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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE



Sustainability committee effectiveness and integrated reporting quality in the oil and gas industry 'does corporate financial performance matter?'

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ABSTRACT

This study investigates the relationship between sustainability committee (SC) effectiveness and integrated reporting (IR) quality in the global oil and gas industry, focusing on the moderating role of financial performance. Drawing on stakeholders' and legitimacy theories, this study hypothesises that SC effectiveness positively influences IR quality and that financial performance moderates this relationship. Using a sample of 500 firm-year observations from 100 companies listed in Forbes Global 2000 from 2018 to 2022, the findings reveal that SC effectiveness significantly enhances IR quality. Specifically, SC size and diligence are positively linked to higher IR quality. Although the direct effect of SC independence on IR quality is insignificant, it becomes significant when financial performance is considered a moderating factor. Interestingly, financial performance negatively moderates the relationship between SC effectiveness and IR quality, although this effect disappears when analysing individual SC components separately. These results highlight the complex interplay among SC effectiveness, financial performance, and IR quality, suggesting that companies should focus on enhancing SC size and diligence to improve reporting quality, particularly in financially constrained firms. Additionally, to harness the positive moderating effect of financial performance, companies should ensure that financial resources are strategically allocated to support the sustainability committee's activities and promote a holistic view of value creation, incorporating financial and non-financial aspects.

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KEYWORDS

Sustainability committee effectiveness; Integrated reporting quality; Oil and Gas industry; corporate financial performance; Integrated reporting

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Corporate Governance; Accounting; Corporate Social Responsibility & **Business Ethics**

1. Introduction

In recent years, Integrated Reporting (IR) has emerged as a critical framework for corporate reporting (Songini et al., 2023). IR significantly departs from traditional financial reporting, primarily focusing on financial capital (Vitolla et al., 2019a, 2019b). It incorporates a more holistic approach, integrating financial and non-financial information to provide a comprehensive view of an organisation's performance and value-creation process (IIRC, 2013). This integrated approach reflects the growing recognition that long-term value creation depends not only on financial capital but also on manufactured, intellectual, human, social, relationship, and natural capital (Dragomir & Dumitru, 2023).

The roots of IR can be traced back to the early 2000s with the emergence of sustainability reporting and Global Reporting Initiative (GRI) guidelines (Eccles & Krzus, 2010). However, IR goes beyond sustainability reporting by integrating financial and non-financial information into a single report, emphasising the interconnectedness of these factors in driving long-term value (IIRC, 2013). This integrated approach has gained significant momentum in recent years, driven by increasing stakeholder demands for transparency, regulatory pressures, and the growing recognition of the materiality of Environmental, Social and Governance (ESG) factors in financial performance (Pistoni et al., 2018).

Numerous studies highlight the benefits of IR, including improved stakeholder engagement, enhanced transparency, better risk management, and increased access to capital (Pistoni et al., 2018; Qaderi et al., 2022, 2023; Vitolla et al., 2019a, 2020a, 2020b, 2020c; Qaderi et al., 2022). However, IR quality varies significantly across companies and industries. Factors such as board characteristics, CEO characteristics, corporate governance mechanisms, board committees, financial performance, stakeholder pressure, and external assurance have been identified as potential determinants of IR quality (Al-Shaer & Zaman, 2018; Burke et al., 2019; Kılıç & Kuzey, 2018; Pillai & Seetah, 2022; Raimo et al., 2021; Songini et al., 2020; Vitolla et al., 2019a, 2019b, 2020a, 2020b, 2020c).

Among these determinants, the role of sustainability committees (SC), also known as corporate social responsibility (CSR), health, safety, and environmental committees (HSE), has emerged as a critical area of inquiry (Velte, 2022; Wang et al., 2020; Zampone et al., 2024). This committee, tasked with overseeing an organisation's sustainability strategy and performance, is uniquely positioned to influence the quality of IR (Zampone et al., 2024). Prior research has suggested that the effectiveness of an SC committee, determined by factors such as its size, independence, and diligence, can significantly impact a company's sustainability performance and, consequently, the quality of its IR (Li et al., 2023; Wang et al., 2020). However, empirical evidence on this relationship remains mixed, warranting further investigation (Velte, 2022).

Moreover, the moderating role of financial performance in this relationship is intriguing and underexplored. While some studies find a positive association between financial performance and IR quality (Vitolla et al., 2020a, 2020b, 2020c), others report insignificant or negative relationships (Lawal & Yahaya, 2024). This suggests that financial performance may not have a direct, linear effect on IR quality but may interact with other factors, such as SC committee effectiveness. It is plausible that financially successful companies prioritise financial disclosures over the non-financial disclosures of IR, potentially diminishing the positive impact of an effective SC committee on IR quality.

This study focuses on the oil and gas industry, a sector with significant environmental and social impacts and, therefore, under intense scrutiny from stakeholders and regulators. The quality of IR in this industry is critical for maintaining legitimacy and a social license (Deegan, 2002; Suchman, 1995). Despite the growing interest in IR and sustainability committees, there is a research gap regarding their interplay, particularly within the oil and gas industry. Most previous studies have focused on the direct effects of sustainability committees on ESG performance, neglecting their potential influence on IR quality (Rao & Tilt, 2016). In addition, the moderating role of financial performance has not been adequately explored. This study aims to fill this research gap by examining the relationship between SC effectiveness and IR quality moderated by financial performance in the oil and gas industry.

This study contributes to the literature in several ways. First, it extends the understanding of the determinants of IR quality by focusing on the role of sustainability committees. Second, it examines the moderating effect of financial performance and provides insights into how financial conditions influence the relationship between sustainability committees and IR quality. Third, this study focuses on the oil and gas industry, which has unique sustainability challenges and financial characteristics. This study aimed to provide valuable insights for academics and practitioners by addressing these research gaps.

The remainder of this paper is structured as follows. The next section reviews the relevant literature on integrated reporting, SC effectiveness, and financial performance. The research methodology is described, followed by a presentation and discussion of the empirical findings. The final section concludes with the implications, limitations, and suggestions for future research.

