoption and the robustness of Risk Management Practices (RMP). It does so while acknowledging the ongoing debate on whether such frameworks lead to substantive improvements or merely symbolic compliance.

For small and medium-sized enterprises (SMEs) to survive and grow, they need to manage risks well. This is especially true in emerging economies where the economy is always changing.

1.1 The Strategic Imperative of Risk Management and the Sri Lankan Context

Modern business organisations operate within an environment of heightened uncertainty, volatility, and complexity. The combined forces of globalisation, rapid technological changes, and frequent market disruptions have intensified the risks all firms must navigate. While large corporations typically implement formalised risk management frameworks, SMEs often struggle to develop effective RMPs, constrained by limited resources and informal structures, leaving them disproportionately exposed to failure (Aabo et al., 2012; Spalek and Koziol, 2020). SMEs' vast economic contribution magnifies this vulnerability, making their resilience critical to global economic stability (Ahmed Haji and Hossain, 2016).

Emerging economies such as Sri Lanka magnify these challenges. SMEs face limited access to capital markets, complicated rules, and changes in the economy as a whole (Asian Development Bank, 2020). In Sri Lanka, SMEs are the backbone of the economy, accounting for over 75% of all enterprises, approximately 45% of national employment, and about 52% of the Gross Domestic Product (Niroshini, 2024). The Colombo Stock Exchange (CSE) has established the Empower Board (launched in 2018) as a dedicated platform to help SMEs access equity capital and improve governance, with a minimum capital requirement of LKR 25 million and clean audits (CSE, 2024).

Despite this supportive infrastructure, the implementation of robust RMPs in Sri Lankan SMEs is hindered by structural constraints: limited resources for comprehensive risk assessment (Fatoki, 2014), informal governance structures prioritising short-term concerns (Gunasekara, 2017), and a perception of risk management as a compliance burden rather than a strategic tool (Aabo et al., 2012). The listed SMEs on the CSE's Empower Board present a unique and critical subset for this research, subject to stricter governance while still grappling with SME resource constraints, creating a distinct environment to study reporting, governance, and risk interplay (Wijesiri and Perera, 2019).

1.2 Integrated Reporting as a Potential Solution and the Problem of Causality

Integrated Reporting (IR), established by the IIRC, provides a holistic framework linking governance, strategy, performance, and risk to demonstrate value creation across

multiple capitals (Adams, 2015; Dumay et al., 2016). Theoretically, IR compels organisations to articulate the strategy-risk-value connection, potentially enabling SMEs to better identify risk exposures and strengthen internal controls (Beasley et al., 2005; Flower, 2015).

However, the empirical evidence on the IR-RMP relationship is complex and conflicting. While some studies show positive correlations and more strategic risk disclosures (Atkins and Maroun, 2015; Pistoni et al., 2018), others warn that adoption can be symbolic, yielding generic disclosures without substantive internal improvement (Beck et al., 2017). This ambiguity points to a crucial, unresolved question of causality and endogeneity. It is equally plausible that firms with pre-existing mature RMP are more capable of adopting sophisticated frameworks like IR, creating a potential for reverse causality that complicates straightforward causal interpretation. This study directly confronts this complexity.

1.3 Research Gap, Theoretical Framework, and Refined Scope

This synthesis reveals the primary research gap: insufficient evidence on whether IR's impact on RMP is substantive or symbolic in emerging markets and a lack of clarity on the causal mechanisms. This study addresses this gap by focusing on SMEs listed on the CSE's Empower Board. This deliberate choice must be acknowledged: these firms are not representative of the typical, unlisted Sri Lankan SME. Their listed status provides a unique setting to observe the interplay in a transitioning firm but explicitly limits the external validity of findings for the broader SME sector—a key conceptual boundary.

To navigate this relationship, the study is grounded in stakeholder theory (Freeman, 1984). Moving beyond the superficial application, we conceptualise IR as the formal channel through which a listed SME addresses stakeholder information needs and risk concerns. The critical explanatory mechanism—how stakeholder pressures (from investors, regulators, and sponsors) translate into stronger internal RMP through IR adoption—requires operationalising concepts like stakeholder salience and engagement, a gap this study aims to address.

