Integrated reporting adoption, disclosure, and media legitimacy: Evidence from the IIRC Pilot Programme

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Accepted for publication in Meditari Accountancy Research.

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Abstract

Purpose – In recent years, several businesses worldwide have started to adopt a more integrated approach to corporate disclosure, following the integrated reporting (IR) framework. This paper explores whether and how a firm's voluntary decision to adopt integrated reporting and the extent of its integrated disclosure impact negative media coverage related to ESG issues.

Design/methodology/approach – The study investigates the disclosures of 93 international firms from the International Integrated Reporting Council (IIRC) Pilot Programme and a matching sample of 93 similar firms issuing traditional sustainability reports to assess the impact on media coverage around ESG issues. The final sample consists of 1,116 company-year observations over a six-year period.

Findings – The results indicate that the voluntary adoption of integrated reporting alone does not significantly impact a firm's level of media exposure. However, greater alignment of integrated disclosures with the IR framework results in reduced negative media exposure. These findings hold when the negative exposure is related solely to governance issues, but not when it pertains only to social or environmental issues.

Originality/value – This study provides evidence that a greater extent of integrated disclosure leads to more favourable media coverage of a business regarding ESG issues. This suggests that the media use the information disclosed by companies to inform their news and positively value the disclosure provided, especially when it aligns with the IR framework.

Research limitations/implications – The results of this study contribute to accounting and business research on media and corporate disclosure by providing new insights into how the media value integrated corporate disclosures. The results indicate that the media particularly value the adoption of the IR framework when it is applied more extensively, especially in relation to governance issues. They also demonstrate that analysing this reporting tool benefits from a perspective rooted in media legitimacy theory. This theory suggests that when facing negative media coverage, businesses can use corporate disclosures to shape media attention and restore their legitimacy.

Practical implications – The findings of our work provide valuable insights for practitioners and the IFRS Foundation, guiding the refinement of the IR framework and reinforcing the growing global emphasis on corporate social and environmental performance. Furthermore, the study's implications extend to managers, investors, and policymakers. In accounting environments where IR is not mandatory, managers can use these insights to adopt IR practices, improving management quality through a comprehensive, integrated approach beyond financial metrics. Seeking external assurance can further strengthen the credibility of IR reports, fostering trust among stakeholders, including the media.

Keywords: Integrated Reporting; Media legitimacy; Negative media coverage; Voluntary adoption; Voluntary disclosure.

1. Introduction

Integrated Reporting (IR) and its implementation have attracted the interest of accounting academics and practitioners globally. Studies on the topic are constantly growing, and new aspects of its adoption are emerging; however, distinctions in this growing literature are necessary. Several studies have targeted South Africa, which has made IR compulsory for listed companies. In this context, some studies have focused on the quality of the reports (Sinnewe, Yao, & Zaman, 2021) and their alignment with the IR Framework (Nguyen, Nguyen, Tran, Nguyen, Hoang, & Do, 2022; Zhou, Simnett, & Green, 2017), while others have investigated the impacts of IR adoption (Barth, Cahan, Chen, & Venter, 2017; Bernardi & Stark, 2018; Lee & Yeo, 2016). Other studies have looked into the voluntary adoption of IR and identified the factors and firm characteristics that may determine such adoption (e.g., Alfiero, Cane, Doronzo, & Esposito, 2017; Fasan & Mio, 2017; Frías-Aceituno, Rodríguez-Ariza, & García-Sanchez, 2013; García-Sanchez, Rodríguez-Ariza, & Frías-Aceituno, 2013; García-Sanchez & Noguera-Gámez, 2018; Gerwanski, Kordsachia, & Velte, 2019). Instead, very few studies have investigated the impacts of voluntary IR adoption and focused only on its economic implications (Cortesi & Vena, 2019; Gerwanski, 2020; Hsiao, De Villiers, & Scott, 2022; Obeng, Ahmed, & Cahan, 2021; Wahl, Charifzadeh, & Diefenbach, 2020). To our knowledge, no previous study has examined the consequences of voluntary IR adoption by considering its impact on media attention, including the extent of firms' negative media exposure and stakeholders' focus, particularly regarding environmental, social, and governance (ESG) issues.

Negative attention from the media may negatively affect a company's reputation and increase its reputational risk, ultimately impacting its ability to compete in its markets (Deephouse, 2000). To avoid such negative consequences, companies might use corporate disclosure to shape media perceptions (Kuruppu, Milne, & Tilt, 2019). Although several studies have investigated shareholders' responses to corporate disclosure strategies (Healy & Palepu, 2001), how media react to corporate disclosure, whether financial and non-financial, represents an overlooked research area (Graf-Vlachy, Oliver, Banfield, König, & Bundy, 2020). This study aims to contribute to this literature by exploring whether and how firms' decisions to adopt the IR Framework and align their disclosure with the IR framework impact their negative media exposure related to environmental, social, and governance (ESG) issues.

To achieve this aim, we selected a sample of 93 international firms from the International Integrated Reporting Council (IIRC) Pilot Programme that started adopting the IR framework during the period 2011-2016 and a matching sample of 93 similar firms issuing traditional sustainability reports (TSR). We analysed their disclosure over six years: three years before IR adoption and three years after.

Our analysis reveals that the mere voluntary adoption of the IR framework has not significantly impacted the level of negative media attention on ESG issues. However, a significant reduction in this negative exposure was observed after the adoption of the IR framework, but only among companies that provided disclosures more aligned with the IR framework. Interestingly, our analysis also shows that when we analyse the negative exposure to environmental (E), social (S), and governance (G) issues separately, a significant reduction in the level of negative exposure is observed after the adoption of the IR framework among companies that provided disclosures more aligned with the IR framework, but only concerning governance issues. No significant reduction is recorded in the level of negative media exposure to environmental or social issues.

These results provide important practical and theoretical contributions. First, they provide evidence of a relationship between corporate voluntary disclosure and negative media coverage, building on a new and insightful measure that estimates the level of negative media exposure to material risks in environmental, social, and governance matters. This study

investigates a potential non-economic implication – the negative media coverage – of the voluntary adoption of the IR Framework and the extent of IR disclosure. The results suggest that the media value the adoption of the IR framework when applied more extensively, but mostly concerning governance issues, which are clearly emphasized in the IR framework, as opposed to the less explicit consideration of environmental and social aspects. This provides useful insights for the IFRS Foundation[1] to stress social and environmental aspects more explicitly.

Second, this study extends the literature on integrated reporting (e.g., Barth et al., 2017; Bernardi & Stark, 2018; Caglio, Melloni, & Perego, 2020; Nguyen et al., 2022; Obeng et al., 2021; Setia, Abhayawansa, Joshi, and Wasantha Pathiranage, 2024) by highlighting the importance of the quality of the disclosures in the eye of the public, suggesting that future developments should emphasize quality (and not mere engagement) with integrated disclosures.

Third, it contributes to the literature on media coverage (see Graf-Vlachy et al., 2020 for a review of these studies), which has mostly investigated the consequences of media coverage for businesses but has rarely studied how businesses can influence media, a phenomenon now pervasive due to the advent of digital technologies (Graf-Vlachy et al., 2020). Indeed, the study shows how a disclosure more aligned with the IR framework is associated with a reduction in negative media coverage, particularly on governance issues. In so doing, it confirms the assumption of media legitimacy theory, which suggests that facing negative media coverage, businesses can use corporate disclosures to shape media attention and regain their legitimation. To our knowledge, this is the first study to measure and investigate the extent of integrated disclosure by IR non-adopters.

Finally, this paper, indicating how media value the adoption of the IR framework when applied more extensively but mostly in relation to governance issues, is of interest to a broad interdisciplinary audience, including standard setters, policymakers, academics, practitioners, business managers, and consultants.

The rest of the paper proceeds as follows. In the next section, prior accounting research on integrated reporting and negative media coverage is presented, followed by the media legitimacy theoretical framework that underpins the study hypotheses. In the fourth section, we present the methodology, including the description of the sample, variable definitions, and analytical models used. The fifth section presents the results from the empirical analysis, followed by a discussion section. Concluding remarks and suggestions for future research are provided in the last section.

2. Integrated reporting, media coverage, and media legitimacy theory

This study is the first to examine the relationship between negative media coverage and the adoption of Integrated Reporting (IR) and its disclosure quality. To achieve its aim, the study builds on two main streams of accounting research: one focused on motivations and impacts of IR adoption and IR disclosure quality, and the other, analysing the impacts of media coverage on businesses under the media legitimacy theory. The following subsections provide an overview of results from these two streams of prior literature and the theoretical underpinnings of media legitimacy theory.

2.1 Impacts of IR Adoption and Disclosure

The growing academic interest in Integrated Reporting has led to several studies on the topic (for a comprehensive review, see Permatasari & Tjahjadi, 2024). Initial works on

[1] The IFRS Foundation has replaced the Value Reporting Foundation in 2022.

Integrated Reporting were primarily theoretical, discussing IR's potential to communicate an organisation's strategy, governance, performance, and prospects in a single document (IIRC, 2021, p. 10) to create value for its stakeholders (Adams, 2015; Busco, Malafronte, Pereira, & Starita, 2019; De Villiers, Rinaldi, & Unerman, 2014; Flower, 2015; Haller & Van Staden, 2014). The mandatory implementation of IR in South Africa, and its voluntary adoption elsewhere, has enabled more empirical research and deeper insights into this new reporting practice. Responding to calls for more research on IR practice (Dumay, Bernardi, Guthrie, & Demartini, 2016), researchers have explored its actual implementation in various contexts. Consequently, IR studies in accounting have attempted to construct measures of IR quality, resulting in varying levels of sophistication.

More recent studies have used the level of alignment to the IR framework to develop an IR quality score (Raimo, Vitolla, Marrone, & Rubino, 2020; Zhou et al., 2017) or referred to professional rankings of IR quality as provided by EY (Pistoni, Songini, & Bavagnoli, 2018; Wang, Zhou, & Wang, 2020). In particular, the IR quality scores measuring the level of alignment to the IR framework have helped with developing more empirical research studies on both IR quality determinants and impacts. For instance, Ahmed (2023) found that better corporate governance mechanisms can increase the IR alignment to the framework (Ahmed, 2023), while Wahl et al. (2020) found that increased levels of alignment can increase forecast accuracy and firm value.