2. Literature review and hypothesis development

2.1. Theoretical framework

This study is grounded in stakeholder theory articulated by Freeman (1984) and legitimacy theory, as discussed in Suchman (1995). The increasing demand for corporate transparency and accountability has led to a growing emphasis on sustainability reporting, mainly through IR (Pistoni et al., 2018). IR aims to provide a comprehensive view of an organisation's performance by integrating financial and non-financial information, including ESG factors (IIRC, 2013). This holistic approach aligns with

stakeholder theory, which emphasises the importance of addressing the needs and expectations of all stakeholders, not just shareholders (Freeman, 1984). By integrating financial and non-financial information, IR allows companies to communicate their value-creation processes more effectively to a broader audience, enhancing stakeholder engagement and trust (Qaderi et al., 2022). This study is particularly relevant to stakeholder theory, as it examines the role of sustainability committees in ensuring the quality of IR, which is a crucial mechanism for communicating with and responding to stakeholders.

Legitimacy theory further supports the relevance of IR, positing that organisations must operate within the bounds of societal norms and values to maintain their licenses to operate (Deegan, 2002; Suchman, 1995). Companies can enhance their legitimacy and reputation by disclosing their sustainability performance and demonstrating commitment to sustainable development (Al-Shaer & Zaman, 2018). Given its significant environmental and social impacts, the oil and gas industry are under particular scrutiny from stakeholders and regulators. Therefore, the quality of their integrated reporting is crucial for maintaining legitimacy. This study contributes to the legitimacy theory by examining how the effectiveness of sustainability committees as a governance mechanism can influence the quality of IR and, consequently, a company's legitimacy in the eyes of its stakeholders.

Within this theoretical framework, the role of the sustainability committee emerges as a critical factor in ensuring the quality and credibility of IR. The sustainability committee oversees an organisation's sustainability strategy and performance (Bebbington et al., 2008). Establishing these committees is often seen as a substantive move towards greater corporate accountability and commitment to long-term value creation (Tonello, 2010). The effectiveness of these committees, determined by factors such as their size, independence, and diligence, can significantly influence a company's sustainability performance and, consequently, the quality of integrated reporting (Burke et al., 2019). Therefore, this study contributes to the theoretical understanding of the role of sustainability committees in corporate governance and sustainability reporting by empirically examining their impact on IR quality in the oil and gas industry.

2.2. Empirical review and hypotheses development

2.2.1. SC effectiveness and IR quality

The stakeholder theory suggests that boards should balance the interests of all stakeholders (Freeman & Ambady, 2010; Rajan & Zingales, 1998). Stakeholders increasingly expect boards to have greater oversight of the social and environmental impacts (Burke et al., 2019; Eberhardt-Toth, 2017). To address these concerns, some boards have established a dedicated sustainability committee responsible for addressing sustainability-related issues (Eberhardt-Toth, 2017; Liao et al., 2015). Creating such committees can enhance the effectiveness of board oversight by delegating specific tasks (Spira & Bender, 2004) and proactively improving corporate performance (García-Sánchez et al., 2019).

The primary responsibilities of a SC committee are to manage sustainability risks and opportunities and meet stakeholder obligations (García-Sánchez et al., 2019; Peters & Romi, 2015). The committee monitors corporate actions aligned with stakeholders' interests by promoting transparency and reinforcing corporate sustainability awareness (García-Sánchez et al., 2019). Like audit committees, SC committees are responsible for sustainability disclosure and concerns parallel to financial accounting disclosure (García-Sánchez et al., 2019; Liao et al., 2015). However, the mere presence of such a committee may not always translate into improved sustainability outcomes. Gull et al. (2024) and Li et al. (2023) caution against the potential for 'greenwashing,' where companies may establish committees for symbolic purposes rather than for genuine commitment. This highlights the need to focus on the effectiveness of these committees rather than just their existence to understand their impact on corporate sustainability practices and reporting (Hamad et al., 2024; Li et al., 2023).

Prior research has yielded mixed results regarding the relationship between SC effectiveness and IR quality. While some studies found a positive association, others reported insignificant or negative relationships. Qaderi et al. (2022) found that larger boards with SCs, which implies larger SCs, are positively associated with increased IR disclosure. This suggests that larger committees may have more resources and diverse viewpoints to enhance the quality of IR (Qaderi et al., 2022). However, the relationship between the committee size and effectiveness is complex. An increased size may lead to coordination challenges and diffused responsibility, potentially hindering their effectiveness (Bédard et al., 2004; Mangena & Pike, 2005).

Furthermore, Al-Shaer and Zaman (2018) find that committee size (using an audit committee) is positively associated with sustainability report assurance. This indicates that larger committees may more likely engage in practices that enhance reporting credibility. Conversely, Velte (2022) found no significant association between sustainability committee implementation and materiality disclosure quality in integrated reports, suggesting that size alone is not a determining factor.

From a stakeholder-agency perspective, independent directors play a crucial role in CSR disclosure and performance (García-Sánchez et al., 2019). Independent directors address stakeholders' interests and concerns (García-Sánchez et al., 2019; Hill & Jones, 1992). Studies have shown that CSR committees with independent directors are more likely to be included in sustainability indices (Danvila del Valle et al., 2013) and that the proportion of independent directors on the board is associated with higher CSR and environmental performance (Harjoto et al., 2015; Mallin & Michelon, 2011). The independence of committee members is often seen as crucial for effective oversight and decision-making (Qaderi et al., 2022). Wang et al. (2020) They Liao et al. (2015) found that a higher proportion of independent directors on sustainability committees was positively associated with high-quality IR and greenhouse gas disclosure. This suggests that independent committees may be better equipped to make objective decisions that enhance the quality of IR. Jarboui et al. (2023) further support this finding that sustainability committee independence positively influences CSR performance in India, which could indirectly enhance IR quality.

Further evidence highlights that independent directors on sustainability committees enhance their overall effectiveness in overseeing sustainability-related issues (Michelon & Parbonetti, 2012). Independent directors improve monitoring and reporting quality by reducing information asymmetry and agency problems Velte (2022). In addition, sustainability committees with higher independence, expertise, diligence, and appropriate size have significantly improved the quality of sustainability disclosures and integrated reports (Peters & Romi, 2014). This highlights the importance of independent, well-structured sustainability committees to ensure high-quality, transparent, and reliable sustainability reporting and integrated disclosures.