1.4 Research Objectives and Contribution

In light of this refined problem statement, the study is guided by the following primary research question: Does Integrated Reporting (IR) adoption substantively impact the Risk Management Practices (RMP) of SMEs listed on the Colombo Stock Exchange's Empower Board?

To address this, the study pursues these objectives:

- To investigate the nature and strength of the relationship between IR alignment and RMP quality.
- To discuss the practical implications, including economic significance and specific IR elements most impactful for managers and policymakers.

The study positions its contribution on two fronts:

- Contextual-Empirical: Providing focused evidence from a unique hybrid group (CSE-listed SMEs) critical for understanding governance transitions.

- Theoretical-Mechanistic: Advancing beyond correlation by testing how IR influences RMP, addressing calls for deeper theoretical explanation.

2. LITERATURE REVIEW

This section synthesises the existing body of literature concerning Integrated Reporting (IR) and Risk Management Practices (RMP) to establish a firm theoretical and empirical foundation for the research. It begins by critically evaluating the explanatory power of stakeholder theory, moving beyond its general application to specify the causal mechanisms linking it to IR and RMP. Subsequently, the review examines the mixed empirical evidence on the topic and identifies specific gaps in the literature, thereby justifying the present study's contribution not merely as contextual but as a necessary test of the IR-RMP relationship amid confounding factors.

2.1 Theoretical Framework: A Critical Application of Stakeholder Theory

This study primarily utilises stakeholder theory as its theoretical framework (Freeman, 1984). Its core tenet is that sustainable organisational success depends on a firm's ability to manage and create value for a broad range of stakeholders, including investors, employees, customers, suppliers, and regulators. This perspective moves beyond a narrow focus on shareholder wealth to emphasise the importance of balancing diverse interests through transparent and accountable corporate behaviour.

A critique of prior research is its often-superficial application of this theory. To address this, we articulate a more precise causal mechanism. According to this framework, pressures from diverse and increasingly vigilant stakeholders create a demand for greater transparency regarding a firm's strategy, governance, and long-term value creation process. IR is posited as a direct response to this demand, providing a structured medium for communicating this holistic information (IIRC, 2013). The rigorous process of preparing an integrated report—requiring "integrated thinking"—compels management to break down internal silos and connect strategy with risk. This internal process, combined with the external pressure for comprehensive risk and opportunity disclosure, forces management to formalise, document, and ultimately improve its internal RMP to meet these heightened stakeholder expectations and maintain legitimacy. For listed SMEs on the Colombo Stock Exchange (CSE), stakeholders, such as regulators and institutional investors, exercise power through mandatory compliance and investment criteria, directly compelling firms to formalise risk governance through IR adoption.

2.2 Empirical Evidence: A Balanced Perspective

The empirical literature on the relationship between IR and RMP presents a divided view, highlighting the context-dependent nature of this dynamic and the critical challenge of reverse causality.

2.2.1 Supportive Empirical Evidence

On one hand, a significant body of evidence suggests a positive correlation. Research, especially in advanced markets

such as South Africa and Europe, indicates that the adoption of Integrated Reporting (IR) results in risk disclosures that are more strategically aligned and future-oriented (Atkins and Maroun, 2015; Pistoni et al., 2018). This suggests that IR can facilitate stronger integration between corporate strategy and risk management. In the Sri Lankan context, emerging research by Gunarathne et al. (2021) and Ranaweera & Jayawardhana (2022) similarly indicates that firms adopting IR tend to exhibit formalised risk management structures and provide more comprehensive risk disclosures, acting as a catalyst for improved governance.

2.2.2 Critical Counter-Evidence and the Reverse Causality Problem

However, other research cautions against assuming a direct, universal beneficial link. Several studies suggest IR can be adopted for symbolic rather than substantive reasons (Beck et al., 2017). In such cases of symbolic adoption or regulatory mimicry, firms produce generic, boilerplate risk disclosures that fail to reflect any substantive improvement in internal risk processes. This aspect is particularly relevant in emerging economies where resource constraints, limited technical expertise, and weaker regulatory enforcement can undermine the intended benefits of advanced reporting frameworks (Sooriyaarachchi et al., 2018).