Research has also identified the determinants of IR adoption and its quality (e.g., Alfiero et al., 2017; Frías-Aceituno et al., 2013; García-Sánchez et al., 2013; García-Sánchez & Noguera-Gamez, 2018; Gerwanski et al., 2019; Jensen & Berg, 2012), while fewer studies have examined the consequences of IR adoption and quality. Most of these studies focus on the economic implications of IR adoption and quality in a regime of mandatory adoption (e.g., Baboukardos & Rimmel, 2016; Barth et al., 2017; Bernardi & Stark, 2018; Caglio et al., 2020; Lee & Yeo, 2016; Zhou et al., 2017), primarily considering South Africa. Some studies examine both capital market effects (Andronoudis, Baboukardos, & Tsoligkas, 2024; Serafeim, 2015) and other effects (Churet & Eccles, 2014; Maniora, 2017). For instance, Andronoudis et al. (2024) found that changes in stock pricing after IR adoption are influenced by non-financial reporting information and its strong interconnectedness with financial reporting information.

Fewer studies have investigated the consequences of IR adoption and quality in contexts where IR use is voluntary (Permatasari & Tjahjadi, 2024). Among these, Zhou et al. (2017) found that in mandatory contexts the company's level of alignment to the IR framework can reduce the analysts' forecast errors, offering also a measure of IR disclosure quality. Cortesi and Vena (2019) found that voluntary IR adoption increases the value relevance of earnings but not book value. Landau, Rochell, Klein, and Zwergel (2020) studied the market valuation of 50 STOXX Europe 50 companies, finding that IR quality is relevant for market valuation. Hsiao et al. (2022) showed that voluntary IR adoption increases analyst forecast dispersion and firm value for firms with higher sustainability performance but decreases firm value for firms with higher market performance. Gerwanski (2020) found that firms' cost of debt decreases after IR adoption, with a stronger effect for firms with lower ESG performance and those in environmentally sensitive industries. Wahl et al. (2020) found no significant impact on analyst earnings forecast accuracy and firm value, suggesting that voluntary adopters already had high transparency levels. Rossignoli, Stacchezzini, and Lai (2022) found that IR adoption increases analyst forecast accuracy only in contexts with strong institutional enforcement, such as Anglo-Saxon countries. More recently, firms applying IR practices are found to have lower agency costs (Obeng et al., 2021), and reduced tax avoidance practices (Donkor, Djajadikerta, Mat Roni, & Trireksani, 2022).

Reviews by Kannenberg and Schreck (2019), Perego, Kennedy, and Whiteman (2016), Permatasari and Tjahjadi (2024) and Velte and Stawinoga (2017) highlight the scant research

on the non-economic implications of IR adoption and disclosure. Only one published study, by Caglio et al. (2020), has included both economic and non-economic consequences of IR, finding that less readable IR disclosures are associated with more ESG controversies, and IR assurance moderates this negative association. However, evidence on the non-economic consequences of IR adoption and quality in voluntary contexts is still scant. Thus, our study aims to extend this literature by analysing a potential non-economic implication of voluntary IR adoption and the alignment of corporate disclosure with the IR framework, such as negative media coverage.

2.2 Media Coverage and Corporate Disclosures

Negative media attention can harm companies' reputations and increase their reputational risk, impacting their ability to compete (Deephouse, 2000). To avoid such consequences, companies may use corporate disclosure to shape media perceptions (Kuruppu et al., 2019). In response to negative media coverage, firms may disclose more information to align with societal values and restore legitimacy (Comyns, 2016; Deegan, 2002). However, the role of corporate disclosure in influencing media coverage is an underexplored area (Graf-Vlachy et al., 2020). Most business studies have focused on how media coverage impacts corporations (e.g., Bushman, Williams, & Wittenberg-Moerman, 2017; Griffin, Hirschey, & Kelly, 2011; Kothari, Shu, & Wysocki, 2009; Pollock & Rindova, 2003) and their disclosure decisions (e.g., Aerts & Cormier, 2009; Melis, Gaia, & Carta, 2015; Robinson, Xue, & Yu, 2011), with fewer studies investigating how businesses influence media decisions to cover them (Graf-Vlachy et al., 2020). Media exposure can act both as an antecedent and a consequence of corporate disclosure, as companies may try to influence media as well.

Most studies have investigated firm characteristics' role in media coverage, such as firm size (Bednar, 2012; Bushee, Core, Guay, & Hamm, 2010), firm performance (Bushee et al., 2010; Dai, Parwada, & Zhang, 2015), executive compensation (Core, Guay, & Larcker, 2008), and connections between firms, media, and journalists (Gurun & Butler, 2012; Rinallo & Basuroy, 2009; Shani & Westphal, 2016; Westphal & Deephouse, 2011). Few studies have focused on corporate disclosure's role in influencing media attention, primarily on press releases (Ahern & Sosyura, 2014; Bushee et al., 2010; Petkova, Rindova, & Gupta, 2013; Tsileponis, Stathopoulos, & Walker, 2020). Petkova et al. (2013) found that communications activities, including press releases, lead to higher levels of industry and general media attention. Ahern and Sosyura (2014) found that bidders issue press releases to stimulate media coverage during M&A negotiations, but the tone of these press releases does not impact the tone of the news. Tsileponis et al. (2020) found that press releases about firm performance increase the number of articles covering a firm. Bushee et al. (2010) found that media give firms more attention after press releases announcing earnings, especially when higher earnings are announced.

To our knowledge, no previous studies have investigated the roles that adopting an internationally recognised reporting framework, such as IR, and the type of information disclosed in corporate reports play in shaping media attention. Therefore, we aim to contribute to this literature by investigating if the voluntary adoption of the IR Framework and the alignment of corporate disclosures with the IR framework influence media coverage.

2.3 Media Legitimacy Theory

Legitimacy theory and media agenda-setting theory have been utilised in conjunction to elucidate corporate social and environmental reporting practices, giving rise to the so-called media legitimacy theory. Although these theories differ in content when considered separately, they complement each other in explaining why organisations increase their social and environmental disclosures in response to negative media coverage (Aerts & Cormier, 2009;

Brown & Deegan, 1998; Deegan, Rankin, & Voght, 2000; Elijido-Ten, 2011; Reverte, 2009; Watson, 2011).

Legitimacy theory revolves around the relationship between an organisation and society, based on the premise that a company must operate within the boundaries of a "social contract" to continue accessing resources and markets (Deegan, 2002). An organisation's right to exist is granted by society only if it is perceived to operate in a socially acceptable manner. Consequently, organisations make strategic decisions to maintain their legitimacy, adapting their activities and altering perceptions as necessary. Disclosure becomes paramount in communicating these activities and values to ensure that corporate behaviour is perceived as legitimate by the public (Gray, Kouhy & Lavers, 1995; Lindblom, 1994). Several accounting studies have adopted legitimacy theory to explain the voluntary discharge of social and environmental disclosure (Branco, Eugenio, & Ribeiro, 2008; Brown & Deegan, 1998; Deegan et al., 2000, 2002; Milne & Patten, 2002; Patten, 1991; Slack & Shrives, 2008), as companies strategically produce reports and disclosures to acquire or maintain legitimacy (Ashforth and Gibbs, 1990; Oliver, 1991). Integrated Reporting has also been found to be strategically utilised by companies for legitimisation purposes (Busco et al., 2019). However, some scholars have recently emphasised the need to update the legitimacy theory approach by considering new ways of measuring legitimacy (Aerts & Cormier, 2009) and acknowledging the contemporary business environment characterised by new pressures, such as social media (Deegan, 2019).

Media agenda-setting theory posits that the emphasis the media places on various topics shapes their relevance to the general public (Ader, 1995; McCombs & Shaw, 1972), thereby setting the public agenda. Increased media attention on a specific issue leads to greater public concern for that issue. Studies in accounting using media agenda-setting theory have demonstrated that media can raise public awareness of issues such as environmental or social concerns (Ader, 1995; Brown & Deegan, 1998) and that increased media attention on a specific topic is found to contribute to an increase in public concern regarding that same topic (McCombs and Shaw, 1972). Further studies have also found that the more negative the media attention, the more rapidly companies respond to such concerns through voluntary disclosure (De Villiers, 1999; Deegan, Rankin, & Tobin, 2002).

Considered together, legitimacy and media agenda-setting theory suggest that the media can drive public attention to certain issues, including specific business scandals or environmental and social problems, thereby causing a loss in legitimacy for the businesses involved in these scandals or problems (Comyns, 2016). Thus, media coverage has the potential to threaten a company's legitimacy, leading the company to implement various strategies to re-establish its legitimacy. One of these strategies is embracing or increasing corporate disclosure (Branco et al., 2008; Deegan, 2002; O'Donovan, 2002), especially by extending their sustainability reports (Brown & Deegan, 1998; Deegan et al., 2000). Indeed, many social and environmental studies have identified sustainability reporting and incremental disclosure as strategies to manage legitimacy when it is at risk (Bebbington & Larrinaga-González, 2008; Comyns, 2016; Deegan, 2002). Similarly, adopting Integrated Reporting (IR) can reflect a strategy to manage corporate legitimacy (Busco et al., 2019), particularly since IR is mostly voluntary, except in South Africa.

As a result, media legitimacy theory, as the synthesis of the two theories, posits that a direct relationship exists between media attention and legitimacy, as the extent of media attention devoted to a particular company or industry will negatively impact the legitimacy of the corporation involved. Since the media both reflect and shape public opinion on company activities, their coverage can serve as a proxy for the legitimacy granted by the public to corporations. By offering insight into the level of legitimacy recognised by the public, media coverage of a firm can provide a proxy of the firm's legitimacy as well as its change over time,

for instance, before and after a specific event or managerial decision (Deegan, 2019). Indeed, assessing legitimacy is challenging as it is not directly observable (Aerts & Cormier, 2009).

While previous studies have used proxies for legitimacy such as corporate performance, litigations, or company incidents, measuring legitimacy involves identifying social acceptance or rejection (Fombrun, 1996; Rao, 1994; Suchman, 1995; Zimmerman & Zeitz, 2002) and the collective opinion regarding the company's activities (Aerts & Cormier, 2009). Media coverage serves as a valuable proxy for legitimacy, given its role in disseminating information about companies and shaping public perception. The media's authority in accessing and evaluating information leads the public to trust and be influenced by media coverage when forming opinions on company activities. Consequently, positive or negative media coverage becomes a gauge of media legitimacy, prompting companies and their management to adjust their activities and decisions accordingly. Thus, we posit that companies will produce integrated reports or vary their disclosure quality to gain or maintain legitimacy, as represented by media coverage.

