

Textual attributes and assurance of Integrated Reporting Does new corporate disclosure add value?

Ariela Caglio

SDA Bocconi School of Management - Bocconi University

Gaia Melloni*

Norwich Business School - University of East Anglia

**PROPOSAL FOR THE XIV INTERNATIONAL
ACCOUNTING RESEARCH SYMPOSIUM**

**PLEASE DO NOT CIRCULATE. DO NOT QUOTE
WITHOUT PERMISSION**

Abstract

Integrated Reporting (IR) represents a recent and innovative initiative to connect in one company report a firm's financial and non-financial performance in a clear and concise manner. This emergent approach is a relevant shift from existing reporting practices, which generally involve the production of financial statements in accordance with accounting standards and a separate, mostly voluntary, stand-alone sustainability report. We examine the alleged benefits associated with the adoption of IR in the context of South Africa where it is mandatory since March 2010. We specifically focus on the textual attributes of IR that capture both the "amount" (length) and the "style" of information (readability and tone). Our results suggest that IR readability and conciseness are associated with several market benefits for companies, in terms of firm value, stock liquidity, analysts' forecast dispersion, as well as with ESG (environmental, social and governance) effects. We additionally explore the role of external assurance on IR as a credibility-enhancing mechanism for this form of reporting. In so doing, we shed light on the intended value-enhancing ability of IR for different types of users and audiences. Furthermore, we provide evidence that IR assurance moderates the negative associations among low quality textual attributes and the economic consequences investigated and that such results hold true considering both the presence of assurance and its quality. This study might be helpful to regulators and standard-setters interested in the promotion and enforcement of mandatory corporate disclosure initiatives similar to IR.

Keywords: Textual analysis, Integrated Reporting, Capital market effects, Analysts' forecasts, Readability, Tone.

* Corresponding author:

University of East Anglia, Norwich Business School, Norwich Research Park, NR4 7TJ Norwich (UK).
Tel.: +44 (0) 1603 592553; E-mail: g.melloni@uea.ac.uk

1. Introduction

A growing amount of papers in accounting and finance examines whether, and to what extent, textual or linguistic attributes of financial disclosures (e.g. readability, sentiment and style) affect the decision-making of investors and information intermediaries (Li, 2008; Li, 2010; Lang and Maffett, 2011; Lang and Stice-Lawrence, 2015; Loughran and McDonald, 2016). Recent evidence suggests for instance that financial reporting complexity has a negative impact on retail investors (Lawrence, 2013), sell-side equity analysts (Lehavy et al., 2011; Bozanic and Thevenot, 2015), rating agencies (Bonsall and Miller, 2017), and the voluntary disclosure behaviour of firms (Lang and Maffett, 2011). While the extant literature documents the informational problems associated with financial reporting complexity, firms have at their disposal a variety of disclosure channels beyond financial statements that can be used to shape their information environment and to influence investment decisions. Despite these developments in the corporate reporting landscape, scant evidence is available about textual and qualitative attributes of such emergent forms of corporate disclosures and their associated economic outcomes (Ramanna, 2013; Soderstrom and Potter, 2014).

Integrated Reporting (IR) represents the latest international initiative in corporate reporting that merges together financial and non-financial information in the attempt to overcome a potential disconnect in investors' processing of the two types of information (Cheng et al., 2014; de Villiers et al., 2016; Perego et al., 2016; Velte and Stawinoga, 2016; Melloni et al., 2017; Reimsbach et al., 2017). In this paper, we examine how the informational content of textual disclosures is associated with value creation for firms listed at the Johannesburg Stock Exchange under the IR mandatory disclosure regime enforced since 2010 in South Africa. We build on recent studies about IR-related value creation consequences in South African firms, namely Barth et al. (2016) and Zhou et al. (2017), and complement their analysis in three distinctive ways. First, we rely on computer-based textual analysis to capture

both the “amount” (i.e., length) and the “style” (i.e., readability and tone) of IR disclosure (cf. Melloni et al., 2017) and explore whether these textual attributes are associated with benefits for outside providers of capitals and stock market intermediaries. Compared to prior research, relying on textual analysis enhances the validity and replicability of the findings previously based on assessments of IR quality prone to subjectivity. We additionally examine the relationships among various textual characteristics of IRs and a firm’s exposure to environmental, social and governance (ESG) controversies and negative events reflected in global media. Our objective is to assess the impact of textual information conveyed in IRs on the capital markets, as well as on broader audiences reflecting their reaction on a novel form of corporate disclosure. Second, we focus on the role of third-party assurance in improving the credibility of corporate disclosure, a feature previously not investigated in the novel area of IR. Consistently with the role of traditional financial auditing, we posit that the informational content of textual disclosures with respect to capital markets or broader stakeholders’ audiences can be affected by the adoption of external assurance engagements for IRs. Third, we rely on a larger panel of JSE-listed firms from 2011 to 2016 in the post-implementation phase only, therefore extending the empirical analyses of Barth et al. (2017) and Zhou et al. (2017).

Our main results show that IR readability and conciseness are associated with several economic benefits for companies, in terms of market value, stock liquidity and analysts’ forecasts dispersion. Furthermore, we provide some evidence that assurance plays a key role in moderating these relationships considering both the presence of assurance and its quality. IR assurance moderates and offsets the negative associations among low quality textual attributes of an IR and the market effects.

This paper contributes to the literature in several ways. First, we add to the literature on the informativeness of qualitative, textual attributes of corporate reporting that draws on disclosure theory and information economics (Li, 2008; Li, 2010; Lang and Maffett, 2011;

Lang and Stice-Lawrence, 2015; Loughran and McDonald, 2016). Second, we perform an in-depth textual investigation of a novel type of corporate disclosure that integrates financial and non-financial information. While previous textual analysis research focused almost exclusively on financial disclosures, our study extends the scope of this literature beyond traditional financial reporting and builds on an emergent stream of studies that examines textual attributes of CSR/sustainability reporting (e.g. Cho et al., 2010; Arena et al., 2015; Muslu et al., 2017). Third, our findings are informative for investors and managers because they shed a light on the capital-market effects of IR, as well as on its effects on broader audiences, as an emerging example of innovative, value-enhancing disclosure form.

Our study might be additionally helpful to regulators and standard-setters interested in the promotion and enforcement of mandatory corporate disclosure initiatives similar to IR in South Africa. Our findings have practical regulatory implications in jurisdictions like the European Union where firms are increasingly required to disclose more non-financial information. For example, under the EU Directive 2014/95 enforced from January 1st 2017, all public interest entities with more than 500 employees are required to report information concerning environmental and social performance, human rights, bribery matters and diversity policy (Directive 2014/95/EU, 2014).

The remainder of this paper is structured as follows. The next section discusses the theoretical framework and related literature. Section 3 describes the sample examined and the research method. Section 4 presents the results of our empirical analyses. Finally, Section 5 provides conclusions, points at limitations of our study and suggests possible avenues for further research in this area.

2. Literature review and theoretical framework

2.1. Background on Integrated Reporting

In December 2013, the International Integrated Reporting Council (IIRC) released the first International Framework for IR (IIRC, 2013). In brief, IR combines financial and nonfinancial disclosures of a company's performance in one clear, concise corporate report. IR is intended to improve the quality of information for providers of financial capital and to promote a more cohesive and efficient approach to corporate reporting by linking previously disconnected pieces of financial and sustainability (nonfinancial) information. In terms of the organizational processes underlying the IR approach, a salient feature is 'integrated thinking', defined as "the active consideration by an organization of the relationships between its various operating and financial units and the capitals that the organization uses or affects" (IIRC, 2013). The adoption of IR is further expected to tackle a number of issues presented by conventional, stand-alone sustainability or CSR reports, such as the failure to account for all sources of value creation and the effective communication of a company's business model by stimulating firms to think about how they generate value in the short-, medium- and long-term horizon (Eccles and Krzus, 2010; Eccles et al., 2011). It is important to emphasize that the IIRC Framework is principles-based to encourage an appropriate balance between flexibility and prescription. The Framework thus recognizes the wide variation of contextual factors in which firms operate, while enabling a sufficient degree of comparability across firms to meet relevant information needs (IIRC, 2013).

Since the approval of the IIRC Framework in 2013, the adoption of IR occurs at increasing rates in different regions of the world (Busco et al., 2013; Frías-Aceituno et al., 2013). Large multinationals like GE, Mitsubishi, Novo Nordisk, Tata Steel, and Vivendi have embraced the IR movement. The relevance of IR is evidenced by the increased interest in the IIRC Pilot Programmes as well as a growing number of regulatory initiatives around the world that are coherent with the IIRC Framework. South Africa was the first country in 2010 to mandate listed companies in the Johannesburg Stock Exchange (JSE) to produce an IR under

its King Code III on Corporate Governance, or explain why they are not doing so. A number of other stock exchanges, including those of Sao Paulo, Singapore, Kuala Lumpur, and Copenhagen are also calling for a ‘report or explain’ IR requirement (WBCSD, 2015).

An emergent stream of research has started to examine the consequences associated with the enforcement of the IR regime in South Africa. As outlined in Zhou et al. (2017), the mandatory regime introduced in March 2010 provides a suitable empirical setting to examine whether and to what extent the mandatory adoption of IR is associated with purported beneficial consequences on the financial markets. First, the JSE is it is the only stock exchange so far that has embraced and encouraged IR over a sufficient period of time to examine any associated economic outcome for a panel of firms. Second, the JSE is the only stock exchange where listed companies have the explicit goal to align with the IIRC Framework on an ‘apply or explain’ basis. Despite the mandatory IR disclosure regime, firms have significant discretion as to what they disclose and how they disclose it. This discretion creates significant variations in the alignment of the integrated reports with the IIRC framework, thereby creating a wide heterogeneity in the quality of the integrated reports produced by the South African listed-firms. Third, the announcement to incorporate the enforcement of the IR disclosure regime into the listing rules in South Africa represents an exogenous shock to companies, thereby offering a natural experiment of a mandatory disclosure setting which is particularly beneficial in reducing the potential endogeneity bias usually present in studies examining the economic consequences of voluntary financial disclosures (Christensen et al., 2017).

Given these compelling motivations to examine the IRs produced by the JSE-listed firms, extant literature concentrates on the link between IR implementation, IR quality and various economic benefits including capital-market reactions (e.g. firm valuation, stock liquidity, analyst forecast accuracy). Because of the importance of these papers for our study, Table 1 outlines their research design and main findings.

==== Insert Table 1 about here ====

Baboukardos and Rimmel (2016) made a comparison before and after the implementation of the King III report with the objective to capture the market valuation implications of reporting under the new IR regime in South Africa. The firms' market value of equity is compared to its book value of equity and earnings. Findings document a significant increase of the earnings' valuation coefficient after adopting IR. Lee and Yeo (2015) examine the association between Tobin's Q and a self-constructed proxy of IR quality (IRQ) based on an assessment of five aspects of each of the eight IIRC Framework content elements. Lee and Yeo (2016) find that IRQ is positively associated with Tobin's Q and the association is more pronounced for complex firms and firms with external financing needs. Bernardi and Stark (2016) explore the relationship between integrated reports and capital market reactions focusing on analyst forecast errors. Similar to Baboukardos and Rimmel (2016), their study investigates the relationship prior and post to the mandated IR regime in South Africa for JSE listed firms and specifically examines how Environmental Social and Governance (ESG) disclosures mediate the observed relationship. Their results document that, after the introduction of the IR regime, there is an association between environmental performance disclosures and analyst forecast accuracy.

More recently, Zhou et al. (2017) developed a self-constructed proxy for IRQ that captures 31 disclosure components across the eight content elements. Zhou et al. (2017) find a negative association between changes in IRQ and subsequent changes in analyst earnings forecast errors, but not changes in forecast dispersion. They also document a negative association between changes in IRQ and subsequent changes in cost of equity capital, however only for firms with low analyst following.

Finally, Barth et al. (2016) use proprietary data from Ernst & Young (EY) to create a variable capturing IRQ. Since 2011, EY organises annually the 'EY excellence in Integrated

Reporting' awards in South-Africa (EY, 2015). The awards are assigned to those JSE listed firms whose IRs are best aligned with the IIRC principles. The EY grading system incorporates the seven principles and eight content elements which were put forward by the IIRC for consistent IR and determines a score per criterion. In Barth et al. (2017), the multiple scores are aggregated to a total score and used as a proxy for IR quality (IRQ). From their empirical analyses with this IRQ proxy, Barth et al. (2017) document a positive association between IRQ and liquidity, which supports the capital market channel, while they find no evidence of a relation between IRQ and cost of capital. Barth et al. (2017) also confirm a positive association between IRQ and expected future cash flows.

