Informing or obfuscating stakeholders: Integrated reporting and the information environment

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INFORMING OR OBFUSCATING STAKEHOLDERS: INTEGRATED REPORTING AND THE INFORMATION ENVIRONMENT

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ABSTRACT

The global development of integrated reporting (IR) is also underpinned by the recognition of increased complexity of businesses and stakeholder demands for information relating to financial performance, management, corporate governance, and sustainability being provided in a single, coherent document which facilitates stakeholder decision-making. This paper examines the lexical properties of IR following the introduction of the IIRC Framework. Using an international sample, we find that when adopted voluntarily IR are lengthier, use more complex language, and contain more boilerplate statements. Our findings suggest that without regulation firms may continue to produce long and difficult to understand reports in fear of being perceived as omitting "bad news". This fear might be justified as we find loss of analyst following and greater analyst uncertainty when voluntarily adopted IR is concise. In the regulated setting of South Africa, however, we find IR has become more concise, and firms that produce longer and more complex documents suffer from a deterioration of their information environment. Our findings suggest that regulators and practitioners need to be cognizant of the potential for an increased volume in reporting to obfuscate the message rather than inform stakeholders.

Keywords: Integrated reporting, Textual analysis, Disclosure, Capital markets, Regulation

JEL classification: G15, M40, M41, M48

I. INTRODUCTION

Communication, i.e., the textual properties of reporting, is an important aspect of disclosure as it shapes the way content is absorbed. Integrated reports (hereafter IR)[1] aspire to "bring greater transparency on corporate commitment to sustainability, by showing the links between financial and sustainability performance in a single document" (Lai et al., 206: 165). IR aim to address concerns about traditional corporate reporting and improve the quality of information provided to stakeholders. The Integrated Reporting Framework (hereafter IRF) issued in 2013 recommends that IR 'should be concise' (IIRC, 2013: 3.36), less lengthy, use less complex language and make less frequent use of boilerplate statements. Simultaneously, the IRF calls for additional content on issues such as strategic focus (IIRC, 2013: 3.3) and stakeholder relationships (IIRC, 2013: 3.10).

This paper examines the textual attributes of IR and their effect on the capital market. More specifically, we: (i) test whether the adoption of the IRF affects the textual attributes of IR such as length, the use of complex language and boilerplate statements; (ii) we examine the effect of conciseness on the capital market. For IR to be more widely accepted internationally, the market-based benefits of adopting them need to be demonstrated (Simnett and Huggins, 2015).[2] Although there is much research on the evolution and development of IR, there is relatively little evidence on the impact of IR on the capital market and stakeholders (Rinaldi et al., 2018). Additionally, although there is emerging research on the effects of IR, the empirical studies focus mainly on South Africa where IR is mandatory (Barth et al., 2017; de Villiers et al., 2017; Zhou et al., 2017). Velte and Stawinoga (2017) suggest that using textual analysis in combination with an international sample of firms is a necessary next step to advance understanding of the effectiveness of IR.

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[1] IR are defined as "a concise communication about how an organization's strategy, governance and prospects, in the context of its external environment, lead to the creation of value over the short, medium and long term" (IIRC, 2013; Flores et al., 2019).

[2] Studies such as Cheng et al. (2014), Simnett and Huggins (2015), Dumay et al. (2016), de Villiers et al. (2017), and Rinaldi et al. (2018) provide overviews of the literature on integrated reporting.

Our paper focuses on the textual attributes of IR that were explicitly stated in para. 38 of the IRF (2013):[3] (1) 'expresses concepts clearly and in as few words as possible', (2) 'favours plain language over the us jargon or highly technical terminology 'and (3) 'avoids highly generic disclosures, often referred to as 'boilerplate" that are not specific to the organization'. Our analysis therefore focuses on three textual dimensions: report length; the use of boilerplate statements; and the complexity of language (measured by the Gunning-Fog Index). We identify a sample of 195 IR preparers based on the information provided on the IIRC website and analyse reports published during 1997 to 2015.