3. Hypotheses development

Prior literature has posited that increasing disclosure requirements, along with the quality and quantity of information disclosed, benefits users by reducing information asymmetries and agency conflicts (Healy & Palepu, 2001). Among these benefits, disclosure choices are often used as a legitimation strategy by businesses (Branco et al., 2008; Deegan, 2002; O'Donovan, 2002), especially when their legitimacy is at risk or has been lost (Bebbington & Larrinage-González, 2008; Comyns, 2016; Deegan, 2002). The media play a significant role in corporate disclosure due to their ability to shape public opinion and focus attention on specific companies or issues (Ader, 1995; McCombs & Shaw, 1972).

As stated by Bushee et al. (2010, p. 11), "the ultimate objective of the press is to maximise subscription and advertising revenues by attracting greater readership." To achieve this, media outlets aim to meet the information demands of their audiences and cover events and firms they believe will attract interest (Core et al., 2008; Graf-Vlachy et al., 2020). While audience demand can explain why firms are covered, it does not fully explain how they are covered. As Gurun and Butler (2012, p. 561) note, "not all media stories are created equal." Asymmetric disclosure by firms may influence the nature of media coverage (Kothari et al., 2009). Before reporting a story, media research facts and gather relevant information using available sources (Fengler & Ruß-Mohl, 2008).

Corporate disclosure, including the one on environmental, social and governance matters, is a crucial information source for media, supporting the accuracy of news coverage. Regarding increased disclosure of environmental issues, Reverte (2009) identified media exposure as the most significant factor, with corporate size and industry also playing important roles. Previous studies have found that media use corporate-disclosed information as one of their news sources (Ahern & Sosyura, 2014; Solomon & Soltes, 2012; Tsileponis et al., 2020).

Integrated Reporting (IR), an advanced form of corporate disclosure, aims to enhance disclosure quality by combining financial information, directed at investors and shareholders, with non-financial information for a broader audience of stakeholders (Caglio et al., 2020). Non-financial disclosure usually includes corporate environmental, social and governance (ESG) information to provide an account of how corporations deal with ESG matters. Supporters of IR believe it will increase corporate transparency, helping users understand how financial and non-financial resources contribute to value creation over time and enhancing accountability and stewardship of these resources (IIRC, 2021). Previous studies have found that mandatory IR adoption increases disclosure quality, reduces information asymmetry with investors, and ultimately increases firm value (Baboukardos & Rimmel, 2016; Barth et al.,

2017; Lee & Yeo, 2016). For example, Lee & Yeo (2016) found that IR is positively associated with firm valuation, particularly in complex firms, indicating that IR improves the information environment in such organisations.

IR can also help corporations reduce information asymmetry with media organisations, providing them with relevant financial and ESG information to make sense of the facts and events they cover. According to media legitimacy theory, changing disclosure choices can serve as a legitimation strategy when legitimacy is in doubt. A firm experiencing negative media coverage may face a legitimation crisis, and changing its disclosure choices can help restore legitimacy. In particular, a firm facing negative media coverage related to ESG matters may attempt to restore its legitimacy by adjusting its disclosure practices, such as adopting more ESG-sensitive disclosures. Since IR can enhance a company's accountability and stewardship regarding financial and ESG information, its adoption may positively affect media coverage of ESG issues and improve the company's legitimacy in the public's eyes. Based on these arguments, we propose the following hypothesis:

HP1: The adoption of the IR framework will lead to a reduction in the level of negative media coverage of ESG issues.

While previous studies have found that mandatory IR adoption reduces information asymmetry with investors (Baboukardos & Rimmel, 2016; Barth et al., 2017; Lee & Yeo, 2016), there is inconsistent evidence regarding voluntary IR adoption (Cortesi & Vena, 2019; Hsiao et al., 2022; Wahl et al., 2020). This variation may be due to voluntary IR adoption being driven by reputational and economic benefits, while mandatory adoption results from regulatory compliance (Lai, Melloni, & Stacchezzini, 2016; Obeng et al., 2021). In mandatory contexts (i.e. South Africa) Zhou et al. (2017) found that analysts' forecast errors reduce as a company's level of alignment with the IR framework increases (Zhou et al., 2017). Unlikely, in voluntary contexts managers have more discretion regarding IR content and alignment with the framework, leading to more variation in its benefits (Obeng et al., 2021). Companies that better align their disclosures with the IR framework are more likely to achieve the IIRC's aims of improving corporate understanding and reducing information asymmetry (Obeng et al., 2021).

Moreover, according to media legitimacy theory, companies facing legitimacy threats from negative media coverage tend to increase disclosure (Islam & Deegan, 2010) or report more positively in their sustainability reports (Deegan et al., 2000; Patten, 1991) to mitigate such coverage and restore legitimacy. Companies might disclose social and environmental information aligning more closely with societal values to regain legitimacy (Aerts & Cormier, 2009; Comyns, 2016; Deegan, 2002). Similarly, IR adopters facing negative media coverage may align more closely with the IR framework to restore legitimacy. These arguments lead to the following hypothesis:

HP2: Adopters more aligned with the IR framework will experience a greater reduction in negative media coverage.

4. Research design

4.1 Sample selection

To investigate our research hypotheses, we selected a sample of IR adopters and matched them with a control group of IR non-adopters, analysing their disclosures over six years: three years before IR adoption and three years after.

We began with all companies included in the Reputational Risk database as of July 2017 and matched them with companies registered on the International Integrated Reporting Council

(IIRC) Pilot Program that had adopted IR between 2011 and 2016, following the methodology of Lai et al. (2016). This process yielded an initial sample of 250 IR adopters. We then excluded 58 South African companies because South Africa is the only country where IR is mandatory. Additionally, to ensure a meaningful analysis, we eliminated companies from countries with fewer than three IR adopters, resulting in a sample of 145 companies.

For each of these 145 companies, we considered six years: the three years preceding IR adoption, the year of adoption, and the two years following adoption. We searched the corporate websites of these companies for their IR for the three years after official adoption and their annual and CSR reports for the three years before IR adoption. When these documents were unavailable on their websites, we contacted investor relations managers to obtain them. We excluded companies with incomplete IR/annual reports, reducing our sample to 129 companies.

For each IR adopter, we identified comparable non-adopters that had not yet adopted IR during the corresponding six-year period. Using the matching process from Lai et al. (2016), we matched companies based on industry sector classification (using 3-digit or 2-digit SIC codes when necessary), geographical region (same country if possible, or same continent), and size (based on asset volume). The firms also needed to have Reputational Risk data ratings available in the RepRisk database and data on other control variables available in Orbis and Eikon. In cases where a comparable company could not be found (due to missing documents, absence from the RepRisk database, or other issues), the corresponding IR adopters were eliminated from the sample.

After applying all filters, our final sample consisted of 1,116 company-year observations over six years, encompassing 186 unique companies: 93 IR adopters and 93 IR non-adopters (see Table 1). Depending on the year of IR adoption, our time span ranges from 2008 to 2018.

Insert Table 1

4.2 Regression model

To test our hypotheses, and investigate whether the adoption of the IR framework and the preparation of corporate reports that incorporate more integrated disclosure is associated with the extent of a firm's negative media coverage, we estimate the following regression model:[2]

$$\begin{aligned} Negative\ Media\ Coverage_{i,t+1} = {} & \alpha_0 + \beta_1\, IR\_Adopters_{i,t} + \beta_2\, Post\_Adoption_{i,t} + \\ & + \beta_3 Integrated\ Disclosure\ Index + \beta_4\, IR\_Adopters_{i,t} \times Post\_Adoption_{i,t} + \\ & \beta_5\, Integrated\ Disclosure\ Index \times IR\_Adopters_{i,t} + \\ & \beta_6 Integrated\ Disclosure\ Index \times Post\_Adoption_{i,t} + \\ & \beta_7 Integrated\ Disclosure\ Index \times IR\_Adopters_{i,t} \times Post\_Adoption_{i,t} + \\ & \beta_8\, Firm\ size_{i,t} + \beta_9\, ROA_{i,t} + \beta_{10}\, Firm\ Leverage_{i,t} + \beta_{11}\, Price\ to\ book\ value_{i,t} + \\ & \beta_{12}\, Stock\ return_{i,t} + \beta_{13}\, CSR\ performance_{i,t} + Year\ Fixed\ effect + \\ & Firm\ Fixed\ effect + \varepsilon_{i,t} \end{aligned} \quad (1)$$

The dependent variable *Negative Media Coverage* is regressed on the main variables of interests, *IR Adopters*, *Post Adoption* and *Integrated Disclosure Index*, their interaction terms, and a set of control variables. For Hypothesis 1, our attention is on the coefficient β_4 of the interaction term between the variables *IR Adopters* and *Post Adoption*. A negative and statistically significant coefficient β_4 indicates that firms that have adopted the IR framework

[2] All variables are winsorised to the 1st and 99th percentiles.

experienced a significantly lower negative media coverage after the adoption of the IR framework. For Hypothesis 2, our attention is on the coefficient β_7 of the interaction term between the variables *Integrated Disclosure Index*, *IR Adopters,* and *Post Adoption*. A negative and statistically significant coefficient β_7 indicates that firms that have adopted the IR framework experienced a significantly lower negative media coverage after the adoption of the IR framework when their disclosure was more aligned with the IR Framework.

To test our hypotheses, we used an incremental model approach in developing equation (1) which consists of three models. Model (1) includes all the control variables and considers only the effect of the main variables of interest: *IR Adopters*, *Post Adoption,* and *Integrated Disclosure Score* without the use of interaction terms. Model (2) includes all the control variables, the main variables of interest, and the interaction term between the variables *IR Adopters* and *Post Adoption*. Model (3) includes all the control variables, the main variables of interest and the triple interaction term between the variables *Integrated Disclosure Index, IR Adopters* and *Post Adoption*.