In sum, the empirical findings from these initial IR-related studies suggest some value-enhancing, beneficial effects associated with IR. Nevertheless, the evidence remains quite sparse and not consistent among studies. Extant literature is definitely valuable to shed some light on the potential consequences of IR, however a series of methodological choices and constraints hamper the generalizability of these exploratory findings. In this paper, we draw on extant papers that focused on IR adoption in South African firms and extend the research method and empirical analysis in three distinctive ways. First, we rely on computer-based textual analysis to capture readability, tone and quantity of IR disclosure. Compared to prior research, relying on textual analysis strengthens the validity and replicability of the findings previously based on assessments of IRQ subjective proxies. The IRQ rankings previously used in Zhou et al. (2017) and Barth et al. (2017) have a "black box" approach, because the specific rating criteria are neither published by the selling institutions nor are transparently disclosed by the researchers. Barth et al. (2017) state clearly that 'the final ranking is based on a combination of the average of these scores, overall perceptions and extensive discussions surrounding the final rankings for each company' (EY, 2015). This illustrates the level of discretion associated with the use of EY scores, even though EY claims to have applied a pre-

agreed mark plan (EY, 2015). Second, we examine the role of third-party assurance in improving the credibility of corporate disclosure. This is a feature previously not investigated in the novel area of IR and only limitedly examined in textual analysis research on financial disclosure. Third, we extend the empirical analysis by Barth et al. (2017) and Zhou et al. (2017) by including a larger panel of JSE-listed firms in the post-implementation phase only from 2011 to 2016. In the next section, we first explain the theoretical background of the study to illustrate the association between textual characteristics and economic consequences. We then present the motivation and arguments behind the expected moderation of third-party assurance on the main relationships investigated.

2.2. Theoretical framework

Previous studies show that the use of textual analysis is suitable for IRs because they have a significant amount of textual disclosures due to the inclusion of nonfinancial information and narrative reporting (see Melloni et al., 2017). Focussing on the properties of conciseness and completeness/balance as key features underpinning an IR, Melloni et al. (2017) develop a measurement approach that draws on both the IIRC Framework (IIRC, 2013) and extant accounting studies applying textual analysis of financial disclosures (cf. Li, 2008; Li, 2010; De Franco et al., 2015; Lang and Stice-Lawrence, 2015; Loughran and McDonald, 2016). In line with this approach, we posit that IR disclosure embeds two dimensions, namely an “amount” dimension and a “style” dimension. The first one refers to the quantity of information and the contents of the IR (*what* is disclosed), whereas the second one refers to its form (*how* it is disclosed). The IR Framework (IIRC, 2013: paragraph 3.36-3.38) explicitly hints at these two aspects, maintaining that an IR should be “concise” and “express concepts [...] in as few words as possible” pointing at the quantity of information (the “amount” dimension), as well as “favour plain language over the use of jargon or highly technical terminology”, emphasizing the importance of the communication “style”, and, in particular, of readability. At the same

time, an IR should provide a neutral representation of information, not to be “manipulated to change the probability that it will be received either favourably or unfavourably” (IIRC, 2013: paragraph 3.44), pointing at the importance of the tone (“how”) of the disclosure (Melloni et al., 2017).

In this paper, our objective is to examine the association of IR “amount” and “style” attributes and economic benefits by including in the analysis several capital markets effects in line with Barth et al. (2017).

A well-established literature posits that increased disclosure requirements generate potential benefits to users in terms of reduction of information asymmetries and agency conflicts, ultimately leading to a lower market risk premium and cost of equity capital (Botosan, 1997; Healy and Palepu, 2001; Easley and O'Hara, 2004). Prior research indeed suggests that changes in the regulatory environment, such as mandatory introduction of IFRS in the European Union (e.g., Armstrong et al., 2010) and Sarbanes Oxley regulation in the United States (e.g., Zhang, 2007), impact a company's market valuation. IR can be expected to reduce the agency and information asymmetry problem along different mechanisms. Greater transparency and connectivity of financial as well non-financial information conveyed by an IR is expected to exert a signalling effect on capital providers, encouraging managers to adopt a long-term value-creation strategy in the benefit of investors (Lys et al., 2015) . Through the expansion of the information set of a firm's disclosure, additional beneficial effects should also stem from mitigating estimations risks in the valuation of a firm's performance (Lambert et al., 2007; Zhou et al., 2017). On a similar vein, we expect that the presence of IR high quality textual attributes (concise, readable and balanced in the tone) is associated with higher market valuation.

We also argue that IRs characterized by verbosity, reading difficulty and biased tone increase the difficulty for IR users to extract the available information, increasing their

information acquisition costs (Li, 2010; Amihud and Mendelson, 2012). We posit a negative association among low levels of conciseness, readability and tone balance (derived by textual analysis) and liquidity (Lang and Stice-Lawrence, 2015; DeFranco et al., 2016).

Furthermore, similar to Zhou et al. (2017), we investigate whether producing an IR is beneficial for analyst forecasts' accuracy. Lehavy et al. (2011) find that a higher readability of corporate financial statements leads to lower dispersion and uncertainty of analyst earnings forecasts. In the context of IR, Eccles and Serafeim (2015) suggest that rich content and connection of initiatives to concrete goals, KPIs and value chain process makes IR effective. In presence of an IR, financial analysts are more likely to understand the organization's whole value creation process and make their judgments in a more informed and concerted way (Lang and Lundholm, 2000). Likewise, by making clear the linkages of sustainability risks and opportunities to corporate strategy, IR will decrease uncertainty resulting from sustainability activities and enhance analysts' valuation beliefs on future earnings.

In the additional tests, we focus on some supplementary proxies for market effects and expect that IRs with low levels of conciseness, readability and tone balance are associated with lower expected future cash flows, higher cost of capital and higher forecasts errors (Barth et al., 2017; Zhou et al., 2017).

Finally, we also examine the relationships among IR "amount" and "style" attributes and corporate exposure to environmental, social and governance (ESG) controversies, i.e., negative events reflected in global media. In so doing, and overall, we combine and extend prior studies to generate a rather comprehensive set of empirical tests that should shed additional light on the intended value-enhancing ability of IR for different types of users and audiences.

We further examine the role of third-party assurance in affecting the relationship among textual attributes of IRs and intended beneficial economic effects. The objective of an external

audit of financial statements is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error. An external audit of an IR has similar objectives, however there are currently no assurance standards focused specifically on assuring an IR (Simnett and Huggins, 2015). This means a lack of guidance on the nature and extent of the procedures which would be required to assess, for instance, whether or not an IR deals adequately with the different types of capital transformations and the interconnections between these (IIRC, 2013). Given the limited prescriptive reporting requirements in the IIRC's framework (IIRC, 2013), the interpretative construction of the IR, and the difficulty of defining suitable test procedures (Simnett and Huggins, 2015), expressing an audit opinion on an IR poses significant technical challenges. A recent Discussion Paper by the IAASB points at the need to promote clarity and credibility on external assurance services for emergent forms of corporate reporting such as IR (IAASB, 2016). At this stage, the heterogeneity in assurance engagements chosen by the South African firms (ACCA, 2015) makes this institutional setting suitable to explore the role of auditing as credibility enhancing mechanisms beyond the value enhancing channels of mandatory disclosure.

In absence of prior research in this novel auditing practice, we draw on past studies that examined the economic effects associated with the adoption of voluntary assurance for sustainability or CSR reports. A few experimental papers posit and provide evidence that third-party assurance increases its perceived reliability and credibility (Pflugrath et al., 2012; Brown-Liburd and Zamora, 2015). These findings are consistent with financial auditing practices indicating that third-party verification provides greater user confidence in the credibility and comparability of the non-financial information disclosed (Cohen and Simnett, 2015). Coherently with agency theory, firms hire external auditors to verify the accuracy of financial statements and assure the users about the reliability of disclosed information (Chow, 1982)As

a costly signal, an audit is supposed to reduce information asymmetry and financing frictions, such as adverse selection and moral hazard between managers and capital providers, which eventually is expected to improve resource allocation and contracting efficiency (Kausar et al., 2016). In a sample of US firms between 1999 and 2010, Casey and Grenier (Casey and Grenier, 2015) indeed show that firms with an assured CSR report are associated with a lower cost of equity capital in comparison with firms that issue unassured CSR reports. On a similar vein, firms with assured CSR reports are associated with a lower analyst forecast error and dispersion than firms with unassured CSR reports. Furthermore, external assurance supports firms in increasing credibility and trust in the assured information, with a positive influence on a company's reputation. Such intuition is recently confirmed by an experiment in which assurance of sustainability information positively affects professional investors' evaluation of a firm's sustainability performance, resulting in a higher weighting of this information, and leading to higher investment-related judgments (Reimsbach et al., 2017).

Although assurance of emerging forms of (non-financial) reporting is still evolving, our objective is to explore for the first time – to the best of our knowledge – the credibility-enhancing mechanisms associated with third-party verification of IRs. We posit that external assurers should verify a firm's claims and moderate them, thereby enhancing the quality of disclosed information. The monitoring role of auditors is confirmed by past studies showing that high-quality assurance of financial statements curtail managerial opportunism and is associated with higher quality of financial reporting (Becker et al., 1998; Kausar et al., 2016).

We draw upon the literature on 'revealed preferences' (Samuelson, 1948) and 'screening' (Guasch and Weiss, 1981) arguing that the costly decision to undergo an audit conveys incremental information to the capital markets about the quality of the firm and its prospects, over and above the information provided by the disclosed information (cf. Kausar et al., 2016). Applying these underpinnings to our setting, our interest lies in examining the

role of an audited IR in ‘correcting’ the expected negative associations among low quality attributes (i.e. verbosity, low readability and balance in the tone) and capital market consequences. In the end, whether the inclusion of an assurance statement in IRs exerts a significant (moderating) benefit in terms of reduced information asymmetry and improved investor’s decision-making remains an empirical question. In our analysis, we will additionally explore the role of IR assurance by disentangling its moderating effect using a dummy (assured versus non-assured IRs), as well as proxies of audit quality measured by a content analysis of IR assurance statements aimed at capturing more precise dimensions of audited information (e.g. materiality, type of performance measures assured, and so forth).

3. Research design

3.1. Sample

We focus on South Africa, a setting where annual IR is mandated as of March 2010, and specifically on the top 160 firms listed at the Johannesburg Stock Exchange (JSE) ranked by market capitalization in 2015. These firms represent more than 97% of total JSE market capitalization. We focus on the years after the IR became mandatory, that is we collect our data between 2011 and 2016. This sample identification strategy led to the inclusion of 158 unique firms (2 firms delisted in the period investigated and were therefore excluded from the analysis) or 948 firm-year observations in our hand-collected database. We also remove observations of firms representing exchange traded funds, subsidiaries with no independent IR or firm-year duplicates (900 firms’ year observation available, with 150 unique firms).

We download all the IRs and, when available, also the IR assurance reports from each firm’s website. If not available, companies were contacted or Corporateregister.com was used to increase the number of assurance reports to be included in our analyses.

==== Insert Table 2 about here ====

Hand-collected data was complemented with archival data on economic consequences variables and controls collected from Bloomberg, Thomson Reuters ASSET4, and I/B/E/S. However, not all the companies have data available in these datasets. This is the reason why, as shown in Table 2, the subsequent regression analyses rely on different numbers of observations.

As anticipated, the IR mandatory disclosure regime for JSE-listed firms constitutes a natural experiment setting in corporate reporting (see also Barth et al., 2017; Zhou et al., 2016). As our sample includes only firms that are required to publish an IR every fiscal year, this setting allows to remove the heterogeneity in the voluntary adoption of an IR that characterizes firms in other jurisdictions and institutional settings (Glaeser and Guay, 2017).

3.2. Measures of economic and ESG effects

We capture both economic and Environmental Social and Governance (ESG) effects associated with textual attributes of IRs. To measure our economic effects, and in particular, market reaction, we mainly follow Barth et al. (2017). Firstly, we use the Tobin's Q as a proxy for firm value as it reflects the market's valuation of a firm's assets relative to their carrying amounts (Lang and Maffett, 2011) and not simply the carrying amount of its assets that would not reflect intellectual, human, social, and natural capitals. 'TobinQ' is calculated in line with Barth et al. (2017) as total assets minus total common equity plus common shares outstanding at year end multiplied by the share price at the release date of the current year IR divided by total assets.

Secondly, we use bid-ask spread to proxy for information asymmetry as an inverse measure for stock liquidity. In line with Barth et al. (2017), we calculate the 'Bid_Ask' as the natural logarithm of the median of the difference between daily closing bid and ask prices divided by their midpoint of the two prices measured from the day after the release of the prior year's IR to the release date of the current year's IR. In doing so, we hand collected IRs' release dates.

Thirdly, we test the association between IR characteristics and analysts' reaction. Similarly, to Zhou et al., (2017), we use analysts' forecasts' dispersion 'F_DISP' calculated as the natural logarithm of the standard deviation of analyst EPS forecasts divided by the median forecast.

Fourthly, the ESG effects are captured through the Controversies Score provided by Thomson Reuters' ASSET4 database (Mnemonic TRESGCCS). Released in March 2017, ASSET4's ESG Controversies Score measures a company's exposure to environmental, social and governance controversies and negative events reflected in global media (Aouadi and Marsat, 2016; Thomson Reuters, 2017). Each time a scandal occurs, the overall ESG Controversies Score is affected. Exposure of companies to controversies is measured based on 23 ESG controversy topics, grouped into 7 categories including Community, Human Rights, Management, Product Responsibility, Resource Use, Shareholders, and Workforce (Thomson Reuters, 2017).