Furthermore, the relationship between IR and RMP may not be unidirectional, presenting a key endogeneity concern. Firms with already mature risk management systems may be better positioned—in terms of institutional capacity, data quality, and strategic foresight—to adopt IR, suggesting a potential reverse causality where superior internal governance precedes and enables higher-quality reporting (Beck et al., 2017). This possibility critically complicates any straightforward causal interpretation of a positive statistical relationship.

2.3 Research Gap and Hypothesis Development

This review reveals a research gap that extends beyond a simple need for more evidence from the context of Sri Lankan SMEs. There is a deeper theoretical and methodological need to test the IR-RMP relationship while explicitly acknowledging and empirically addressing the confounding factors of symbolic adoption and potential endogeneity. The literature shows limited causal evidence on the IR→RMP link in emerging SME markets, particularly for hybrid entities like CSE-listed firms that face unique stakeholder pressures.

The mixed findings indicate that underlying firm characteristics and motivations likely influence the link, implying it is not automatic. This study aims to test this relationship within this unique institutional setting, consciously integrating these complexities into its design. Based on the refined theoretical mechanism derived from stakeholder theory, and while acknowledging the challenge of reverse causality, the following hypothesis is proposed:

H1: There is a statistically positive and significant impact of integrated reporting on risk management practices in the context of small and medium enterprises listed on the CSE.

3. MATERIALS AND METHODS

This section provides a systematic overview of the methodological choices made to ensure the reliability and validity of the findings and explicitly addresses the significant methodological and econometric challenges identified during the review process, providing a transparent account of the study's limitations.

3.1 Research Design and Paradigm

This study adopted a quantitative, longitudinal research design grounded in the positivist paradigm, and used a deductive approach to test its hypothesis. The analysis is based on a balanced panel dataset collected over a 10-year period from 2015 to 2024. This timeframe was chosen to capture a formative era in the global adoption of IR, encompassing its formalisation and subsequent development (IIRC, 2013; Dumay et al., 2016), and allows for a robust analysis of trends while controlling for firm-specific, time-invariant factors.

3.2 Sampling Strategy, Data Collection, and Acknowledged Limitations

Population and Sampling: The study's population consisted of all Small and Medium Enterprises (SMEs) listed on the Colombo Stock Exchange (CSE). A purposive sampling technique was applied to select a final sample based on stringent criteria to ensure data homogeneity and alignment with the research objective. The criteria were:

1. Continuous listing on the CSE from 2015 to 2024.
2. Availability of public annual or integrated reports for the entire ten-year period.
3. Evidence of reporting practices aligned with the International Integrated Reporting Framework (IIRF), as determined by content analysis.

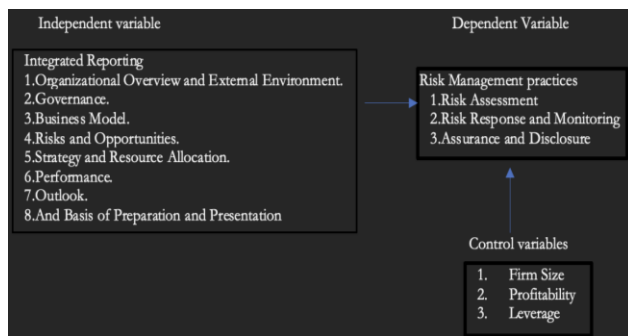


Figure 1. Conceptual Diagram

3.3 Data Collection and Variable Measurement

This process yielded a final balanced panel dataset of 40 observations, comprising 4 firms watched over the 10-year period. Data were collected exclusively from these publicly available secondary sources to ensure objectivity and avoid self-reporting bias (Gunaratne et al., 2021).

Acknowledged Sampling Limitations: The purposive sampling method introduces two significant limitations that must be acknowledged, as they directly impact the interpretation and generalisability of the findings.

Survivorship and Self-Selection Bias: By selecting only continuously listed firms with confirmed IR-aligned reporting, the sample inherently excludes firms that may have failed, been delisted, or did not adopt IR (Beck et al., 2017). This creates a sample skewed towards more successful, compliant, and potentially better-governed firms. Consequently, this bias may artificially inflate the observed positive relationship between IR and RMP, and the findings are specific to "surviving" listed SMEs, limiting their generalisability to the broader, unlisted SME sector.