The frequency of committee meetings serves as a key indicator of diligence and activity within an organisation (Wang et al., 2020). Diligent committees are more likely to engage with sustainability issues actively, ensuring that a company's sustainability strategy remains relevant and effective in the face of evolving challenges (Al-Shaer & Zaman, 2018). This active engagement is reflected in more comprehensive and balanced reporting in the integrated report, covering both positive achievements and areas for improvement. Empirical evidence on the relationship between sustainability committee meetings and IR quality is inconclusive. While some studies suggest a positive association between meeting frequency and reporting quality (Liao et al., 2015), others find no such significant relationship (Jarboui et al., 2023). In the Australian context, Chapple et al. (2017) observed a negative association between meeting frequency and the scope of CSR assurance, potentially indicating a narrower focus on reporting. These inconsistencies may be attributed to methodological variations across studies. For example, Liao et al. (2015) focused on the UK context, while Jarboui et al. (2023) examined Indian firms, and Chapple et al. (2017) studied Australian companies.

Sierra-García et al. (2015) identified a positive association between the assurance of CSR reports and the likelihood of disclosing integrated reports. This suggests that companies committed to transparency and accountability in their sustainability reporting, potentially driven by effective sustainability committees that oversee CSR reporting and assurance processes, are more likely to adopt integrated reporting. This further highlights the indirect role of the sustainability committee in influencing the IR quality of integrated reporting through its oversight of CSR processes.

Sustainability Committee effectiveness is a multifaceted concept encompassing size, independence, and diligence. Wang et al. (2020) found that the presence and effectiveness of sustainability committees increases IR quality. Li et al. (2023) found that committee effectiveness, measured by a composite score of various characteristics, is positively associated with environmental performance. This suggests that effective committees are crucial for promoting high-quality IR, considering all these factors. However,

Velte (2022) found no significant association between sustainability committees and materiality disclosure quality in integrated reports, indicating that the relationship between committee effectiveness and specific aspects of IR quality may require further investigation.

Empirical evidence presents a complex picture of the relationship between SC effectiveness and IR quality. While some studies suggest that larger, more independent, and more active committees are associated with higher IR quality, others have found insignificant or negative relationships. This consistently emphasises the importance of moving beyond a mere 'check-the-box' approach to sustainability committees and focuses on building effective committees that can contribute to improved sustainability performance and reporting. In the context of the oil and gas industry, where sustainability concerns are particularly salient, and the social license to operate is increasingly contingent on sustainable practices, the role of the sustainability committee in driving high-quality integrated reporting is paramount. It is expected that effective sustainability committees can foster a corporate culture that values transparency, accountability, and long-term value creation through their diverse roles in resource provision, strategic quidance, and stakeholder engagement. Such a committee can play a crucial role in ensuring that integrated reports accurately reflect the company's commitment to sustainability and progress towards achieving relevant goals. Based on this, we propose the following hypothesis:

H1: Sustainability committee effectiveness positively and significantly influences integrated reporting quality in the Oil and Gas Industry.

2.2.2. Moderation effect of financial performance on SC-IR quality relationship

The interplay between financial performance and IR quality is complex, and financial performance potentially acts as a double-edged sword. On the one hand, robust financial performance, often proxied by profitability metrics like Return on Assets (ROA) or Return on Equity (ROE), can provide companies with the slack resources needed to invest in comprehensive reporting mechanisms like IR (Vitolla et al., 2020b). Empirical evidence supports this perspective by demonstrating a positive association between profitability and high-quality IR in financial institutions (Vitolla et al., 2020b).

However, the relationship is not always linear. Some studies show that high financial performance does not necessarily translate into high-quality IR (Lawal & Yahaya, 2024). This is echoed in Kannenberg and Schreck (2019) comprehensive review that found inconclusive evidence on whether IR consistently enhances sustainability performance. The conflicting results further highlight this ambiguity in the financial sector. While Vitolla et al. (2020b) found a positive influence of profitability on IR quality, other studies, such as Cosmulese et al. (2019) and Matemane and Wentzel (2019), found no significant association in their analyses of financial institutions.

This divergence in findings suggests that financial performance may not be a direct driver but rather a moderator of the relationship between SC effectiveness and IR quality. Several studies suggest a moderating role of financial performance. For instance, Osazuwa and Che-Ahmad (2016) found that profitability positively moderates the relationship between eco-efficiency and firm value, suggesting that profitable firms are more likely to engage in and disclose eco-efficiency practices. Conversely, Affan and Wicaksana (2023) profitability strengthens the relationship between sustainability report disclosures and firm value, indicating that profitable firms may use sustainability reports to signal their financial health and commitment to long-term value creation. Furthermore, Bello et al. (2022) find that financial performance, measured by return on assets and equity, positively moderates the relationship between board attributes and corporate sustainability disclosure compliance.

In the case of companies within the oil and gas sector, it is plausible that financially successful companies, driven by a desire to maintain a favourable image, may prioritise financial disclosures over the non-financial aspects integral to IR (Osazuwa & Che-Ahmad, 2016). This could potentially undermine the role of sustainability committees in promoting a holistic view of value creation, a core tenet of IR. Consequently, the positive impact of SC effectiveness on IR quality might be weaker in financially successful firms because of a misalignment of priorities. This potentially negative moderating effect of financial performance is a critical consideration for companies and policymakers seeking to enhance the quality and comprehensiveness of integrated reporting. Given the complex and potentially conflicting effects of financial performance, we propose the following hypotheses:

H2: Financial performance moderates the relationship between sustainability committee effectiveness and integrated reporting quality in the Oil and Gas Industry.