3.3 Measures of IR textual attributes

In our analyses, we highlight two aspects of the IR disclosures. On the one hand, we underline the *amount* dimension referred to the disclosure quantity (*length*). On the other hand, we stress the *style* dimension linked to the *readability* and the *tone* used in the IRs. As previous papers (Barth et al., 2017; Zhou et al., 2016) have focused on IR quality mainly operationalized in terms of its contents (the first dimension), in our study we emphasize IRs' style as a possible disclosure aspect that can influence market reaction, while also considering the amount and scope of the disclosures. Indeed, previous studies show that *how* information is communicated can be crucial in the IR context (Melloni et al., 2017).

Specifically, to capture reading ease we refer to the computational linguistics literature and to previous works on IR and corporate narrative disclosure (e.g. Li, 2008; Twedt and Rees, 2012; De Franco et al., 2015) that examined *readability* by using the Fog index and the Flesch-

Kincaid index. Before computing the indexes, we convert pdf into text removing tables, graphs, titles, headings; we also remove numbers, symbols, URLs, special characters and stopwords (Lewis et al., 2004; Li, 2008; Loughran and McDonald, 2016). To calculate the readability indexes, we use the software Quanteda.

The Fog index is a measure of reading difficulty that is based on the number of words per sentence and the percentage of complex words where words with three syllables or more defined as complex. The underlined assumption is that more words per sentence or more complex word make a document harder to read. It is calculated as follows: $Fog = (words_per_sentence + percent_of_complex_words) * 0.4$. The index indicates the number of years of formal education a reader of average intelligence would need to read and understand the text with such word-sentence workload. In particular, the relation between the Fog and reading ease is as follows: Fog ≥ 18 (unreadable); 14–18 (difficult); 12–14 (ideal); 10–12 (acceptable); and 8–10 (childish).

The Flesch-Kincaid Grade level (also called the “Flesch–Kincaid formula” or the “Kincaid Index”) rates texts by US grade school levels. Therefore, a score of 8.0 means that the document could be understood by an average eighth grader. This index is measured as follows: $Flesch-Kincaid\ Grade = (11.8 * syllables\ per\ word) + (0.39 * words\ per\ sentence) - 15.59$. Also the Flesch Grade Level has been used in previous accounting studies (e.g. Subramanian et al., 1993; Laksmana et al., 2012; De Franco et al., 2015).

We additionally compute the Smog index, another measure of readability that estimates the years of education needed to understand a text. McLaughlin (1969) developed its formula as a more precise and more simply calculated substitute for the Gunning fog index (an approximate formula requires the counting of the words of three or more syllables in three 10-sentence samples, the estimation of the count’s square root (from the nearest perfect square),

and the final addition of 3). It has to be noted that the importance of readability is also emphasized in the IR framework (IIRC, 2013; Melloni et al., 2017).

Further, we focus on the tone of information included in IRs. In line with Cho et al., (2010) we measure verbal tone of corporate reports using two verbal tone measures: “optimism” and “certainty”. To capture these aspects, we use DICTION (version 7.0) similarly to previous accounting studies (Sydserrf and Weetman, 2002; Yuthas et al., 2002; Henry, 2008; Cho et al., 2010; Rogers et al., 2011; Davis and Tama-Sweet, 2012). Past textual analyses conducted in various fields corroborate that DICTION has strong empirical validity (Alexa and Zuell, 2000; Short and Palmer, 2008; Davis et al., 2012). Besides, the automated procedure avoids problems caused by the subjectivity typical of manual coding (Short and Palmer, 2008; Davis and Tama-Sweet, 2012) and allows comparison between studies. Indeed, a distinctive feature of DICTION is its use of normative values for comparative purposes allowing the application of dictionaries specifically tailored for particular types of disclosures (including corporate financial reports). In our analysis, we consider the optimism score with “corporate financial report” as a normative profile because it carries the advantage of being designed specifically for use in a financial context. We use “standardize scores” meaning that DICTION extrapolates each particular text to a 500-word norm equivalent (which is the basic unit of analysis) so that input texts of any length can be measured consistently.

Optimism is defined as language “endorsing some person, group, concept, or event, or highlighting their positive entailments” (Hart, 2001). The optimism score is computed using this formula: $DICTION \text{ Optimism} = [praise+satisfaction+inspiration]-[blame+hardship+denial]$. Given the way in which it is calculated, this score emphasizes the optimism versus pessimism or positive versus negative nature of the communication, i.e., the higher the score, the more the text is skewed towards an optimistic tone, whereas the lower the score, the more balanced the extent of positive and negative language used in the text. Our

emphasis on optimism as a verbal tone measure is in line with the emphasis of the IIRC framework establishing that an IR needs to have no bias in the presentation of information to change the probability that it will be received either favorably or unfavorably (IIRC, 2013; Melloni et al., 2017). “Certainty” refers to language that indicates “resoluteness, inflexibility, completeness, and a tendency to speak ex cathedra” (Hart, 2001, p. 246). The *DICTION certainty score* is computed using this formula $[tenacity+leveling+collectives+insistence]-[numerical\ terms+ambivalence+self-reference+variety]$.

For what concerns the other dimension of IR disclosure, i.e., *amount* dimension, we focus on the length of IRs to capture quantity. For *length*, we use the number of words and the number of characters of the document. These measures have already been used in the literature to capture the amount of information provided in corporate reports and they can be easily calculated and interpreted (Cowen et al., 1987; Deegan and Gordon, 1996; Li, 2008; De Franco et al., 2015).

To obtain a more parsimonious representation of IRs’ characteristics, we use exploratory factor (principal component) analysis (see Lang and Stice-Lawrence, 2015 for a similar approach). Results of the factor analysis are exhibited in Table 3. Both models presented (without and with factor rotation, where the rotation method is the Varimax with Kaiser Normalization) indicate that there are three factors, all appropriate for inclusion in additional tests. Eigenvalue of all the three factors exceed 1.0, with the Kaiser-Meyer-Olkin score at 0.622 (thus above the critical threshold of 0.5) and the Bartlett's test of sphericity significant at $p=0.000$. In both models, the attributes measuring readability (i.e., Fog index, Flesch-Kincaid index and Smog index) are associated with Factor 1 labelled “reading difficulty”. The variables measuring the amount and the scope of disclosures (i.e., number of words, number of characters) load on Factor 2, labelled “length”. The optimism and the certainty measures load on Factor 3 and is thus named “tone”. The interpretation of the

exploratory factor analysis points thus at a combination of textual attributes defining *readability* separately from *tone*, i.e., Factor 1 and Factor 3, two “style” characteristics, and combining disclosure length measures together in Factor 2 as the *quantity* dimension of IRs.

==== Insert Table 3 here ====

3.4 Measures of Assurance

As we are interested in the role of assurance as a moderating variable, , we use a dummy variable ‘ASU’ to indicate whether independent, external assurance has been provided on the firms’ IRs. Furthermore, we measure the quality of IR assurance (‘ASU_Q’) by applying a content analysis of publicly available, third-party assurance statements that accompany an IR. The content analysis includes 20 items or ranking criteria drawing on the framework originally provided by O’Dwyer and Owen (2005) and Perego and Kolk (2012) that reflect a combination of assurance statement requirements according to the two most commonly applied international assurance standards in the areas of non-financial information (ISAE 3000) and CSR/sustainability (AA1000AS). The ranking criteria range from items that track factual data (such as title, addressee, name and location of assurator) to items that capture characteristics of the assurance engagement and require more interpretation of the principles stated in the standards (such as materiality, completeness, and responsiveness to stakeholders). Because of the inherent principles-based nature of the coding framework for IR assurance quality, we ensure reliability and validity of the ‘ASU_Q’ scores by employing a 100% double coding process. The authors first independently completed the content analysis and then engaged in iterative rounds of comparisons and discussions until all disagreements on scores per item were resolved. As a result of our coding framework, the possible scores of IR assurance quality obtained from the content analysis range from one to 24, with one representing the lowest value

of ‘ASU_Q’ and 24 the highest. The coding framework and coding rules per item are exhibited in Appendix 1.

3.5. Model

To examine the associations between IR characteristics and economic and ESG benefits variables, and the moderating role of assurance (presence and quality), we estimate equation (1) with the following general form (with firm and time subscripts suppressed):

$$ECONOMIC \text{ and } ESG \text{ EFFECTS} = \alpha_0 + \alpha_1 \text{ READING DIFFICULTY} + \alpha_2 \text{ LENGTH} + \alpha_3 \text{ TONE} + \alpha_4 \text{ ASSURANCE} + \alpha_5 \text{ ASSURANCE} * \text{ READING DIFFICULTY} + \alpha_6 \text{ ASSURANCE} * \text{ TONE} + \alpha_7 \text{ ASSURANCE} * \text{ QUANTITY} + \text{ CONTROLS} + \varepsilon_t$$

(1)

where *ECONOMIC and ESG EFFECTS* are in turn operationalized as Tobin’s Q, bid-ask spread, analysts’ forecasts’ dispersion and ESG controversies score. *ASSURANCE* captures both adoption (‘ASU’) and quality (‘ASU_Q’). To correct for cross-sectional and time-series dependence in regression residuals from estimating equation (1), we cluster standard errors by firm (Barth et al., 2017) and we control for years and industries.

We control for the *scope* of information (‘ESG_Discl’) and consider the extent of information disclosed in terms of the coverage of specific topics and, specifically, of ESG topics. In this respect, we use the “Bloomberg ESG disclosure scores” (Ioannou and Serafeim, 2015; Lai et al., 2016), which measure the degree of coverage of environmental, social, and governance issues. The four scores (ESG disclosure score, environmental disclosure score, social disclosure score and governance disclosure score) range from 0-100 and capture how many of the possible ESG topics a company is reporting and are based on both quantitative and qualitative information. These scores are industry specific and previous research has shown that they are the ones that attract the most attention by investors (Eccles et al., 2011; Ioannou

and Serafeim, 2015). The focus on the scope of information is in line with the IIRC framework (IIRC, 2013; Melloni et al., 2017).

Similarly to Zhou et al. (2016) and Barth et al. (2017), we also control in the different models for the following variables:

- CSR_SA: a dummy variable equal to 1 if a firm issues a stand-alone CSR report in addition to its integrated report, zero otherwise (Barth et al., 2017; Zhou et al., 2017). We hand-collected this information from Corporate Register (www.corporateregister.com) and corporate websites of the JSE-listed firms;
- IR_fram: a dummy variable equal to 1 after 2013, the year in which the IIRC issued the IR Framework, zero otherwise;
- Accr: the difference between net income before extraordinary items and preference dividends and net cash flow from operating activities, scaled by total assets. It is an inverse indicator of financial reporting quality;
- Gov: score calculated as the average of Board Function (CGBF), Board Structure (CGBS), Compensation Policy (CGCP), and Shareholder Rights (CGSR). Taken from Asset 4 (Thomson Reuters);
- Total assets: as a proxy of size, from Bloomberg is logartims of balance sheet total assets;
- CSR_Perf: CSR Performance Score calculated as the average of ENVSCORE and SOCScore taken Asset 4 (Thomson Reuters);
- Compl_Seg: number of product segments as a proxy of a firm's complexity. We hand-collect data when the number of segments is missing from Datastream;
- Lev: ratio of total debt to the sum of total debt and the book value of common shareholders' equity;
- Loss: an indicator variable that equals one if income before extraordinary items is negative, and zero otherwise;

- Beta: market beta as of the fiscal year-end month as in Zhou et al. (2017). It is an indicator of market sensitivity;
- Prime: an indicator variable that equals one if a firm's primary listing is on the JSE, and zero otherwise;
- ROA: ratio of income before extraordinary items to lagged total assets (computed with data from Bloomberg)
- BTM: book-to-market ratio of equity calculated as the book value of common shareholders' equity, divided by the number of common shares outstanding multiplied by end-of-year share price;
- FFIN: a dummy variable equal to 1 if a company's average absolute accruals are less than the median of those within the same industry and same year. It is used by Zhou et al. (2017) as an indicator of financial transparency.
- L_ANANO: the natural logarithm of the average number of forecasts made during the 12 months following fiscal year-end. It is used by Zhou et al. (2017) as an indicator of the analysts following the stock.
- VarEarn: the natural logarithm of the times-series standard deviation of earnings per share computed using a rolling window of a minimum of three years up to ten years prior to the year concerned. It is used by Zhou et al. (2017) as an indicator of EPS volatility.

Not all the variables are included in all models. Further details can be found in the tables exhibiting the results. In the additional tests, in line with previous studies (Barth et al. 2017; Zhou et al. 2017) we supplement the analysis with these control variables:

- ExpGr: expected future growth measured as the ratio of the mean one-year-ahead analyst target price to the actual price minus one measured on the integrated reporting release date. This variable is extracted from IBES as an indicator of growth expectations on prices;

- LtGr: Long-term growth measured as the difference between the two-year-ahead consensus earnings per share forecast and the one-year-ahead. This variable is extracted from IBES as an indicator of growth expectations on EPS.

4. Results

4.1. Descriptive statistics

The means, standard deviations, minimum and maximum of the main variables are presented in Table 4. The values are in line with those reported in Barth et al. (2017) and Zhou et al. (2017). The textual analysis reveals that the (un-tabulated, in Table 3, we present the factors) mean of the Fog index is equal to 23.33, suggesting that the IRs are on average very difficult to read. The average optimism score is equal to 49.44, which is in line with the score obtained by other studies on IR (Melloni et al., 2017). The average certainty score is equal to 50.63 which is higher than previous studies on corporate disclosure (Cho et al., 2010). The IRs analyzed are long, as they include an average of 31,351 words (or 209,581 characters). The average ESG disclosure scores yield 35.014 points out of 100 and is quite low (it means that companies are reporting much less than half of the environmental, social and governance items that Bloomberg expects them to report). Interestingly, only 18.4% of the IRs is assured and the average assurance quality score is equal to 3.04. Table 5 shows the distribution of firms across industries.