Small Sample Size: With only 40 observations (4 firms over 10 years), concerns arise regarding the statistical power and robustness of the chosen fixed-effects model, which requires sufficient within-firm variation. The high adjusted R² value (0.9802) reported in the results may be an indication of **model overfitting** in such a small sample, rather than true explanatory power.

The variables were operationalised as follows:

3.4 Data Analysis

The collected panel data were analysed using EViews software (version 12). The analysis involved several statistical techniques: Descriptive statistics, Panel unit root tests, Correlation analysis and regression model. The specific regression model used in this study is:

$$RMP = \beta_0 + \beta_1 IR + \beta_2 FS + \beta_3 LEV + \beta_4 ROA + \epsilon \quad (1)$$

β_0 = Constant Value

β_1 = Coefficient of Integrated Reporting

β_2 = Coefficient of Firm Size

β_3 = Coefficient of Leverage

IR = Integrated Reporting

FS = Firm Size

LEV = Company Leverage

ROA = Return on Assets Ratio

Table 1: operationalised

Variable	Role	Measurement	Key Literature Source(s)
RMP	Dependent	Scored using three dimensions (Risk Assessment, Risk Response & Monitoring, Assurance & Disclosures) based on a 3-point disclosure scale.	Abeywardana et al. (2022); COSO (2017)
IRSCORE	Independent	An aggregate score based on the presence and quality of disclosures across the eight content elements of the IIRF.	IIRC (2013); Gunaratne et al. (2021)
FS	Control	Natural logarithm of total assets.	Dang, Li, & Yang (2018)
LEV	Control	Total debt divided by total assets.	Kasmir (2016); Gitman & Zutter (2015)
ROA	Control	Net income divided by total assets.	Gitman (2009); Brigham & Ehrhardt (2014)

4 RESULTS

The data collected for this research is presented systematically to address the objectives of the study and provide a clear understanding of the impact of IR on RMP. The dataset consists of quantitative information gathered from secondary sources, specifically the annual and integrated reports of selected SMEs listed on the CSE in Sri Lanka. These reports were analysed to assess the level and quality of IR disclosures based on the eight content elements of the IIRF. In addition, firm-specific financial data such as FS, LEV, and ROA were extracted and included as control variables in the analysis. This structured dataset allows for the use of statistical techniques to examine the relationship between IR and RMP, providing meaningful insights relevant to the Sri Lankan SMEs.

4.1. Descriptive Statistics

One of the fundamental assumptions for conducting regression analysis is that the data must follow a normal distribution. Hair et al (2010) states that normality is typically satisfied when the skewness values lie between -2 and +2, and the absolute value of kurtosis does not exceed 3. The Jarque-Bera test is commonly used to assess normality, where the null hypothesis (H_0) assumes that the data are normally distributed. If the p-value from this test is below the significance level of 0.05, the null hypothesis is rejected, indicating non-normality of the data. Additionally, the presence of a unit root signifies non-stationarity, with the null hypothesis being the presence of a unit root (non-stationarity) and the alternative hypothesis indicating stationarity (Hall, 2002).

The table 2 confirms the appropriateness of using parametric statistical techniques, such as regression analysis, in subsequent parts of the study.

4.2 Stationarity of the variables

The alternative hypothesis is the absence of a unit root, or stationarity, and the null hypothesis is the presence of a unit root, implying no stationarity (Hall, 2002).

According to Hall and Mairesse (2002), the null hypothesis in panel unit root tests assumes the presence of a unit root, indicating that the variable is non-stationary, while the alternative hypothesis implies stationarity. To ensure the reliability of the panel regression model, unit root tests were conducted using several standard methods, including Levin, Lin & Chu (LLC), Im, Pesaran and Shin (IPS), ADF-Fisher, and PP-Fisher tests.