4.3 Variable definition

Dependent Variable. Our dependent variable is a firm's negative media coverage which is measured using the Reputational Risk Index (RRI) gathered from the RepRisk database (see Appendix A for more information on this database). The RRI is based on a proprietary algorithm that evaluates firms' exposure to ESG and business conduct risks, based on the level of media attention of company-related ESG issues.[3]

The RRI ranges from zero (lowest) to 100 (highest). The higher the value, the higher the risk of exposure due to higher negative media coverage (Berkan, Becchetti, & Manfredonia, 2021). Since the RRI is calculated for each firm monthly, while our period of observation is the financial year, we use the average of the RRI recorded during the firm financial year *t*. This was adjusted by the negative media coverage mean recorded in the same financial year by other companies operating in the same country and industry.[4]

Independent Variables. To test our hypotheses, we used interaction terms between three main variables of interest: IR Adopters, Post Adoption, and Integrated Disclosure Index. IR Adopters is a dichotomous variable that equals 1 if the company is in the treatment group (i.e., has adopted the IR framework) and 0 if it is in the control group. Post Adoption is a dichotomous variable that equals 1 in the years following the adoption of the IR framework and 0 otherwise. The Integrated Disclosure Index measures the alignment of integrated and annual reports with the IR framework. It is calculated as the ratio of the total number of integrated disclosure items (derived from a coding framework based on the IR Framework issued by the IIRC in December 2013) disclosed by a firm to the total items considered (see Appendix B).

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[3] RepRisk considers 28 ESG issues that are "selected and defined in accordance with the key international standards related to ESG issues and business conduct, such as the World Bank Group Environmental, Health, and Safety Guidelines, the IFC Performance Standards, the Equator Principles, the OECD Guidelines for Multinational Enterprises, the ILO Conventions, and more" (RepRisk, 2023, p. 1). As a way of example, an environmental issue is "animal mistreatment", such as "torture, mistreatment or abuse of animals, through experiments, husbandry, trophy hunting, etc." (RepRisk, 2023, p. 1). An example of social issue can be "child labour" which "refers to the use of child labor by an employer, according to the ILO Conventions" (RepRisk, 2023, p. 2). Finally, an example of a governance issue is "anti-competitive practices" which "refers to business or government practices that prevent, reduce or manipulate competition in a market." (RepRisk, 2023, p. 3).

[4] We make this adjustment following Burke, Hoitash, and Hoitash (2019) to address the issue that the coverage of RepRisk was extended over the period of our sample, resulting in more media coverage being identified over time. Results are consistent with those reported in the paper even when this adjustment is not made.

Following Zhou et al. (2017), we developed a 32-element coding framework to identify the heterogeneity between integrated reports and annual reports. This framework includes the 31 elements from Zhou et al. (2017) and an additional element to account for the assurance of the report, as suggested by Landau et al. (2020), which can increase a report's quality (Maroun, 2019). The finalised coding framework has 32 components across the eight IR dimensions, plus the assurance on IR (see Appendix C). All documents in the sample were scored against these 32 components using a binary code of zero or one, resulting in a maximum possible total score of 32 for an integrated or annual report.

Following previous studies (e.g., Melis et al., 2015; Moussa, Kotb, & Helfaya, 2022; Setia et al., 2024; Zhou et al., 2017), we conducted a manual content analysis on all annual and integrated reports in our sample to code the 32 items in the disclosure index. We followed several steps to ensure the validity and reliability of the coding process. First, we prepared a coding scheme that defined the classification criteria for each item in the disclosure index, following Zhou et al. (2017). This scheme included rules, explanatory notes, and examples for each item.

To ensure the reliability of the coding process, this scheme was independently tested by the three authors on three reports to standardise the criteria (Krippendorff, 2004). We compared the results, identified misalignments, reanalysed, and resolved them through discussion, resulting in a revised coding scheme. This revised scheme was then tested on the same three reports by one author and a research assistant, who independently completed the coding. Any misalignment was discussed and explained to align the research assistant's coding with the authors' coding. This process continued with further documents until discrepancies were minimised. In total, 19 additional documents were independently analysed by the two coders.

Finally, we calculated Cronbach's alpha to evaluate the internal consistency between the two coders. For the 22 documents analysed by both coders, we obtained a Cronbach's alpha of approximately 88%, which is above the generally accepted threshold of 70% in social science, confirming high consistency in identifying and scoring IR disclosure. To test the reliability of the coding process and verify the strength of coding results we used NVIVO software. The findings coming from this control method are consistent with those performed by the authors and the research assistant. The two coders then independently completed the process for the remaining 1,094 documents.

Control variables. Several control variables are also included in the models to capture firm characteristics that, according to previous studies, are expected to be associated with their reputational risk and negative media coverage (e.g., Caglio et al., 2020; Gerwanski, 2020; Lee & Yeo, 2016; Rashid, 2016). Specifically, these variables include *firm size*, measured as the natural logarithm of the firm total assets; *ROA*, measured as the ratio between profit before taxes and firm's total assets; *firm leverage*, calculated as the total debt to total assets ratio; *Tobin's Q*, measured as the ratio of the market value of assets to book value of assets; *stock return*, calculated as $R_t = (P_t - P_{t-1}/P_{t-1})$;[5] and *CSR performance,* measured as the CSR score provided by Thomson Reuters' Refinitiv. Finally, year and firm fixed-effects[6] are also included to control for year- and firm-specific factors that may affect the adoption of IR and the extensiveness of integrated disclosure.

[5] Where: R_t is the stock return. P_t indicates stock price at the end of the financial year and P_{t-1} is stock price at the end of the previous financial year.

[6] To evaluate the suitability of using fixed effects, we ran the Hausman test to test the null hypothesis that the preferred model is random effects versus fixed effects. The results show a p-value of 0.0189, indicating that the null hypothesis—that the random effects model is preferred over the fixed effects model—was rejected at the 5% significance level.

5. Results

5.1 Integrated Disclosure: IR adopters vs IR non-adopters

The comparison of integrated disclosure levels between IR adopters and non-adopters shows that companies adopting IR already exhibited better and more integrated disclosure before the official adoption (75.47% vs. 63.44% - see Table 2 and Figure 1). Upon adopting IR, the level of integrated disclosure for adopters significantly increased, resulting in higher levels than those of non-adopters by the end of the period (87.51% vs. 65.80% - see Table 2 and Figure 1). In contrast, non-adopters, with few exceptions, maintained a greater consistency in their level of integrated disclosure over time. This indicates that companies tend to standardise their disclosure processes in the long term, especially if external or internal factors, such as the decision to adopt IR, do not interfere.

Insert Table 2
Insert Figure 1

Interesting results emerge when comparing IR adopters and non-adopters across the eight main dimensions of the disclosure index developed by Zhou et al. (2017), detailed as follows:

(i) *Organisational Overview and Operating Context* (What does the organisation do and what are the circumstances under which it operates?). Surprisingly, IR non-adopters disclosed more in this dimension before IR adoption than IR adopters (95.1% vs. 93.5%). However, after IR adoption, IR adopters increased their disclosure to almost 100% in the last year of analysis (99.4%), while non-adopters maintained a consistent level (94.0%).

(ii) *Governance* (What is the organisation's governance structure, and how does it support the organisation's ability to create value in the short, medium, and long term?). The level of governance disclosure was very high for IR adopters even before adoption (83.6%) and increased further with IR adoption (90.9%). For non-adopters, governance disclosure was lower (79.3%) but showed a small increase over time (+2.8%), indicating increased sensitivity to this aspect.

(iii) *Opportunities and Risks* (What are the key opportunities and risks faced by the organisation?). Attention to opportunities and risks was high for IR adopters, increasing from 89.8% before adoption to 98.4% after. Non-adopters also showed significant attention to this information (84.4%), with a slight growth to 85.5% by the end of the period.

(iv) *Strategy and Resource Allocation Plan* (Where does the organisation want to go and how does it intend to get there?). For IR adopters, strategy and resource allocation disclosure was already significant before IR adoption (74.7%) and increased to 93.3% after adoption. For non-adopters, this disclosure was less relevant (61.0%) but showed some improvement over time to 63.7%.

(v) *Business Model* (What are the organisation's key inputs, value-adding activities, and outputs by which it aims to create value over the short, medium, and long term?). Disclosure of the business model for IR adopters improved from 58.8% before adoption to 78.9% after. In contrast, non-adopters disclosed less about their business model (45.5%), with a slight decrease over time (44.8%).

(vi) *Performance and Outcomes* (How has the organisation performed against its strategic objectives and related strategies, and what are the key outcomes resulting from its activities?). IR adopters showed increased disclosure in this dimension (61.3% pre- and 74.0% post-adoption). For non-adopters, this dimension had the lowest integrated disclosure score (43.6%), but it increased significantly over the observation period to 47.2%.

(vii) *Future Outlook* (What opportunities, risks, challenges, and uncertainties is the organisation likely to encounter in pursuing its strategic objectives, and what are the potential implications for its strategies and future performance?). Disclosure of future outlook

information was already significant before IR adoption (81.7%) and increased to 97.1% after adoption. Non-adopters had a lower average level of disclosure in this area but showed a notable increase over time (from 58.8% to 66.3%).

(viii) *Other Elements* (What are the other elements that reflect the guiding principles of integrated reporting but are not specifically mentioned in the content elements?). This residual category showed growth with IR adoption but remained slightly lower than other dimensions (69.5% before and 78.9% after). For non-adopters, disclosure in this category was lower but showed growth over the period (from 47.7% to 51.6%).

These findings highlight how IR adoption leads to significant improvements in integrated disclosure across various dimensions, while non-adopters show more consistency over time but generally lower levels of disclosure.

5.2 Descriptive statistics and univariate analysis

Table 3 provides an overview of the two groups of firms studied—the treated group of IR adopters and the control group of IR non-adopters—over the six-year period analysed. It compares the mean and median values of the main variables of interest for the two groups. Overall, the companies analysed have an average negative media coverage of 78%, with IR adopters experiencing significantly higher negative media coverage than IR non-adopters (81% vs. 76%). The table also shows that the level of integrated disclosure is generally high, with both IR adopters and non-adopters disclosing, on average, 69% of the items required by the IR framework. As expected, this percentage is significantly higher for IR adopters than for non-adopters (78% vs. 61%). Additionally, IR adopters demonstrate significantly higher CSR performance than IR non-adopters (67 vs. 58).