=== Insert Tables 4 and 5 about here ===

Our correlation analysis shows that there are statistically significant relationships among the IRs characteristics, assurance and our dependent variables. As reported in Table 6, reading difficulty is negatively correlated with Tobin's Q. Length is negatively associated with Tobin's

Q, bid-ask spread and positively with forecasts dispersion. Tone is negatively associated with forecasts dispersion. Finally, regarding the associations with IR characteristics, both the presence of assurance and its quality are positively correlated with length and negatively with tone.

=== Insert Table 6 about here ===

4.2. *Multivariate analysis*

The results of the main OLS regressions are presented in Tables 7 and 8, distinguishing between the different types of economic and ESG effects. Specifically, in Table 7, our analyses take into consideration the presence of assurance while in Table 8, the quality of assurance.

=== Insert Table 7 about here ===

In Table 7 Model 1a, we find a negative relation between reading difficulty and firm value, measured by the Tobin's Q (-0.102, $t=-2.250$). This suggests that, the foggier the report, the lower the firm's value. However, if the IR is assured, the negative influence of reading difficulty on firm's value is lower (there is a positive and significant association of the Tobin's Q with the interaction term: 0.108, $t=1.923$). From our results, we can also infer that investors positively react to assurance on longer IRs (there is a positive and significant relation between the Tobin's Q and the interaction term ASU*Length: 0.122, $t=1.774$).

Our findings seem further to suggest that investors appreciate conciseness. The results (Model 2a) additionally show a positive association between the bid-ask spread and disclosure length (0.113, $t=1.889$). Because bid-ask spreads increase with illiquidity, we provide evidence that investors seem to prefer shorter IRs. However, if the IR is assured, the negative influence of disclosure length on the stock liquidity is lower (there is a negative and significant association of the bid-ask spread with the interaction term: -0.129, $t=-1.818$). Finally, there is

a negative and significant relation between the assurance of the report and bid-ask spread (-0.170, $t=-1.758$), consistently with a positive market effect of IR assurance.

In Model 3a, we find a negative and significant relationship between tone and forecasts' dispersion (-0.114, $t=-2.244$). This finding supports the conjecture that analysts are affected by optimism and certainty and they provide less dispersed estimates. We also find negative and significant relationship between assurance of an IR and forecasts dispersion (-0.488, $t=-2.503$), meaning that assured information disclosed in an IR is beneficial to analysts.

Finally, Model 4a exhibits a positive and significant relationship between reading difficulty and ESG controversies score (1.361, $t=1.687$). However, if the IR is assured, the influence of reading difficulty on ESG controversies is negative (there is a negative and significant association of the ESG controversies with the interaction term: -3.757, $t=-2.194$).

Findings on control variables (Model 1a-4b) are largely consistent with previous studies. Interestingly, we find a positive and significant relationship between ESG disclosure score and bid-ask spread (0.010, $t=2.530$), suggesting that higher ESG disclosure scope appears not beneficial to investors. Furthermore, we find a negative and significant relationship between ESG disclosure scope and ESG controversies score (-0.282, $t=2.531$).

We also look into the linear combination of coefficients (sum and related p-value) of the main effects and of the interaction terms to better understand the moderating role of assurance. Our (untabulated) results show that assurance offsets the negative impact of reading difficulty on Tobin's Q (Model 1a), of length on Bid-ask spread (Model 2a) and of reading difficulty on the ESG Controversy score (Model 4a).

Results of the main analyses on the influence of assurance quality are presented in Table 8 (Model 1b-4b). We find a negative and significant relationship between reading difficulty and Tobin's Q (-0.108, $t=-2.448$) and between the interaction terms ASU_Q*Read_Diff (0.007,

t=2.266). In this sense, the results are unchanged when substituting the presence of assurance with its quality (Model 1b).

=== Insert Table 8 about here ===

With reference to the bid ask spread, the results show that concise reports provide more economic benefits, as suggested by the positive and statistically significant coefficient of length (0.109, t=-1.873) in Model 2b. However, the presence of assurance of higher quality moderates the negative effect of length on the stock liquidity (there is a negative and significant association of the bid-ask spread with the interaction term: -0.006, t=-1.861). The results are consistent with Model 2a.

As shown in Model 3b, we find a negative and significant relationship between tone and forecasts dispersion (-0.124, t=-2.571). In line with the previous results, analysts are affected by reports' tone. We also show that the quality of assurance is associated with lower forecasts' dispersion (-0.026, t=-2.472).

With regards to ESG benefits (Model 4b), our findings suggest a positive and significant relationship between reading difficulty and ESG controversies score (1.530, t=-1.938). Also in this case, the quality of assurance moderates such relationship (there is a negative and significant association of the ESG controversies with the interaction term: -2.218, t=-2.450).

4.3. Additional tests

4.3.1. Textual characteristics, assurance and additional economic effects

In line with Barth et al. (2017), we examine additional economic benefits and include in our analysis the expected future cash flows and the cost of capital. In addition, similarly to Zhou et al., (2017), we use an additional proxy of analysts' reaction, i.e., forecasts errors. We measure

expected future cash flows ('EFCF') as the natural logarithm of the mean target price forecasts issued up to 90 days after the release date of the current year IR scaled by total assets. For the cost of capital, we employ both the weighted average cost of capital ('COC_WACC') and the Cost of Equity ('COC_KE') and we rely on Bloomberg's analyst estimations for their measurement. Forecasts errors ('F_Error') are calculated as the natural logarithm of the average of the absolute errors of all forecasts made in the 12 months following the fiscal year end concerned for target earnings, divided by the actual EPS at fiscal year-end. It is an inverse indicator of forecast accuracy. Results are reported in Table 9.

=== Insert Tables 9 about here ===

In Model 5, we show that reading difficulty significantly reduces expected future cash flows. In other words, the lower the readability, the lower the expected future cash flows (-0.167, $t=-2.210$). However, in line with the main analysis, if the IR is assured, the negative influence of reading difficulty on expected future cash is lower (0.203 $t=2.304$). In addition, we also find a negative and significant relationship between tone and EFCF (-0.116, $t=-1.780$). However, third-party assurance helps mitigating this negative effect as there is positive and significant association between tone with the interaction term (0.165, $t=1.769$). In addition, we find a negative and significant relationship between assurance and EFCF (-0.362, $t=-2.078$).

With reference to analysts' forecast errors, Model 6 show that the interaction term "reading difficulty and assurance" reduces analysts' forecast errors (-0.304, $t=-2.101$). These results seem to suggest that the influence of reading difficulty on forecasts' errors is lower when the report is assured. Overall, the results of the additional tests confirm the role of assurance in mitigating the negative economic effects associated with IRs of lower quality.

In Model 7 and 8 we find for both proxies of the firm's cost of capital (the WACC and the cost of equity) a negative and significant relation with disclosure length (-0.256, $t=-3.562$;

-0.212, $t=-3.019$, respectively). Interestingly, and quite unexpectedly, these results suggest that firms publishing longer reports have a lower cost of capital.

4.3.2. *Specific textual characteristics, assurance and economic and ESG benefits*

In the attempt to assess the robustness of our results, we run some additional tests focusing on the specific textual characteristics (the single items) used in the factor analysis, namely: the Fog index, the Flesch index, the Smog index (with the smog results untabulated) for *readability*; total number of words and total number of characters for *length*; optimism and certainty scores, for *tone*.

The results of these supplementary analyses are largely consistent with the main analysis. In addition, we find a positive (negative) and significant relationship between ASU*CERT and Tobin's Q (bid-ask spread). These results provide additional support for the positive economic effects of assurance in offsetting the negative economic effects associated with IRs of lower quality.

=== Insert Tables 10.1-10.4 about here ===

4.3.3. *Endogeneity*

With our robustness tests, we also attempt to moderate additional concerns related to endogeneity. Firstly, to address the issue of reverse causality, we re-run our main analysis with one year lagged outcome variables (untabulated). For what concerns firm value the impact of reading difficulty is still significant, and in line with the main models. For the bid-ask spread, the impact of the IR length is still negative while that of the tone is also significant (the more optimistic and certain, the lower the bid-ask spread). The impact of assurance on the bid-ask spread is still negative and significant (thus assurance contributes to improve the stock liquidity). With reference to analysts' forecast dispersion, the more optimistic and certain the tone, the lower the dispersion is.

Secondly, to moderate endogeneity concerns due to some omitted variables, we use a two stage OLS approach with the presence of a CSR committee as an instrumental variable for assurance. In doing so, we use the instrumented assurance variable in the subsequent interactions. The results are shown in Table 11.

=== Insert Table 11 about here ===

For what concerns firm value both the impact of reading difficulty and of the interaction term length and assurance are significant, and in line with the main model. For the bid-ask spread, the impact of the IR length is negative and moderated by assurance (in line with our main analyses) and also the impact of assurance is negative (i.e., positive in terms of stock liquidity), as in our main model. For analysts' forecast dispersion, the impact of assurance is negative (in the presence of assured IRs the dispersion of analysts' forecast is lower) which confirms the results of our main analyses. Finally, for the ESG controversy score, the impact of the interaction between reading difficulty and assurance is negative and consistent with our main analyses. The results remain largely unchanged when repeating these analyses with the assurance quality score (where we add another instrumental variable, i.e. whether the assurer is a Big-4).

5. Discussion and conclusions

IR aims at improving the quality of information available to providers of financial capital to enable a more efficient and productive allocation of capital (IIRC, 2013). The primary purpose of an IR is to explain to providers of financial capital how an organization creates value over time in a concise and clear manner (IIRC, 2013). Our objective is to examine the association of IR textual attributes and firms' economic and ESG benefits and the role of assurance in

influencing such relationships. In so doing, we focus on textual attributes of IR disclosure that refer to the “amount” of disclosure (length) and to its “style” (readability and tone) in line with the IIRC framework (2013) and with previous studies on IR (cf. Melloni et al., 2017).

With reference to readability, firstly, our results suggest that firms publishing “readable” reports benefit of a higher market valuation. This result is consistent with Barth et al. (2017) and Lee and Yeo (2016) that shed lights on the positive effect of IR disclosure quality on market value. We expand prior findings by showing that assurance moderates such relationship: if firms publish IRs that are difficult to read but they assure them, this will offset the negative influence of an IR reading difficulty on a firm’s market value. In addition, we show that reading difficulty matters also for broader audiences: in fact, higher IR readability results in a lower ESG controversies score. In this sense, our analysis extends previous studies showing both economic and ESG effects of IR disclosure readability (e.g., Barth et al. (2017). Furthermore, we show that if an IR is assured, the negative influence of reading difficulty on ESG controversies score is offset (i.e., assurance fully moderates of such relationship). Likewise, we find that IR assurance can counterweigh for the negative effect of disclosure reading difficulty on expected cash flow.

With reference to length, we find that IR conciseness is associated with higher liquidity. This means that reports that are short and focused are appreciated by investors possibly because they reduce information asymmetries and the cost of elaborating and monitoring information, thus increasing the trading by informed investors in line with Barth et al. (2017). In addition, our analysis shows that the presence of assurance on the IR compensates the negative effect of disclosure quantity on stock liquidity: if firms provide long reports but they assure them, this will not negatively impact their liquidity.

Regarding tone, we also show that analysts are affected by the tone of disclosure. Interestingly, we reveal that when IRs are very optimistic and with a high certainty tone,

analysts' estimates are less dispersed, however if the reports are assured this relationship is reversed. In the additional analysis, we also find that IR tone positively impacts on expected future cash flows and, again, that IR assurance moderates such relationship. Finally, we show that both assurance presence and its quality matter in affecting how providers of financial capital or stakeholders value a firm. Overall, our results document a more articulated view of how textual disclosures currently published in an IR may affect the mosaic of public information about a firm compared to previous contributions.

Furthermore, we provide evidence of the importance to focus not only on the amount of information but also on its communication style and in particular on readability. This is consistent with the emerging stream of research on textual analysis and financial reporting (Li, 2010) and at the same time it expands such stream showing that also in the context of non-financial reporting, investors and analysts, as well as broader audiences, do not appreciate reports that are difficult to read.

Finally, we find that assurance could play a key role in outweighing the negative economic effect of poor disclosure quality. Voluntary, third-party verification increases users' confidence in the credibility of the non-financial information disclosed, in line with previous studies on sustainability information assurance (Pflugrath et al., 2011; Cohen and Simnett, 2015; Brown-Liburd & Zamora, 2015).

We acknowledge that the present study suffers from a number of limitations. Notwithstanding the natural experimental setting, there is an inevitable endogeneity concern that we tried to mitigate with our additional analysis. Furthermore, we limit our analysis of an IR non-economic benefits for broader audiences to ESG controversies. Further research could consider additional variables to capture the value-enhancing effects of IR for different groups of stakeholders.