3. Research methodology

3.1. Sample

This study examines the oil and gas industry by analysing 500 firm-year observations. The data come from 100 globally significant oil and gas companies. These companies are listed on the Forbes Global 2000 between 2018 and 2022, spanning 28 countries across four continents. A focus on the oil and gas industry is warranted because of its substantial environmental and social footprint, subjecting it to intense scrutiny from diverse stakeholders and regulatory bodies. IR quality within this sector is paramount for maintaining legitimacy and securing a social license to operate (Deegan, 2002; Suchman, 1995), among several other critical reasons. First, the oil and gas industry operations involve complex interactions with the environment and communities. IR provides a platform for transparently communicating the industry's efforts to manage its environmental impact, engage with stakeholders, and contribute to sustainable development. Second, the industry is transforming significantly amidst the global energy transition. IR can be crucial in demonstrating how companies adapt their strategies and operations to align with a lower-carbon future, enhancing investor confidence and attracting sustainable capital. Finally, given the sector's significant contribution to global greenhouse gas emissions, there is increasing pressure for greater accountability and transparency regarding climate-related risks and opportunities. IR can facilitate this by providing comprehensive disclosures on an industry's climate strategy and performance.

The timeframe chosen from 2018 to 2022 was particularly relevant for this study. These years provide a contemporary context that captures the latest trends and responses in IR and corporate governance practices in the oil and gas sector. Additionally, integrated reporting has gained traction globally during this period, with increasing adoption and refinement of IR practices, making it a critical window to analyse the effectiveness and evolution of IR quality (Vitolla et al., 2019b).

The Forbes Global 2000 list is grounded in its comprehensive and authoritative ranking of the world's largest and most influential public companies (AlHares et al., 2020; Zampone et al., 2024). This offers a diverse global perspective crucial for obtaining robust and broadly applicable findings (Bulgur et al., 2023). This list includes companies holding significant positions in their respective industries, ensuring that the companies selected for this study are influential and subject to substantial reporting obligations and practices (Forbes, 2024). Furthermore, previous studies, such as those by Bulgur et al. (2023), Zampone et al. (2024), AlHares et al. (2020) and Amran et al. (2022), utilised this list. This attests to the suitability of Forbes Global 2000 for examining the interplay between SC effectiveness, IR Quality and Financial Performance.

From the 151 oil and gas companies listed on Forbes Global 2000 between 2018 and 2022, a sample of 100 companies was selected based on specific criteria. This selection process considered firms with a consistent history of integrated reporting, comprehensive data availability across specified years, high market capitalisation, significant environmental impact, and a robust track record of corporate disclosures. This approach, supported by research from Orshi et al. (2019) and Murdianingsih et al. (2022), ensures the representativeness of the sample of companies actively engaged in integrated reporting and subject to the complex interplay of SC effectiveness, IR Quality and Financial Performance within the global oil and gas sector.

3.2. Model specification

Building upon recent studies by Songini et al. (2022), Bataineh et al. (2023) and Velte (2022), which have demonstrated the effectiveness of panel data analysis in similar contexts, this study adopted this methodology to examine the impact of SC effectiveness on the quality of IR.

A random effects model with robust standard errors was employed to account for potential unobserved company effects and the static nature of the data. The appropriateness of this model was confirmed by the Hausman test (p-value = 0.0534), which indicated no systematic difference between the fixed- and random-effects estimators.

The model was assessed for autocorrelation and heteroscedasticity, recognising the common challenges of panel data analysis. The Wooldridge test for autocorrelation in the panel data (p=0.0038) revealed the presence of autocorrelation. In contrast, the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity vielded a p-value of 0.1638, suggesting the failure to reject the null hypothesis of homoscedasticity. These robust standard errors correct for both autocorrelation and potential heteroscedasticity were still employed, ensuring the robustness of the results. The analysis used the following regression models:

Before moderation

$$IR_quality_{it} = \beta_0 + \beta_1 Cse_{it} + \beta_2 ROA_{it} + \beta_3 Fsize_{it} + \beta_4 Nat_{it} + \beta_5 Gnd_{it} + \beta_6 Age_{it} + \beta_7 Dual_{it} + \beta_8 Bsize_{it} + \beta_9 Bind_{it} + \varepsilon_{it}$$

After moderation

$$IR_quality_{it} = \beta_0 + \beta_1 Cse_{it} + \beta_2 ROA_{it} + \beta_3 ROA^*Cse_{it} + \beta_4 Fsize_{it} + \beta_5 Nat_{it} + \beta_6 Gnd_{it} + \beta_7 Age_{it} + \beta_8 Dual_{it} + \beta_9 Bsize_{it} + \beta_{10} Bind_{it} + + \varepsilon_{it}$$

Where:

SCe

IR_quality Integrated Reporting Quality

Sustainability Committee Effectiveness

ROA Return on Asset (Corporate Financial Performance)

Fsize Firm Size

Nat Board-level Nationality Diversity Gnd Board-level Gender Diversity Aae Board-level Age Diversity

Dual CFO Duality **Board Size** Bsize

Rind Board Independence Coefficients of Variables β

Error Term ε

3.3. Variables

3.3.1. Dependent variable

This study utilised the IR assessment tool developed by Pistoni et al. (2018), which is aligned with the International Integrated Reporting Council (IIRC) framework, ensuring adherence to established best practices (IFRS Foundation, 2022). This comprehensive tool goes beyond content evaluation and addresses a broader range of aspects of reporting quality (Pistoni et al., 2018). Its successful application in previous studies further reinforces its credibility (Raimo et al., 2021; Songini et al., 2020, 2022; Vitolla et al., 2019a, 2019b, 2020a, 2020b, 2020c).

The assessment tool focuses on four critical dimensions of Integrated Reporting (IR): content, background, assurance, reliability, and form (Pistoni et al., 2018). Each dimension was evaluated based on specific criteria, and the corresponding scores were assigned.

The content section thoroughly examined integrated reports on adherence to the eight IIRC elements. These elements include the organisational overview, external environment, strategy, resource allocation, performance, outlook, the basis of presentation, business model, risks and opportunities, and governance. In addition, it assesses the concepts of capital and value creation. Each element and concept were rated on a scale from 0 to 5, with a maximum content score of 50.

The background section evaluates introductory information in the integrated reports, covering seven aspects: the report's objectives, the rationale for adopting IR, the target audience, adherence to disclosure standards, the title, the CEO commitment level, and the individual responsible for the reporting

process (Pistoni et al., 2018). Each aspect received a score of 0 (absent) or 1 (present), with a maximum background score of 7.

The assurance and reliability dimension are evaluated based on internal audits, external verification, and awards or recognition. Similar to the background section, a score of 0 indicated absence and 1 indicated presence, with a maximum score of 3 for this dimension.