Insert Table 3

Table 4 reports the Pearson correlation matrix for all the variables used in the analysis. Negative media coverage is likely to be higher for companies that provide higher IR disclosures during the post-IR adoption period. Negative media coverage is also positively and significantly associated with firm size, growth opportunities (estimated by the price-to-book value), and higher CSR performance. Conversely, it is negatively and significantly associated with firm leverage. As shown in Table 4, no variables have a pairwise correlation higher than |0.8|, and VIF values are below 5, suggesting that multicollinearity is unlikely to be a concern in our data (Gujarati & Porter, 2009).

Insert Table 4

5.3 Multivariate analysis

Table 5 reports the results of the main regression models used to test our hypotheses. The first column presents the results of Model 1, which includes all control variables and considers the effect of the main variables of interest—IR Adopters, Post Adoption, and Integrated Disclosure Index—without interaction terms. The second column presents the results of Model 2, which includes all control variables, the main variables of interest, and the interaction between IR Adopters and Post Adoption to test our first hypothesis (H1). The last column reports Model 3, which also includes the triple interaction term among Integrated Disclosure Index, IR Adopters, and Post Adoption to test our second hypothesis (H2).

The results of Model 1 show no significant association between the variables Integrated Disclosure Index, IR Adopters, Post Adoption, and the dependent variable, Negative Media Coverage. In Model 2, used to test H1, results indicate that the adoption of the IR framework is not significantly associated with firms' negative media coverage, as the interaction term

between IR Adopters and Post Adoption is not statistically significant. This suggests that adopting the IR framework did not positively impact the corporate reputation of firms that adopted it, as there was no significant change in negative media coverage post-adoption. The findings expand on the applicability of media legitimacy theory in this context, as the sole adoption of the IR framework is found to have no impact on corporate media legitimacy. Therefore, H1 is not supported, indicating that the voluntary adoption of the IR framework does not affect media perceptions of IR adopters, contrasting with previous findings showing that mandatory IR adoption reduces information asymmetry (Barth et al., 2017).

Model 3, used to test H2, shows that the extent of integrated disclosure is negatively associated with negative media coverage for firms that adopted the IR framework in the post-adoption period. The coefficient of the interaction terms Integrated Disclosure Index, IR Adopters, and Post Adoption is negative and statistically significant ($p < 0.01$). This result suggests that adopting the IR framework positively impacts corporate reputation only for IR adopters that provide disclosure more aligned with the IR framework, supporting H2. This confirms previous studies that argue that media use information disclosed by corporations as a source for issuing news (Ahern & Sosyura, 2014; Solomon & Soltes, 2012; Tsileponis et al., 2020). It also provides new evidence that the media appreciate firms providing disclosure aligned with an internationally recognised reporting framework, reducing their negative coverage. This confirms that voluntary adopters who better align their disclosure to the IR framework help information users (e.g., media) gain a better understanding of corporate conduct (Obeng et al., 2021). These findings also contribute to expanding media legitimacy theory in the context of IR and media coverage. Indeed, while the sole IR adoption is found to have no significant impact on media legitimacy, our findings demonstrate that it is the quality of the IR disclosure that can be used as a legitimation strategy, as it improves corporate media coverage.

Finally, our results also show that less profitable companies and those with higher CSR performance are more likely to be covered less negatively by the media than their respective counterparts.

Insert Table 5

5.4 Additional analyses

To better understand how the integrated disclosure provided by IR adopters impacts the level of negative media coverage on ESG issues, we conducted additional analyses. First, we reran our main models and analysed separately the eight dimensions of integrated disclosure included in the overall disclosure index developed by Zhou et al. (2017). This was done to determine if these dimensions impact the level of negative media coverage similarly or if some dimensions have more significant impacts than others. For this analysis, we replaced the independent variable Integrated Disclosure Index with a disclosure index related to each of the following eight dimensions: 1) organisational overview and external environment, 2) governance, 3) opportunities and risks, 4) strategy and resource allocation plans, 5) business model, 6) performance and outcomes, 7) future outlook, and 8) other elements. While previous studies, such as Zhou et al. (2017) and those that utilized the disclosure framework developed by Zhou et al. (2017) (e.g., Donkor et al., 2022; Ahmed, 2023), did not offer a detailed analysis of each element within the disclosure score, we believe that such evidence enhances our analysis. Zhou et al. (2017) found that a company's alignment with the IR framework can reduce analysts' forecast errors through their measure of IR disclosure quality, but they did not conduct a more granular analysis of each component of IR disclosure.

As shown in Table 6, all eight dimensions of integrated disclosure are found to be negatively associated with the level of negative media coverage on ESG issues when disclosed by IR adopters in the post-adoption period. However, only integrated disclosures related to

governance (Model 2), strategy and resource allocation plans (Model 4), and performance and outcomes (Model 6) are statistically significant. These results suggest that these three dimensions of integrated disclosure are the most impactful in positively shaping how media portray companies.

Insert Table 6

Next, we attempted to determine if the level of negative media coverage on the three ESG components—Environmental, Social, and Governance—is affected similarly by the IR disclosure provided by IR adopters. Regarding ESG and IR disclosure, Gerwanski (2020) found that the cost of debt for firms tends to decrease after adopting Integrated Reporting (IR), especially for companies with weaker ESG performance and those in environmentally sensitive industries. Similarly, Caglio et al. (2020) observed that less transparent IR disclosures are associated with a higher occurrence of ESG controversies, while the presence of IR assurance helps to mitigate this negative correlation.

For this analysis, we replaced the dependent variable Negative Media Coverage with the following three variables: Environmental Negative Media Coverage, Social Negative Media Coverage, and Governance Negative Media Coverage (see Appendix B for a definition of these variables).

Table 7 reports the results of these additional analyses and shows that the adoption of the IR framework has no significant impact on the level of negative media coverage in the post-adoption period, confirming that Hypothesis 1 is not supported. Interestingly, Table 7 also shows that Hypothesis 2 is supported only when the focus of negative media coverage is on governance issues, not when it is related to social and environmental issues. The coefficient of the interaction term among Integrated Disclosure Index, IR Adopters, and Post Adoption is found to be negatively and statistically significantly associated with corporate negative media coverage only when measured in terms of governance news. This result highlights the higher emphasis that the IR framework places on governance aspects compared to environmental and social ones. While governance is one of the eight key categories of information required in an integrated report under the framework, environmental and social aspects are included but not among the key categories.

Insert Table 7

5.5 Robustness checks

To validate our results, we performed a series of robustness checks. First, instead of measuring negative media coverage as the average of scores assigned by RepRisk during the financial year, we followed Burke et al. (2019) and used the maximum values of the scores recorded within the financial year. Our results show that the coefficient of the interaction term between the variables Integrated Disclosure Index, IR Adopters, and Post Adoption is still negative and statistically significant, suggesting that the effect of integrated disclosure on the level of negative media coverage after the voluntary adoption of the IR was not driven by how RepRisk monthly scores were aggregated.

Second, we re-estimated our baseline model by employing a stricter matching procedure between treatment and control groups, selecting only matching companies located in the same country. This led to the exclusion of 31 IR adopters and 31 IR non-adopters, resulting in a sample of 744 firm-year observations. Our findings remain consistent with those reported in our main analysis, suggesting that our results are not driven by the inclusion of matching companies located on the same continent but not in the same country.

Third, we included additional control variables that could impact the level of negative media coverage of ESG issues. Specifically, we controlled for the adoption of the sustainability standards issued by the Global Reporting Initiative (GRI), considered one of the most influential standard-setting organisations in sustainability (Brown, Jong, & Lessidrenska, 2009), and for the presence of a CSR committee. Studies have shown that firms following GRI standards are more likely to achieve greater CSR performance (Luo & Tang, 2023; Sampong, Song, Boahene & Wadie, 2018), which could ultimately influence their exposure to negative media coverage on ESG issues.

We focused on the CSR committee as this committee advises and monitors the management of ESG-related policies and strategies, potentially resulting in lower negative coverage of ESG issues. Previous studies (e.g., Ahmed Haji & Anifowose, 2016; Chouaibi, Belhouchet, Almallah & Chouaibi, 2022; Wang et al., 2020) have found that the presence of a CSR committee has an incremental positive effect on the quality of IR. Thus, we added two additional variables to our models: GRI, a dichotomous variable equal to 1 if the company followed the GRI standards in preparing its corporate reports and 0 otherwise; and CSR committee, a dichotomous variable equal to 1 if the company has set up a CSR committee and 0 otherwise. Due to the lack of data for several companies regarding these two variables, our sample was reduced from 1,116 to 873 year-observations. The results remained consistent with our main analysis, indicating that the adoption of the GRI and the establishment of a CSR committee had no impact on the negative association found between the level of negative media coverage and the extent of integrated disclosure provided by IR adopters in the post-adoption period.

Lastly, we controlled for the individual performance scores companies obtained regarding ESG issues. We replaced the CSR performance variable, which aggregates environmental, social, and governance performance into one measure, with the individual performance scores for these three components. The results are in line with those reported in the paper, indicating that our method of measuring ESG performance did not impact our main findings.

6. Discussion and conclusions

This paper aims to investigate whether and how a firm's voluntary adoption of the Integrated Reporting (IR) Framework and the alignment of its disclosure to the IR framework impact the extent of negative media coverage concerning environmental, social, and governance (ESG) issues. To achieve this goal, the paper analyses a sample of 93 international firms that participated in the International Integrated Reporting Council (IIRC) Pilot Programme between 2011 and 2016, along with a matching sample of 93 similar firms issuing traditional sustainability reports (TSR). The analysis covers the disclosure three years before and three years after the IR adoption.

Our findings reveal that the voluntary adoption of the IR framework alone has no impact on the extent of negative media coverage of ESG issues. This demonstrates that merely adopting a disclosure model that includes ESG considerations, such as integrated reporting, does not necessarily enhance a firm's media legitimacy concerning ESG matters. In fact, the findings indicate that negative media attention related to ESG issues is not mitigated simply by a firm's decision to adopt the IR framework. This extends previous mixed findings on the economic consequences of the voluntary adoption of the IR (Cortesi & Vena, 2019; Gerwanski, 2020; Obeng et al., 2021), indicating a lack of impact on non-economic firm characteristics. Moreover, it underscores the limited effects of voluntary IR adoption on media coverage, contributing to the mixed findings on the impacts of IR adoption on external users, such as analysts (Hsiao et al., 2022; Rossignoli et al., 2022; Wahl et al., 2020). Overall, this suggests

that the sole adoption of an internationally recognised framework is insufficient to influence both economic and non-economic firm characteristics.