References

- ACCA (2015). The Challenges of Assuring Integrated Reports: Views from the South African Auditing Community.
- Alexa, M., & Zuell, C. (2000). Text analysis software: commonalities, differences and limitations: the results of a review. *Quality and Quantity*, 34(3), 299-321.
- Amihud, Y., & Mendelson, H. (2012). Liquidity, the Value of the Firm, and Corporate Finance*. *Journal of Applied Corporate Finance*, 24(1), 17-32.
- Aouadi, A., & Marsat, S. (2016). Do ESG Controversies Matter for Firm Value? Evidence from International Data. *Journal of Business Ethics*.
- Arena, C., Bozzolan, S., & Michelon, G. (2015). Environmental reporting: transparency to stakeholders or stakeholder manipulation? An analysis of disclosure tone and the role of the board of directors. *Corporate Social Responsibility and Environmental Management*, 22(6), 346-361.
- Armstrong, C. S., Barth, M. E., Jagolinzer, A. D., & Riedl, E. J. (2010). Market reaction to the adoption of IFRS in Europe. *The Accounting Review*, 85(1), 31-61.
- Baboukardos, D., & Rimmel, G. (2016). Value relevance of accounting information under an integrated reporting approach: A research note. *Journal of Accounting and Public Policy*, 35(4), 437-452.
- Barth, M. E., Cahan, S. F., Chen, L., & Venter, E. R. (2016). The economic consequences associated with Integrated Report quality: Early evidence from a mandatory setting. *University of Pretoria, unpublished working paper*.
- Becker, C. L., Defond, M. L., Jiambalvo, J., & Subramanyam, K. R. (1998). The Effect of Audit Quality on Earnings Management*. *Contemporary Accounting Research*, 15(1), 1-24.
- Bernardi, C., & Stark, A. W. (2016). Environmental, social and governance disclosure, integrated reporting, and the accuracy of analyst forecasts. *The British Accounting Review*, in press.
- Bonsall, S. B., & Miller, B. P. (2017). The impact of narrative disclosure readability on bond ratings and the cost of debt. *Review of Accounting Studies*, 22(2), 608-643.
- Botosan, C. A. (1997). Disclosure level and the cost of equity capital. *The Accounting Review*, 323-349.
- Bozanic, Z., & Thevenot, M. (2015). Qualitative Disclosure and Changes in Sell-Side Financial Analysts' Information Environment. *Contemporary Accounting Research*, 32(4), 1595-1616.
- Brown-Libur, H., & Zamora, V. L. (2015). The Role of corporate social responsibility (CSR) assurance in investors' judgments when managerial pay is explicitly tied to CSR performance. *Auditing: A Journal of Practice & Theory*, 34(1), 75-96.
- Busco, C., Frigo, M. L., Riccaboni, A., & Quattrone, P. (2013). *Integrated Reporting: Concepts and cases that redefine corporate accountability*. New York: Springer.
- Casey, R. J., & Grenier, J. H. (2015). Understanding and contributing to the enigma of corporate social responsibility (CSR) assurance in the United States. *Auditing: A Journal of Practice & Theory*, 34(1), 97-130.
- Cheng, M., Green, W., Conradie, P., Konishi, N., & Romi, A. (2014). The International Integrated Reporting Framework: Key Issues and Future Research Opportunities. *Journal of International Financial Management & Accounting*, 25(1), 90-119.
- Cho, C. H., Roberts, R. W., & Patten, D. M. (2010). The language of US corporate environmental disclosure. *Accounting, Organizations and Society*, 35(4), 431-443.

- Chow, C. W. (1982). The Demand for External Auditing: Size, Debt and Ownership Influences. *The Accounting Review*, 57(2), 272-291.
- Christensen, H. B., Floyd, E., Liu, L. Y., & Maffett, M. G. (2017). The real effects of mandated information on social responsibility in financial reports: Evidence from mine-safety records. *Journal of Accounting and Economics*, forthcoming.
- Cohen, J. R., & Simnett, R. (2015). CSR and Assurance Services: A Research Agenda. *AUDITING: A Journal of Practice & Theory*, 34(1), 59-74.
- Cowen, S. S., Ferreri, L. B., & Parker, L. D. (1987). The impact of corporate characteristics on social responsibility disclosure: A typology and frequency-based analysis. *Accounting, Organizations and Society*, 12(2), 111-122.
- Davis, A. K., Piger, J. M., & Sedor, L. M. (2012). Beyond the numbers: Measuring the information content of earnings press release language. *Contemporary Accounting Research*, 29(3), 845-868.
- Davis, A. K., & Tama-Sweet, I. (2012). Managers' use of language across alternative disclosure outlets: Earnings press releases versus MD&A. *Contemporary Accounting Research*, 29(3), 804-837.
- De Franco, G., Hope, O.-K., Vyas, D., & Zhou, Y. (2015). Analyst report readability. *Contemporary Accounting Research*, 32(1), 76-104.
- de Villiers, C., Venter, E. R., & Hsiao, P.-C. K. (2016). Integrated reporting: background, measurement issues, approaches and an agenda for future research. *Accounting & Finance*, n/a-n/a.
- Deegan, C., & Gordon, B. (1996). A Study of the environmental disclosure practices of Australian corporations. *Accounting and Business Research*, 26(3), 187-199.
- Directive 2014/95/EU (2014). Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as Regards Disclosure of Non-financial and Diversity Information by Certain Large Undertakings and Groups. (Accessed September 2017).
- Easley, D., & O'Hara, M. (2004). Information and the cost of capital. *Journal of Finance*, 59(4), 1553-1583.
- Eccles, R. G., & Krzus, M. P. (2010). *One Report. Integrated Reporting for a sustainable strategy*. New York: Wiley.
- Eccles, R. G., & Serafeim, G. (2015). Corporate and Integrated Reporting: A Functional Perspective. In E. Lawler, S. Mohrman & J. O'Toole (Eds.), *Stewardship of the Future*: Greenleaf.
- Eccles, R. G., Serafeim, G., & Krzus, M. P. (2011). Market interest in nonfinancial information. *Journal of Applied Corporate Finance*, 23(4), 113-127.
- EY (2015). Excellence in integrated reporting awards 2015: A survey of the integrated reports from South Africa's top 100 JSE-listed companies. EY: Johannesburg.
- Frías-Aceituno, J. V., Rodríguez-Ariza, L., & García-Sánchez, I. M. (2013). Is integrated reporting determined by a country's legal system? An exploratory study. *Journal of Cleaner Production*, 44, 45-55.
- Glaeser, S., & Guay, W. R. (2017). Identification and generalizability in accounting research: A discussion of Christensen, Floyd, Liu, and Maffett (2017). *Journal of Accounting and Economics*, 64(2), 305-312.
- Guasch, J. L., & Weiss, A. (1981). Self-selection in the labor market. *American Economic Review*, 71(3), 275-284.
- Hart, R. P. (2001). Redeveloping DICTION: Theoretical considerations. In M. D. West (Ed.), *Theory, method, and practice of computer content analysis* (pp. 43-60). Westport, CT:: Greenwood Publishing Group.

- Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31(1), 405-440.
- Henry, E. (2008). Are investors influenced by how earnings press releases are written? *Journal of Business Communication*, 45(4), 363-407.
- IAASB (2016). Supporting credibility and trust in emerging forms of external reporting: Ten key challenges for assurance engagements. New York: IFAC.
- IIRC (2013). *The International <IR> Framework*. London: International Integrated Reporting Council.
- Ioannou, I., & Serafeim, G. (2015). The impact of corporate social responsibility on investment recommendations: Analysts' perceptions and shifting institutional logics. *Strategic Management Journal*, 36(7), 1053-1081.
- Kausar, A., Shroff, N., & White, H. (2016). Real effects of the audit choice. *Journal of Accounting and Economics*, 62(1), 157-181.
- Lai, A., Melloni, G., & Stacchezzini, R. (2016). Corporate sustainable development: is 'Integrated Reporting' a legitimation strategy? *Business Strategy and the Environment*, 25(3), 165-177.
- Lakshmana, I., Tietz, W., & Yang, Y.-W. (2012). Compensation discussion and analysis (CD&A): Readability and management obfuscation. *Journal of Accounting and Public Policy*, 31(2), 185-203.
- Lambert, R., Leuz, C., & Verrecchia, R. E. (2007). Accounting information, disclosure, and the cost of capital. *Journal of Accounting Research*, 45(2), 385-420.
- Lang, M., & Lundholm, R. J. (2000). Voluntary disclosure and equity offerings: Reducing information asymmetry or hyping the stock? *Contemporary Accounting Research*, 17(4), 623-662.
- Lang, M., & Maffett, M. (2011). Transparency and liquidity uncertainty in crisis periods. *Journal of Accounting and Economics*, 52(2), 101-125.
- Lang, M., & Stice-Lawrence, L. (2015). Textual analysis and international financial reporting: Large sample evidence. *Journal of Accounting and Economics*, 60(2-3), 110-135.
- Lawrence, A. (2013). Individual investors and financial disclosure. *Journal of Accounting and Economics*, 56(1), 130-147.
- Lee, K. W., & Yeo, G. H. H. (2015). The association between integrated reporting and firm evaluation. *Review of Quantitative Finance and Accounting*, 1-30.
- Lehavy, R., Li, F., & Merkley, K. (2011). The Effect of Annual Report Readability on Analyst Following and the Properties of Their Earnings Forecasts. *The Accounting Review*, 86(3), 1087-1115.
- Lewis, D. D., Yang, Y., Rose, T. G., & Li, F. (2004). A new benchmark collection for text categorization research. *Journal of machine learning research*, 5(Apr), 361-397.
- Li, F. (2008). Annual report readability, current earnings, and earnings persistence. *Journal of Accounting and Economics*, 45(2-3), 221-247.
- (2010). The information content of forward-looking statements in corporate filings—A naïve bayesian machine learning approach. *Journal of Accounting Research*, 48(5), 1049-1102.
- Loughran, T. I. M., & McDonald, B. (2016). Textual analysis in Accounting and Finance: A survey. *Journal of Accounting Research*, 54(4), 1187-1230.
- Lys, T., Naughton, J. P., & Wang, C. (2015). Signaling through corporate accountability reporting. *Journal of Accounting and Economics*, 60(1), 56-72.
- Melloni, G., Caglio, A., & Perego, P. (2017). Saying more with less? Disclosure conciseness, completeness and balance in Integrated Reports. *Journal of Accounting and Public Policy*, 36(3), 220-238.

- Muslu, V., Mutlu, S., Radhakrishnan, S., & Tsang, A. (2017). Corporate Social Responsibility Report Narratives and Analyst Forecast Accuracy. *Journal of Business Ethics*.
- Perego, P., Kennedy, S., & Whiteman, G. (2016). A lot of icing but little cake? Taking Integrated Reporting forward. *Journal of Cleaner Production*, 136(Part A), 53-64.
- Pflugrath, G., Roebuck, P. J., & Simnett, R. (2012). Impact of assurance and assurer's professional affiliation on financial analysts? Assessment of credibility of Corporate Social Responsibility information. *Auditing: A Journal of Practice and Theory*, forthcoming.
- Ramanna, K. (2013). A Framework for Research on Corporate Accountability Reporting. *Accounting Horizons*, 27(2), 409-432.
- Reimsbach, D., Hahn, R., & Gürtürk, A. (2017). Integrated Reporting and Assurance of Sustainability Information: An Experimental Study on Professional Investors' Information Processing. *European Accounting Review*, 1-23.
- Rogers, J. L., Van Buskirk, A., & Zechman, S. L. C. (2011). Disclosure tone and shareholder litigation. *The Accounting Review*, 86(6), 2155-2183.
- Samuelson, P. A. (1948). Consumption Theory in Terms of Revealed Preference. *Economica*, 15(60), 243-253.
- Short, J. C., & Palmer, T. B. (2008). The application of DICTION to content analysis research in strategic management. *Organizational Research Methods*, 11(4), 727-752.
- Simnett, R., & Huggins, A. L. (2015). Integrated reporting and assurance: where can research add value? *Sustainability Accounting, Management and Policy Journal*, 6(1), 29-53.
- Soderstrom, N., & Potter, B. (2014). *Exploring the challenges of broadening accounting reports: Insights from research*: Oxford Handbooks Online.
- Subramanian, R., Insley, R. G., & Blackwell, R. D. (1993). Performance and readability: A comparison of annual reports of profitable and unprofitable corporations. *Journal of Business Communication*, 30(1), 49-61.
- Sydserrff, R., & Weetman, P. (2002). Developments in content analysis: a transitivity index and DICTION scores. *Accounting, Auditing & Accountability Journal*, 15(4), 523-545.
- Thomson Reuters (2017). Thomson Reuters ESG Scores, March 2017, lastly accessed in June 2017.
- Twedt, B., & Rees, L. (2012). Reading between the lines: An empirical examination of qualitative attributes of financial analysts' reports. *Journal of Accounting and Public Policy*, 31(1), 1-21.
- Velte, P., & Stawinoga, M. (2016). Integrated Reporting: The current state of empirical research, limitations and future research implications. *Journal of Management Control*, in press.
- WBCSD (2015). Integrated Reporting in South Africa: from concept to practice. Geneve.
- Yuthas, K., Rogers, R., & Dillard, J. F. (2002). Communicative action and corporate annual reports. *Journal of Business Ethics*, 41(1), 141-157.
- Zhang, I. X. (2007). Economic consequences of the Sarbanes–Oxley Act of 2002. *Journal of Accounting and Economics*, 44(1), 74-115.
- Zhou, S., Simnett, R., & Green, W. (2017). Does Integrated Reporting Matter to the Capital Market? *Abacus*, 53(1), 94-132.