The panel unit root test results for RMP indicate that the variable is non-stationary at level, as all four tests, Levin, Lin & Chu ($p = 0.5318$), Im, Pesaran and Shin ($p = 0.9292$), ADF-Fisher ($p = 0.9882$), and PP-Fisher ($p = 0.8112$), returned p-values well above 0.05. This suggests that the RMP series exhibits unit root behaviour, meaning its mean and variance change over time. However, after first differencing, RMP becomes stationary, with all corresponding p-values falling below the 0.05 threshold (LLC = 0.0000, IPS = 0.0347, ADF = 0.0195, PP = 0.0008). This indicates that RMP is integrated of order one [$I(1)$], which means differencing is necessary to achieve stationarity before further econometric modelling. This finding is significant for my study, as non-stationary variables can produce misleading regression results if not properly transformed.

Table 2: Descriptive Analysis

Variable	Obs	Mean	Std. Dev.	Min	Max	Jarque-Bera	Skewness	Kurtosis
RMP	40	0.678	0.249	0.300	1.000	3.713	-0.267	1.606
IRS CORE	40	61.800	0.513	47.000	72.000	3.736	-0.388	1.720
FS	40	8.241	0.210	7.775	8.810	0.735	-0.154	3.588
LEV	40	0.506	0.226	0.157	0.883	3.310	0.215	1.658
ROA	40	0.186	0.037	0.103	0.230	5.239	-0.878	2.752

(Source: Author compiled, 2025)

Table 3: Unit root output

Variables	Levin, Lin & Chu t	Im, Pesaran & Shin W-stat	ADF – Fisher Chi-Square	PP - Fisher Chi-square
RMP	0.5318	0.9292	0.9882	0.8112
1 st difference of RMP	0.0000	0.0347	0.0195	0.0008
IRSCORE	0.8404	0.7034	0.5014	0.2081
1 st difference of IRSCORE	0.5134	0.3678	0.3502	0.0066
2 nd different of IRSCORE	0.4621	0.1504	0.0996	0.0000
FS	0.1865	0.9795	0.2221	0.9872
1 st difference of FS	0.0012	0.0133	0.0032	0.0000
LEV	0.9908	0.9904	0.9814	0.8956
1 st difference of LEV	0.9710	0.5337	0.5736	0.0000
2 nd difference of LEV	0.9748	0.2282	0.1341	0.0000
ROA	0.6828	0.9376	0.9929	0.1045
1 st difference of ROA	0.0458	0.0633	0.0371	0.0000
2 nd different of ROA	0.0000	0.0047	0.0028	0.0000

(Source: Author compiled, 2025)

The IRSCORE variable, which measures the extent of IR practices, is also non-stationary at level, as evidenced by high p-values across all tests (LLC = 0.8404, IPS = 0.7034, ADF-Fisher = 0.5014, PP-Fisher = 0.2081). Even after first differencing, the stationarity is not strongly supported, with most tests still showing p-values above 0.05 (LLC = 0.5134, IPS = 0.3678, ADF = 0.3502), except for PP-Fisher, which drops to 0.0066. It is only at the second difference that the IRSCORE variable becomes consistently stationary, especially with the PP-Fisher test showing a p-value of 0.0000. Thus, IRSCORE can be considered integrated of order two [I(2)]. While it's noted that the Hadri test returns a p-value of 0.0002, it's important to remember that the Hadri test's null hypothesis assumes stationarity, so such a low p-value indicates that there is not enough evidence to reject the null hypothesis that means the IRSCORE has stationarity. The test results for FS, likely measured using the natural log of total assets, show that it is also non-stationary at level, as the p-values from LLC (0.1865), IPS (0.9795), ADF-Fisher (0.2221), and PP-Fisher (0.9872) all exceed the 0.05 threshold. However, at the first difference, FS becomes clearly stationary, with all four tests returning p-values below 0.05 (LLC = 0.0012, IPS = 0.0133, ADF = 0.0032, PP = 0.0000). This indicates that the FS variable is integrated of order one [I(1)]. This transformation is essential, as running regression models with non-stationary variables could lead to biased or inconsistent estimates. This is ensuring FS has stationery before use as a control variable helps to preserve the validity of the results when analysing its moderating effect between IR and RMP.