However, our findings also demonstrate a significant reduction in negative media coverage after the adoption of the IR framework among companies whose integrated disclosure aligns more closely with the IR framework. This suggests that higher quality in integrated disclosures is recognized by the media and may help reduce negative coverage of the firm. These results confirm the higher explanatory value of more sophisticated measures of IR disclosure that reflect its content and quality (Raimo et al., 2020; Zhou et al., 2017). Additionally, they highlight how the extent of integrated disclosure can influence media attention, complementing firm press releases and corporate disclosure in general (Ahern & Sosyura, 2014; Bushee et al., 2010; Petkova et al., 2013; Tsileponis et al., 2020). This contributes new evidence to the underexplored research area concerning the ability of corporate disclosures to positively influence media coverage (Graf-Vlachy et al., 2020), confirming assumptions of medial legitimacy theory that suggest businesses will enhance their disclosure to regain legitimacy represented by media coverage.

Furthermore, additional analyses reveal that when analysing negative media coverage separately by environmental, social, and governance components, a significant reduction in negative media exposure is observed after IR adoption for companies that have aligned their disclosure more closely with the IR framework, particularly concerning governance issues. Although the effect on environmental or social issues is negative, it is not statistically significant. This original result prompts reflections on the future role of the IR framework, especially whether it should include additional considerations and disclosure requirements related to the social and environmental performance of companies. These findings may have practical implications for the upcoming revision of the IR Framework by the IFRS Foundation.

As the first study to demonstrate that disclosure aligned with the IR framework positively influences how media portray companies that voluntarily adopt the IR framework regarding ESG issues, this study contributes significantly to accounting research and practice. First, it builds on the existing literature surrounding the IR framework, which has highlighted its potential as a tool for companies to manage reputational risks (Eccles & Krzus, 2010; Rivera-Arrubla et al., 2016; Simnett & Hugging, 2015), and, by extension, media coverage. Our study advances this research by demonstrating that adopting the IR framework alone is insufficient for effectively managing corporate reputational risk and reducing negative media coverage unless accompanied by disclosures aligned with the framework. It also expands research on the non-economic consequences associated with the voluntary adoption of the IR framework and the provision of disclosure aligned with this framework (Kannenberg & Schreck, 2019; Perego et al., 2016; Velte & Stawinoga, 2017). Moreover, it extends the accounting literature on media coverage, which has primarily considered media as a determinant explaining corporate disclosure decisions (Deephouse, 2000), without investigating how companies can use their corporate disclosure to influence media coverage (Graf-Vlachy et al., 2020) and media legitimacy (Watson, 2011).

The study reinforces the principles of media legitimacy theory by illustrating how corporations strategically utilise their disclosures to influence media coverage, thereby enhancing their perceived legitimacy. This affirmation of media coverage as a marker of corporate legitimacy addresses the need for fresh perspectives in legitimacy theory research, shedding light on the pivotal role of media in bolstering corporate legitimacy and the agency of businesses in shaping media narratives to bolster their legitimacy. Additionally, it highlights a promising avenue for further exploration into the dynamic interplay between corporate disclosure and traditional as well as social media.

By demonstrating that the impact of Integrated Reporting (IR) disclosure on Environmental, Social, and Governance (ESG) media coverage predominantly stems from

governance-related issues, the study offers actionable insights for practitioners and the IFRS Foundation. These insights inform decisions regarding the adoption and refinement of the IR framework, especially in anticipation of its forthcoming revision, and underscore the growing global imperative for heightened attention to the social and environmental performance of enterprises.

Moreover, the findings hold significance for managers, investors, and policymakers alike. Managers operating in jurisdictions where IR is not mandatory can leverage these findings to inform their adoption of IR disclosure practices, recognising the potential for enhancing management quality by embracing a holistic, integrated approach that extends beyond purely financial metrics. Additionally, the pursuit of external assurance can enhance the credibility and quality of IR reports, fostering trust between organisations and their stakeholders, including the media.

While this investigation contributes valuable insights, it is not immune to limitations, which in turn, serve as catalysts for future research endeavours. The study's exclusion of certain countries underscores the need for future studies to broaden our understanding of IR quality across diverse national contexts and explore whether integrated disclosures exert similar effects on media legitimacy elsewhere. Also, from a methodological perspective, we recognise the degree of subjectivity of our Integrated Disclosure Index. Furthermore, while the study utilises a recognised measure of quality represented by IR alignment, it does not account for the degree of integration of IR content elements. Future research could address these gaps by developing a measure of IR integration to better capture the quality of IR reporting.

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Table 1. IR Adopters by country

Country		Nr. IR Companies
Brazil	**BR**	3
Germany	**DE**	3
Holland	**NL**	5
Italy	**IT**	8
Japan	**JP**	32
Spain	**ES**	10
Switzerland	**CH**	4
United Kingdom	**GB**	24
United States	**US**	4
Total		**93**

Source: Table by the authors

Table 2. IR Adopters and No-IR Adopters score pre and post adoption period

	IR Adopter pre	***IR Adopter post***	***Non-IR Adopter pre***	***Non-IR Adopter post***
1 Organisational overview and external environment	0.935	0.994	0.951	0.940
2 Governance	0.836	0.909	0.793	0.815
3 Opportunities and risks	0.898	0.984	0.844	0.855
4. Strategy and resource allocation plans	0.747	0.933	0.610	0.637
5. Business model	0.588	0.789	0.455	0.448
6. Performance and outcomes	0.613	0.740	0.436	0.472
7. Future outlook	0.817	0.971	0.588	0.663
8. Other elements	0.695	0.789	0.477	0.516
Overall Integrated Disclosure Score	**0.7547**	**0.8751**	**0.6344**	**0.6580**

Source: Table by the authors

Table 3. Descriptive Statistics and univariate analysis

	Full sample				IR Non-Adopters				IR Adopters			
Variables	**No Obs**	**Mean**	**Median**	**SD**	**No Obs**	**Mean**	**Median**	**SD**	**No Obs**	**Mean**	**Median**	**SD**
Negative Media Coverage	1116	0.7870	0.7521	0.5539	558	0.7600	0.7107	0.5597	558	0.8141	0.7805	0.5471
Integrated Disclosure Index	1116	0.6962	0.7500	0.1990	558	**0.6088**	**0.6250**	0.1900	558	**0.7837**	**0.8125**	0.1668
Post Adoption	1116	0.5000	0.5000	0.5002	558	0.5000	0.5000	0.5004	558	0.5000	0.5000	0.5004
Firm size	1116	17.1201	16.9588	1.5888	558	17.0360	16.8621	1.6023	558	17.2042	17.0561	1.5720
ROA	1116	5.1637	4.3750	5.9986	558	5.1445	4.4300	5.9758	558	5.1829	4.2800	6.0266
Leverage	1116	0.3564	0.3324	0.1995	558	0.3453	0.3286	0.1973	558	0.3674	0.3374	0.2013
Price to book value	1116	2.1591	1.4100	2.0673	558	**2.3107**	1.4450	2.2491	558	**2.0075**	1.3900	1.8577
Stock return	1116	0.0746	0.0580	0.3038	558	0.0763	0.0571	0.3135	558	0.0728	0.0592	0.2940
CSR performance	1116	62.5025	65.0500	17.3248	558	**57.9130**	**61.9150**	18.7906	558	**67.0919**	**67.8000**	14.3369

Source: Table by the authors

Notes.
Statistical significance * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$
Figures in bold indicate statistically significant differences in means and medians at least at 5% level between companies belong to the group of IR Adopters (threated group) and IR non-adopters.
See Appendix B for the definitions of the variables.

Table 4. Correlation Matrices

	VIF	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Negative Media Coverage		1													
Integrated Disclosure Index	4.7	0.22*	1												
IR Adopters	2.4	0.05	0.44*	1											
Post Adoption	3.9	0.08*	0.19*	0.00	1										
Integrated Disclosure Index × Post Adoption	4.3	0.13*	0.70*	0.41*	0.14*	1									
Integrated Disclosure Index × IR Adopters	3.6	0.14*	0.71*	0.35*	0.25*	0.45*	1								
Post Adoption × IR Adopters	4.9	0.08*	0.44*	0.58*	0.58*	0.56*	0.49*	1							
Integrated Disclosure Index × IR Adopters × Post Adoption	4.9	0.08*	0.51*	0.45*	0.45*	0.68*	0.65*	0.77*	1						
Firm size	1.6	0.49*	0.06*	0.05	0.00	0.05	0.02	0.03	0.02	1					
ROA	1.9	0.02	-0.02	0.00	-0.10*	-0.07*	0.05	-0.06*	-0.05	-0.21*	1				
Leverage	1.7	-0.23*	-0.07*	0.06	0.00	-0.08*	0.02	0.03	-0.01	-0.44*	0.38*	1			
Price to book value	1.7	0.12*	0.09*	-0.07*	0.03	0.01	0.08*	-0.03	0.00	-0.16*	0.49*	-0.06*	1		
Stock return	1.3	-0.01	-0.06*	-0.01	-0.02	-0.10*	-0.02	-0.02	-0.07*	-0.05	0.19*	0.02	0.21*	1	
CSR performance	1.5	0.33*	0.25*	0.27*	0.09*	0.24*	0.10*	0.20*	0.16*	0.43*	0.04	-0.17*	0.08*	-0.02	1

Source: Table by the authors

Notes.
* indicates values are significant at 5% level
See Appendix B for the definitions of the variables.

