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**FIRM-SPECIFIC DETERMINANTS OF INTEGRATED
REPORTING QUALITY: EVIDENCE FROM LISTED COMPANIES
IN SRI LANKA**

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FIRM-SPECIFIC DETERMINANTS OF INTEGRATED
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Abstract

Purpose: This paper examines the firm-specific determinants of Integrated Reporting (IR) quality (IRQ) using listed companies in Sri Lanka.

Design: This study analyses 282 integrated reports from listed Sri Lankan companies over a six-year period. Multiple regression analysis is used to investigate how firm-specific factors influence IRQ, which is measured using a combination of the IR scoreboard and a coding framework. Hypotheses are based on three complementary theories, namely, agency, signalling, and legitimacy theories.

Findings: The results indicate that risk management intensity and firm size have a significant positive impact on IRQ. Furthermore, ownership concentration has a delayed effect on IRQ. Profitability, leverage, size and independence of the board and audit committee, CEO duality, board gender diversity, institutional ownership, and foreign ownership do not show a significant impact.

Originality: Beyond traditional corporate governance mechanisms, risk management intensity, ownership concentration, institutional ownership, and foreign ownership are novel factors that have received less attention as possible determinants of IRQ. The combined IR scoreboard and coding framework employed offers a novel and robust approach to assessing IRQ.

Practical implications: The findings suggest that firms to improve internal risk management systems while providing high-quality integrated reports for investors and lenders to make more informed decisions. Standard-setters and regulators can also benefit by recognising what potential regulatory changes could improve IRQ across firms of various sizes, risk levels and ownership structures.

Keywords: Integrated Reporting, Integrated Reporting Quality, Firm-Specific Determinants, Listed Companies, Sri Lanka

1. Introduction

The concept, IR, is defined as “a process founded on integrated thinking that results in a periodic integrated report by an organisation about value creation, preservation or erosion over time and related communications regarding aspects of

value creation, preservation or erosion” (International Integrated Reporting Council [IIRC], 2021, p. 53). IR has been introduced as an effective reporting mechanism that promotes integrated thinking within internal processes and enhances the quality of information available to capital providers for improved decision-making (Cooray *et al.*, 2020). IRQ is a new notion that emerged recently, and its definition is yet to emerge. Pistoni *et al.* (2018) identify IRQ as, to an extent, integrated reports describing the strategic elements that drive entity performance and value creation. High-quality integrated reports provide complete, accurate, and comprehensive information, helping to reduce agency problems by aligning the interests of shareholders and managers (Chouaibi *et al.*, 2022).

Critical issues in the implementation of IR, such as difficulties in fully adopting the framework, have limited its diffusion (Songini *et al.*, 2020). As Pistoni *et al.* (2018) highlight, companies often prioritise the form over the content of integrated reports. The voluntary nature of IR in many countries leads to symbolic adoption (Cooray *et al.*, 2020), and firms may see IR as risking disclosure redundancy, which could harm their competitive edge (Graham *et al.*, 2005). Additionally, the principle-based nature of IR allows companies significant discretion in shaping value-creation narratives (Cooray *et al.*, 2022). As a result, the focus has shifted from the quantity of IR to the quality and its determinants, necessitating further empirical research (Songini *et al.*, 2020; Vitolla *et al.*, 2020b). As Permatasari and Tjahjadi (2024) indicate, still no consensus on the IRQ, and therefore, its scope is evolving.

Compared to financial, corporate social, and sustainability reporting, IR is distinct in its principles-based design, integration of financial and non-financial information, and emphasis on long-term value creation (IIRC, 2013; IIRC, 2021). Given ongoing concerns about IRQ and its continuing evolution, examining the determinants of IRQ is crucial compared to other forms of reporting because IR is more value relevant for stakeholders such as, investors (Panfilo *et al.*, 2022; Radwan and Xiongyuan, 2024). Accordingly, prior studies have approached the determinants of IRQ in several ways.

Studies focusing on corporate governance attributes on IRQ are comparatively more prevalent (see Cooray *et al.*, 2020; Dragomir and Dumitru, 2023; Erin and Adegboye, 2022). Other research has examined a mix of internal and external factors such as corporate attributes, national culture, and the mandatory nature of IR (see Buitendag *et al.*, 2017; Vitolla *et al.*, 2020b). Many studies have concentrated on

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mandatory IR contexts, particularly in South Africa (Buitendag *et al.*, 2017; Erin and Adegboye, 2022; Iredele, 2019), and some have explored IRQ determinants in cross-country settings (Dilling and Caykoylu, 2019; Raimo *et al.*, 2021; Songini *et al.*, 2020; Vitolla *et al.*, 2020b). However, these studies present mixed results, with certain factors significantly affecting IRQ while others do not, leaving no consensus on what definitively determines IRQ. Moreover, other factors, such as risk management, ownership concentration, institutional ownership, and foreign shareholder ownership of firms, remain underexplored and may also influence IRQ, with outcomes potentially varying across contexts, such as emerging contexts. Further, a lack of a comprehensive framework for measuring IRQ could account for the inconsistent findings in prior studies.

Permatasari and Tjahjadi (2024) highlight in their systematic review that, despite the growing voluntary adoption of IR in emerging economies, especially in Asia, only a few studies have investigated the determinants of IRQ in these contexts. Although Songini *et al.* (2020) have examined IRQ determinants across countries with voluntary IR, their focus was mainly on external factors. The only notable exception is Cooray *et al.* (2020) in Sri Lanka, which has examined the impact of corporate governance attributes on IRQ. Beyond traditional governance mechanisms, there are likely various firm-specific determinants of IRQ that have yet to be explored in Sri Lanka and other contexts. While these studies highlight the importance of various internal drivers, they also underscore the need to examine the influence of firm-specific factors on IRQ across contexts (Cooray *et al.*, 2020; Pistoni *et al.*, 2018).

Therefore, by employing three complementary theoretical lenses, namely, agency, signalling, and legitimacy theories, this study investigates a set of firm-specific factors that influence IRQ. Accordingly, we examine 13 firm-specific factors: profitability, firm size, financial leverage, audit committee size, audit committee independence, board size, board independence, CEO duality, board gender diversity, ownership concentration, institutional ownership, foreign ownership, and risk management intensity.

This study selects Sri Lanka as its research context for several reasons. First, IR adoption in Sri Lanka is growing and positively influenced by the accounting profession and cultural factors (Cooray *et al.*, 2022; Rajapaksha and Kehelwatenna, 2022). Secondly, Sri Lanka has witnessed several corporate failures in recent decades, creating information asymmetry issues for stakeholders (Senaratne and Gunaratne, 2008;

Wijekoon and Azeez, 2015). Furthermore, while IR is voluntary and lacks assurance on non-financial disclosures, concerns about the quality of integrated reports persist in Sri Lanka. Furthermore, Cooray *et al.* (2020) state that Sri Lanka's corporate governance system provides limited support for the provision of high-quality information to stakeholders on the value-creation process through IR. Therefore, it is vital to examine the diverse factors that influence IRQ beyond traditional corporate governance mechanisms.

Our study's contribution is threefold. First, based on three complementary theories, it examines the firm-specific determinants of IRQ using a wide, inclusive approach. In line with the classification of Permatasari and Tjahjadi's (2024), these factors collectively capture a comprehensive range of relevant dimensions; corporate attributes, corporate performance attributes, and corporate governance attributes. Second, to represent IRQ, this study has developed a comprehensive framework, combining the IR scoreboard developed by Pistoni *et al.* (2018) and the coding framework developed by Zhou *et al.* (2017), which offers a novel approach to assessing IRQ. As Permatasari and Tjahjadi (2024) indicate, since the literature on IRQ is limited and evolving, the development of IRQ measurements combining more IR dimensions offers ample opportunity for better results. Third, our study empirically examines firm-specific determinants of IRQ in Sri Lanka, given the country's recent corporate failures and weaknesses in corporate governance mechanisms.

As practical implications, this study helps companies, investors, standard-setters, and regulators to identify firm-specific determinants that promote high-quality integrated reports, as well as a novel and comprehensive framework for assessing the quality of integrated reports. These implications are important for investors to make more informed decisions and encourage firms to enhance reporting quality. Standard-setters and regulators can develop policies to strengthen reporting quality and prevent corporate failures. The remainder of the paper is structured as follows: Section two reviews the existing literature on the determinants of IRQ, emphasises theoretical arguments, and develops hypotheses. Section three outlines the research methodology, including the data sample and operationalisation of variables. Section four presents the statistical results and discussions, and Sections five and six conclude the study with implications, limitations, and suggestions for future research.

2. Review of Literature, Theories, and Hypotheses Development

This section reviews the existing literature in terms of determinants of IRQ with the theoretical composition and hypotheses development.

2.1 IRQ

Since ‘reporting quality’ is a broad and subjective concept (Cooray *et al.*, 2020), multiple dimensions must be considered to fully understand corporate reporting quality (Helfaya and Whittington, 2019). IRQ, as a newer concept, lacks a standardised definition, leading to varied interpretations in past research. Pistoni *et al.* (2018) describe IRQ as the extent to which integrated reports capture strategic elements driving performance and value creation, while Zhou *et al.* (2017) define it by the report's alignment with the International Integrated Reporting Framework (IIRF).

Permatasari and Tjahjadi (2024) find that so far, most studies define IRQ based on its alignment with the IIRF's eight content elements by employing quantitative methods. As IRQ is still evolving, many companies are in the early stages of adoption, necessitating time to improve reporting quality. In response, our study presents a comprehensive framework that combines the IR scoreboard by Pistoni *et al.* (2018) and the coding framework by Zhou *et al.* (2017), offering a novel approach to assessing IRQ.

2.2 Determinants of IRQ

A significant number of studies have explored how corporate governance attributes influence IRQ. Several researchers (Chouaibi *et al.*, 2022; Cooray *et al.*, 2020; Erin and Adegboye, 2022; Iredele, 2019; Vitolla *et al.*, 2020a) have found that a larger board size positively impacts IRQ. Additionally, board independence has been shown to positively affect IRQ (Chouaibi *et al.*, 2022; Dragomir and Dumitru, 2023; Erin and Adegboye, 2022; Vitolla *et al.*, 2020a). However, Cooray *et al.* (2020) reveal that board independence does not significantly affect IRQ in the Sri Lankan context. Furthermore, several past studies (Buitendag *et al.*, 2017; Erin and Adegboye, 2022; Songini *et al.*, 2021) indicate that directors’ financial knowledge has a positive effect on IRQ. The impact of board gender diversity, however, shows mixed results. While gender diversity positively affects IRQ in some contexts (see Buitendag *et al.*, 2017; Dilling and Caykoylu, 2019; Iredele, 2019; Vitolla *et al.*, 2020a), it does not significantly affect IRQ in other contexts (see Dragomir and Dumitru, 2023; Songini *et al.*, 2020). The audit committee size is also reported to positively influence IRQ (Erin and Adegboye, 2022; Raimo *et al.*, 2021). However, studies regarding audit committee

independence present conflicting findings; while Raimo *et al.* (2021) report a positive impact, others (Cooray *et al.*, 2020; Dragomir and Dumitru, 2023) reveal no significant effect on IRQ.

As a corporate attribute, several studies have found that firm size has a positive impact on IRQ (Buitendag *et al.*, 2017; Dilling and Caykoylu, 2019; Erin and Adegboye, 2022; Iredele, 2019; Vitolla *et al.*, 2020b) except Songini *et al.* (2020) which indicate no significant impact. Although limited, several studies have examined the impact of ownership structure on IRQ. As Raimo *et al.* (2020) find, institutional ownership positively affects IRQ, whereas ownership concentration, managerial ownership, and state ownership negatively affect IRQ (Raimo *et al.*, 2020). As corporate performance attributes, past studies have investigated the impact of profitability and leverage on IRQ. Buitendag *et al.* (2017) and Vitolla *et al.* (2020b) have revealed that the profitability of firms positively impacts IRQ. However, Dilling and Caykoylu (2019) indicate that firm profitability has no significant impact on IRQ. Further, Vitolla *et al.* (2020b) indicate a positive impact of leverage on IRQ whereas Dilling and Caykoylu (2019) and Iredele (2019) do not indicate significant results.