The form section assessed the accessibility, length, and readability of the report summary. Each element was rated on a scale from 0 to 5 (0=absent; 5=high quality), resulting in a maximum score of 15.

The overall IR quality score was calculated by summing the scores from the four sections, allowing each report to achieve a maximum total score of 75.

Pistoni et al. (2018) established a tool's reliability using Cronbach's alpha and achieved favourable results. In addition, this study employed measures to enhance data reliability and mitigate the subjectivity inherent in content analysis. Three research assistants meticulously followed a predefined coding procedure based on Krippendorf (1980). After a pilot test of ten reports, each researcher independently evaluated 20 additional reports. Upon completion of data collection, a comparative analysis revealed robust data reliability with a Krippendorff's alpha coefficient of 0.6993 (Hayes & Krippendorff, 2007), indicating a high level of agreement among the researchers.

3.3.2. Independent variables

SC effectiveness is operationalised as a composite measure that includes three key attributes consistent with prior research (Jarboui et al., 2023; Qaderi et al., 2022, 2023; Wang et al., 2020). First, the size of the SC was measured by the number of directors serving on the committee. Second, independence is captured by the proportion of independent directors in the SC. Finally, diligence was assessed based on the annual frequency of SC meetings. Following established methodological approaches (Wang et al., 2020), a composite score is calculated by assigning a value of 1 to each attribute if its value meets or exceeds the sample median and 0 otherwise, resulting in a total composite score ranging from 0 to 3. Higher scores indicate greater SC effectiveness.

3.3.3. Moderating variable

This study suggests that financial performance moderates the effect of SC effectiveness on IR quality. Financial Performance is defined as Return on Assets (ROA) (Al-Shaer & Zaman, 2018; Amosh et al., 2022; Fariha et al., 2022).

3.3.4. Control variables

Several control variables were integrated into the model to mitigate potential confounding factors influencing the relationship between SC effectiveness and IR quality. These variables encapsulate firm-specific characteristics that may affect IR practices, which is in line with prior research (Raimo et al., 2020; Songini et al., 2022; Tejedo-Romero & Araujo, 2022; Vitolla et al., 2020a, 2020b, 2020c). Firm size, measured by the natural logarithm of total assets (Raimo et al., 2020), is a proxy for organisational complexity and resources. Board-level nationality diversity, captured by the percentage of foreign directors on the board, reflects the extent of international perspectives and experience within the boardroom. Board-level gender diversity, measured as the percentage of female directors on the board, captures the degree of gender representation in corporate governance. Board-level age diversity, assessed by the average age of directors, indicates the range of generational perspectives on the board. CEO duality, a binary variable (1 if the CEO holds the chairman position and 0 otherwise), signifies the concentration of power at the organisation's top. Board size, measured by the number of directors on the board, represents the breadth of expertise and perspectives contributing to decision-making. Finally, board independence, measured as the percentage of independent directors on the board, reflects the degree to which the board is free from managerial influence.

4. Result and discussions

4.1. Descriptive analysis and correlation analysis

Table 1 presents the descriptive statistics for the variables used in this study and provides insights into the central tendency and variability of the variables, which are crucial for understanding the characteristics of the

Table 1. Descriptive statistics.

Variable	Obs	Mean	Std. Dev	Min	Max
IR quality	500	54.325	9.154	28	73
SCe	500	1.054	.666	0	2
ROA	500	.045	.066	093	.191
Fsize	500	10.144	1.343	7.357	12.702
Nat	500	.193	.169	0	.563
Gnd	500	.195	.117	0	.429
Age	500	61.473	4.411	39.05	73.1
Dual	500	.648	.478	0	1
Bsize	500	11.198	2.097	7	15
Bind	500	.632	.182	.333	.909

sample. The mean IR quality score of 54.325, with a standard deviation of 9.154, indicates that the quality of integrated reports varies considerably among the sample firms. The range of IR quality scores from 28 to 73 suggests a wide disparity in how companies adhere to IR principles. This finding aligns with previous studies that emphasise the variability in IR practices across different firms and industries (Pistoni et al., 2018; Vitolla et al., 2020a, 2020b, 2020c). The mean score for SC effectiveness was 1.054, with a standard deviation of 0.666, indicating moderate effectiveness. The range from 0 to 2 signifies that some firms have minimal to no SC effectiveness, whereas others exhibit moderate effectiveness. Prior research has underscored the critical role of sustainability committees in enhancing IR quality through diligent oversight and governance (Bataineh et al., 2023; Wang et al., 2020).

The mean ROA is 0.045, with a standard deviation of 0.066 and values ranging from -0.093 to 0.191, indicating significant differences in financial performance among the sample firms. Financial performance is a crucial moderating variable in this study as it influences a firm's capacity and willingness to engage in comprehensive IR practices (Vitolla et al., 2020a, 2020b, 2020c). The average firm size, measured by the natural logarithm of total assets, is 10.144, with a standard deviation of 1.343. The range from 7.357 to 12.702 shows that the sample includes relatively small and large firms. Firm size is a vital control variable because larger firms often have more resources to invest in comprehensive reporting (Raimo et al., 2020).

The mean values for board-level nationality diversity (0.193) and gender diversity (0.195) suggest a relatively low diversity within the boards of the sampled firms. Standard deviations of 0.169 and 0.117 highlight considerable variability in diversity practices. The average age of directors was 61.473 years, indicating a mature board composition. CEO duality, with a mean of 0.648, shows that many firms have a combined CEO and chairman role, which can influence board independence and decision-making (Hillman et al., 2007).

The mean board size is 11.198 directors, with a standard deviation of 2.097, indicating diverse board composition across firms. The average board independence is 0.632, with values ranging from 0.333 to 0.909, reflecting varying degrees of independent oversight within firms. Previous studies have highlighted that larger and more independent boards are associated with better governance practices and higher-quality reporting (Michelon & Parbonetti, 2012; Velte, 2022).