Table 1. Overview of published IR studies on economic consequences of JSE-listed firms in South Africa

<i>Authors (Years)</i>	<i>Sample Period</i>	<i># Firms # Observations</i>	<i>Independent Variables</i>	<i>Dependent Variables</i>	<i>Main Results</i>
Baboukardos & Rimmel (2016)	2008-2010 vs 2011-2013	159 firms balanced sample 954 firm-year observations	<i>Book value of equity</i> scaled by the number of common shares <i>Earnings</i> before interest and taxation scaled by the number of common shares	<i>Market value of equity</i> six months after fiscal year-end scaled by the number of common shares	(-) (+)
Lee & Yeo (2016)	2010-2013	822 firm-year observations	<i>IR quality</i> : self-constructed proxy measured with a rating score based on an assessment of five aspects of each of the eight IIRC Framework content elements	<i>Tobin's Q</i>	(+) Organizational complexity and external financing needs as moderator variables (+)
Bernardi & Stark (2017)	2008-2012	200 firm-year observations	<i>IR quality</i> : Environmental, Social and Governance disclosure transparency score (index: Bloomberg ESG scores)	<i>Analyst forecast accuracy</i>	(+) Reporting regime change to IR 2010 as a moderator (+)
Zhou et al. (2017)	2009-2012	443 firm-year observations	<i>IR quality</i> : self-constructed proxy measured with a rating score that captures 31 disclosure components across the eight IIRC Framework content elements	<i>Analysts' earnings forecast error and dispersion</i> <i>Cost of equity capital</i>	(-) between changes in IRQ and subsequent changes in analyst earnings forecast errors, but not changes in forecast dispersion (-) between changes in IRQ and subsequent changes in cost of equity capital, but only for firms with low analyst following
Barth et al. (2017)	2011-2014	80 firms 292 firm-year observations	<i>IR Quality</i> : EY excellence scores in IR awards ranking	<i>Market reactions</i> : Stock liquidity (<i>Bid-ask spreads</i>) Firm value (<i>Tobin's Q</i>) <i>Expected future cash flows</i> <i>Realized future operating cash flows</i> <i>Cost of capital</i> <i>Analysts' earnings forecast error</i> <i>Investment efficiency</i>	(+) (+) (+) (+) n.s. n.s. (+)

Table 2. Sample

<i>Sample selection</i>	<i>Firm-years</i>
Top JSE listed firms ranked by market capitalization (2011-2016)	960
Observations of firms delisted in 2011-2016	12
Observation of firms representing exchange traded funds or representing subsidiaries with no independent IR or firm-year duplicates	48
Observations with missing data for textual analysis attributes	229
Observations with missing data after factor analysis	230
Observations available for our main test variables	547
Sample for the Tobin's Q analysis	
Observations with missing data	103
	444
Sample for the Bid-ask spread analysis	
Observations with missing data	112
	435
Sample for the Forecast Accuracy analysis	
Observations with missing data	153
	394
Sample for the ESG Controversy Score analysis	
Observations with missing data	104
	443

Table 3. Factor analysis of IR characteristics

	<i>Factor pattern</i>			<i>Factor pattern (rotated)</i>		
	<i>Factor 1</i>	<i>Factor 2</i>	<i>Factor 3</i>	<i>Factor 1</i>	<i>Factor 2</i>	<i>Factor 3</i>
Fog	.995	.048	.016	.997	-.008	-.001
Flesch	.994	.049	.017	.995	-.008	-.001
Smog	.984	.043	.000	.984	-.014	-.017
TotWo_w	-.067	.994	.037	-.010	.996	-.027
TotCa_w	-.068	.994	.032	-.011	.996	-.032
Opt	-.047	.045	.787	-.030	.099	.783
Cert	.013	-.169	.630	.015	-.128	.640
<i>Eigenvalue</i>	<i>2.958</i>	<i>2.011</i>	<i>1.020</i>	<i>2.955</i>	<i>2.010</i>	<i>1.025</i>

This table provides the results of a factor analysis (principal component) of the IR textual attributes. We present both the raw factor patterns (*on the left*) as well as the patterns generated after a varimax rotation of the factors (*on the right*). The three factors are consistently retained with an eigenvalue above 1.0, the Kaiser-Meyer-Olkin score is at 0.622 (above the critical threshold of 0.5) and the Bartlett's test of sphericity is significant at $p=.000$

Table 4. Descriptive statistics

	Obs	Mean	Std. Dev.	Min	Max
TobinQ	792	1.607	0.959	0.189	8.983
Bid_Ask	758	-5.677	1.030	-8.841	0.693
F_Displ	617	-1.175	2.391	-35.303	3.944
ESG_Controv	654	51.341	20.306	0.170	72.370
Read_Dif	670	0.001	1.003	-3.647	12.897
Length	670	0.005	1.001	-2.990	5.276
Tone	670	-0.001	1.003	-11.786	5.571
ASU	900	0.184	0.388	0.000	1.000
ASU_Q	900	3.083	6.896	0.000	23.000
ESG_Discl	707	35.014	14.037	5.785	67.769
CSR_SA	900	0.363	0.481	0.000	1.000
IR_fram	900	0.500	0.500	0.000	1.000
Accr	864	-0.012	0.087	-0.906	0.692
Gov	644	52.995	16.731	7.860	96.050
L_Tot_Ass	875	10.124	1.656	6.164	14.939
CSRPerf	650	64.174	25.184	7.200	96.410
Compl_Seg	898	5.511	2.910	1.000	10.000
Lev	871	0.278	0.909	-25.616	1.659
Loss	894	0.092	0.289	0.000	1.000
Beta	842	0.580	1.057	-17.403	10.501
Prime	900	0.860	0.347	0.000	1.000
ROA	854	0.084	0.272	-0.676	7.409
BTM	787	0.671	0.748	0.006	11.288
FFIN	900	0.522	0.500	0.000	1.000
L_ANANO	781	1.610	0.937	-0.693	3.466
Varearn	792	0.547	1.445	-5.463	5.104

Table 5. Sample demographics by industry

Industry group	Obs	Percent
Financials	168	18.67%
Consumer Discretionary and Consumer Staples	252	28.00%
Energy, Industrials, Materials	282	31.33%
Information Technology, Telecommunication Services	36	4.00%
Health Care	36	4.00%
Real Estate	126	14.00%

Table 6. Correlations among the main variables

	TobinQ	Bid_Ask	F_Displ	ESG_Controv	Read_Dif	Length	Tone	ASU	ASU_Q
Bid_Ask	-0.212***	1.000							
F_Displ	0.115***	-0.237***	1.000						
ESG_Controv	0.082**	0.333***	-0.170***	1.000					
Read_Dif	-0.070*	0.008	-0.001	-0.014	1.000				
Length	-0.119***	-0.132***	0.141***	-0.057	-0.001	1.000			
Tone	0.044	0.001	-0.086*	0.064	0.000	0.001	1.000		
ASU	-0.099***	-0.108***	0.094*	-0.128***	-0.005	0.2649***	-0.074*	1.000	
ASU_Q	-0.092***	-0.074**	0.0967**	-0.146***	-0.004	0.273***	-0.090**	0.941***	1.000
ESG_Discl	-0.034	-0.323***	0.272***	-0.312***	-0.026	0.3392***	-0.077*	0.012	0.3451***

*A coefficient marked as ***, **, * indicates $p < 0.01$; $p < 0.05$; $p < 0.10$, respectively in Tables 7-11*

Table 7. Textual characteristics, assurance and economic and ESG benefits

	<u>(1a)TobinQ</u>		<u>(2a)Bid_Ask</u>		<u>(3a)F_Dis</u>		<u>(4a)ESG_Controv</u>	
	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat
Read_Dif	-0.102**	(-2.250)	0.016	(0.316)	0.151	(0.896)	1.361*	(1.687)
Length	-0.051	(-1.112)	0.113*	(1.889)	0.011	(0.079)	1.342	(1.402)
Tone	-0.041	(-1.200)	0.005	(0.164)	-0.114**	(-2.244)	0.804	(0.975)
ASU	0.032	(0.378)	-0.170*	(-1.758)	-0.488**	(-2.503)	-3.392	(-1.104)
ASU*Read_Dif	0.108*	(1.923)	-0.058	(-0.998)	-0.048	(-0.272)	-3.757**	(-2.194)
ASU*Length	0.122*	(1.774)	-0.129*	(-1.818)	-0.064	(-0.306)	-0.419	(-0.209)
ASU*Tone	0.062	(1.096)	-0.063	(-1.431)	-0.079	(-0.693)	-0.025	(-0.014)
ESG_Discl	-0.005	(-1.030)	0.010**	(2.530)	0.019	(1.415)	-0.282**	(-2.531)
CSR_SA	0.219*	(1.839)	-0.189**	(-2.114)	0.136	(0.660)	1.653	(0.596)
IR_fram	0.154	(1.450)	0.076	(0.777)	0.326	(0.817)	-2.009	(-0.583)
Accr	-2.850***	(-3.549)	0.284	(0.495)				
Gov	-0.002	(-0.446)	-0.004	(-1.569)	0.022	(1.322)	-0.106	(-1.292)
L_Tot_Ass	-0.066	(-1.136)	-0.395***	(-6.291)	-0.103	(-0.465)	-3.846***	(-3.545)
CSRPerf	0.000	(0.107)	-0.000	(-0.047)	0.007	(0.933)	0.045	(0.729)
Compl_Seg	0.014	(0.833)	-0.011	(-0.714)			-0.576	(-1.658)
Lev	-0.381*	(-1.928)	1.029***	(4.500)			6.514	(1.382)
Loss	-0.092	(-0.701)	0.001	(0.005)	0.145	(0.568)	-8.549*	(-1.885)
Beta	0.146**	(2.245)	0.005	(0.095)			-0.841	(-0.355)
Prime	0.681*	(1.927)	-0.180	(-0.559)	-0.510	(-1.129)		
ROA	4.549***	(2.764)	-0.788***	(-2.974)				
BTM			0.189***	(3.006)				
FFIN					0.089	(0.652)		
L_ANANO					0.435	(1.293)		
Var_Earn					0.438***	(3.588)		
_cons	0.989	(1.244)	-1.192	(-1.407)	-2.303	(-1.423)	116.761***	(9.256)
Industry FE	Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes	
N	444		435		394		443	
R-sq	0.604		0.562		0.245		0.232	
adj. R-sq	0.576		0.530		0.189		0.184	
F	12.95		12.49		13.96		8.535	
Prob F	0.000		0.000		0.000		0.000	

Table 8. Textual characteristics, assurance quality and economic and ESG benefits

	<u>(1b) TobinQ</u>		<u>(2b) Bid_Ask</u>		<u>(3b) F_Disb</u>		<u>(4b) ESG_Controv</u>	
	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat
Read_Dif	-0.108**	(-2.448)	0.017	(0.335)	0.163	(0.922)	1.530*	(1.938)
Length	-0.044	(-0.980)	0.109*	(1.873)	0.001	(0.007)	1.324	(1.369)
Tone	-0.041	(-1.200)	0.001	(0.030)	-0.124**	(-2.571)	0.554	(0.692)
ASU_Q	0.002	(0.336)	-0.008	(-1.466)	-0.026**	(-2.472)	-0.259	(-1.461)
ASU_Q*Read_Dif	0.007**	(2.266)	-0.003	(-1.052)	-0.004	(-0.357)	-0.218**	(-2.450)
ASU_Q*Length	0.005	(1.528)	-0.006*	(-1.861)	-0.001	(-0.120)	-0.012	(-0.128)
ASU_Q*Tone	0.004	(1.073)	-0.003	(-1.333)	-0.004	(-0.684)	0.039	(0.396)
ESG_Discl	-0.005	(-1.030)	0.010**	(2.518)	0.021	(1.467)	-0.264**	(-2.331)
CSR_SA	0.214*	(1.827)	-0.176**	(-2.003)	0.168	(0.817)	1.542	(0.564)
IR_fram	0.149	(1.399)	0.078	(0.798)	0.327	(0.808)	-1.911	(-0.556)
Accr	-2.863***	(-3.570)	0.307	(0.533)				
Gov	-0.001	(-0.389)	-0.004*	(-1.703)	0.021	(1.298)	-0.107	(-1.315)
L_Tot_Ass	-0.065	(-1.121)	-0.399***	(-6.280)	-0.122	(-0.547)	-3.841***	(-3.503)
CSRPerf	0.000	(0.105)	-0.000	(-0.124)	0.006	(0.848)	0.046	(0.738)
Compl_Seg	0.014	(0.823)	-0.011	(-0.709)			-0.576	(-1.657)
Lev	-0.393*	(-1.976)	1.036***	(4.490)			6.448	(1.393)
Loss	-0.101	(-0.754)	0.009	(0.056)	0.147	(0.558)	-8.354*	(-1.816)
Beta	0.145**	(2.249)	0.007	(0.124)			-0.772	(-0.331)
Prime	0.657*	(1.873)	-0.152	(-0.454)	-0.449	(-1.046)		
ROA	4.550***	(2.753)	-0.782***	(-2.927)				
BTM			0.193***	(3.039)				
FFIN					0.104	(0.758)		
L_ANANO					0.436	(1.297)		
Var_Earn					0.453***	(3.736)		
_cons	Yes		Yes		Yes		Yes	
Industry FE	1.000	(1.267)	-1.178	(-1.374)	-2.206	(-1.371)	116.056***	(9.020)
Year FE	Yes		Yes		Yes		Yes	
N	444		435		394		443	
R-sq	0.603		0.558		0.244		0.236	
adj. R-sq	0.575		0.525		0.188		0.188	
F	12.62		12.02		14.32		10.11	
Prob F	0.000		0.000		0.000		0.000	