In terms of external and country-level factors' influence on IRQ, Songini *et al.* (2020) and Vitolla *et al.* (2020b) have found that civil law countries produce higher-quality reports compared to common law countries. From cultural dimensions perspective, Vitolla *et al.* (2019) reveal that IRQ improves with higher uncertainty avoidance and collectivism, while individualism, masculinity, and power distance negatively affect IRQ. Mandatory IR requirements enhance report quality (Pistoni *et al.*, 2018; Songini *et al.*, 2020), and environmentally sensitive industries encourage report quality (Buitendag *et al.*, 2017). As Songini *et al.* (2020) and Wong *et al.* (2023) find, the industry's impact is insignificant on IRQ. Additionally, European countries generally produce better quality integrated reports (Songini *et al.*, 2020), although, in some studies (Dilling and Caykoylu, 2019), have revealed the company's location is insignificant. Despite extensive research on factors affecting IRQ, findings remain mixed and inconclusive (Hossain *et al.*, 2023). Since IRQ tends to improve over time in many contexts (Permatasari and Tjahjadi, 2024), this study focuses on a broader set of factors influencing IRQ in the Sri Lankan context. We develop thirteen hypotheses based on theoretical and empirical findings from the relevant literature.

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2.3 Theoretical composition

This study utilises a multi-theoretical framework, integrating legitimacy, agency, and signalling theories to analyse firm-specific factors influencing IRQ. As noted by Songini *et al.* (2021), the use of multiple theories helps explore complex relationships. Previous studies (Chouaibi *et al.*, 2022; Dilling and Caykoylu, 2019; Dragomir and Dumitru, 2023) support the effectiveness of combining these theories to examine the impact of corporate characteristics on IRQ. Since these theories are interrelated and complementary, their integration provides deeper insights (Morris, 1987) and forms a basis for developing hypotheses on voluntary practices (An *et al.*, 2011). Hence, we apply this approach to IR as a new voluntary reporting practice in many contexts.

Legitimacy theory suggests that organisations operate within a social framework, fulfilling socially valued tasks to ensure long-term sustainability (Chouaibi *et al.*, 2022). Legitimacy stems from a "social contract," where an organisation's actions are aligned with societal values, norms, and beliefs based on perceptions and assumptions (Deegan, 2002). Normative pressures on corporate reporting have improved IR, which helps manage external pressures, reduce stakeholder conflicts, enhance user confidence, and strengthen a company's social legitimacy (Chouaibi *et al.*, 2022; Gunarathne and Senaratne, 2017). Thus, IRQ serves to demonstrate and uphold a company's legitimacy.

Agency theory highlights that the separation of ownership and control in businesses leads to information asymmetry between managers and investors, causing conflicts and incurring agency costs (Jensen and Meckling, 1976). To reduce these costs, companies provide voluntary information to bridge the information gap (An *et al.*, 2011). Widespread ownership in public listed companies increases the need for reliable information (Zhang and Zhang, 2014). Quality of voluntary disclosures, such as IRQ, minimises information asymmetry and agency costs, fostering transparency and trust between managers and investors (Chouaibi *et al.*, 2022).

Signalling theory addresses information asymmetry in markets by explaining how the informed party can reduce uncertainty by signalling relevant information to others (Morris, 1987). Low-quality information can lead to market failure (Akerlof, 1970). Therefore, organisations signal key information to stakeholders highlighting their superiority and attract investments (Verrecchia, 1983) such as publishing quality

integrated reports to attract financing (Melloni *et al.*, 2017; Mmako and Jansen Van Rensburg, 2017).

2.4 Hypotheses development

Profitability and IRQ

Highly profitable companies tend to disclose more information to demonstrate management abilities and to gain investor confidence (Khlif and Souissi, 2010; Sharif and Rashid, 2014), supported by signalling theory (Qu *et al.*, 2015). More profitable businesses invest resources in IR and prepare quality integrated reports to showcase their achievements and distinguish themselves from lower-performing companies (Frías-Aceituno *et al.*, 2014; Vitolla *et al.* (2020b). Thus, in line with signalling theory, high-performing companies signal their success to attract further investment and enhance their reputation. Accordingly, we build hypothesis one as follows.

H1. IRQ is positively affected by the profitability of listed companies in Sri Lanka.

Organisational size and IRQ

Large firms face greater attention and pressure from stakeholders due to their significant societal impact (Kansal *et al.*, 2014; Sharif and Rashid, 2014). These companies, which engage more with capital markets, prioritise IR to interact with stakeholders and meet societal expectations (Frías-Aceituno *et al.*, 2013). According to legitimacy theory, large firms provide voluntary disclosures to maintain social legitimacy and have the financial capacity to meet IR requirements (Erin and Adegboye, 2022; Vitolla *et al.*, 2020b). From the agency theory perspective, large firms have higher information asymmetry and agency costs, leading them to disclose more information to reduce these issues (Kılıç and Kuzey, 2018). Thus, large companies probably select IR as a reporting strategy (Frías-Aceituno *et al.*, 2014). In contrast, small firms with fewer stakeholders have lower agency problems and are less concerned with IRQ (Iredele, 2019). These factors support the formulation of our second hypothesis as follows.

H2: IRQ is positively affected by the size of listed companies in Sri Lanka.

Financial leverage and IRQ

High leverage increases agency costs, encouraging more disclosures to reduce information asymmetry and maintain creditors' trust following the agency theory (Ortas *et al.*, 2014). Financial institutions with high leverage produce higher-quality integrated

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reports due to increased stakeholder demand for transparency amid financial risk (Vitolla *et al.*, 2020b). Furthermore, companies with high leverage are pressured by lenders to enhance disclosures, aligning with legitimacy theory, which suggests they use disclosures to demonstrate legitimacy to stakeholders (Mans-Kemp and Van der Lugt, 2020). Thus, financial leverage positively influences IRQ, and we build our third hypothesis as follows.

H3: IRQ is positively affected by the financial leverage of listed companies in Sri Lanka.

Audit committee size and IRQ

Be'Dard *et al.* (2004) and Raimo *et al.* (2021) reveal that a larger audit committee comprises a greater diversity of skills and perspectives, which enhances the quality of the monitoring and reporting process. Erin and Adegboye (2022) emphasise that a strong audit committee ensures management complies with statutory IR requirements, highlighting the positive influence on IRQ. Thus, from an agency theory perspective, a large audit committee reduces agency costs by enhancing the monitoring and reporting process, ultimately improving the quality of integrated reports. Accordingly, we formulate our fourth hypothesis as follows.

H4: IRQ is positively affected by the size of the audit committee of listed companies in Sri Lanka.

Audit committee independence and IRQ

According to agency theory, an independent audit committee can identify and eliminate fraudulent activities to reduce agency costs (Be'Dard *et al.*, 2004). Independence also promotes forward-looking disclosures (Al-Najjar and Abed, 2014) and sustainability reporting (Injeni *et al.*, 2022) by enabling objective monitoring of management. Similarly, Raimo *et al.* (2021) argue that independent audit committees improve IRQ by impartially identifying unethical behaviors and overseeing the reporting process. Accordingly, we build our fifth hypothesis as follows.

H5: IRQ is positively affected by the audit committee independence of listed companies in Sri Lanka.

BOD size and IRQ

From an agency theory perspective, board size serves as an important governance mechanism that enhances managerial monitoring and reduces information asymmetry between managers and shareholders (Devarapalli and Mohapatra, 2024). Larger boards bring a wider range of expertise, skills, and experience, thereby

strengthening oversight and improving the board's ability to scrutinise managerial actions (Busco *et al.*, 2019; Cooray *et al.*, 2020). Enhanced monitoring can facilitate integrated thinking by improving coordination across financial and non-financial domains, which is critical for effective IR (Busco *et al.*, 2019; Dragomir and Dumitru, 2023; Erin and Adegboye, 2022). Empirical evidence further suggests that larger boards are better equipped to oversee complex disclosure processes and promote transparency and accountability, leading to higher IRQ (Cooray *et al.*, 2020; Chouaibi *et al.*, 2022; Iredele, 2019; Vitolla *et al.*, 2020a). Accordingly, we build our sixth hypothesis as follows.

H6: IRQ is positively affected by the board size of listed companies in Sri Lanka.

BOD independence and IRQ

A higher level of board independence improves reporting quality, as independent directors oversee managerial actions that align with organisational objectives and stakeholders' interests (Erin and Adegboye, 2022; Vitolla *et al.*, 2020a). A higher proportion of independent directors further reduces managers' opportunistic behaviour and strengthens monitoring mechanisms that lead to a transparent IR process (Vitolla *et al.*, 2020a). From an agency theory perspective, independent boards are better positioned to oversee the preparation of high-quality integrated reports and to promote integrated thinking within organisations (Dragomir and Dumitru, 2023). Empirical evidence supports a positive association between board independence and IRQ (Chouaibi *et al.*, 2022; Vitolla *et al.*, 2020a). Thus, we formulate our seventh hypothesis as follows.

H7: IRQ is positively affected by the board independence of listed companies in Sri Lanka.

CEO duality and IRQ

CEO duality occurs when the same individual serves as both chief executive officer and board chairperson (Dragomir and Dumitru, 2023). Empirical evidence generally associates CEO duality with weaker corporate governance quality (Cooray *et al.*, 2020; Dragomir and Dumitru, 2023). Based on agency theory, separation of the CEO and chair roles enhances governance effectiveness, as duality concentrates power and weakens the board's monitoring function (Dragomir and Dumitru, 2023; Zouari and Dhifi, 2021). Legitimacy theory further suggests that role separation showcases stronger governance and accountability to external stakeholders (Zouari and Dhifi,

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2021). Such separation strengthens oversight and promotes more transparent and credible disclosures, thereby improving IRQ (Chouaibi *et al.*, 2022). Accordingly, we build our eighth hypothesis as follows.

H8: IRQ is negatively affected by CEO duality in listed companies in Sri Lanka.

BOD gender diversity and IRQ

From an agency theory perspective, gender-diverse boards strengthen oversight and limit opportunistic managerial behaviour, as female directors are often associated with higher monitoring intensity and board engagement (Adams and Ferreira, 2009). Legitimacy and signalling theories further suggest that the presence of women directors enhances perceptions of governance quality and ethical orientation, thereby encouraging more transparent and balanced financial and non-financial disclosures (Bear *et al.*, 2010). Empirical evidence supports a positive association between board gender diversity and the quality of ESG disclosures (Al-Shaer and Zaman, 2016; Katmon *et al.*, 2019; Wasiuzzaman and Wan Mohammad, 2020). In the IR context, female board participation has been shown to enhance report quality by strengthening monitoring and reducing agency costs (Chouaibi *et al.*, 2022; Dilling and Caykoylu, 2019; Iredele, 2019; Vitolla *et al.*, 2020a). Accordingly, we formulate our ninth hypothesis as follows.

H9: IRQ is positively affected by the board gender diversity of listed companies in Sri Lanka.

Ownership concentration and IRQ

Firms with dispersed ownership structures tend to experience more agency conflicts due to the separation of ownership and control (Raimo *et al.*, 2020). To reduce information asymmetry and agency costs, such firms may adopt IR as a governance mechanism by providing a comprehensive mechanism of value creation over the short, medium, and long term (Raimo *et al.*, 2020). Empirical evidence from Asian and European settings shows that companies with more dispersed ownership demonstrate higher IRQ, showing stronger monitoring pressure from diverse shareholders (Agustia *et al.*, 2023). Accordingly, ownership concentration is expected to be negatively associated with IRQ, and we build our tenth hypothesis as follows.

H10: IRQ is negatively affected by ownership concentration among listed companies in Sri Lanka.

Institutional ownership and IRQ

Institutional ownership enhances shareholder monitoring and reduces information asymmetry by exerting greater pressure on management to improve disclosure practices. Several studies indicate that institutional ownership is positively associated with IRQ, reflecting institutional investors' demand for greater transparency and comprehensive disclosure (Raimo *et al.*, 2020). It is also linked to higher levels of voluntary disclosure more broadly (Barako *et al.*, 2006; Rouf and Harun, 2011). Accordingly, institutional ownership is expected to be positively associated with IRQ, and we build our eleventh hypothesis as follows.