These descriptive statistics reveal a wide range of practices and outcomes among the firms in our sample. For instance, variability in IR quality scores suggests differing levels of adherence to IR principles, which may influence the effectiveness of sustainability committees. This is supported by the moderate mean score for SC effectiveness, which highlights varying levels of diligence and oversight across firms. Additionally, the significant differences in financial performance, as indicated by ROA, further highlight the diverse financial health of the sampled firms and their potential impact on IR practices. The variability in board diversity measures, such as nationality and gender, along with CEO duality and board size, suggests that differing governance structures may influence IR quality. Larger firms with more resources may be better positioned to invest in comprehensive reporting, as indicated by their size. In contrast, firms with more diverse and independent boards may provide better oversight and produce higher-quality reports.

The analysis in Table 2 provides valuable insights into the relationships between variables and the potential for multicollinearity in the regression model through pairwise correlations and Variance Inflation Factor (VIF) analysis.

A correlation matrix revealed several significant associations. A strong positive correlation (0.354) exists between Sustainability Committee Effectiveness (SCe) and IR quality, lending preliminary support to the hypothesised positive relationship. Notably, Board Gender Diversity (Gnd) and Board Independence (Bind)

Table 2. Pairwise correlations.

Variables	VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) IR quality		1.000									
(2) SCe	1.12	0.354***	1.000								
(3) ROA	1.38	-0.039	-0.027	1.000							
(4) Fsize	1.13	0.170***	0.128***	-0.057	1.000						
(5) Nat	1.35	0.350***	0.008	-0.049	0.075*	1.000					
(6) Gnd	1.27	0.535***	0.197***	-0.120***	0.146***	0.471***	1.000				
(7) Age	1.10	-0.240***	-0.128***	0.068	-0.064	-0.082*	-0.059	1.000			
(8) Dual	1.11	0.290***	0.186***	0.035	-0.047	0.106**	0.219***	-0.033	1.000		
(9) Bsize	1.19	0.025	0.001	-0.046	0.238***	-0.139***	-0.168***	-0.181***	-0.184***	1.000	
(10) Bind	1.27	0.533***	0.149***	0.021	0.147***	0.321***	0.405***	-0.107**	0.121***	-0.013	1.000

^{***} p < 0.01.

also exhibited moderate positive correlations with IR quality (0.535 and 0.533, respectively), suggesting their potential influence on reporting quality.

Interestingly, Financial Performance (ROA) shows negligible correlation with most other variables, including IR quality (-0.039) and SCe (-0.027). This suggests that financial performance might not directly influence IR quality or SC effectiveness linearly, thus opening avenues to explore potential moderating effects.

Importantly, the maximum observed correlation coefficient of 0.535 falls well below the thresholds of ± 0.7 or ± 0.8 suggested by Tabachnick and Fidell (2001) and Gujarati and Porter (1995) as indicators of problematic multicollinearity. Furthermore, the VIF values, with a maximum of 1.38, were considerably below the problematic threshold of 10, as Gujarati and Porter (1995) and Myers (1990) recommended.

These findings collectively indicate that multicollinearity is not a significant concern in this study and that the correlations between variables do not substantially threaten the meaningful interpretation of the regression model results. However, moderate correlations highlight the complex interplay between various factors influencing IR quality, emphasising the need for a comprehensive analysis considering the combined effects of SC effectiveness, financial performance, and other governance characteristics.

4.2. Basic analysis

The random effects panel regression results in Table 3 provide compelling insights into the relationship between SC effectiveness and IR quality in the oil and gas industry.

In the model before moderation (Model 1), the coefficient of SC effectiveness is positive and significant (β =1.13, p<0.05), providing initial support for Hypothesis 1 (H1), which posits a positive influence of SC effectiveness on IR quality. This positive influence strongly resonates with the core tenets of stakeholder and legitimacy theories. By actively engaging with diverse stakeholders and overseeing ESG performance, effective sustainability committees facilitate more transparent and comprehensive disclosure of a company's sustainability efforts. This transparency aligns with stakeholders' expectations, who increasingly demand greater corporate accountability, thus reinforcing the company's legitimacy and social license to operate. These findings highlight that effective sustainability committees are instrumental in bridging the gap between corporate actions and stakeholder expectations, fostering trust and long-term value creation.

The observed positive influence of SC effectiveness on IR quality supports the existing empirical literature. Previous studies, such as those of Li et al. (2023) and Wang et al. (2020), have also highlighted the crucial role of effective sustainability committees in promoting high-quality integrated reporting. These committees, characterised by independence, diligence, and appropriate size, are better positioned to oversee sustainability-related issues, ensure data accuracy, and promote transparency. The convergence of these findings with prior research strengthens the argument that effective sustainability committees serve as cornerstones for enhancing the credibility and usefulness of integrated reports, ultimately benefiting both the company and its stakeholders.

The model incorporating the moderation effect of financial performance (Model 2) uncovers a more intricate dynamic. While the primary effect of SC effectiveness on IR quality remains positive and significant (β =1.68, p<0.01), the interaction term between SC effectiveness and financial performance (ROA)

^{**} p < 0.05.

^{*} p < 0.1.



Table 3. Random effect panel regression results.

	(1)	(2)	
Variables	Before moderation	After moderation	
SCe	1.13**	1.68***	
	(0.55)	(0.61)	
ROA	4.26	18.56***	
	(4.13)	(6.02)	
SCe*ROA		-12.38***	
		(4.11)	
Control Variables			
Fsize	0.43	0.38	
	(0.32)	(0.30)	
Nat	6.40**	6.36**	
	(3.00)	(2.96)	
Gnd	17.30***	17.35***	
	(3.52)	(3.46)	
Age	-0.30***	-0.29***	
	(0.09)	(0.09)	
Dual	4.15***	4.11***	
	(1.00)	(0.98)	
Bsize	0.09	0.08	
	(0.19)	(0.19)	
Bind	12.67***	12.85***	
	(2.48)	(2.45)	
Constant	51.32***	50.65***	
	(7.55)	(7.42)	
Year Dummies	Yes	Yes	
Observations	500	500	
Number of Com_id	100	100	

Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

Notes: n = 500.

is negative and significant ($\beta = -12.38$, p < 0.01), lending support to Hypothesis 2 (H2). This finding suggests that the positive influence of SC effectiveness on IR quality is attenuated in financially well-performing firms. This finding aligns with the underpinnings of legitimacy theory, which posits that organisations strive to maintain their license to operate by aligning their actions with societal expectations. In the context of financially successful companies, the pressure to sustain this success may lead to prioritising financial disclosures over non-financial disclosures that are integral to comprehensive IR. This could create a misalignment of priorities where the emphasis on financial performance overshadows the broader stakeholder-centric approach that sustainability committees advocate.