Table 5. Main multivariate analysis

	Model 1	Model 2	Model 3
Integrated Disclosure Index	-0.03007	-0.06302	-0.18696
	(0.12079)	(0.12779)	(0.25739)
Post Adoption	0.03698	0.0227	-0.08739
	(0.0411)	(0.0449)	(0.0971)
Post Adoption × IR Adopters		0.03127	0.74965***
		(0.0395)	(0.2201)
Integrated Disclosure Index × IR Adopters			0.19145
			(0.2966)
Integrated Disclosure Index × Post Adoption			0.16867
			(0.1435)
Integrated Disclosure Index × IR Adopters × Post Adoption			-0.90688***
			(0.2753)
Firm size	0.03792	0.04158	0.05477
	(0.0534)	(0.0536)	(0.0536)
ROA	0.00624**	0.00628**	0.00633**
	(0.0031)	(0.0031)	(0.0031)
Leverage	-0.11069	-0.1004	-0.10033
	(0.2441)	(0.2445)	(0.2443)
Price to book value	0.00257	0.00271	0.00163
	(0.0113)	(0.0113)	(0.0112)
Stock return	-0.03086	-0.03089	-0.03841
	(0.0389)	(0.0389)	(0.0389)
ESG score	-0.00550***	-0.00547***	-0.00580***
	(0.0017)	(0.0017)	(0.0017)
Constant	0.1629	0.11545	-0.07885
	(0.9144)	(0.9166)	(0.9151)
Firm Fixed Effect	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes
No Obs	1116	1116	1116
Adj R2	0.6867	0.6866	0.6894

Source: Table by the authors

Notes.
Statistical significance * p < 0.1 ** p < 0.05 *** p < 0.01
Due to its time-invariant nature, the main term of IR Adopters is dropped by the models. The validity of the interaction terms is however not influenced (Allison, 2009).
See Appendix B for the definitions of the variables.

Table 6. Additional analysis on the role played by the different dimensions of the Integrated Disclosure Index

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Integrated Disclosure Index	0.23456	-0.06487	-0.13532	-0.18485	0.03192	-0.14243	0.09889	-0.38234
	(0.22886)	(0.14743)	(0.09997)	(0.13837)	(0.19513)	(0.16134)	(0.11837)	(0.25270)
Post Adoption	-0.09528	-0.01001	-0.02282	-0.05547	-0.01464	-0.0413	-0.02471	-0.00735
	(0.16555)	(0.08032)	(0.08018)	(0.06725)	(0.06351)	(0.06699)	(0.06065)	(0.07911)
Post Adoption × IR Adopters	0.36197	0.38955***	0.28431	0.35496*	0.1615	0.38807***	0.06643	0.1138
	(0.35641)	(0.13977)	(0.24477)	(0.18421)	(0.10413)	(0.10257)	(0.14027)	(0.12256)
Integrated Disclosure Index × IR Adopters	-0.063	0.08508	0.2198	0.18495	-0.07106	0.11939	-0.07937	0.47528
	(0.27108)	(0.17752)	(0.14280)	(0.16467)	(0.21304)	(0.19115)	(0.13742)	(0.2947)
Integrated Disclosure Index × Post Adoption	0.12631	0.03467	0.05772	0.12766	0.0873	0.11028	0.07742	0.09384
	(0.16866)	(0.08581)	(0.08243)	(0.08427)	(0.10485)	(0.09991)	(0.07090)	(0.18362)
Integrated Disclosure Index × IR Adopters × Post Adoption	-0.35459	-0.41065***	-0.28587	-0.40314*	-0.20361	-0.47453***	-0.06846	-0.19952
	(0.36411)	(0.15551)	(0.25236)	(0.20584)	(0.15612)	(0.14047)	(0.15394)	(0.24175)
Firm size	0.03988	0.06068	0.04988	0.04923	0.04927	0.05991	0.04617	0.04382
	(0.05406)	(0.05408)	(0.05425)	(0.05373)	(0.05394)	(0.05339)	(0.05416)	(0.05407)
ROA	0.00624**	0.00645**	0.00626**	0.00665**	0.00610**	0.00607**	0.00626**	0.00646**
	(0.00310)	(0.00308)	(0.00309)	(0.00310)	(0.00310)	(0.00307)	(0.00309)	(0.00310)
Leverage	-0.08312	-0.08457	-0.06276	-0.10869	-0.11004	-0.11269	-0.0878	-0.10283
	(0.24556)	(0.24406)	(0.24572)	(0.24519)	(0.24624)	(0.24433)	(0.24526)	(0.24468)
Price to book value	0.00335	0.00227	0.00259	0.00337	0.00301	0.00086	0.00429	0.00319
	(0.01126)	(0.01123)	(0.01129)	(0.01125)	(0.01128)	(0.01122)	(0.01130)	(0.01130)
Stock return	-0.03032	-0.03715	-0.03243	-0.03227	-0.02921	-0.04013	-0.03154	-0.03401
	(0.03925)	(0.03891)	(0.03895)	(0.03909)	(0.03913)	(0.03874)	(0.03904)	(0.03907)
ESG score	-0.00528***	-0.00547***	-0.00551***	-0.00551***	-0.00563***	-0.00579***	-0.00561***	-0.00524***
	(0.00174)	(0.00173)	(0.00174)	(0.00173)	(0.00174)	(0.00173)	(0.00174)	(0.00176)
Constant	-0.10107	-0.23869	-0.06495	-0.00495	-0.04107	-0.16787	-0.04008	0.06499
	(0.92740)	(0.92788)	(0.93228)	(0.91641)	(0.91621)	(0.90867)	(0.92195)	(0.92686)
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No Obs	1116	1116	1116	1116	1116	1116	1116	1116
Adj R2	0.68688	0.68846	0.68663	0.68737	0.6864	0.69119	0.68633	0.68652

Source: Table by the authors

Notes.

Statistical significance * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

The eight models presented differ on the basis of the dimension of the Integrated Disclosure Index considered in the analysis, as follow: Model 1: Organisational overview and external environment. Model 2: Governance. Model 3: Opportunities and risks. Model 4: Strategy and resource allocation plans. Model 5: Business model. Model 6: Performance and outcomes. Model 7: Future outlook. Model 8: Other elements. Due to its time-invariant nature, the main term of IR Adopters is dropped by the models. The validity of the interaction terms is however not influenced (Allison, 2009).

See Appendix B for the definitions of the variables.

Table 7. Additional analysis on the negative media coverage of individual ESG dimensions

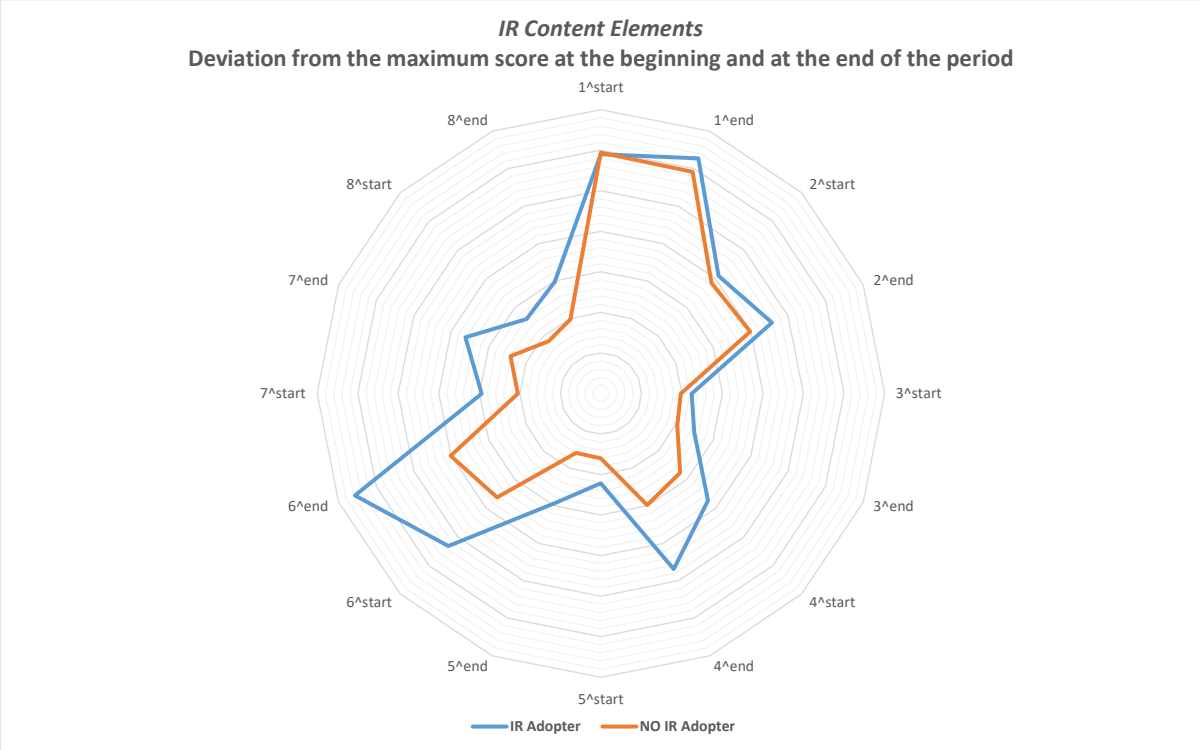
	Environmental negative media coverage			Social negative media coverage			Governance negative media coverage		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Integrated Disclosure Index	0.01814	0.01713	-0.01408	0.02192	-0.00926	-0.2246	-0.05403	-0.04825	0.07971
	(0.04969)	(0.05259)	(0.10654)	(0.07730)	(0.08174)	(0.16529)	(0.08223)	(0.08702)	(0.17565)
Post Adoption	0.00213	0.00169	-0.005	0.00783	-0.00569	-0.06701	0.03398	0.03648	0.02539
	(0.01690)	(0.01847)	(0.04020)	(0.02629)	(0.02871)	(0.06237)	(0.02797)	(0.03056)	(0.06627)
Post Adoption × IR Adopters		0.00096	0.06693		0.02959	0.2243		-0.00548	0.35146**
		(0.01627)	(0.09108)		(0.02529)	(0.14132)		(0.02692)	(0.15017)
Integrated Disclosure Index × IR Adopters			0.04586			0.28591			-0.14461
			(0.12277)			(0.19049)			(0.20242)
Integrated Disclosure Index × Post Adoption			0.01017			0.10195			0.00711
			(0.0594)			(0.09216)			(0.09793)
Integrated Disclosure Index × IR Adopters × Post Adoption			-0.08364			-0.27338			-0.41765**
			(0.11393)			(0.17676)			(0.18784)
Firm size	0.03455	0.03466	0.03623	0.027	0.03046	0.03561	-0.01496	-0.01561	-0.0104
	(0.02195)	(0.02205)	(0.02216)	(0.03415)	(0.03427)	(0.03439)	(0.03633)	(0.03648)	(0.03654)
ROA	0.00365***	0.00365***	0.00367***	-0.00029	-0.00025	-0.00008	0.00227	0.00227	0.00213
	(0.00127)	(0.00127)	(0.00127)	(0.00198)	(0.00198)	(0.00198)	(0.00210)	(0.00210)	(0.00210)
Leverage	-0.01232	-0.01201	-0.01304	0.41039***	0.42013***	0.42796***	-0.45674***	-0.45855***	-0.46964***
	(0.10040)	(0.10060)	(0.10112)	(0.15617)	(0.15636)	(0.15689)	(0.16614)	(0.16646)	(0.16672)
Price to book value	0.00181	0.00181	0.00168	-0.00455	-0.00442	-0.00454	0.00549	0.00547	0.00466
	(0.00463)	(0.00464)	(0.00465)	(0.00721)	(0.00721)	(0.00722)	(0.00767)	(0.00767)	(0.00767)
Stock return	-0.01169	-0.01169	-0.01275	-0.0084	-0.00843	-0.01163	0.01221	0.01221	0.00931
	(0.01601)	(0.01602)	(0.01612)	(0.02491)	(0.02490)	(0.02501)	(0.02649)	(0.02651)	(0.02657)
ESG score	-0.00186***	-0.00186***	-0.00187***	-0.00297***	-0.00294***	-0.00301***	-0.00071	-0.00071	-0.00087
	(0.00071)	(0.00071)	(0.00072)	(0.00111)	(0.00111)	(0.00111)	(0.00118)	(0.00118)	(0.00118)
Constant	-0.3599	-0.36135	-0.38288	-0.2288	-0.27371	-0.3266	0.541	0.54932	0.44725
	(0.37618)	(0.37720)	(0.37876)	(0.58515)	(0.58629)	(0.58765)	(0.62247)	(0.62414)	(0.62447)
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No Obs	1116	1116	1116	1116	1116	1116	1116	1116	1116
Adj R2	0.5771	0.5767	0.5756	0.5376	0.5378	0.5383	0.7003	0.7	0.7014