H11: IRQ is positively affected by institutional ownership among listed companies in Sri Lanka.

Foreign ownership and IRQ

Foreign shareholders often demand higher levels of transparency, accountability, and performance monitoring to reduce information asymmetry (Kim *et al.*, 2012). Past evidence shows that firms with greater foreign ownership demonstrate advanced disclosure practices, including higher voluntary disclosure, due to governance pressure (Barako *et al.*, 2006; Xu *et al.*, 2022). Drawing on agency theory, the presence of foreign institutional investors strengthens monitoring mechanisms and sustainability reporting quality (Maharani and Tjahjadi, 2026) and IRQ (Fayad *et al.*, 2024). Accordingly, foreign ownership is expected to be positively associated with IRQ, and we formulate our twelfth hypothesis as follows.

H12: IRQ is positively affected by foreign ownership among listed companies in Sri Lanka.

Risk management intensity and IRQ

IR and risk management are conceptually connected through integrated thinking, which emphasises value creation and value protection over time. From an agency theory perspective, risk management acts as an internal governance mechanism that reduces information asymmetry by strengthening risk oversight and managerial accountability, while IR enhances transparency by explaining how risks and opportunities are managed within the value-creation process (Bertinetti and Gardenal, 2016). Emerging evidence suggests that firms combining IR with effective risk governance structures demonstrate higher reporting quality (Cooray *et al.*, 2020; Perera *et al.*, 2024). However, direct empirical evidence linking risk management intensity to

IRQ remains limited. Thus, by arguing that stronger risk management practices are expected to enhance IRQ, we formulate our thirteenth hypothesis below.

H13: IRQ is positively affected by risk management intensity among listed companies in Sri Lanka

3. Methodology

3.1 Data set and sample selection

Our study's population comprises all listed companies in Sri Lanka that have registered on the Colombo Stock Exchange (CSE) and prepare integrated reports. To ensure consistency and comparability, only companies that consistently adhered to the IR framework introduced by the International Integrated Reporting Council (IIRC) in 2013 over all six financial years (from 2018/2019 to 2023/2024) were included in our sample. Companies that did not consistently follow the IIRC framework over the specified period were excluded, resulting in 47 companies across 6 years (282 integrated reports) being selected for the final analysis. Table I presents the entities selected for the analysis according to the GICS classification.

Table I

3.2 Dependent, independent, and control variables

3.2.1 Dependent variable: IRQ

The dependent variable, IRQ, is measured through a combination of the “scoreboard” developed by Pistoni *et al.* (2018) and the “coding framework” designed by Zhou *et al.* (2017). Accordingly, Pistoni *et al.* (2018) have developed a scoreboard (Table II) based on “elements of the quality of CSR disclosure” initially suggested by Hammond and Miles (2004) to assess the quality of integrated reports, which comprises four elements, namely, background, assurance and reliability, content and form.

To eliminate the several limitations associated with the content elements (such as the subjective nature) of the above scoreboard by Pistoni *et al.* (2018), only the content elements have been measured by applying the coding framework designed by Zhou *et al.* (2017). The Zhou *et al.* framework includes 31 components that provide a more comprehensive coverage of the content elements in integrated reports (see Table III). Each integrated report from the sampled companies was evaluated on a scale of zero to one for each of the 31 components, across eight dimensions, resulting in a maximum possible score of 31. Ultimately, the IRQ was assessed by integrating the approaches of both Pistoni *et al.* (2018) and Zhou *et al.* (2017).

Table II

According to Table III, the background element is measured through the sub-elements of (1) motivations underlying the choice of adopting IR; (2) objectives pursued by IR; (3) beneficiaries of the document; (4) the manager in charge of the IR process; (5) the CEO's commitment; (6) the title of the report; and (7) consistency of IR with generally applied disclosure standards. In the presence of each above item, a score of 1 is awarded while a score of 0 is given in the absence and, thus 7 is the maximum score for the background element.

Moreover, assurance and reliability elements are evaluated through the sub-elements of (1) an internal audit and/or (2) a third-party verification has been carried out¹; and (3) the company has received acknowledgments and awards for IR. In the presence of each item above, a score of 1 is awarded while a score of 0 is given in the absence and 3 is the maximum score for the assurance and reliability element.

The next element is the content and form. The content is measured through the coding framework developed by Zhou *et al.* (2017), as explained above and shown in Table III. The form is measured through (1) readability and clarity of the document (Table IV), (2) conciseness (number of pages of the document) (Table V); and (3) accessibility of the document (hard-copy documents versus website accessibility) (Table VI). The maximum score for the form element is 15 (refer to the score values in tables).

Table III**Table IV****Table V****Table VI**

3.2.2 Independent variables

Thirteen firm-specific factors that could be possible determinants of IRQ include profitability, firm size, financial leverage, audit committee size, audit committee independence, board size, board independence, CEO duality, board gender diversity, ownership concentration, institutional ownership, foreign ownership, and risk management intensity. These variables have been selected due to their relevance and potential influence on IRQ, as described in the hypotheses development section.

¹ The third-party verification on integrated reports published by listed companies in Sri Lanka is still partial and not consistent due to the voluntary nature of IR adoption. Therefore, we excluded this item from our analysis of IRQ.

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3.2.3 Control variables

To improve model specification, four control variables that may influence IRQ are included. First, the existence of a CSR/sustainability committee is controlled for, as prior evidence shows that such committees positively affect IRQ by promoting more disclosure, enhancing compliance with the IIRC framework, and signalling best practices in IR (Dragomir and Dumitru, 2023; Vitolla *et al.*, 2020a). Second, audit quality is included because external auditors influence corporate reporting quality, including IRQ (Pistoni *et al.*, 2018; Zhou *et al.*, 2017). Audit quality is proxied by the presence of Big Four audit firms, reflecting auditor reputation (Eng and Mak, 2003; Erin and Adegboye, 2022; Qaderi *et al.*, 2023). Third, firm age, measured as the number of years since establishment, is controlled for, as older firms tend to produce higher-quality integrated reports due to greater experience and organisational stability (Vitolla *et al.*, 2020a). Finally, industry environmental sensitivity is controlled for, as firms operating in environmentally sensitive industries are subject to greater reporting pressure (Vitolla *et al.*, 2020a). Consistent with prior studies (Tagesson *et al.*, 2009; Gamerschlag *et al.*, 2011; Branco and Rodrigues, 2008), and the GICS classification in Sri Lanka, industries such as energy, materials, utilities, plantation, transportation, tiles and construction are classified as environmentally sensitive.

The operationalisation of all independent, dependent, and control variables is shown in Table VII.

Table VII

3.3 Model specifications

Based on the above-mentioned facts, the developed regression equation is as follows.

$$\begin{aligned} IRQ_{it} = & \beta_0 + \beta_1 PROFIT_{it} + \beta_2 FSIZE_{it} + \beta_3 LEV_{it} + \beta_4 ACSIZE_{it} + \beta_5 ACIND_{it} \\ & + \beta_6 BSIZE_{it} + \beta_7 BIND_{it} + \beta_8 CEODUAL_{it} + \beta_9 BGD_{it} \\ & + \beta_{10} OWNCON_{it} + \beta_{11} INSTOWN_{it} + \beta_{12} FOREIGNOWN_{it} \\ & + \beta_{13} RMIN_{it} + \beta_{14} ENVIND_{it} + \beta_{15} FAGE_{it} + \beta_{16} BIG4_{it} \\ & + \beta_{17} CSR_COM_{it} + \beta \epsilon_{it} \end{aligned}$$

Where:

IRQ_{it} =integrated reporting quality

ROE_{it} =return on equity

$FSIZE_{it}$ =firm size

LEV_{it} =financial leverage

$ACSIZE_{it}$ =audit committee size

$ACIND_{it}$ =audit committee independence

$BSIZE_{it}$ =board size

$BIND_{it}$ =board independence

$CEODUAL_{it}$ =ceo duality

BGD_{it} =board gender diversity

$OWNCON_{it}$ =ownership concentration

$INSTOWN_{it}$ =institutional ownership

$FOREIGNOWN_{it}$ =foreign ownership

$RMIN_{it}$ =risk management intensity

$ENVIND_{it}$ =industry type (environmental sensitivity)

$FAGE_{it}$ =firm age

$BIG4_{it}$ =audit quality

CSR_COM_{it} =csr/sustainability committee existence

4. Results and Discussions

4.1 Descriptive statistics

First, to mitigate the potential effects of data outliers, we winsorised all continuous variables with values in the top and bottom 1% in STATA following the past studies (see Busco *et al.*, 2019; Qaderi *et al.*, 2023). Based on the sample firms, IRQ averages 33.291 (SD=5.892), ranging from 18 to 44. Based on our IRQ scoring process, the maximum value (44) was observed equally among three banking firms, while the minimum value (18) was recorded by a firm in the hotel industry. The moderate dispersion in IRQ indicates meaningful cross-sectional variation, supporting the suitability of regression analysis.

PROFIT shows considerable variability (mean=11.853; SD=15.481), reflecting heterogeneity in financial outcomes across firms. The sample includes firms of varying sizes (mean=10.408) and leverage levels (mean=2.924), suggesting diversity in operational scale and capital structure. Governance structures appear relatively well established, with BSIZE comprising approximately 9 directors on average and independent directors accounting for about 44%. ACSIZE have 3-4 members (mean=3.472) and demonstrates high independence (mean=79%), suggesting generally strong monitoring mechanisms. However, BGD remains limited (mean=1.05), suggesting scope for improvement in female representation. Ownership is highly

concentrated (mean of OWNCON=75%), with substantial INSTOWN (mean=79%), while FOREIGNOWN remains comparatively lower (mean=10%).

The RMIN averages 1.355 (on a 0–3 scale), implying partial implementation but not full structures across firms. FAGE (mean=38 years) suggests that most firms issuing integrated reports are mature entities. Among indicator variables, CEODUEL is relatively uncommon (8%), whereas the majority of firms are audited by BIG4 auditors (92%). Only about 30% maintain CSR_COM, and 36% operate in ENVIND. Overall, the statistics reveal considerable variation across corporate attributes, corporate performance attributes, and corporate governance attributes in Sri Lankan listed companies that follow IR.

Table VIII

4.2 Testing multicollinearity

To further assess potential multicollinearity concerns identified in the correlation matrix (Table X), variance inflation factors (VIFs) were computed (Table IX). The results indicate that all VIF values are well below the commonly accepted threshold of 5, with the highest VIF observed for firm size (3.730), followed by financial leverage (3.220) and risk management intensity (2.820). The mean VIF is 1.930, suggesting low overall collinearity among the explanatory variables. Although moderate pairwise correlations were observed among FSIZE and LEV ($r=0.640$), FSIZE and OWNCON ($r=-0.578$), FSIZE and RMIN ($r=0.625$), and RMIN and LEV ($r=0.672$), the VIF diagnostics indicate that multicollinearity is not severe and unlikely to bias or distort the regression estimates. Therefore, all variables are retained in the multivariate analysis.

Table IX

4.3 Correlation analysis

Table X presents the Pearson correlation matrix. The dependent variable, IRQ is positively and significantly correlated with PROFIT ($r=0.160$), FSIZE ($r=0.501$), LEV ($r=0.127$), ACSIZE ($r=0.137$), BSIZE ($r=0.184$), BGD ($r=0.269$), FOREIGNOWN ($r=0.157$), RMIN ($r=0.209$), BIG4 ($r=0.182$), and CSR_COM ($r=0.271$). These associations suggest that larger, more profitable firms with stronger governance structures, higher leverage, greater foreign ownership, structured risk management systems, Big 4 audit engagement, and CSR committees tend to exhibit higher IRQ. In contrast, OWNCON and INSTOWN are negatively associated with

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IRQ, suggesting that concentrated ownership structures and more institutional shareholdings may be associated with lower IRQ.