This interpretation is consistent with the observations of Lawal and Yahaya (2024), Cosmulese et al. (2019) and Matemane and Wentzel (2019), who noted that high financial performance does not always translate into high-quality IR. The pursuit of maintaining a favourable financial image may inadvertently diminish the role of sustainability committees in championing a holistic view of value creation, a core tenet of IR. As such, the positive impact of SC effectiveness on IR quality may be weaker in financially successful firms because of a potential conflict between short-term financial goals and long-term sustainability objectives. This finding highlights the complex interplay between financial performance and sustainability reporting. While financial success can provide the resources necessary for comprehensive reporting, it can also create a bias towards financial disclosures at the expense of non-financial disclosures. This highlights the need for a balanced approach that recognises the importance of both financial and non-financial performance in achieving sustainable value creation.

Among the control variables, several exhibited significant associations with IR quality. Board gender diversity ($\beta = 17.30$, p < 0.01) and board independence ($\beta = 12.67$, p < 0.01) were positively associated with IR quality, consistent with prior research emphasising the importance of diverse perspectives and independent oversight in enhancing reporting quality (Jarboui et al., 2023; Qaderi et al., 2022). Additionally, board nationality diversity is positively associated with IR quality (β =6.40, p<0.05), suggesting that international perspectives contribute to comprehensive reporting practices. The negative coefficient for board age diversity ($\beta = -0.30$, p < 0.01) may indicate a preference for younger, more adaptable boards navigating IR complexities. The significantly positive coefficient of CEO duality (β =4.15, p<0.01) could reflect the CEO's pivotal role in driving IR initiatives when holding CEO and board chair positions.

These findings contribute to understanding the complex relationship between SC effectiveness, financial performance, and IR quality in the oil and gas industry. These results highlight the importance of effective sustainability committees in enhancing reporting quality, particularly in financially constrained firms. This study also highlights the significance of board diversity and independence in promoting comprehensive and transparent reporting practices.

4.3. Robustness analysis

Table 4 shows the robustness of the random effects panel regression results for this study, highlighting the effectiveness of SC by examining three components: size (SCsize), independence (SCind), and diligence (SCdil). It explores their individual effects on IR quality and assesses the moderating impact of financial performance before and after financial performance's moderation.

The analysis revealed that SCsize, SCind, and SCdil significantly impact IR quality. Specifically, SCsize exhibits a positive and highly significant relationship with IR quality in both models. In the model before moderation, the coefficient for SCsize is 1.35 (p<0.01) and remains significant at 1.31 (p<0.01) when the moderating effect of ROA is included. This indicates that larger sustainability committees are consistently associated with higher IR quality, aligning with the finding of Qaderi et al. (2022) that larger committees bring more resources and diverse perspectives, thus enhancing reporting quality.

SCind showed a positive but initially insignificant effect on IR quality in the model before moderation (coefficient of 1.83). However, its significance increased when the moderating variable ROA was introduced, with a coefficient of 2.50 (p < 0.05). This finding suggests that independent directors on sustainability committees positively influence IR quality, mainly when accounting for financial performance. This

Table 4. Robustness random effect panel regression results.

	(1)	(2)
Variables	Before Moderation	After Moderation
SCsize	1.35***	1.31***
	(0.41)	(0.42)
SCind	1.83	2.50**
	(1.27)	(1.27)
SCdill	0.96***	1.05***
	(0.20)	(0.22)
ROA	4.36	21.24
	(3.75)	(14.51)
SCsize*ROA		0.94
		(2.50)
SCind*ROA		-15.77
		(11.36)
SCdill*ROA		-1.76
		(1.63)
Control Variables		
Fsize	0.45	0.44
	(0.31)	(0.30)
Nat	4.03	4.32
	(2.68)	(2.65)
Gnd	13.68***	13.46***
	(3.62)	(3.58)
Age	-0.26***	-0.26***
	(0.09)	(0.09)
Dual	3.83***	3.80***
	(1.02)	(1.01)
Bsize	-0.04	-0.04
	(0.18)	(0.18)
Bind	10.56***	10.59***
	(2.43)	(2.40)
Constant	42.72***	41.76***
	(7.33)	(7.35)
Year Dummies	Yes	Yes
Observations	500	500
Number of Com_id	100	100

Robust standard errors in parentheses.

*** *p* < 0.01, ** *p* < 0.05, * *p* < 0.1.

Notes: n = 500.

finding is consistent with the studies by Wang et al. (2020) and Liao et al. (2015), which emphasise the importance of independent directors in enhancing governance and reporting practices.

SCdil also demonstrated a positive and highly significant impact on IR quality, with coefficients of 0.96 (p < 0.01) before moderation and 1.05 (p < 0.01) after moderation. This highlights the importance of diligent oversight by sustainability committees in improving the quality of IR. The significant effect of diligence aligns with Al-Shaer and Zaman (2018) arguments regarding the critical role of active and engaged committees in ensuring comprehensive and balanced reporting.

The interaction terms of SC*size, SCind, and SCdil with ROA (Scsize*ROA, Scind*ROA, and Scdil*ROA, respectively) provide further insights. Scsize*ROA shows a positive but not statistically significant coefficient (0.94), indicating that the effect of the size of the sustainability committee on IR quality is not significantly moderated by financial performance. Conversely, Scind*ROA presents a negative and non-significant coefficient (-15.77), suggesting that the positive impact of committee independence on IR quality might be dampened in financially well-performing firms. This could imply that the emphasis on financial metrics may overshadow profitable firms' non-financial reporting quality. Scdil*ROA also shows a negative but non-significant coefficient (-1.76), indicating no substantial moderating effect of financial performance on the diligence of the sustainability committee's impact on IR quality. These findings highlight the complexity of the interactions between governance mechanisms and financial performance in influencing reporting quality.