LEV, measured as the ratio of total debt to total assets, is non-stationary at level, with extremely high p-values across all tests (LLC = 0.9908, IPS = 0.9904, ADF = 0.9814, PP = 0.8956). The first differencing does not fully resolve the issue either, with LLC (0.9710), IPS (0.5337), and ADF (0.5736) still showing p-values above the 0.05 threshold, though PP-Fisher indicates some improvement ($p = 0.0000$). However, at the second difference, all tests support stationarity, especially the PP-Fisher ($p = 0.0000$). Thus, LEV is confirmed to be integrated of order two [I(2)]. However, the Hadri test for LEV shows the p-value of 0.0003, indicating rejection of the null hypothesis of stationarity. Thus, there is the stationarity of LEV under the Hadri test.

ROA, a profitability indicator, is non-stationary at level, with high p-values for LLC (0.6828), IPS (0.9376), ADF (0.9929), and PP-Fisher (0.1045). The first difference produces mixed results; while PP-Fisher shows strong stationarity ($p =$

0.0000), other tests still fall above the 0.05 mark. It is only at the second difference that all tests confirm strong stationarity, with LLC (0.0000), IPS (0.0047), ADF (0.0028), and PP-Fisher (0.0000) all indicating significance. This implies that ROA is also integrated of order two [I(2)]. As a control variable in my study, ROA must be handled appropriately through second differencing to avoid misinterpretation of its effect on the relationship between IR and RMP. Using it in levels would otherwise risk false correlations.

Therefore, it can be concluded that while a few variables are stationary at level, others become stationary after differencing. This confirms the suitability of the panel data for regression analysis, provided that appropriate transformations (e.g., differencing) are applied where necessary to ensure the model's assumptions of stationarity are satisfied.

4.3 Heteroscedasticity

Heteroscedasticity entails unequal variable variability across the range of values of a second variable that predicts this variable. Heteroscedasticity can be present and result in inefficient parameter estimates and incorrect standard errors.

Table 4: Heteroscedasticity Testing

Panel GroupWise Heteroscedasticity			
Model	LM Test / Wald Test	Prob.	Presence of Heteroscedasticity
Model 01	17.43616	0.0016	No

(Source: Author compiled, 2025)

The model displays heteroscedasticity, and the test results support this ($p < 0.05$). This finding indicates that the regression analysis should employ robust standard errors to correct the heteroscedastic nature of the data.

4.4 Correlation

Correlation analysis examines the strength and direction of impact of variables.

The correlation analysis reveals significant interrelationships among the study's key variables. The core finding is a strong positive correlation between RMP and IR (coefficient = 0.9078, $p = 0.000$), strongly supporting the hypothesised link between integrated disclosure quality and robust risk management systems in SMEs.

Table 1: Correlation

Correlation Prob.	RMP	IRSCORE	FS	LEV	ROA
RMP	1.0000 -----				
IRSCORE	0.907810 (0.0000)	1.0000 -----			
FS	0.556263 (0.0002)	0.4696 (0.1169)	1.0000 -----		
LEV	-0.9987084 (0.0000)	-0.895894 (0.0000)	-0.577595 (0.0001)	1.0000 -----	
ROA	0.954071 (0.0000)	0.809224 (0.0000)	0.671078 (0.0000)	-0.9498 (0.0000)	1.0000 -----

(Source: Author compiled, 2025)

Financial control variables also show meaningful patterns:

- RMP has a moderate positive correlation with FS **and** a forceful positive correlation with ROA, but a forceful negative correlation with LEV.
- IR demonstrates a significant positive correlation with ROA and a strong negative correlation with LEV, while its relationship with FS is positive but not statistically significant.

These results suggest that firms with stronger risk management and reporting practices tend to be more profitable and less leveraged. The inverse relationship between leverage and both RMP and IR indicates that high debt may constrain risk governance and transparency. The strong association between IR, RMP, and profitability reinforces the theoretical premise that integrated thinking supports both risk oversight and financial performance. The analysis provides a robust preliminary foundation for subsequent multivariate regression to isolate the specific impact of IR on RMP while controlling for these interrelated financial factors.

4.5. Regression

There are several types of panel analytic models. There are constant coefficient models (independently pooled OLS regression models), fixed-effects models, and random-effects models.

"The Hausman specification test is the classical test of whether the fixed-effect or random-effects model should be used".

"Start with the Hausman test; if it is not significant, the random-effects model is appropriate. Otherwise, test the Wald test. The Wald test is not significant; the fixed-effect model is appropriate; otherwise, select the panel regression model" (Pillai 2017).