Table X

4.4 Regression analysis and discussions

Selection of the model specifications

To determine the appropriate panel estimator, both data characteristics and statistical tests were considered. Given the panel structure of 47 firms observed over 6 years, firm-specific unobserved heterogeneity is likely to influence IRQ. The fixed-effects (FE) model estimates within-firm variation and removes time-invariant characteristics, whereas the random-effects (RE) model estimates both within- and between-firm effects, including variables that show limited or no time variation.

First, in our dataset, several theoretically important variables (e.g., certain ownership and governance attributes) indicated minimal within-firm variation across time. Thus, RE model provides a more appropriate framework for examining their effects (Songini *et al.*, 2021). Second, the differences across entities could influence the IRQ disclosure (Songini *et al.*, 2021). For example, in our sample of companies in Sri Lanka, the majority (45%) are financial companies, whereas 36% are environmentally sensitive firms. Hence, these industry differences could affect disclosure and, in turn, IRQ. This again warrants that the RE model is more appropriate. Finally, to check this statistically, we used the Breusch–Pagan Lagrange Multiplier (LM) test and Hausman specification test following the past studies in the IRQ literature (see Busco *et al.*, 2019; Cooray *et al.*, 2020; Songini *et al.*, 2021).

Breusch–Pagan Lagrange Multiplier (LM) test strongly rejected the null hypothesis of zero firm-level variance ($\chi^2=480.30$, $p < 0.001$), indicating that pooled OLS is inappropriate and that panel estimation is required. Further, the Hausman specification test was conducted to compare FE and RE estimators. The test was not statistically significant ($\chi^2=21.84$, $p=0.1485$), suggesting that differences in coefficients are not systematic and that the RE estimator is both consistent and efficient (Cooray *et al.*, 2020). Accordingly, the RE model is employed as the primary specification, while FE results are reported as robustness checks in our study.

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Addressing heteroskedasticity and autocorrelation

The modified Wald test indicates the presence of groupwise heteroskedasticity in the panel data ($\chi^2=8968.10$, $p < 0.001$), indicating that error variances differ across firms. Therefore, heteroskedasticity is evidenced. In contrast, the Wooldridge test for autocorrelation fails to reject the null hypothesis of no first-order serial correlation ($F=1.656$, $p=0.2049$), indicating no evidence of within-firm autocorrelation over time. To address issues arising from heteroskedasticity and the panel structure of the data, standard errors are clustered at the firm level to obtain heteroskedasticity and autocorrelation-robust inferences.

Results and discussions

Table XI presents the panel regression results. Given that the RE model is the most appropriate model specification in our data analysis, as explained above, we draw our conclusions from its results. However, we present our results using the FE model for comparison, although it was not the selected model specification in our analysis. The regression results from the RE model indicate that FSIZE has a strong positive impact on IRQ ($\beta=1.074$, $p=0.000$), supporting H2. This finding is consistent with prior studies (e.g., Buitendag *et al.*, 2017; Dilling and Caykoylu, 2019; Erin and Adegboye, 2022; Iredele, 2019; Vitolla *et al.*, 2020b) showing that large firms in Sri Lanka issue higher-quality integrated reports to meet stakeholder expectations and legitimise practices. From an agency theory perspective, firms with broader stakeholder bases face increased monitoring demands, reinforcing the importance of high-quality reporting (Iredele, 2019). Therefore, firm scale remains a key structural determinant of IRQ in Sri Lanka.

In contrast, LEV has a statistically significant negative impact on IRQ ($\beta=-0.175$, $p=0.05$). Surprisingly, this result is opposite to our hypothesised expectation that firms with high leverage produce higher-quality integrated reports due to increased stakeholder demand for transparency amid financial risks (Vitolla *et al.*, 2020b). However, the result provides only limited support for the theorised relationship between LEV and IRQ. Further analyses reported in Tables XIII and XIV indicate that the association between LEV and IRQ is sensitive to alternative model specifications; therefore, this negative relationship does not appear to be robust.

More importantly, one of the novel corporate governance variables we examined in our analysis is RMIN. This shows a positive, marginally significant impact on IRQ ($\beta=0.372$, $p=0.10$) supporting H13. From an agency-theoretical perspective, our findings indicate that firms with intensive risk-management structures tend to demonstrate higher IRQ by explaining how risks are managed within the value-creation process. However, the effect appears moderate relative to core structural characteristics such as FSIZE and LEV. To the best of our knowledge, Cooray *et al.* (2020) and Perera *et al.* (2024) have examined the impact of a separate risk management committee and its effectiveness on IRQ in Sri Lanka and Australia, respectively. However, their findings are contradictory: Cooray *et al.* (2020) find a significant positive impact of the risk committee on IRQ, whereas Perera *et al.* (2024) find a significant negative impact. Considering past corporate failures and concerns regarding corporate governance mechanisms in Sri Lankan companies (Cooray *et al.*, 2020; Senaratne and Gunaratne, 2008; Wijekoon and Azeez, 2015), we utilised this risk management intensity variable to examine whether more advanced risk structures influence IRQ. While it shows a marginal positive impact on IRQ, we are not surprised, as the average composite risk management intensity is 1.355, ranging from 1 to 3 among Sri Lankan companies.

Given past corporate failures in Sri Lanka, although we specifically examined most other corporate governance factors (BSIZE, BIND, CEODUEL, BGD, ACSIZE, and ACIND), none of them indicated a statistically significant effect on IRQ. In the same context, Cooray *et al.* (2020) also concur with our findings. As they state, the corporate governance system in Sri Lanka provides limited support for providing quality information to stakeholders on value creation through IR. As they further explain, many corporate governance aspects in Sri Lanka are intended to fulfil mandatory reporting requirements, and directors' attention is limited to providing quality information, despite allocating resources to prepare integrated reports.

As a corporate performance attribute, PROFIT does not show a significant impact on IRQ in Sri Lanka, which is inconsistent with several prior studies (see Buitendag *et al.*, 2017; Vitolla *et al.*, 2020b) that found a significant positive impact. Our findings aligned with those of Dilling and Caykoylu (2019), who also found no significant impact of firm profitability on IRQ. Other corporate attributes, such as OWNCON, INSTOWN, and FOREIGNOWN, also do not indicate significant effects on IRQ. Although, on average, 75% of shareholding is concentrated among the five

largest shareholders in Sri Lanka, they do not significantly reduce IRQ, as we expected. In contrast, on average, a larger institutional ownership (79%) does not significantly increase IRQ as we expected. Overall, our findings highlight that structural firm attributes, such as firm size, play a determinative role in explaining IRQ, while risk management intensity is the only behavioural factor that contributes positively and moderately to IRQ in Sri Lanka.

Table XI

4.5 Robustness checks and additional analyses

To assess convergent validity, the composite IRQ index of our combined framework was correlated with two established IRQ frameworks of Pistoni *et al.* (2018) and Zhou *et al.* (2017), which were used as the combination approach in our study. The results indicate strong and statistically significant positive correlations between our index and Zhou *et al.* (2017) ($r=0.968$, $p<0.01$) and Pistoni *et al.* (2018) ($r=0.869$, $p<0.01$). This confirms that our composite measure captures the underlying components of IRQ. The moderate correlation between frameworks of Pistoni *et al.* (2018) and Zhou *et al.* (2017) ($r=0.716$, $p<0.01$) further suggests that our IRQ index integrates complementary disclosure dimensions reflected in prior frameworks (See Table XII).

Table XII

As an additional analysis, five alternative regression models were estimated by replacing all five continuous explanatory variables with alternative measures, including PROFIT as the return on assets (Busco *et al.*, 2019), FSIZE as the natural logarithm of total sales (Busco *et al.*, 2019), LEV as the total interest bearing debt to total assets (Busco *et al.*, 2019; Fayad *et al.*, 2024), OWNCON as the percentage of shares held by the largest shareholder and RMIN as the presence of chief risk officer (CRO) in the company (Florio and Leoni, 2017; González *et al.*, 2020). The RE results of these five regression models (Table XIII) remain mostly consistent with the main model. FSIZE, proxied by the natural logarithm of total sales, continues to have a positive, statistically significant impact on IRQ, whereas RMIN, proxied by CRO, remains positive and significant in each alternative model. However, LEV, proxied by interest-bearing debt to total assets, did not yield significant results, as we noticed in the main model. The LEV measure used in the main model (interest-bearing debt to total equity) was sensitive to alternative model specifications and did not consistently retain statistical

significance across the alternative regressions. These findings suggest that the association between LEV and IRQ is not robust to alternative measurement approaches. This conclusion is consistent with prior literature reporting mixed and insignificant effects of leverage on IRQ across different empirical settings (see Devarapalli and Mohapatra, 2024; Erin and Adegboye, 2022; Fayad *et al.*, 2024). Overall, regression results indicate that the main findings are not sensitive to variable measurement bias except for LEV.

Table XIII

Although we included control variables to ensure the robustness of the baseline results, they do not completely eliminate the omitted variable bias. Omitted variable bias may arise when potential variables that influence the dependent variable are excluded from the regression model. To assess the potential impact of omitted variable bias and further address endogeneity concerns, this study employs the coefficient stability test proposed by Oster (2019), following recent studies such as Anwar *et al.* (2025) and Rahman *et al.* (2024). We apply the Oster (2019) test only to the statistically significant independent variables in the main model (FSIZE, LEV, and RMIN) to assess the robustness of their estimated effects to potential omitted variable bias.

According to Oster (2019), the stability of the coefficient of the variable of interest between regressions with and without controls can be used to construct an identified set, which provides evidence on the robustness of the estimated effect to omitted variables. The identified set is defined as

$$\beta^* = \tilde{\beta} - (\beta' - \tilde{\beta}) \frac{R_{\max} - \tilde{R}}{\tilde{R} - R'}$$

where β' denotes the coefficient estimate from the uncontrolled regression, $\tilde{R}$ is the R-squared of the controlled regression, and R' is the R-squared of the uncontrolled regression. Following Oster's (2019) recommendation, the maximum attainable R-squared ($R_{\max}$) is set at 1.3 times the R-squared of the fully controlled model.

Table XIV presents the results of the Oster (2019) test. The identified sets for FSIZE [0.688,2.517] and RMIN [0.045,1.177] do not include zero, suggesting that the estimated effects of these variables are unlikely to be driven by omitted variable bias. In contrast, the identified set for LEV [-1.214,1.353] includes zero, indicating that the observed relationship between LEV and IRQ may be sensitive to omitted variable bias.

Overall, the findings provide evidence that the effects of FSIZE and RMIN remain robust after accounting for potential omitted variable bias.

Table XIV

To mitigate endogeneity concerns, particularly potential reverse causality arising from IRQ affecting firm-specific factors, we lagged the independent variables by 1 year, following related studies (see Busco *et al.*, 2019; Manita *et al.*, 2018; Songini *et al.*, 2021). This approach ensures that the explanatory variables (firm-specific factors) precede the dependent variable (IRQ), reducing simultaneity bias (Bellemare *et al.*, 2017). According to the lagged RE regression results in Table XV, FSIZE has a significant positive effect on IRQ. Although RMIN is not significant in the lagged model, it shows qualitatively similar results as in the main analysis.

More importantly, OWNCON in the lagged model indicates a negative, marginally significant impact on IRQ ($\beta = -0.048$, $p = 0.10$). This implies that, although the more concentrated ownership does not show a significant contemporaneous impact on IRQ, it has a delayed or long-term effect on IRQ in Sri Lanka. Sri Lankan companies in our sample exhibit a highly concentrated ownership structure, with a mean OWNCON of 75%. From an agency theory perspective, such concentration reduces monitoring pressure on disclosure quality, thereby lowering IRQ compared to firms with dispersed ownership, where greater agency conflicts encourage more extensive disclosure (Agustia *et al.*, 2023; Raimo *et al.*, 2020).

Table XV

Since our sample consists of 45% financial firms, such as those in the banking, finance, and insurance sectors, their representation is relatively higher than that of non-financial firms. Furthermore, all licensed and specialised banks and other finance companies in Sri Lanka are required by the Central Bank to establish a separate risk management committee. Since the risk management committee is a component of our RMIN variable, it could affect regression results more for financial firms than for non-financial firms. Thus, to examine whether the relationship between RMIN and IRQ differs across financial and non-financial firms, we conducted a sub-sample analysis by separating the two groups. See Table XVI.