Source: Table by the authors

Notes.

Statistical significance * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.
Due to its time-invariant nature, the main term of IR Adopters is dropped by the models. The validity of the interaction terms is however not influenced (Allison, 2009).
See Appendix B for the definitions of the variables.

Figure 1. Coding framework IR vs Non-IR adopters



Source: Figure by the authors

Appendix A – RepRisk database

The measure introduced in our study to represent negative media coverage of IR adopters and non-adopters relies on the RepRisk database, which offers various metrics of negative media coverage concerning environmental, social, and governance (ESG) issues. Specifically, the index employed in this study aggregates negative media coverage on ESG issues for various companies, reflecting "a company's reputational exposure to ESG and business conduct risks" (www.reprisk.com). While past studies often depended on manually collected articles from major news sources (Deegan et al., 2000; Islam & Deegan, 2010; Patten, 2002; Watson, 2011), RepRisk enables the aggregation of over 80,000 media sources into a composite metric, capable of dissecting how social, environmental, or governance issues impact this measure. Since its inception, RepRisk data has been utilised by the DowJones Sustainability Indices, Newsweek Green Rankings, the Carbon Disclosure Project, and the Sustainability Accounting Standards Board.

To compile its negative media coverage measure, RepRisk initially employs artificial intelligence to gather negative coverage of ESG issues. Following data collection, RepRisk analysts validate the accurate linking of news to the ESG issues. Subsequently, news media are inputted into a proprietary algorithm, which calculates the RepRisk index based on identified issues, their severity, the relevance of the media sources reporting them, and the frequency and timing of information. The index is not the sole measure generated by the algorithm; it is further broken down into more specific metrics related to environmental, social, or governance issues, as well as more detailed aspects such as the UN Global Compact principles.

The RepRisk Index (IRR) signifies the "level of media and stakeholders' attention of a company related to ESG issues" (RepRisk, 2019), and it is provided on a monthly and annual basis. The index ranges from 0 to 100. Companies with no captured ESG-related incidents are assigned an IRR of 0. Those with IRR values from 0 to 25 are deemed to have low negative media coverage, while those with IRR values from 26 to 46 exhibit medium negative media exposure. Companies with IRR values between 50 and 59 demonstrate high negative media coverage, while those with IRR values between 60 and 74 face very high negative coverage. Finally, companies with IRR values between 75 and 100 are considered subject to extremely high negative media exposure.

Appendix B – Variable definitions

Dependent Variables	
Negative Media Coverage	Equal to the average of the monthly Rep Risk Index (RRI) during the firm financial year *t*, adjusted by the negative media coverage mean recorded in the same financial year by other companies operating in the same country and industry. RRI is a variable that measures the firms' exposure to ESG and business conduct risks, based on the level of media and stakeholder attention of a company related ESG issues. It ranges from zero (lowest) to 100 (highest). The higher the value, the higher the risk exposure. Source: RepRisk.
Environmental Negative Media Coverage	Equals to the average score of the monthly RRI score associated to environmental news during the firm financial year *t*, adjusted by the negative media coverage mean recorded in the same financial year by other companies operating in the same country and industry. It ranges from zero (lowest) to 100 (highest). The higher the value, the higher the risk exposure. Source: RepRisk.
Social Negative Media Coverage	Equals to the average score of the monthly RRI score associated to social news during the firm financial year *t*, adjusted by the negative media coverage mean recorded in the same financial year by other companies operating in the same country and industry. It ranges from zero (lowest) to 100 (highest). The higher the value, the higher the risk exposure. Source: RepRisk.
Governance Negative Media Coverage	Equals to the average score of the monthly RRI score associated to governance news during the firm financial year *t*, adjusted by the negative media coverage mean recorded in the same financial year by other companies operating in the same country and industry. It ranges from zero (lowest) to 100 (highest). The higher the value, the higher the risk exposure. Source: RepRisk.
Independent Variables	
IR Adopters	A dichotomous variable which equals 1 if the company belongs to the group exposed to the treatment (i.e., the adoption of the IR framework), and 0 if the company belongs to the control group. Source: IIRC.
Post Adoption	A dichotomous variable which equals 1 in the years in which the IR framework was adopted, and 0 otherwise. Source: IIRC.
Integrate Disclosure Index	Equals to the ratio between the total numbers of items of Integrated Disclosure disclosed by a firm *i* in the year j, divided by the total items (32) of Integrated Disclosure considered (these were identified based on Zhou et al. (2017) in accordance with the <IR> Framework issued by the IIRC in December 2013). Source: hand collection from corporate reports.
Control Variables	
Firm Size	Equals to the natural logarithm of the firm total assets. Source: Orbis.
Firm Leverage	Measured as the total debt to total assets ratio. Source: Orbis.
ROA	Ratio between profit before taxes and firm's total assets. Source: Orbis.
ROE	Ratio between net income and firm's equity. Source: Orbis.
Tobin's Q,	Measured as the ratio of the market value of assets to book value of assets. Source: Orbis.
Stock Return	Equals to $SR_t = (P_t - P_{t-1}/P_{t-1})$. Where: SR_t is the stock return. P_t indicates stock price at the end of the financial year and P_{t-1} is stock price at the end of the previous financial year. Source: Orbis.
CSR Performance	Measured as the CSR score provided by Thomson Reuters' Refinitiv which ranges from zero (lowest) to 100 (highest). The higher the

	value, the higher the CSR performance. Source: Thomson Reuters' Refinitiv.
Years	Equal to a set of dichotomous variables which equal 1 if the corporate reports analysed where released in the year *i*, and 0 otherwise, with *i* ranging from 2008 to 2018.

Appendix C – Coding framework

Integrated disclosure quality - CODING FRAMEWORK

Dimensions		Components	Scoring schemes	
			Minimum score	Maximum score
1. Organisational overview and operating context	1.1	Reporting boundary	0	1
	1.2	Mission and value	0	1
What does the organisation do and what are the circumstances under which it operates?	1.3	Business overview	0	1
	1.4	Operation Context	0	1
	1.5	Summary Statistics	0	1
2. Governance	2.1	Governance structure	0	1
	2.2	Governance and strategy	0	1
What is the organisation's governance structure, and how does it support the organisation's ability to create value in the short, medium and long term?	2.3	Remuneration and performance	0	1
	2.4	Governance and others	0	1
3. Opportunities and risks	3.1	Risks	0	1
What are the key opportunities and risks faced by the organisation?	3.2	Opportunities	0	1
4. Strategy and resource allocation plan	4.1	Strategic objectives	0	1
	4.2	Links between strategy and other elements	0	1
Where does the organisation want to go and how does it intend to get there?	4.3	Competitive advantage	0	1
	4.4	Stakeholder consultations	0	1
5. Business Model	5.1	Business model description	0	1
What are the organisation's key input, value-adding activities and outputs by which it aims to create value over the short, medium and long term?	5.2	Links between business model and others	0	1
	5.3	Stakeholder dependencies	0	1
6. Performance and outcomes	6.1	KPIs against strategy	0	1
	6.2	Explanation of KPIs	0	1
	6.3	Stakeholder relationship	0	1
How has the organisation performed against its strategic objectives and related strategies, and what are the key outcomes resulting from its activities?	6.4	Past, current and future performance	0	1
	6.5	Financial implication of other capitals	0	1
	6.6	Supply chain performance	0	1
	6.7	The quality of quantitative indicators	0	1

CONTINUED

Dimensions		Components	Scoring schemes	
			Minimum score	Maximum score
7. Future outlook *What opportunities, risks, challenges and uncertainties is the organisation likely to encounter in pursuing its strategic objectives and what are the potential implications for its strategies and future performance?*	7.1	Anticipated changes	0	1
	7.2	Potential implication	0	1
	7.3	Estimates	0	1
8. Other elements *What are the other elements that reflect the guiding principles of integrated reporting, but are not specifically mentioned in the content elements*	8.1	Conciseness and links	0	1
	8.2	Materiality determination process	0	1
	8.3	The board sign-off	0	1
Assurance on IR (A dummy variable coded one if the non-financial information included in the annual (integrated) report is assured by an independent third party and zero otherwise)			0	1

Source: Integrated disclosure quality coding elements: 31 as per Zhou et al. (2017) plus the last one on assurance from our own elaboration