The control variables present several noteworthy results. Gender diversity (Gnd) showed a strong positive and significant relationship with IR quality in both models (13.68, p < 0.01; and 13.46, p < 0.01), underscoring the importance of diverse perspectives in enhancing reporting quality. Board independence (Bind) also consistently shows a significantly positive impact on IR quality (10.56, p < 0.01, and 10.59, p < 0.01), reinforcing the role of independent oversight in corporate governance (Michelon & Parbonetti, 2012). Conversely, board-level age diversity (Age) shows a significant negative relationship with IR quality (-0.26, p < 0.01) in both models), which suggests that generational diversity poses challenges in achieving cohesive and comprehensive reporting (Liao et al., 2015).

In summary, the robustness tests indicate that sustainability committee size and diligence positively influence IR quality, whereas the impact of independence becomes significant when accounting for financial performance. The interaction effects suggest the nuanced roles of financial performance in these relationships, emphasising the importance of considering governance structures and financial health in assessing reporting quality. These findings contribute to a broader understanding of how sustainability committees and firm performance interact to shape integrated reporting practices, aligning with the theoretical frameworks of stakeholder and legitimacy theories (Deegan, 2002; Freeman, 1984).

5. Conclusion

In conclusion, this study provides compelling evidence for the critical role of Sustainability Committees (SCs) in fostering high-quality Integrated Reporting (IR) in the global oil and gas industry. Our findings robustly support the positive influence of SC size and diligence on IR quality, underscoring their significance in promoting comprehensive, transparent reporting practices. This aligns with stakeholder theory, which posits that effective governance mechanisms are crucial for addressing stakeholders' diverse needs and expectations. Larger and more diligent SCs may be better equipped to gather and process information from a broader range of stakeholders, leading to more inclusive and informative reporting.

Although the direct effect of SC independence on IR quality was initially insignificant, the robustness check revealed its potential importance when considering the moderating role of financial performance. This observation resonates with legitimacy theory, suggesting that organisations must navigate societal expectations to maintain their operating licenses. In financially successful firms, heightened stakeholder scrutiny may necessitate greater SC independence to ensure objective and credible reporting, thereby bolstering a company's legitimacy.

The moderating effect of financial performance on the relationship between overall SC effectiveness and IR quality further highlights the dynamic interplay between financial and non-financial considerations. This finding suggests that financial health can influence how SC effectiveness translates into reporting quality, potentially because of the shifting priorities and pressures associated with financial success. The absence of this moderating effect at the individual SC attribute level highlights these factors' complex and interconnected nature, emphasising the need for a holistic approach to SC formation and management.

This study reveals a nuanced interplay between financial health and governance structure. The study highlights that financial performance is not merely a contextual factor but an active force-shaping reporting practice. For financially robust firms, the imperative to sustain profitability may inadvertently create a 'financial primacy' mindset. This could potentially overshadow the broader sustainability agenda and attenuate the positive influence of SCs on IR quality. Both stakeholder theory and legitimacy theory can explain the tendency of financially successful companies to prioritise short-term financial gains. The stakeholder theory suggests that this prioritisation may favour shareholders' interests over those of other stakeholders concerned with long-term sustainability. Legitimacy theory highlights the challenge for companies in balancing financial success by meeting broader societal expectations for sustainable practices.

While financial success is undoubtedly essential, an excessive focus on financial performance at the expense of sustainability considerations may erode a company's legitimacy in the eyes of stakeholders who increasingly demand responsible and sustainable business practices. This dynamic interplay highlights the importance of embedding sustainability considerations within the core strategic framework of the firm, ensuring that governance mechanisms such as SCs are empowered to advocate for long-term value creation, even amidst periods of financial prosperity. It further highlights the need for a robust corporate culture that values financial and non-financial performance, fostering an environment where sustainability is not viewed as a trade-off but as an integral component of long-term success and legitimacy.

This study contributes to stakeholder and legitimacy theories by providing a more nuanced understanding of how governance mechanisms, particularly SCs, can influence corporate reporting practices. For practitioners, these findings emphasise the strategic importance of SC composition and functioning, highlighting the need to prioritise independence, size, and diligence to enhance the quality and credibility of integrated reports. Moreover, the results highlight the interconnectedness of financial performance and sustainability considerations, suggesting that a balanced approach is crucial for achieving long-term value creation and maintaining legitimacy among stakeholders. By recognising and addressing the complex interplay between these factors, companies can foster a sustainable and responsible business model that benefits all stakeholders.

Although this study offers significant insights into the role of sustainability committees in enhancing IR quality, certain limitations should be acknowledged. First, although the research is longitudinal and captures changes over time, it focuses exclusively on the oil and gas industry, which may limit the generalizability of the findings to other sectors. This industry-specific focus suggests that the dynamics observed here may differ in other contexts with varying regulatory environments and stakeholder expectations. Second, the study primarily utilises quantitative methods, which, while robust in analysing trends and relationships, may overlook the nuanced, qualitative aspects of how sustainability committees influence IR practices. Third, this study's reliance on financial performance (ROA) as a moderating variable might not fully capture the complexities of financial health, potentially oversimplifying the interaction between financial success and sustainability efforts. Finally, while the analysis emphasises SC size, independence, and diligence, it does not account for other potentially influential factors, such as the expertise or experience of SC members, which could play a critical role in determining the effectiveness of these committees.

Future research should address these gaps by exploring the dynamic interplay among SC characteristics, financial performance, and IR quality across different industries. Additionally, qualitative studies could delve into the underlying mechanisms through which SCs contribute to improved reporting outcomes, offering a richer and more detailed understanding of the processes at play. Future research could incorporate additional financial metrics or qualitative assessments to comprehensively understand this relationship. By addressing these research gaps, we can refine our understanding of how to effectively leverage sustainability committees to promote transparency and accountability in the oil and gas industry and beyond.

In summary, this study provides a compelling case for the strategic importance of sustainability committees in enhancing IR quality. By fostering a deeper understanding of the complex relationship between



SC effectiveness, financial performance, and IR quality, this study offers a clear path forward for companies and policymakers seeking to navigate the evolving corporate sustainability and reporting landscape.

Ethical approval

The author did not conduct experiments involving humans or animals.

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Data availability statement

If necessary, data can be requested from the author.

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