Table XVI

As per the results, FSIZE remained positive and statistically significant only in the financial-sector model, while it was not significant in the non-financial model. LEV

showed a significant negative coefficient in the financial model, whereas it was positive and marginally significant in the non-financial model. This contrast may reflect the structurally higher leverage of financial institutions due to customer deposits. PROFIT was positively related to IRQ only within the non-financial sector. OWNCON showed a significant negative effect in non-financial firms and a marginally negative effect in the pooled interaction model. Although positive, RMIN was not statistically significant in either sector-specific model. However, the pooled interaction model indicated a positive, significant effect of RMIN on IRQ. To test for slope heterogeneity, we further estimated an interaction model with an interaction term between the RMIN and a financial-firm dummy. The interaction coefficient is statistically insignificant ($\beta = -0.539$; $z = -1.27$), indicating that the association between RMIN and IRQ is not statistically different between financial and non-financial firms. Overall, these findings suggest that the main results are not driven by sectoral differences, although certain firm characteristics denote varying effects across sectors.

5. Conclusion and Implications

This study investigated the firm-specific determinants of IRQ among 47 listed companies in Sri Lanka over 6 years, employing a wide, inclusive approach. The regression results indicate that risk management intensity and firm size have a significant positive impact on IRQ. Other factors do not show a significant impact on IRQ. Further, the study has employed a comprehensive framework, combining the IR scoreboard by Pistoni *et al.* (2018) and the coding framework by Zhou *et al.* (2017), to provide a more robust assessment of IRQ, addressing the ongoing debate over how IRQ should be measured.

One of the key findings of our study is that firms' risk management intensity positively and significantly affects the IRQ. This finding supports our theoretical argument that risk management acts as an internal governance mechanism that reduces information asymmetry and agency problems by strengthening risk oversight and managerial accountability, further leading to IRQ. Given the inconsistent findings of the impact of separate risk management committees on IRQ, the assessment of risk management intensity using a combined score of the risk management committee, the chief risk officer, and formal risk management frameworks (e.g. COSO, ISO 31,000, and Basel II/III), in our study, offers a novel approach while maintaining the depth of risk management. Since we originally tested our approach to risk management intensity

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empirically in Sri Lanka, we encourage scholars to examine its impact on IRQ in other contexts. Senior executives and board members must integrate risk management with strategy to create long-term value and transparently disclose material risks with impacts, and how they are addressed (Adams, 2015).

Specifically, Sri Lankan business firms face volatile risks due to economic-political crisis, and on the other hand, traditional corporate governance mechanisms indicate considerable limitations (Cooray *et al.*, 2020; Senaratne and Gunaratne, 2008; Wijekoon and Azeez, 2015). Therefore, our study suggests that more intensified risk management systems are important for firms in enhancing corporate reporting quality beyond traditional corporate governance systems. Thus, emerging and developing countries with similar characteristics can benefit from establishing intensified risk management systems to enhance reporting quality, such as IRQ. This will positively affect business firms to protect their value creation while offering quality information for investment and lending decisions.

As per the other findings of our study, large companies aim to reduce the legitimacy gap with stakeholders by providing more quality integrated reports, while allocating their resources. From an agency theory perspective, larger firms face greater agency problems due to their wider base of investors and stakeholders, motivating them to produce higher-quality reports to mitigate these issues. These findings have important implications for standard-setters and regulators, helping them recognise that larger companies typically offer higher-quality integrated reports and, if so, what potential regulatory changes could improve reporting quality among smaller firms.

Our further analysis reveals that the more concentrated ownership has a long-term negative effect on IRQ in Sri Lanka. In line with the agency theory, such concentration reduces monitoring pressure on value creation to stakeholders and lowers IRQ compared to firms with dispersed ownership, where greater agency conflicts necessitate enhanced transparency (Agustia *et al.*, 2023; Raimo *et al.*, 2020).

Since IR is voluntary in Sri Lanka and many other countries except South Africa, regulatory mechanisms to enforce higher IRQ are limited when high-risk companies communicate their disclosures in integrated reports. However, accounting professional bodies and regulators, such as the Securities and Exchange Commissions can play a key role in promoting its importance. They can emphasise the benefits of enhanced IRQ, particularly for small and leveraged firms, and also encourage companies to improve their risk management practices. Furthermore, regulators can

develop effective corporate governance mechanisms to favour more dispersed ownership structures and enhance IRQ and corporate transparency. Investors and lenders, in turn, can rely more confidently on integrated reports, enabling more informed investment and lending decisions.

6. Limitations and Directions for Future Research

This study presents several limitations that future researchers can address. First, the study limited its sample to 282 integrated reports published consecutively over six years from 2018/19 to 2023/24. Future research could extend the sample size and study period to explore how IRQ evolves over time. Second, although the study empirically tested 13 possible firm-specific determinants of IRQ in Sri Lanka, only two variables were statistically significant. Rather than a limitation, future studies could examine these firm-specific factors in other country contexts. To the best of our knowledge, the risk management intensity used in our study is original, and we encourage future studies to examine it in other contexts. Third, although this study used a combination of two methods to assess IRQ, it still has limitations in capturing the nuances of firms' periodic IR disclosures. Future research could, therefore, focus on more robust methodologies and other relevant dimensions of IRQ. Fourth, this study is based on a single emerging country where IR is voluntary. Future research could conduct longitudinal studies comparing countries. Lastly, future studies can focus on external dimensions influencing IRQ, including how the IIRC and other local bodies can improve reporting quality.

References

- Adams, C.A. (2015), "The international integrated reporting council: a call to action", *Critical perspectives on accounting*, Vol. 27, pp. 23-28.
- Adams, R.B. and Ferreira, D. (2009), "Women in the boardroom and their impact on governance and performance", *Journal of Financial Economics*, Vol. 94 No. 2, pp. 291-309.
- Agustia, D., Supratiwi, W. and Jermias, J. (2023), "High-quality integrated reporting based on concentrated versus dispersed ownership", *Journal of Competitiveness*, Vol. 15 No. 4.

- Akerlof, G.A. (1970), "The market for "lemons": quality uncertainty and the market mechanism", *The Quarterly Journal of Economics*, Vol. 84 No. 3, pp. 488-500, doi: 10.2307/1879431.
- Al-Najjar, B. and Abed, S. (2014), "The association between disclosure of forward-looking information and corporate governance mechanisms", *Managerial Auditing Journal*, Vol. 29 No. 7, pp. 578-595, doi: 10.1108/maj-01-2014-0986
- Al-Shaer, H. and Zaman, M. (2016), "Board gender diversity and sustainability reporting quality", *Journal of Contemporary Accounting & Economics*, Vol. 12 No. 3, pp. 210-222.
- An, Y., Davey, H., and Eggleton, I.R. (2011), "Towards a comprehensive theoretical framework for voluntary IC disclosure", *Journal of Intellectual Capital*, Vol. 12 No. 4, pp. 571-585, doi: 10.1108/14691931111181733.
- Anwar, M., Sinnewe, E., and Quayle, A. (2025). "Environmental disclosure tone and analyst forecast behaviour: a study of the EU nonfinancial reporting directive", *Accounting & Finance*, Vol. 65 No. 4, pp. 3574-3604.
- Barako, D.G., Hancock, P. and Izan, H.Y. (2006), "Factors influencing voluntary corporate disclosure by Kenyan companies", *Corporate Governance: an international review*, Vol. 14 No. 2, pp. 107-125.
- Be'Dard, J., Chtourou, S.M., and Courteau, L. (2004), "The effect of audit committee expertise, independence, and activity on aggressive earnings management", *Auditing: A Journal of Practice and Theory*, Vol. 23 No. 2, pp. 13-35, doi: 10.2308/aud.2004.23.2.13.
- Bear, S., Rahman, N. and Post, C. (2010), "The impact of board diversity and gender composition on corporate social responsibility and firm reputation", *Journal of Business Ethics*, Vol. 97 No. 2, pp. 207-221.
- Bellemare, M.F., Masaki, T. and Pepinsky, T.B. (2017), "Lagged explanatory variables and the estimation of causal effect", *The Journal of Politics*, Vol. 79 No. 3, pp. 949-963.
- Bertinetti, G. and Gardenal, G. (2016), "Enterprise risk management and integrated reporting: Is there a synergism?", In *Integrated reporting: A new accounting disclosure* (pp. 205-230). London: Palgrave Macmillan UK.
- Branco, M.C. and Rodrigues, L.L. (2008), "Factors influencing social responsibility disclosure by Portuguese companies", *Journal of Business Ethics*, Vol. 83 No. 4, pp.685-701.

- Buitendag, N., Fortuin, G.S., and de Laan, A. (2017), "Firm characteristics and excellence in integrated reporting", *South African Journal of Economic and Management Sciences*, Vol. 20 No. 1, doi:10.4102/sajems.v20i1.1307.
- Busco, C., Malafronte, I., Pereira, J., and Starita, M.G. (2019), "The determinants of companies' levels of integration: does one size fit all?", *The British Accounting Review*, Vol. 51 No. 3, pp. 277-298, doi: 10.1016/j.bar.2019.01.002.
- Chen, Y.L., Chuang, Y.W., Huang, H.G., and Shih, J.Y. (2020), "The value of implementing enterprise risk management: evidence from Taiwan's financial industry", *The North American Journal of Economics and Finance*, Vol. 54, 100926.
- Chouaibi, S., Chouaibi, Y., and Zouari, G. (2022), "Board characteristics and integrated reporting quality: evidence from ESG European companies", *EuroMed Journal of Business*, Vol. 17 No. 4, pp. 425-447, doi:10.1108/emjb-11-2020-0121.
- Cooray, T., Gunarathne, A. D. N., and Senaratne, S. (2020), "Does Corporate Governance Affect the Quality of Integrated Reporting?", *Sustainability*, Vol. 12 No.10, doi:10.3390/su12104262.
- Cooray, T., Senaratne, S., Gunarathne, N., Herath, R., and Samudrage, D.N. (2022), "Adoption of integrated reporting in Sri Lanka: coverage and trend", *Journal of Financial Reporting and Accounting*, Vol. 20 No. 3/4, pp. 389-415, doi: 10.1108/JFRA-04-2020-0116.
- Deegan, C. (2002), "The legitimising effect of social and environmental disclosures – a theoretical foundation", *Accounting, Auditing & Accountability Journal*, Vol. 15 No. 3, pp. 282-311, doi: 10.1108/09513570210435852.
- Devarapalli, S. and Mohapatra, L.M. (2024), "Impact of corporate governance characteristics on integrated reporting quality: an empirical analysis, evidence from India", *Indian Journal of Corporate Governance*, Vol. 17 No. 1, pp. 9-32.
- Dilling, P.F.A., and Caykoylu, S. (2019), "Determinants of companies that disclose high-quality integrated reports", *Sustainability*, Vol. 11 No.13, doi:10.3390/su11133744.
- Dragomir, V.D., and Dumitru, M. (2023), "Does corporate governance improve integrated reporting quality? A meta-analytical investigation", *Meditari Accountancy Research*, Vol. 31 No. 6, pp. 1846-1885, doi: 10.1108/medar-03-2022-1618.