The Hausman test was conducted to determine the appropriate model specification for the panel data analysis. The results are presented in the following table.

Table 2: Hausman Test Statistics

Model	Chi Sq. Statistic	Probability	Fixed / Random Effects
Model 02	6.032426	0.0140	Fixed

(Source: Author compiled,2025)

Hausman test hypothesis is;

H1: Random-effects model is not appropriate (fixed-effects model is appropriate)

The Hausman test yielded a chi-square statistic of 6.032426 with a probability value of 0.0140. Since the p-value is below 0.05, there is enough evidence to rejected the null hypothesis, and there is no any enough evidence to reject the alternative hypothesis. Therefore, the fixed-effects model is deemed

suitable. Therefore, the fixed effects model was selected for the panel data analysis.

4.6. Panel data analysis and discussion

The results of the fixed effects panel regression model are presented in the following table,

Table 3: Panel Data Analysis

RMP	Coefficient	Std. Error	t-statistics	Prob.
IRSCORE	0.005198	0.0002178	2.386993	0.0225
FS	0.007993	0.052170	0.153205	0.8791
LEV	-0.660139	0.118791	-5.557171	0.0000
ROA	1.591304	0.554214	2.871282	0.0069
Cons	0.328660	0.547174	0.600650	0.5519
R ²	0.982314			
Adj. R ²	0.980293			
Prob(F-statistic)	0.0000			
Prob. > Chi Sq.	0.0000			
Observations	40			

Notes: Significant level at 5%, Dependent Variable – RMP
(Source: Author compiled,2025)

The regression analysis confirms that IR has a significant positive impact on RMP for CSE-listed SMEs. The coefficient for IRSCORE is 0.0052 (p=0.0225), indicating that enhanced integrated disclosure quality is associated with stronger risk management systems.

Control variables reveal critical financial dynamics:

- **LEV** exhibits a strong negative effect on RMP (coefficient = -0.6601, p = 0.0000), suggesting high debt constrains investment in formal risk governance.
- **ROA** shows a significant positive relationship (coefficient = 1.5913, p = 0.0069), implying profitability enables more advanced risk practices.
- **FS** is statistically insignificant (p=0.8791), indicating that firm size does not determine RMP robustness in this context—a finding consistent with literature emphasising leadership and strategic focus over scale (Ranaweera & Jayawardhana, 2022; Sooriyaarachchi et al., 2018; Stubbs & Higgins, 2014).

The results align with the theoretical proposition that IR, as per the IIRF, fosters integrated thinking, linking risk, strategy, and performance to support value creation (IIRC, 2013). They empirically validate that IR functions as a management framework that enhances internal risk controls, particularly when supported by financial health (profitability) and not hindered by high leverage. The strong negative correlation between LEV and RMP ($r = -0.9987$, $p = 0.000$) further reinforces this constraint. The study concludes by promoting the wider adoption of IR among SMEs as a strategic instrument to enhance governance and risk resilience, indicating potential ramifications for policymakers and regulators in Sri Lanka.

Model Testing

The regression model developed for this study examines the impact of IR and firm-specific financial characteristics on RMP, as measured by 3 dimensions of RMP. The estimated model is as follows:

$$\text{RMP} = C + \beta_1 \cdot \text{IRSCORE} + \beta_2 \cdot \text{FS} + \beta_3 \cdot \text{LEV} + \beta_4 \cdot \text{ROA} + \epsilon \quad (2)$$

Substituting the coefficients from the regression output, the model becomes:

$$\text{RMP} = 0.328660 + 0.005198\text{IRSCORE} + 0.007993\text{FS} - 0.660139\text{LEV} + 1.591304\text{ROA} + \epsilon \quad (3)$$

Where:

RMP represents the Risk management practices (dependent variable)

IRSCORE is the Integrated Reporting Score

FS is Firm Size

LEV is Leverage

ROA is Return on Assets (Profitability)

C is the constant term

ϵ is the error term

This model tests the hypothesis that IR has a significant influence on RMP while also controlling for important financial variables. The positive and statistically significant coefficient of IRSCORE ($\beta = 0.005198$, $p = 0.0225$) suggests that higher levels of IR disclosure are associated with higher RMP. In addition, FS and ROA also show significant positive effects, whereas LEV has a significant negative relationship. Overall, the model confirms that IR quality, along with profitability, plays a critical role in determining how the RMP exist in SMEs in Sri Lanka.