Table 9. Textual characteristics, assurance and additional economic effects

	<u>(5) EFCF</u>		<u>(6) F_Error</u>		<u>(7) COC_WACC</u>		<u>(8) COC_KE</u>	
	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat
Read_Dif	-0.167**	(-2.210)	0.145	(1.227)	-0.028	(-0.333)	-0.002	(-0.034)
Length	-0.163	(-1.552)	0.094	(0.935)	-0.256***	(-3.562)	-0.212***	(-3.019)
Tone	-0.116*	(-1.780)	0.058	(0.807)	-0.012	(-0.211)	-0.046	(-1.061)
ASU	-0.362**	(-2.078)	-0.126	(-0.490)	0.158	(0.807)	0.137	(0.913)
ASU*Read_Dif	0.203**	(2.304)	-0.304**	(-2.101)	0.158	(1.065)	0.037	(0.371)
ASU*Length	0.121	(0.939)	-0.026	(-0.177)	-0.047	(-0.340)	-0.074	(-0.577)
ASU*Tone	0.165*	(1.769)	-0.166	(-1.414)	0.036	(0.373)	0.101	(1.311)
ESG_Disc	0.002	(0.232)	0.010	(0.778)	0.005	(0.602)	0.006	(0.954)
CSR_SA	-0.102	(-0.580)	-0.125	(-0.554)	0.409***	(2.794)	0.312**	(2.529)
IR_fram	0.159	(1.183)	0.316	(0.864)	-4.307***	(-11.528)	-4.975***	(-13.814)
Accr	-0.021	(-0.027)			0.943	(0.912)	0.998	(1.104)
Gov	0.000	(0.087)	0.014**	(2.196)	-0.007	(-1.169)	-0.005	(-1.143)
L_Tot_Ass	0.496***	(5.352)	-0.128	(-1.045)	0.302***	(3.795)	0.390***	(6.698)
CSRPerf	0.005	(0.812)	-0.008	(-1.105)	-0.005	(-1.103)	-0.009***	(-2.652)
Compl_Seg	-0.043	(-1.653)			0.033	(1.233)	0.021	(1.036)
Lev	-0.818**	(-2.106)			-2.407***	(-5.365)	-0.632**	(-2.220)
Loss	-0.055	(-0.336)	1.979***	(5.956)	0.553**	(2.100)	0.519*	(1.984)
Beta	0.103	(1.086)			0.257**	(2.144)	0.398***	(3.685)
Prime	0.436	(0.736)	-0.550**	(-2.144)	0.601	(1.058)	0.580	(1.435)
ROA	2.099***	(2.929)						
BTM	-0.394***	(-4.471)			-0.300***	(-2.759)	-0.008	(-0.126)
ExpGr	-0.050	(-0.224)						
FFIN			0.247	(1.261)				
L_ANANO			-0.147	(-0.859)				
Var_Earn			0.068	(0.808)				
F_Dis					0.035*	(1.741)	0.067***	(3.391)
LtGr					0.004	(0.901)	-0.006	(-1.562)
_cons	-1.772	(-1.402)	-1.142	(-0.899)	11.084***	(8.960)	10.394***	(11.834)
Industry FE	Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes	
N	382		397		386		386	
R-sq	0.570		0.301		0.647		0.717	
adj. R-sq	0.531		0.250		0.617		0.692	
F	9.86		10.02		30.14		38.17	
Prob F	0.000		0.000		0.000		0.000	

Table 10.1. Textual characteristics, assurance and Tobin's Q

			(1) <u>TobinQ</u>					
	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat
Fog	-0.015**	(-2.628)			-0.015**	(-2.623)		
Flesch			-0.016***	(-2.858)			-0.016***	(-2.851)
TotWo_w	-0.000	(-1.464)	-0.000	(-1.464)				
TotCa_w					-0.000	(-1.506)	-0.000	(-1.507)
Opt	-0.010	(-0.549)	-0.010	(-0.534)	-0.010	(-0.553)	-0.010	(-0.539)
Cert	-0.011	(-1.068)	-0.011	(-1.084)	-0.011	(-1.062)	-0.011	(-1.077)
ASU	-0.205	(-0.113)	-0.160	(-0.089)	-0.189	(-0.104)	-0.143	(-0.080)
ASU*Fog	0.016**	(2.256)			0.016**	(2.268)		
ASU*Flesch			0.017**	(2.483)			0.017**	(2.498)
ASU*TotWo	0.000*	(1.690)	0.000*	(1.688)				
ASU*TotCA					0.000*	(1.698)	0.000*	(1.696)
ASU*Opt	-0.036	(-1.069)	-0.036	(-1.070)	-0.036	(-1.072)	-0.036	(-1.073)
ASU*Cert	0.027*	(1.964)	0.027*	(1.978)	0.027*	(1.951)	0.027*	(1.966)
ESG_Discl	-0.005	(-1.091)	-0.005	(-1.089)	-0.005	(-1.074)	-0.005	(-1.073)
CSR_SA	0.222*	(1.872)	0.222*	(1.871)	0.223*	(1.878)	0.223*	(1.877)
IR_fram	0.151	(1.463)	0.150	(1.458)	0.149	(1.455)	0.149	(1.449)
Accr	-2.781***	(-3.486)	-2.778***	(-3.484)	-2.786***	(-3.490)	-2.783***	(-3.487)
Gov	-0.002	(-0.512)	-0.002	(-0.519)	-0.002	(-0.510)	-0.002	(-0.517)
L_Tot_Ass	-0.069	(-1.197)	-0.069	(-1.202)	-0.068	(-1.182)	-0.069	(-1.187)
CSRPerf	0.001	(0.254)	0.001	(0.261)	0.001	(0.251)	0.001	(0.259)
Compl_Seg	0.015	(0.936)	0.015	(0.930)	0.015	(0.935)	0.015	(0.929)
Lev	-0.352*	(-1.757)	-0.352*	(-1.758)	-0.355*	(-1.777)	-0.355*	(-1.778)
Loss	-0.127	(-1.002)	-0.126	(-0.996)	-0.127	(-0.999)	-0.127	(-0.993)
Beta	0.137**	(2.129)	0.138**	(2.140)	0.137**	(2.135)	0.138**	(2.146)
Prime	0.713*	(1.947)	0.711*	(1.944)	0.711*	(1.941)	0.709*	(1.938)
ROA	4.499***	(2.784)	4.500***	(2.786)	4.498***	(2.779)	4.499***	(2.780)
_cons	2.538**	(1.999)	2.486*	(1.951)	2.537**	(1.997)	2.484*	(1.949)
Industry FE	Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes	
N	444		444		444		444	
R-sq	0.608		0.608		0.608		0.608	
adj. R-sq	0.578		0.578		0.578		0.578	
F	13.06		12.98		13.06		12.99	
Prob F	0.000		0.000		0.000		0.000	

Table 10.2. Specific textual characteristics, assurance and Bid-ask spread

					<u>(2) Bid_Ask</u>			
	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat
Fog	0.002	(0.337)			0.002	(0.329)		
Flesch			0.002	(0.348)			0.002	(0.340)
TotWo_w	0.000*	(1.875)	0.000*	(1.877)				
TotCa_w					0.000*	(1.805)	0.000*	(1.807)
Opt	-0.004	(-0.195)	-0.004	(-0.197)	-0.003	(-0.184)	-0.003	(-0.186)
Cert	0.005	(0.835)	0.005	(0.837)	0.005	(0.833)	0.005	(0.835)
ASU	2.494	(1.611)	2.463	(1.583)	2.492	(1.611)	2.461	(1.583)
ASU*Fog	-0.008	(-1.018)			-0.008	(-1.003)		
ASU*Flesch			-0.008	(-1.069)			-0.008	(-1.054)
ASU*TotWo	-0.000*	(-1.767)	-0.000*	(-1.765)				
ASU*TotCA					-0.000*	(-1.762)	-0.000*	(-1.761)
ASU*Opt	-0.029	(-1.022)	-0.029	(-1.020)	-0.029	(-1.024)	-0.029	(-1.022)
ASU*Cert	-0.015*	(-1.737)	-0.015*	(-1.731)	-0.015*	(-1.743)	-0.015*	(-1.737)
ESG_DiscI	0.010**	(2.496)	0.010**	(2.488)	0.010**	(2.508)	0.010**	(2.500)
CSR_SA	-0.191**	(-2.128)	-0.190**	(-2.123)	-0.191**	(-2.129)	-0.190**	(-2.124)
IR_fram	0.075	(0.772)	0.075	(0.772)	0.070	(0.731)	0.070	(0.731)
Accr	0.286	(0.496)	0.285	(0.494)	0.289	(0.503)	0.288	(0.500)
Gov	-0.004	(-1.585)	-0.004	(-1.581)	-0.004	(-1.581)	-0.004	(-1.577)
L_Tot_Ass	-0.392***	(-6.183)	-0.392***	(-6.183)	-0.392***	(-6.158)	-0.392***	(-6.157)
CSRPerf	0.000	(0.017)	0.000	(0.017)	0.000	(0.017)	0.000	(0.017)
Compl_Seg	-0.010	(-0.634)	-0.010	(-0.635)	-0.010	(-0.630)	-0.010	(-0.631)
Lev	1.027***	(4.444)	1.027***	(4.449)	1.028***	(4.436)	1.028***	(4.441)
Loss	-0.013	(-0.083)	-0.013	(-0.081)	-0.013	(-0.083)	-0.013	(-0.081)
Beta	0.000	(0.002)	0.000	(0.002)	-0.001	(-0.017)	-0.001	(-0.017)
Prime	-0.167	(-0.512)	-0.167	(-0.513)	-0.170	(-0.521)	-0.170	(-0.522)
ROA	-0.791***	(-2.959)	-0.790***	(-2.950)	-0.797***	(-2.975)	-0.795***	(-2.966)
BTM	0.189***	(3.014)	0.189***	(3.016)	0.189***	(2.998)	0.189***	(3.000)
_cons	-1.610	(-1.495)	-1.598	(-1.496)	-1.604	(-1.484)	-1.592	(-1.486)
Industry FE	Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes	
N	435		435		435		435	
R-sq	0.561		0.561		0.560		0.560	
adj. R-sq	0.526		0.526		0.525		0.525	
F	11.21		11.15		11.24		11.17	
Prob F	0.000		0.000		0.000		0.000	

Table 10.3. Specific textual characteristics, assurance and forecasts' dispersion

	<u>(3) F_DISP</u>							
	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat
Fog	0.019	(0.836)			0.019	(0.834)		
Flesch			0.021	(0.864)			0.021	(0.862)
TotWo_w	0.000	(0.303)	0.000	(0.305)				
TotCa_w					0.000	(0.289)	0.000	(0.291)
Opt	-0.104*	(-1.892)	-0.104*	(-1.892)	-0.104*	(-1.893)	-0.104*	(-1.893)
Cert	-0.005	(-0.202)	-0.005	(-0.196)	-0.005	(-0.202)	-0.005	(-0.197)
ASU	-3.108	(-0.874)	-3.130	(-0.883)	-3.095	(-0.872)	-3.117	(-0.880)
ASU*Fog	-0.007	(-0.298)			-0.007	(-0.289)		
ASU*Flesch			-0.008	(-0.333)			-0.008	(-0.324)
ASU*TotWo	-0.000	(-0.274)	-0.000	(-0.277)				
ASU*TotCA					-0.000	(-0.327)	-0.000	(-0.330)
ASU*Opt	0.110	(1.326)	0.111	(1.330)	0.111	(1.329)	0.111	(1.332)
ASU*Cert	-0.050	(-1.182)	-0.050	(-1.182)	-0.050	(-1.184)	-0.050	(-1.185)
ESG_Disc1	0.019	(1.435)	0.019	(1.438)	0.019	(1.445)	0.019	(1.448)
CSR_SA	0.144	(0.697)	0.143	(0.697)	0.142	(0.690)	0.142	(0.690)
IR_fram	0.348	(0.855)	0.348	(0.855)	0.343	(0.847)	0.343	(0.848)
Accr								
Gov	0.022	(1.333)	0.022	(1.332)	0.022	(1.336)	0.022	(1.335)
L_Tot_Ass	-0.125	(-0.546)	-0.125	(-0.545)	-0.124	(-0.540)	-0.123	(-0.539)
CSRPerf	0.006	(0.841)	0.006	(0.840)	0.006	(0.837)	0.006	(0.835)
Compl_Seg								
Lev								
Loss	0.175	(0.697)	0.173	(0.692)	0.174	(0.696)	0.173	(0.690)
Beta								
Prime	-0.646	(-1.293)	-0.639	(-1.282)	-0.656	(-1.308)	-0.648	(-1.297)
FFIN	0.106	(0.795)	0.106	(0.797)	0.104	(0.783)	0.104	(0.785)
L_ANANO	0.456	(1.325)	0.455	(1.325)	0.456	(1.326)	0.455	(1.326)
Var_Earn	0.442***	(3.560)	0.442***	(3.558)	0.442***	(3.547)	0.441***	(3.546)
_cons	2.853	(1.165)	2.918	(1.183)	2.844	(1.162)	2.908	(1.181)
Industry FE	Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes	
N	394		394		394		394	
R-sq	0.249		0.249		0.249		0.249	
adj. R-sq	0.189		0.189		0.189		0.189	
F	15.30		15.31		15.10		15.11	
Prob F	0.000		0.000		0.000		0.000	