- Eng, L.L. and Mak, Y.T. (2003), "Corporate governance and voluntary disclosure", *Journal of Accounting and Public Policy*, Vol. 22 No. 4, pp. 325-345.
- Erin, O., and Adegboye, A. (2022), "Do corporate attributes impact integrated reporting quality? An empirical evidence", *Journal of Financial Reporting and Accounting*, Vol. 20 No. 3/4, pp. 416-445, doi: 10.1108/JFRA-04-2020-0117.
- Fayad, A.A., Mohd Ariff, A.H.B., Ooi, S.C., Aljadba, A.H. and Albitar, K. (2024), "Ownership structure and integrated reporting quality: empirical evidence from an emerging market", *Journal of Financial Reporting and Accounting*.
- Florio, C., and Leoni, G. (2017), "Enterprise risk management and firm performance: the Italian case", *The British Accounting Review*, Vol. 49 No. 1, 56-74.
- Frías-Aceituno, J.V., Rodríguez-Ariza, L., and García-Sánchez, I.M. (2013), "Explanatory factors of integrated sustainability and financial reporting", *Business Strategy and the Environment*, Vol. 23 No.1, pp. 56-72, doi: 10.1002/bse.1765.
- Frías-Aceituno, J., Rodríguez-Ariza, L., and García-Sánchez, I. (2014), "Is integrated reporting determined by a country's legal system? An exploratory study", *Journal of Cleaner Production*, Vol. 44, pp. 45-55, doi: 10.1016/j.jclepro.2012.12.006.
- Gamerschlag, R., Möller, K. and Verbeeten, F. (2011), "Determinants of voluntary CSR disclosure: empirical evidence from Germany", *Review of Managerial Science*, Vol. 5 No. 2, pp. 233-262.
- González, L.O., Santomil, P.D. and Herrera, A.T. (2020), "The effect of enterprise risk management on the risk and the performance of Spanish listed companies", *European Research on Management and Business Economics*, Vol. 26 No. 3, pp. 111-120.
- Graham, J.R., Harvey, C.R. and Rajgopal, S. (2005), "The economic implications of corporate financial reporting", *Journal of Accounting and Economics*, Vol. 40 No. 3, pp. 3-73, doi:10.1016/j.jacceco.2005.01.002.
- Gunaratne, N., and Senaratne, S. (2017), "Diffusion of integrated reporting in an emerging South Asian (SAARC) nation", *Managerial Auditing Journal*, Vol. 32, pp. 524–548, doi: 10.1108/maj-01-2016-1309.

- Hammond, K., and Miles, S. (2004), "Assessing quality assessment of corporate social reporting: UK perspectives", *Accounting Forum*, Vol. 28 No.1, pp. 61-79, doi: 10.1016/j.accfor.2004.04.005.
- Helfaya, A., and Whittington, M. (2019). "Does designing environmental sustainability disclosure quality measures make a difference?", *Business Strategy and the Environment*, Vol. 28 No. 4, pp. 525-541, doi: 10.1002/bse.2262.
- Hossain, A., Bose, S. and Shamsuddin, A. (2023), "Diffusion of integrated reporting, insights and potential avenues for future research", *Accounting & Finance*, Vol. 63 No. 2, pp. 2503-2555, doi: 10.1111/acfi.12981
- International Integrated Reporting Council (IIRC) (2013), *International <IR> Framework*. <https://effas.com/international-relations/the-international-integrated-reporting-council-iirc/>
- International Integrated Reporting Council (IIRC) (2021), *International <IR> Framework*. <https://effas.com/international-relations/the-international-integrated-reporting-council-iirc/>
- Injeni, G., Mangena, M., Mathuva, D., and Mudida, R. (2022), "Agency and institutional-related factors and the heterogeneity of sustainability and integrated report information disclosures in Kenya", *Journal of Financial Reporting and Accounting*, Vol. 20 No. 5, pp. 809-840, doi: 10.1108/jfra-10-2020-0305.
- Iredele, O.O. (2019), "Examining the association between quality of integrated reports and corporate characteristics", *Heliyon*, Vol. 5 No. 7, doi: 10.1016/j.heliyon.2019.e01932.
- Jensen, M.C., and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360, doi: 10.1016/0304-405X(76)90026-X.
- Kansal, M., Joshi, M., and Batra, G.S. (2014), "Determinants of corporate social responsibility disclosures: evidence from India", *Advances in Accounting*, Vol. 30 No. 1, pp. 217-229, doi: 10.1016/j.adiaac.2014.03.009.
- Katmon, N., Mohamad, Z.Z., Norwani, N.M. and Farooque, O.A. (2019), "Comprehensive board diversity and quality of corporate social responsibility disclosure: evidence from an emerging market", *Journal of Business Ethics*, Vol. 157 No. 2, pp. 447-481.

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- Khelif, H., and Souissi, M. (2010), "The determinants of corporate disclosure: a meta-analysis", *International Journal of Accounting and Information Management*, Vol. 18 No. 3, pp. 198-219, doi: 10.1108/18347641011068965.
- Kılıç, M., and Kuzey, C. (2018), "Determinants of forward-looking disclosures in integrated reporting", *Managerial Auditing Journal*, Vol. 33 No. 1, pp. 115-144, doi: 10.1108/maj-12-2016-1498.
- Kim, P.K., Rasiah, D. and Tasnim, R.B. (2012), "A review of corporate governance: ownership structure of domestic-owned banks in term of government connected ownership, and foreign ownership of commercial banks in Malaysia", *Journal of Organisational Management Studies*, 2012, p.1.
- Maharani, B. and Tjahjadi, B. (2026), "Board expertise, foreign institutional ownership and the quality of sustainability reporting: evidence from an emerging market context", *Accounting Research Journal*, Vol. 39 No. 1, pp. 60-83.
- Manita, R., Bruna, M.G., Dang, R. and Houanti, L.H. (2018), "Board gender diversity and ESG disclosure: evidence from the USA", *Journal of Applied Accounting Research*, Vol. 19 No. 2, pp. 206-224, doi: 10.1108/JAAR-01-2017-0024.
- Mans-Kemp, N., and van der Lugt, C.T. (2020), "Linking integrated reporting quality with sustainability performance and financial performance in South Africa", *South African Journal of Economic and Management Sciences*, Vol. 23 No.1, doi: 10.4102/sajems.v23i1.3572.
- Melloni, G., Caglio, A., and Perego, P. (2017), "Saying more with less? Disclosure conciseness, completeness and balance in integrated reports", *Journal of Accounting and Public Policy*, Vol. 36 No.3, pp. 220-238, doi: 10.1016/j.jaccpubpol.2017.03.001.
- Mmako, N., and Jansen Van Rensburg, M. (2017), "Towards integrated reporting: the inclusion of content elements of an integrated annual report in the chairmen's statements of JSE-listed companies", *South African Journal of Business Management*, Vol. 48 No. 1, pp. 45-54, doi: 10.4102/sajbm.v48i1.19.
- Morris, R.D. (1987), "Signalling, agency theory and accounting policy choice", *Accounting and Business Research*, Vol. 18 No. 69, pp. 47-56, doi:10.1080/00014788.1987.9729347.
- Ortas, E., Gallego-Alvarez, I., and Álvarez Etxeberria, I. (2014), "Financial factors influencing the quality of corporate social responsibility and environmental management disclosure: a quantile regression approach", *Corporate Social*

- Responsibility and Environmental Management*, Vol. 22 No. 6, pp. 362-380, doi: 10.1002/csr.1351.
- Oster, E. (2019), "Unobservable selection and coefficient stability: theory and evidence", *Journal of Business & Economic Statistics*, Vol. 37 No. 2, pp.187-204.
- Panfilo, S., Adhikari, A. and Ionici, O. (2022), "Integrated report and credit risk: empirical evidence from a mandatory integrated reporting setting", In *Risk Management: Insights from Different Settings* (pp. 247-262). Cham: Springer International Publishing.
- Perera, L., Dissanayake, T., Kanapathippillai, S. and Dellaportas, S. (2024), "Risk committee and integrated reporting practice: evidence from Australian companies", *Australian Accounting Review*, Vol. 34 No. 2, pp. 101-132.
- Permatasari, I., and Tjahjadi, B. (2024), "A closer look at integrated reporting quality: a systematic review and agenda of future research", *Meditari Accountancy Research*, Vol. 32 No. 3, pp. 661-692, doi: 10.1108/MEDAR-08-2022-1782.
- Pistoni, A., Songini, L., and Bavagnoli, F. (2018), "Integrated reporting quality: an empirical analysis", *Corporate Social Responsibility and Environmental Management*, Vol. 25 No.4, pp. 489-507, doi: 10.1002/csr.1474.
- Qaderi, S.A., Chandren, S. and Abdullah, Z. (2023), "Integrated reporting quality in Malaysia: do chairman attributes matter?", *Cogent Business & Management*, Vol. 10 No. 1, p. 2186757.
- Qu, W., Ee, M.S., Liu, L., Wise, V., and Carey, P. (2015), "Corporate governance and quality of forward-looking information", *Asian Review of Accounting*, Vol. 23 No.1, pp. 39-67, doi: 10.1108/MEDAR-08-2022-1782.
- Radwan, S.R.A. and Xiongyuan, W. (2024), "The value relevance of integrated reporting quality: evidence from Asia", *Journal of Financial Reporting and Accounting*.
- Rahman, S., Sinnewe, E., and Chapple, L. (2024). "Environment-specific political risk discourse and expected crash risk: the role of political activism", *International Review of Financial Analysis*, Vol. 95, pp. 103494.
- Raimo, N., Vitolla, F., Marrone, A. and Rubino, M. (2020), "The role of ownership structure in integrated reporting policies", *Business Strategy and the Environment*, Vol. 29 No. 6, pp. 2238-2250.

- Raimo, N., Vitolla, F., Marrone, A., and Rubino, M. (2021), "Do audit committee attributes influence integrated reporting quality? An agency theory viewpoint", *Business Strategy and the Environment*, Vol. 30 No. 1, pp. 522-534, doi: 10.1002/bse.2635.
- Rajapaksha, S. and Kehelwalatenna, S. (2022), "Impact of integrated reporting on information asymmetry: evidence from Sri Lanka", *Colombo Business Journal*, Vol. 13 No. 2, pp. 76–108, doi: 10.4038/cbj.v13i2.125.
- Rouf, M.A. and Harun, M.A. (2011), "Ownership structure and voluntary disclosure in annual reports of Bangladesh", *Pakistan Journal of Commerce and Social Science*, Vol. 5 No. 1, pp. 129-139.
- Senaratne, S., and Gunaratne, P.S.M. (2008), "Corporate governance development in Sri Lanka: prospects and problems", *Journal of Management*.
- Sharif, M., and Rashid, K. (2014), "Corporate governance and corporate social responsibility (CSR) reporting: an empirical evidence from commercial banks (CB) of Pakistan", *Quality and Quantity*, Vol. 48 No. 5, pp. 2501-2521, doi: 10.1007/s11135-013-9903-8.
- Songini, L., Pistoni, A., Bavagnoli, F., and Minutiello, V. (2020), "Integrated reporting quality: an analysis of key determinants", *Non-Financial Disclosure and Integrated Reporting: Practices and Critical Issues*, pp. 175-196, doi: 10.1108/s1479-351220200000034010.
- Songini, L., Pistoni, A., Tettamanzi, P., Fratini, F., and Minutiello, V. (2021), "Integrated reporting quality and BoD characteristics: an empirical analysis", *Journal of Management and Governance*, doi:10.1007/s10997-021-09568-8.
- Tagesson, T., Blank, V., Broberg, P. and Collin, S.O., (2009), "What explains the extent and content of social and environmental disclosures on corporate websites: a study of social and environmental reporting in Swedish listed corporations", *Corporate Social Responsibility and Environmental Management*, Vol. 16 No. 6, pp. 352-364.
- Verrecchia, R.E. (1983), "Discretionary disclosure", *Journal of Accounting and Economics*, Vol. 5, pp. 179–194, doi: 10.1016/0165-4101(83)90011-3.
- Vitolla, F., Raimo, N., and Rubino, M. (2020a), "Board characteristics and integrated reporting quality: an agency theory perspective", *Corporate Social*

- Responsibility and Environmental Management*, Vol. 27 No. 2, pp. 1152-1163, doi:10.1002/csr.1879.
- Vitolla, F., Raimo, N., Rubino, M., and Garzoni, A. (2019), "The impact of national culture on integrated reporting quality. a stakeholder theory approach", *Business Strategy and the Environment*, Vol. 28 No. 8, pp. 1558-1571, doi: 10.1002/bse.2332.
- Vitolla, F., Raimo, N., Rubino, M., and Garzoni, A. (2020b), "The determinants of integrated reporting quality in financial institutions", *Corporate Governance: The International Journal of Business in Society*, Vol. 20 No. 3, pp. 429-444, doi: 10.1108/cg-07-2019-0202.
- Wasiuzzaman, S. and Wan Mohammad, W.M. (2020), "Board gender diversity and transparency of environmental, social and governance disclosure: evidence from Malaysia", *Managerial and Decision Economics*, Vol. 41 No. 1, pp. 145-156.
- Wijekoon, N., and Azeez, A.A. (2015), "An integrated model to predict corporate failure of listed companies in Sri Lanka".
- Wong, K.S., Amran, A. and Chu, E.Y. (2023), "Institutional antecedents of integrated reporting quality: the moderating role of board independence", *Corporate Social Responsibility and Environmental Management*, Vol. 30 No. 2, pp. 621-640, doi: 10.1002/csr.2378
- Xu, J., Liu, Y. and Abdoh, H. (2022), "Foreign ownership and productivity", *International Review of Economics & Finance*, Vol. 80, pp. 624-642.
- Zhang, Z., and Zhang, J. (2014), "Analysis on voluntary disclosure of accounting information for listed companies in China", *International Business and Management*, Vol. 9 No. 1, pp. 143-148, doi: 10.3968/5419.
- Zhou, S., Simnett, R., and Green, W. (2017), "Does integrated reporting matter to the capital market?", *Abacus*, Vol. 53 No.1, pp. 94-132, doi: 10.1111/abac.12104.
- Zouari, G. and Dhifi, K. (2021), "The impact of board characteristics on integrated reporting: case of European companies", *International Journal of Disclosure and Governance*, Vol. 18 No. 1, pp. 83-94.