Hypothesis Testing

Table 8: Hypothesis Testing

Hypotheses	Slope (Coefficient value)	P value (Sig value)	Decision
H1: There is statistically positive and significant impact on the IR on RMP in the context of Small and Medium Enterprises listed on the CSE.	0.005198	0.0225	Supported

(Source: Author compiled, 2025)

H1: IR has a significant positive impact on RMP in the context of small and medium enterprises listed on the CSE. The coefficient for IRSCORE is 0.005198 with a p-value of 0.0225. The null hypothesis is rejected because the p-value is less than 0.05. The positive and statistically significant coefficient confirms that IR positively influences RMP. Therefore, H1 is supported.

5 DISCUSSION OF FINDINGS

The empirical evidence strongly supports the central premise that the adoption of Integrated Reporting enhances Risk Management Practices in Sri Lankan SMEs. This finding aligns with **Stakeholder Theory**, which suggests that transparent communication about value creation and risk mitigation strengthens relationships with stakeholders and fosters better governance. The results are also consistent with prior research (e.g., Gunarathne et al., 2021) that found IR improves risk-related disclosures and oversight.

The significant negative influence of leverage and the positive influence of profitability offer critical practical insights. High leverage appears to impose financial discipline constraints that divert resources away from non-essential functions like comprehensive risk management. Conversely, higher profitability provides the financial slack necessary to invest in sophisticated risk assessment tools, dedicated personnel, and robust internal controls. The non-significant role of firm size suggests that, for SMEs, a strategic commitment to transparency and governance may be more critical for developing strong RMP than organizational scale alone.

6 CONCLUSIONS

This study set out to investigate the relationship between Integrated Reporting (IR) and Risk Management Practices (RMP) for Small and Medium Enterprises (SMEs) listed on the Colombo Stock Exchange. Based on quantitative analysis of panel data from 2015 to 2024, the study finds a positive statistical association between IR adoption and the measured effectiveness of RMP in this specific context.

Key findings include:

Association Between IR and RMP: Higher-quality IR disclosure corresponds with stronger RMP, suggesting that IR may function not merely as a reporting exercise but as a governance tool that encourages more structured risk oversight.

Profitability as an Enabler: Financially healthy and profitable SMEs are better positioned to develop and sustain robust RMP, indicating that sound financial performance supports governance investments.

Leverage as a Constraint: SMEs with high debt levels exhibit weaker RMP, reflecting the resource trade-offs that financially constrained firms face.

The study's conclusions are bounded by significant limitations. First, the findings possess limited external validity, as they are derived exclusively from a unique subset of SMEs listed on the Colombo Stock Exchange (CSE), which are subject to formal governance and disclosure standards not applicable to the broader, unlisted SME sector. Second, persistent endogeneity challenges causal interpretation; the strong possibility of reverse causality means we cannot definitively conclude that Integrated Reporting (IR) causes improved risk management, as superior pre-existing risk management may itself enable IR adoption.

Third, the methodology is constrained by sampling bias (survivorship and self-selection bias from analysing only successful, IR-adopting firms) and unaddressed econometric issues, including potential spurious regression from non-stationary data and distorted estimates from multicollinearity. Given these qualifications, implications for practice should be measured:

For SME managers, IR may offer a framework for enhancing risk governance, but attention must be paid to the costs of adoption and ensuring substantive—not just symbolic—implementation.

For regulators such as the CSE, initiatives to promote IR should carefully consider the resource constraints of SMEs and avoid creating undue compliance burdens that could undermine the intended benefits.

For investors, while IR quality may signal stronger risk governance, it should be considered alongside other indicators of firm health and managerial commitment.

Future research should seek to address the limitations of this study by employing methods that better account for endogeneity (such as instrumental variables or natural experiments), expanding samples to include non-adopting and unlisted firms, and incorporating qualitative approaches to distinguish between symbolic adoption and substantive improvements in risk management practices.

Credit Authors Statement

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