In contrast to studies that focus on South Africa (e.g. Barth et al., 2017 and Zhou et al., 2017), our international sample allows us to contrast the disclosure choices made in a voluntary setting versus a mandatory setting. To test effectiveness, we then infer how the information of IR is absorbed conditional on the disclosure choices in the different settings. We find a decrease in report length and the use of boilerplate statements in the mandatory setting of South Africa, while report length and the use of boilerplate statements increased in the voluntary setting. This finding suggests that more emphasis is placed on improving communication in South Africa, while in other jurisdictions IR may be implemented with a greater focus providing additional content. There is some evidence of reduced analyst forecast dispersion for IRs with improved communication in South Africa. Yet, the preference to provide more content for firms that voluntarily opt to prepare an IR is associated with lower forecast error and dispersion.

Overall, our research complements prior evidence often based on the South African context[4] (see Barth et al., 2017 and Zhou et al., 2017) and shed light on the implementation of IR and drivers of implementation choices. This evidence may be relevant to standard setters, policy makers and capital market regulators in addressing information overload in reporting. Our results suggest that regulating reporting, as has been done in South Africa, can bring about

[3] In addition, para. 3.38 states: 'In achieving conciseness, an integrated report . . . expresses concepts clearly and in as few words as possible' and 'favours plain language over the use of jargon or highly technical terminology and avoids highly generic disclosures, often referred to as "boilerplate", that are not specific to the organization.'

[4] The King Code of Governance (2009) for South Africa initially provided principles for IR which subsequently became a condition of listing on the Johannesburg Stock Exchange. It was adopted in South Africa on the 'if not why not' basis. That is, if the listed companies did not stipulate financial performance information with sustainability performance information within annual reports, it is required to explain why it has not provided an IR. See also Cheng et al. (2014).

efficiency gains from improving communication. When reporting choices are completely voluntarily determined, however, more disclosures is often preferred because in unregulated settings providing concise reporting may be perceived as a negative signal (e.g., obfuscating information), especially if competitors do not change their disclosures.

Our paper extends the IR literature (e.g., Barth et al., 2017; Kim et al., 2017; Nishitani et al., 2017; Zhou et al., 2017; Pavlopoulos et al., 2019; Vitolla et al., 2020) in three ways. First, we explore IR on an international scale. The vision of IIRC is to unify disclosure worldwide under the auspices of its reporting framework. To the best of our knowledge this is an early study to provide evidence on the disclosure choice effects of IR internationally. Second, our study also extends evidence on the effectiveness of IR disclosure choices (Barth et al., 2017; Bernardi and Stark, 2018). While both Barth et al. (2017) and Bernardi and Stark (2018) focus on capital market consequences of IR disclosure quality and disclosure components, our study differs from theirs by investigating how textual attributes of IR influences the information is assessed and utilised by capital market participants. Third, we extend an earlier study by Melloni et al. (2016), who examine the readability and completeness using a sample of European firms whereas we consider the association of IR communication with information asymmetry.

The remainder of the paper is structured as follows: We discuss the relevant literature and hypotheses in section 2. Our data and methods are described in section 3, while section 4 reports the empirical findings. We conclude with a discussion of our results in section 5.

II. BACKGROUND, PRIOR LITERATURE AND HYPOTHESES

2.1 Business Strategy and Integrated Reporting

IR is a major global development aimed at enhancing communication[5] assisting internal and external stakeholders to understand how decisions relating to capital are made (Reimbsbach et al., 2018;

[5] Integrated reporting is defined in the international IRF (IIRC, 2013) as a process founded on integrated thinking that results in a periodic integrated report by an organization about value creation over time and related communications regarding aspects of value creation. An integrated report is a concise communication about how an organization's strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value in the short, medium and long term. The integrated reporting committee (IRC) of South Africa identified 6 capitals as financial capital, manufactured capital, intellectual capital, human capital, social and relationship capital and natural capital.

Stolowy and Paugam, 2018; Unerman et al., 2018; Tilli et al., 2019). As Girella et al. (2019: 1325) observe "compared with financial or corporate social responsibility reports, IR connects a whole range of information from strategy to performance and it is not exclusively addressed either to shareholders or to stakeholders but to both of them". IR seeks to "present an organization's business model and value creation process and enable stakeholders to evaluate more effectively a firm's ability to create present and future value" (Pistoni et al., 2018: 399). The development of IR is also underpinned by the recognition of increased complexity of businesses and stakeholder demands for information relating to financial performance, management, corporate governance and sustainability being provided in a single, coherent document which facilitates decision-taking by different stakeholders (Garcia-Sanchez et al., 2013). Thus, IR is "characterized by the connectivity of information" (Vitolla et al., 2019: 1588) and emphasizes how "strategy relates to future value creation plans "and seeks to provide additional information regarding the implementation of strategy. Sukhari and de Villiers (2019: 708) note that IR "may they be the answer to improving strategy and business model disclosure and improving the information environment". Through concise communication of strategy, governance and performance, IR aims to show how businesses create value over the short, medium and long-term (Mervelskemper and Streit, 207; Lopes and Coelho, 2018).