Table I

The sample on GICS classification

Sector	Sample
Energy	2
Materials	2
Financials	
-banks	8
-Insurance	4
-Diversified financials	9
Healthcare	2
Communication services	1
Utilities	1
Consumer discretionary	
-Consumer durables and apparels	1
-Consumer services	2
-Retailing	2
Consumer staples	
Food and staples retailing	1
Food beverages and tobacco	4
Industrial	
Capital goods	8
Transportation	0
Total	47

Source: Developed by authors through integrated reports published in CSE during 2018/19 to 2023/24

Table II

The relation between the IR scoreboard and the attributes of quality assessment

Areas of the IR Scoreboard	Variables of the IR Scoreboard	Attributes of quality assessment (Hammond and Miles, 2004)
Background	- Motivations of adopting IR - Objectives pursued by the IR - Beneficiaries of the document - Manager in charge of IR process - CEO’s commitment - Title of the report - Consistency of IR with generally applied disclosure standards	- Adoption of reporting guidelines and standards - Clear statement of vision from the CEO
Assurance and reliability	- Internal audit - Third-party verification - Acknowledgements and awards for IR	- Third party verification. - Achievement of awards/ accolades.
Content	- Organisational overview and external environment - Business model - Risks and opportunities - Strategy and resource allocation. - Governance - Performance - Outlook - Basis of presentation.	- Quantitative disclosure - Establishment of, and reporting against (appropriate) targets - Warts and all’ reporting - Ability to accurately assess performance from disclosure - Good coverage of significant issues - Reporting of normalised data

	• Capitals • Value creation process	
Form	• Readability and clarity • Conciseness • Accessibility	• Wide access of the document

Source: Pistoni *et al.* (2018)

Table III

Scoring of content element- 31 components included

Dimensions	Components
1. Organisational overview and operating context	1.1 Reporting boundary 1.2 Mission and value 1.3 Business overview 1.4 Operation context 1.5 Summary statistics
2. Governance	2.1 Governance structure 2.2 Governance and strategy 2.3 Remuneration and performance 2.4 Governance and others
3. Opportunities and risks	3.1 Risks 3.2 Opportunities
4. Strategy and resource allocation plans	4.1 Strategic objectives 4.2 Links between strategy and other elements 4.3 Competitive advantage 4.4 Stakeholder consultations
5. Business model	5.1 Business model description 5.2 Links between business model and others 5.3 Stakeholder dependencies
6. Performance and outcomes	6.1 KPIs against strategy 6.2 Explanation of KPIs 6.3 Stakeholder relationship 6.4 Past, current, and future performance 6.5 Financial implications of other capitals 6.6 Supply chain performance 6.7 The quality of quantitative indicators
7. Outlook	7.1 Anticipated changes 7.2 Potential implications 7.3 Estimates
8. Other elements	8.1 Conciseness and links 8.2 Materiality determination process 8.3 The board sign-off

Note: All components are scored as binary: 0 = not disclosed; 1 = disclosed.

Source: Zhou *et al.* (2017)

Table IV

Scoring system of the form element: readability and clarity of the document

Score	Readability and clarity of the document
0	Report quite not clear; absence of any element that can facilitate reading and comprehension of the document (i.e., graphs, tables, etc.)
1	Description mainly qualitative; scarce use of graphs and tables, that are not connected; absence of an index of the document, a glossary or a table with abbreviations
2	Adequate presence of graphs and tables; index with only few details
3	Graphs and tables facilitate the comprehension of the document; equilibrium between narrative flow and graphs/tables; references to other sections of the document avoid information redundancy
4	Very good use of graphs and tables; detailed index with hyperlinks; hyperlinks to external sources, to firm website or the other documents
5	Very good layout: index, graphs and tables clearly connected with the narrative qualitative flow

Source: Pistoni *et al.* (2018)

Table V

Scoring system for the form element: conciseness

Score	Conciseness: number of pages of the document
0	Not applicable
1	More than 200 pages
2	From 151 to 200 pages
3	From 101 to 150 pages
4	From 51 to 100 pages
5	Up to 50 pages

Source: Pistoni *et al.* (2018)

Table VI

Scoring system of the form element: accessibility of the document

Score	Accessibility of the document
0	Not applicable
1	Only hard copy document
2	Report available on the firm web site only as a pdf file
3	Report available on the firm web site, but not only as a pdf file: it is possible to access the contents directly from the firm web site
4	The report can be browsed online, by surfing the firm web site, thanks to a highly interactive platform
5	Report contents highly accessible; the user can select issues and create a personalised report; highly interactive web platform; possibility to access the report by LinkedIn, Twitter, Facebook

Source: Pistoni *et al.* (2018)

Table VII

Operationalisation of variables

Variables	Measurement	Source
Dependent variable	IR Scoreboard framework and coding framework	Pistoni <i>et al.</i> (2018), Zhou <i>et al.</i> (2017)

Integrated reporting quality		
Independent variables	Return on equity (net income/ total equity)	Erin and Adegboye (2022), Vitolla <i>et al.</i> (2020b)
Profitability		
Firm size	Natural logarithm of the total assets	Chouaibi <i>et al.</i> (2022), Erin and Adegboye (2022), Vitolla <i>et al.</i> (2020b)
Financial leverage	The ratio of the interest-bearing debt to the book value of total equity	Iredele (2019), Vitolla <i>et al.</i> (2020b)
Audit committee size	Total number of members within the audit committee	Erin and Adegboye (2022), Raimo <i>et al.</i> (2021)
Audit committee independence	The proportion of independent members to the total number of audit committee members	Cooray <i>et al.</i> (2020), Erin and Adegboye (2022), Raimo <i>et al.</i> (2021),
Board size	Number of directors on the board	Chouaibi <i>et al.</i> (2022), Cooray <i>et al.</i> (2020), Erin and Adegboye (2022), Fayad <i>et al.</i> (2024)
Board independence	The proportion of independent nonexecutive directors on the board	Cooray <i>et al.</i> (2020), Erin and Adegboye (2022), Fayad <i>et al.</i> (2024)
CEO duality	A dummy variable equal to 1 when the same person serves as a CEO as well as the chairman, and 0 otherwise	Chouaibi <i>et al.</i> (2022), Cooray <i>et al.</i> (2020)
Board gender diversity	The percentage of women on the board; divided the number of women board members by the total number of board members	Cooray <i>et al.</i> (2020), Erin and Adegboye (2022), Fayad <i>et al.</i> (2024), Vitolla <i>et al.</i> (2020a)
Ownership concentration	Percentage of shares held by the top five largest shareholders	Qaderi <i>et al.</i> (2023)
Institutional ownership	Percentage of ordinary shares held by institutional investors.	Barako <i>et al.</i> (2006), Raimo <i>et al.</i> (2020)
Foreign ownership	Proportion of shares owned by foreign shareholders	Barako <i>et al.</i> (2006), Fayad <i>et al.</i> (2024),
Risk management intensity	Measured using a composite index based on three indicators: (1) presence of a separate risk management committee, (2) presence of a Chief Risk Officer (CRO), (3) adoption of a formal risk management framework (ISO 31000, COSO, or Basel II/III). Each item is coded 1 if present in the annual reports and 0 otherwise. The total risk management intensity score ranges from 0 to 3.	Chen <i>et al.</i> (2020), Cooray <i>et al.</i> (2020), Florio and Leoni (2017), González <i>et al.</i> (2020), Perera <i>et al.</i> (2024),

Control variables	A dummy variable indicating industry environmental sensitivity, coded 1 if the firm operates in an environmentally sensitive industry and 0 otherwise.	Busco <i>et al.</i> (2019), Raimo <i>et al.</i> (2020), Vitolla <i>et al.</i> (2020a), Vitolla <i>et al.</i> (2019)
Industry type (environmental sensitivity)		
Firm age	The number of years since the establishment of the firm	Busco <i>et al.</i> (2019), Vitolla <i>et al.</i> (2020a), Vitolla <i>et al.</i> (2020b), Vitolla <i>et al.</i> (2019)
Audit quality	A dummy variable indicating audit quality, coded 1 if the firm is audited by a Big Four audit firm and 0 otherwise.	Chouaibi <i>et al.</i> (2022), Erin and Adegboye (2022), Qaderi <i>et al.</i> (2023)
CSR/Sustainability committee	The existence of a separate sustainability/CSR committee	Qaderi <i>et al.</i> (2023), Raimo <i>et al.</i> (2020), Vitolla <i>et al.</i> (2020a)

Source: Authors’ own work

Table VIII

Descriptive statistics for continuous variables

Variable	Count	Mean	SD	Min	Max
IRQ	282	33.291	5.892	18	44
PROFIT	282	11.853	15.481	-63.726	63.204
FSIZE	282	10.408	1.809	5.972	14.483
LEV	282	2.924	3.649	0	12.088
ACSIZE	282	3.472	0.721	2	6
ACIND	282	79.474	15.705	50	100
BSIZE	282	9.280	2.069	5	13
BIND	282	43.974	15.658	14.286	100
BGD	282	1.050	0.931	0	4
OWNCON	282	75.373	17.115	34.44	97.9
INSTOWN	282	78.801	19.893	13.49	99.12
FOREIGNON	272 ¹	9.886	15.667	0	76.55
RMIN	282	1.355	1.238	0	3
FAGE	282	37.585	17.202	9	78

Source: Authors’ own work

Descriptive statistics for indicator variables

Variable	Count	Sample with 1	Percentage (%)	Sample with 0	Percentage (%)
CEODUAL	282	23	8.156	259	91.844
CSR_COM	282	85	30.142	197	69.858
BIG4	282	259	91.844	23	8.156
ENVIND	282	102	36.170	180	63.830

Source: Authors’ own work

¹ FOREIGNOWN is based on 272 observations, excluding 10 missing values from the total sample of 282.