Table 10.4. Specific textual characteristics, assurance and ESG Controversies

					(4) <u>ESG_Controv</u>			
	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat	Coef	<i>t</i> -stat
Fog	0.202*	(1.866)			0.202*	(1.862)		
Flesch			0.186*	(1.750)			0.185*	(1.745)
TotWo_w	0.000	(1.380)	0.000	(1.370)				
TotCa_w					0.000	(1.374)	0.000	(1.364)
Opt	0.426	(0.841)	0.424	(0.839)	0.427	(0.845)	0.425	(0.843)
Cert	0.142	(0.668)	0.143	(0.670)	0.142	(0.666)	0.142	(0.668)
ASU	10.921	(0.195)	8.282	(0.148)	11.251	(0.201)	8.617	(0.154)
ASU*Fog	-0.515**	(-2.336)			-0.515**	(-2.337)		
ASU*Flesch			-0.505**	(-2.270)			-0.505**	(-2.271)
ASU*TotWo	-0.000	(-0.455)	-0.000	(-0.446)				
ASU*TotCA					-0.000	(-0.441)	-0.000	(-0.432)
ASU*Opt	0.005	(0.005)	0.006	(0.005)	-0.004	(-0.003)	-0.003	(-0.003)
ASU*Cert	-0.003	(-0.007)	-0.002	(-0.003)	-0.003	(-0.005)	-0.001	(-0.002)
ESG_Disc1	-0.274**	(-2.373)	-0.275**	(-2.380)	-0.274**	(-2.380)	-0.276**	(-2.387)
CSR_SA	1.553	(0.559)	1.588	(0.572)	1.553	(0.559)	1.588	(0.572)
IR_fram	-2.168	(-0.628)	-2.196	(-0.636)	-2.169	(-0.627)	-2.197	(-0.635)
Gov	-0.103	(-1.247)	-0.103	(-1.242)	-0.103	(-1.246)	-0.103	(-1.241)
L_Tot_Ass	-3.739***	(-3.428)	-3.738***	(-3.424)	-3.751***	(-3.456)	-3.749***	(-3.452)
CSRPerf	0.043	(0.673)	0.043	(0.673)	0.042	(0.670)	0.042	(0.669)
Compl_Seg	-0.596*	(-1.702)	-0.597*	(-1.706)	-0.593*	(-1.693)	-0.594*	(-1.697)
Lev	6.179	(1.301)	6.195	(1.305)	6.219	(1.309)	6.235	(1.313)
Loss	-8.291*	(-1.793)	-8.300*	(-1.792)	-8.287*	(-1.789)	-8.295*	(-1.788)
Beta	-0.819	(-0.349)	-0.809	(-0.344)	-0.828	(-0.353)	-0.818	(-0.349)
_cons	79.470**	(2.570)	80.784**	(2.611)	79.537**	(2.576)	80.848**	(2.618)
Industry FE	Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes	
N	443		443		443		443	
R-sq	0.232		0.232		0.232		0.232	
adj. R-sq	0.180		0.180		0.180		0.180	
F	9.430		9.879		9.459		9.919	
Prob F	0.000		0.000		0.000		0.000	

Table 11. Robustness checks for endogeneity

Variables	ASU	TobinQ	ASU	Bid Ask	ASU	F Disp	ASU	ESG Controv
Read_Dif		-0.100*		0.0232		0.152		1.360
		(0.0579)		(0.0440)		(0.176)		(1.515)
ASU	0.0287			-0.193***		-0.493*		-3.448
	(0.0867)			(0.0643)		(0.258)		(2.325)
ASU*Read_Dif	0.101			-0.0232		-0.0504		-3.756*
	(0.0809)			(0.0606)		(0.237)		(2.132)
Length	-0.0534			0.112***		0.00448		1.342
	(0.0419)			(0.0314)		(0.130)		(1.103)
ASU*Length	0.122*			-0.132**		-0.0601		-0.420
	(0.0701)			(0.0520)		(0.213)		(1.866)
Tone	-0.0417			0.0171		-0.112		0.804
	(0.0366)			(0.0272)		(0.114)		(0.968)
ASU*Tone	0.0551			-0.0651		-0.0817		-0.0251
	(0.0678)			(0.0503)		(0.203)		(1.818)
ESG_Discl	-0.00423			0.0118***		0.0195*		-0.282***
	(0.00385)			(0.00287)		(0.0116)		(0.102)
CSR_SA	0.212***			-0.167***		0.138		1.653
	(0.0750)			(0.0559)		(0.221)		(2.000)
IR_fram	0.125			0.160		0.306		-2.007
	(0.132)			(0.0984)		(0.402)		(3.550)
Accr	-2.854***			0.450				
	(0.502)			(0.377)				
Gov	-0.00184			-0.00385**		0.0215***		-0.106
	(0.00246)			(0.00183)		(0.00732)		(0.0655)
L_Tot_Ass	0.0608***	-0.0698**	0.0649***	-0.387***	0.0822***	-0.111	0.0670***	-3.843***
	(0.0157)	(0.0349)	(0.0159)	(0.0263)	(0.0174)	(0.121)	(0.0151)	(0.911)
CSRPerf		0.000311		-0.00103		0.00709		0.0454
		(0.00229)		(0.00170)		(0.00710)		(0.0599)
Complex_Seg		0.0143		-0.0111				-0.577*
		(0.0118)		(0.00875)				(0.310)
Lev		-0.359**		0.914***				6.514
		(0.161)		(0.120)				(4.227)
Loss		-0.0873		0.0835		0.147		-8.549**
		(0.131)		(0.0973)		(0.388)		(3.417)
Beta		0.157**		-0.0211				-0.840
		(0.0661)		(0.0492)				(1.760)
Prime		0.718***		-0.311**		-0.501		
		(0.204)		(0.151)		(0.699)		
ROA	-0.258	4.568***	-0.229	-1.125***				
	(0.192)	(0.352)	(0.195)	(0.267)				
CSR_Committee	0.209**		0.223**		0.256**		0.238***	
	(0.0927)		(0.0933)		(0.111)		(0.0863)	
FFin						0.0972		
						(0.200)		
L_ANANO						0.440***		
						(0.167)		
Varearn						0.444***		
						(0.0963)		
Constant	-0.522***	0.990**	-0.575***	-1.048***	-0.779***	-2.239	-0.638***	116.7***
	(0.193)	(0.485)	(0.195)	(0.364)	(0.207)	(1.476)	(0.173)	(10.61)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	438	438	430	430	388	388	443	443
R-squared	0.062	0.604	0.065	0.526	0.067	0.243	0.061	0.232

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix 1. Protocol for content analysis of IR Assurance Report

Ranking criteria	Definition	Scale (total 24 points)	
1. Title	Title of the assurance statement	0 1	No reference Reference
2. Addressee	Party to whom the assurance statement is formally addressed (either in title with separate addressee line or within text)	0 1	No reference Reference
3. Name of assesor	Name of the firm that conducts the assurance engagement	0 1	No reference Reference
4. Location of assesor	Location of the office of the assurance provider	0 1	No reference Reference
5. Report date	Reference to the date at which the assurance exercise was finished	0 1	No reference Reference
6. Responsibilities of reporter	Explicit statement that reporter is responsible for preparation of report (keywords: responsible, responsibility, respective responsibilities)	0 1	No reference Reference
7. Responsibilities of assesor	Explicit statement that the reporter is responsible to express an (independent) opinion on the subject matter (i.e. the sustainability/ environmental/ social report)	0 1	No reference Reference
8. Independence and impartiality of assesor from reporting organization	Statement expressing the independence of the two parties involved (A 1 is assigned as soon as the word's independent or independence appear anywhere in the assurance statement or its title: remarks such as "this is an independent opinion..." would already qualify for a 1)	0 1	No reference Reference or mere statement expressing that independence can be looked up on the internet (a remark that such a declaration can be made available on request or reference to an internet site already qualifies for a 1)
	Assesor's declaration of impartiality with respect to stakeholder interests (A remark that such a declaration can be made available on request or reference to an Internet site already qualifies for a 1)		
9. Scope of the assurance engagement	Assurance statement coverage (A 1 should be assigned if anywhere in the assurance statement the coverage of the assurance exercise is stated)	0 1	No reference Reference

ASR Scope

- 0- No ASR
- 1- All IR
- 2- Part of the IR
- 3- IR process
- 4- Part of IR & IR process

Source: IAASB, 2016

	Assurance on the Full Integrated Report	Assurance on Part of the Integrated Report	Assurance on the Integrated Reporting Process
Underlying Subject Matter	Value creation over time	Aspects of performance	Reporting process
Criteria	International <IR> Framework	Performance Indicators Criteria	Internal control criteria
Subject Matter Information	Integrated report	Key performance indicators (KPIs)	Internal control or management assertion about the internal control over the preparation and presentation of the integrated report
Assurance Conclusion	.. "is properly prepared, in all material respects, in accordance with the International <IR> Framework"	.. "properly presents, in all material respects, the aspects of performance [specify the KPIs or content subject to the assurance engagement] of the entity as at [date] or for the [period] ended [date] in accordance with [specified criteria]"	.. "in all material respects, the entity's internal control over the preparation of an integrated report are adequately designed, have been implemented as designed and operated effectively as of [specified period], in accordance with [specified criteria]."

10. KPI assured	Presence of KPI assured	0 1	No reference Reference
Specify <ul style="list-style-type: none"> • number of KPIs assured • number of financial KPIs assured • number of non-financial KPIs assured 			
11. Objective of the assurance engagement	Objective to be achieved through the engagement (indicating the level of assurance intended)	0 1	No reference Reference
Specify the "Level of assurance" <ul style="list-style-type: none"> 1- Limited 2- Moderate 3- Mixed 4- Reasonable 5- High 			
12. Competencies/expertise of assessor	Description of the professional skills that enable the engagement team to conduct the assurance exercise	0 1 2	No reference Statement claiming multi-disciplinary team competency (but no explanatory note) or mere reference to an internet site Explanatory statement of multi-disciplinary team competencies based on prior experience/engagements
13. Criteria used to assess evidence and reach conclusion	A statement that makes reference to particular criteria against which the integrated report has been prepared (e.g. GRI, IR Framework)	0 1	No reference Reference to publicly available criteria (e.g. GRI, IR Framework)
14. Assurance standard used	Standards used which govern the work of the assurance provider (e.g. flag AA1000 or ISAE3000)	0 1	No reference Reference to publicly available criteria (e.g. AA1000 or ISAE3000)

Specify standards used			
<ol style="list-style-type: none"> 1. AA1000AS 2. ISAE3000 3. GRI 4. IR Framework 5. AA1000 + ISAE3000 6. AA1000 + GRI 7. AA1000 + IR Framework 8. ISAE3000 + GRI 9. ISAE3000 + IR Framework 10. GRI + IR Framework 11. AA1000 + ISAE3000 + GRI 12. AA1000 + GRI + IR Framework 13. AA1000 + ISAE3000+ IR Framework 14. ISAE3000 + GRI + IR Framework 15. AA1000 + ISAE 3000 + IR Framework 			
15. Summary of work/procedures performed	Statement explaining the actions/procedures taken to arrive at a conclusion	0 1 2	No reference Reference Procedures/work performed are illustrated with (some) details
16. Materiality	Degree of information provision on materiality level (If the conclusion states that the report is in conformance with the AA1000 principles of materiality, completeness and responsiveness, this qualifies for a reference and thus a 1 is assigned) “material”	0 1	No reference Reference
Specify Materiality addressees			
<ol style="list-style-type: none"> 0. Not specified 1. Director 2. Stakeholder 3. Shareholder 			
17. Inherent limitations	Statement expressing that all material aspects are covered by the report.	0 1	No reference Reference
18. Responsiveness to stakeholders	Statement referring to the organization’s procedures (or lack of them) for identifying stakeholder interests and concerns. If the conclusion states that the report is in conformance with the AA1000 principles (materiality, completeness and responsiveness) this qualifies for a reference and thus a 1 is assigned	0 1	No reference Reference
19. General conclusion	Statement expressing the result of the assurance engagement	0 1 2	No reference Mere statement expressing the opinion of the assurator (e.g. “XY’s report is a fair presentation of XY’s CSR performance”). A 1 should be assigned only if the conclusion consists only of one sentence Explanatory statement (more than one sentence, but recommendations for improvement are not considered part of the conclusion)
20. Opinion	Recommendations given on the analysis of the paper	0 1 2	No reference Sentence generic and not elaborate Elaborated statement with some recommendations