Table IX

Variance inflation factor (VIF) values

Variable	VIF	1/VIF
FSIZE	3.730	0.268
LEV	3.220	0.310
RMIN	2.820	0.355
OWNCON	2.640	0.379
BSIZE	2.000	0.500
INSTOWN	1.910	0.524
ENVIND	1.860	0.537
BIND	1.850	0.542
BGD	1.670	0.599
FOREIGNOWN	1.630	0.612
FAGE	1.610	0.621
CEODUAL	1.510	0.662
ACSIZE	1.400	0.715
CSR_COM	1.310	0.762
ACIND	1.310	0.765
PROFIT	1.180	0.845
BIG4	1.160	0.863
Mean VIF	1.930	

Source: Authors' own work

Table X

Correlation analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) IRQ	1.000																	
(2) PROFIT	0.160***	1.000																
(3) FSIZE	0.501***	0.011	1.000															
(4) LEV	0.127**	-0.161***	0.640***	1.000														
(5) ACSIZE	0.137**	-0.082	0.272***	0.232***	1.000													
(6) ACIND	-0.062	-0.105	0.061	0.104	0.068	1.000												
(7) BSIZE	0.184***	0.117	0.324***	0.286***	0.300***	0.073	1.000											
(8) BIND	0.038	-0.070	0.468***	0.359***	0.236***	0.293***	-0.042	1.000										
(9) CEODUAL	-0.015	-0.146**	-0.020	-0.031	-0.123**	0.266***	0.003	0.012	1.000									
(10) BGD	0.269***	0.093	0.496***	0.411***	0.018	0.040	0.353***	0.229***	-0.002	1.000								
(11) OWNCON	-0.303***	-0.063	-0.578***	-0.484***	-0.211***	0.005	-0.474***	-0.223***	-0.056	-0.339***	1.000							
(12) INSTOWN	-0.174***	0.065	-0.104	-0.128**	-0.155***	-0.251***	-0.332***	0.096	-0.431***	-0.054	0.365***	1.000						
(13) FOREIGNOWN	0.157***	0.062	0.417***	0.122**	0.024	-0.068	-0.084	0.247***	0.090	0.051	-0.207***	0.157***	1.000					
(14) RMIN	0.209***	-0.056	0.625***	0.672***	0.119**	-0.016	0.097	0.356***	-0.148**	0.433***	-0.288***	0.024	0.249***	1.000				
(15) ENVIND	-0.015	0.101	-0.293***	-0.503***	-0.227***	-0.027	-0.131	-0.081	0.234***	-0.207***	0.024	-0.021	0.063	-0.533***	1.000			
(16) FAGE	0.115	-0.054	0.243***	0.042	0.216***	0.189***	0.376***	0.174***	0.147**	0.230***	-0.233***	-0.340***	0.051	0.030	0.019	1.000		
(17) BIG4	0.182***	0.033	0.077	-0.026	0.069	0.012	0.229***	-0.104	-0.053	0.086	-0.171***	-0.150**	0.028	-0.103	0.036	0.181***	1.000	
(18) CSR_COM	0.271***	-0.140**	0.165***	0.186***	-0.033	-0.042	0.083	-0.093	0.030	0.131**	0.031	-0.046	-0.077	0.243***	-0.221***	-0.201***	-0.002	1.000

, * denote significance at the 10% and 5% levels.

Source: Authors' own work

Table XI

Results for regression model 1 (RE) and model 2 (FE)

	IRQ Model 1 (RE)		IRQ Model 2 (FE)	
	IRQ		IRQ	
	β	z	β	t
PROFIT	0.014	1.28	0.017	1.50
FSIZE	1.074***	2.87	-0.159	-0.22
LEV	-0.175**	-2.19	-0.020	-0.20
ACSIZE	0.213	1.41	0.143	1.16
ACIND	-0.004	-0.61	-0.009	-1.17
BSIZE	-0.065	-0.52	-0.038	-0.33
BIND	0.002	0.16	0.000	0.04
CEODUAL	-0.140	-0.65	0.189	1.02
BGD	0.074	0.38	0.050	0.27
OWNCON	-0.048	-1.37	-0.039	-1.07
INSTOWN	0.004	0.54	0.012	1.35
FOREIGNOWN	-0.031	-1.02	-0.027	-0.73
RMIN	0.372*	1.82	0.345	1.68
ENVIND	0.961	0.59	0.000	(.)
FAGE	0.025	0.60	0.190*	1.71
BIG4	0.167	0.45	-0.096	-0.51
CSR_COM	0.176	0.92	0.058	0.31
Constant	24.028***	3.97	29.935***	4.56
Observations	272		272	
R ² (Overall)	0.309		0.021	
R ² (Within)	0.133		0.156	

z-statistics (t-statistics for FE) in parentheses.

Standard errors clustered at the firm level.

*, **, *** denote significance at the 10%, 5%, and 1% levels.

Note: The final regression sample consists of 272 firm-year observations (46 firms) after excluding observations with missing data on the foreign ownership variable. This ensures consistency across all estimated models.

Source: Authors' own work

Table XII

Convergent validity of the IRQ framework

IRQ Index	Proposed IRQ in the present study	Coding framework by Zhou <i>et al.</i> (2017)	IR scoreboard by Pistoni <i>et al.</i> (2018)
Proposed IRQ in the present study	1		
Coding framework by Zhou <i>et al.</i> (2017)	0.968***	1	
IR scoreboard by Pistoni <i>et al.</i> (2018)	0.868***	0.716***	1

*, **, *** denote significance at the 10%, 5%, and 1% levels.

Source: Authors' own work

Table XIII

Alternative explanatory variables

	Main Model		(1)		(2)		(3)		(4)		(5)	
	(RE)		PROFIT ALT		FSIZE ALT		LEV ALT		OWNCON ALT		RMIN ALT	
	β	z	β	z	β	z	β	z	β	z	β	z
PROFIT	0.014	1.28	-	-	0.012	1.11	0.014	1.23	0.015	1.21	0.015	1.38
FSIZE	1.074***	2.87	1.095***	2.98	-	-	0.915**	2.51	1.144***	3.15	1.038***	2.82
LEV	-0.175**	-2.19	-0.152*	-1.96	-0.103	-1.10	-	-	-0.135	-1.34	-0.122	-1.53
ACSIZE	0.213	1.41	0.215	1.41	0.181	1.22	0.216	1.46	0.219	1.42	0.250	1.56
ACIND	-0.004	-0.61	-0.004	-0.60	-0.009	-1.24	-0.004	-0.58	-0.005	-0.68	-0.001	-0.19
BSIZE	-0.065	-0.52	-0.058	-0.46	-0.087	-0.70	-0.048	-0.39	-0.055	-0.43	-0.024	-0.20
BIND	0.002	0.16	0.000	0.03	0.003	0.22	-0.001	-0.08	0.000	0.00	-0.003	-0.25
CEODUAL	-0.140	-0.65	-0.086	-0.42	0.039	0.18	-0.146	-0.65	-0.153	-0.62	-0.155	-0.71
BGD	0.074	0.38	0.069	0.36	0.082	0.41	0.063	0.32	0.056	0.29	0.090	0.44
OWNCON	-0.048	-1.37	-0.049	-1.38	-0.050	-1.46	-0.036	-1.03	-	-	-0.038	-1.15
INSTOWN	0.004	0.54	0.005	0.59	0.005	0.66	0.007	0.82	0.000	0.04	0.005	0.59
FOREIGNOWN	-0.031	-1.02	-0.030	-1.00	-0.021	-0.70	-0.027	-0.88	-0.029	-0.94	-0.019	-0.74
RMIN	0.372*	(1.82)	0.364*	1.82	0.504***	2.71	0.358*	1.78	0.390*	1.87	-	-
CSR_COM	0.176	(0.92)	0.163	0.88	0.137	0.70	0.186	0.99	0.133	0.67	0.130	0.74
BIG4	0.167	(0.45)	0.219	0.58	0.039	0.09	0.050	0.13	0.186	0.49	0.276	0.71
FAGE	0.025	(0.60)	0.023	0.56	0.068*	1.96	0.047	1.10	0.028	0.63	0.018	0.45
ENVIND	0.961	(0.59)	0.950	0.58	0.394	0.25	1.478	0.89	1.219	0.76	1.022	0.62
PROFIT_ALT	-	-	0.026	1.10	-	-	-	-	-	-	-	-
FSIZE_ALT	-	-	-	-	0.573***	2.90	-	-	-	-	-	-
LEV_ALT	-	-	-	-	-	-	0.185	0.14	-	-	-	-
OWNCON_ALT	-	-	-	-	-	-	-	-	-0.005	-0.27	-	-
RMIN_ALT	-	-	-	-	-	-	-	-	-	-	1.021**	2.27
Constant	24.028***	(3.97)	23.877***	3.97	29.273***	6.43	23.018***	3.91	19.922***	4.41	23.076***	3.90
Observations	272		272		272		272		272		272	
R-squared	0.309		0.301		0.295		0.244		0.311		0.293	

Standard errors clustered at the firm level.

*, **, *** denote significance at the 10%, 5%, and 1% levels.

Alternative variables include PROFIT as the return on assets, FSIZE as the natural logarithm of total sales, LEV as the total debt to total assets, OWNCON as the percentage of shares held by the largest shareholder and RMIN as the presence of CRO

Source: Authors' own work

Table XIV

Oster Test

Variable of Interest	Controlled β	Controlled R-squared	Uncontrolled β	Uncontrolled R-squared	Identified Set	Includes Zero
FSIZE	2.517	0.473	1.656	0.256	[0.688, 2.517]	No
LEV	-0.564	0.473	0.211	0.016	[-1.214, 1.353]	Yes
RMIN	1.177	0.172	1.037	0.046	[0.045, 1.177]	No

Note: This table reports on the Oster (2019) coefficient stability test for the statistically significant variables in the main model. The identified set is constructed using the coefficient and R-squared values from the controlled and uncontrolled regressions. Following Oster (2019), Rmax is set to 1.3 times the R-squared of the fully controlled model (Rmax = 0.615). Identified sets that exclude zero indicate robustness to omitted variable bias, whereas those that contain zero indicate that omitted variable bias exists.

Source: Authors' own work

Table XV

Random Effects (Lagged) Regression Results

IRQ Model 6 (Lagged RE)		
	β	z
L.PROFIT	0.006	0.52
L.FSIZE	0.982***	2.72
L.LEV	-0.106	-1.05
L.ACSIZE	0.249	1.41
L.ACIND	-0.001	-0.17
L.BSIZE	-0.012	-0.15
L.BIND	-0.000	-0.00
L.CEODUAL	0.132	0.47
L.BGD	0.001	0.01
L.OWNCON	-0.048*	-1.77
L.INSTOWN	0.002	0.26
L.FOREIGNOWN	0.012	0.71
L.RMIN	0.046	0.24
CSR_COM	0.035	0.21
BIG4	1.110	1.27
FAGE	0.033	0.62
ENVIND	0.668	0.39
Constant	23.603***	4.37
Observations	226	
R-squared	0.2626	

Standard errors clustered at the firm level.

*, **, *** denote significance at the 10%, 5%, and 1% levels.

Source: Authors' own work

Table XVI
Sub-sample analysis

	(1) Financial Firms		(2) Non-Financial Firms		(3) Interaction Model	
	β	z	β	z	β	z
PROFIT	0.011	1.10	0.027**	2.00	0.014*	1.77
FSIZE	1.673***	4.09	0.394	0.66	0.988***	2.71)
LEV	-0.322***	-3.21	0.963*	1.80	-0.203*	-1.84
ACSIZE	0.168	0.82	0.305	0.99	0.167	1.01
ACIND	-0.008	-0.87	0.005	0.34	-0.006	-0.74
BSIZE	0.001	0.01	-0.333*	-1.87	-0.078	-0.80
BIND	0.006	0.44	-0.024	-0.95	0.004	0.29
CEODUAL	0.000	(.)	-0.766	-0.80	-0.065	-0.08
BGD	0.020	0.12	0.110	0.31	0.076	0.48
OWNCON	-0.010	-0.35	-0.182***	-2.75	-0.054*	-1.90
INSTOWN	0.007	0.45	0.014	0.25	0.005	0.28
FOREIGNOWN	-0.014	-0.55	-0.035	-0.72	-0.034	-1.40
RMIN	0.072	0.27	0.552	1.55	0.586**	2.01
FAGE	-0.023	-0.52	0.042	0.67	0.031	0.72
BIG4	0.441	0.59	-0.463	-0.30	0.156	0.21
CSR_COM	0.324	1.08	0.080	0.19	0.181	0.74
1.FIN					1.886	1.01
1.FIN#c.RMIN					-0.539	-1.27
_cons	17.470***	(3.38)	41.644***	(5.07)	25.319***	5.97
Observations	126		146		272	
R2 (Overall)	0.398		0.192		0.282	

Notes: Random-effects regression with firm-clustered robust standard errors. z-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' own work