Anecdotal evidence suggests that IR can assist organisations to identify value drivers through materiality assessments to align their business strategy with creating value for their stakeholders. In a series of case studies, the IIRC collated examples of how IR was implemented by individual organisations to deploy their business strategy. For example, one case study showed how integrated thinking helped the organisation to develop their approach to digitalization. This meant that the organisation was able to respond to Covid-19 quickly with: (i) moving from face-to-face meetings to remotely servicing clients online; and (ii) employees being already equipped to work from home (IIRC, 2020).

2.2 Integrated Reports Conciseness and Effects

The empirical literature on the economic effects of IR is relatively new (de Villiers et al., 2017). One of

the earliest studies, for example, finds that US firms with a long-term oriented investor base are more likely to adopt IR (Serafeim, 2015). A more recent study establishes that strategic disclosure considerations such as impression management may exist for firms that use IR, if financial or environmental, social and governance (ESG) performance is low (Melloni et al., 2016). But do investors benefit from IR? Lee and Yeo (2016) find support for a positive association between firm valuation and IR disclosures. Zhou et al., (2017) find a reduction in analysts forecast error and dispersion as well as equity cost of capital when firms align their IR practice with the IRF. Bernardi and Stark (2018) observe that improved analyst forecast accuracy is linked to firms' environmental, social and governance performance around the implementation of IR concluding that the benefits of IR are limited for firms in sectors such as financial services. Focusing on IR quality using the scoring system of the EY Excellence in Integrated Reporting Award, Barth et al. (2017) largely echo earlier evidence showing that IR quality is linked to improved stock liquidity.

While these studies make important contributions to the literature, their focus on the South African context means the capital market characteristics of the Johannesburg Stock Exchange affects the interpretation of their findings. Also, the labour-intensive scoring process used by Zhou et al. (2017) as well as Barth et al. (2017) makes it difficult to replicate their results in other settings and confines studies to small samples.

In an international study, however, the relationship between IR communication and capital market effects are potentially subject to the influence of the respective institutional setting. For example, in the case of CSR reporting Richardson and Welker (2001) find that Canadian firms' annual reports with more extensive social and environmental reporting have a higher cost of capital concluding that companies tend to use social and environmental reporting for self-promotion rather for the purpose of providing value relevant information. In contrast, Dhaliwal et al. (2011) examined US firms that issue stand-alone CSR reports for the first time and found that firms with a higher cost of capital are more likely to initiate CSR realising a subsequent reduction in their cost of capital.

Our first focus is to investigate the link between textual attributes and IR. Given that IR emphasizes improving communication by 'providing sufficient context without being burdened with

less relevant information' (IIRC, 2013, para. 3.36), it can be expected that reporting conciseness increases post implementation of IR (hereafter post-IRF). Yet, the IRF also contains guidelines that may have the opposite effect. For example, the IRF requires firms to disclose its organizational strategy (IIRC 2013, Guiding Principle 1) as well as its stakeholder relationships (IIRC 2013, Guiding Principle 3) amongst other additional information. These additional content requirements may lead to greater disclosure, not less. Given that IR is relatively new, additional content may also be presented in more complex and/or boilerplate language. This means to detect a positive association of conciseness with the adoption of IR there must be a commitment by firms to promote communication over additional content. Assuming that firms prefer the realization of communication benefits over providing additional content, our first hypothesis is:

H_1: Integrated reporting will increase conciseness of reporting.

The second focus of our paper is to analyse the effect of changes in the lexical properties arising from IR implementation on capital market participants. We assume that changes in the lexical characteristics of reports will affect investors' information sets and information processing costs. This view is informed by bounded rationality which assumes that investor attention is a limited resource due to cognitive constraints on information processing (Simon, 1979; Hirshleifer and Teoh 2003). Based on this assumption, more concise IR should reduce information processing costs by improving lexical composition of reports such as length, use of boilerplate phrases and readability of reports (Rennekamp, 2012). Both boilerplate and low readability increase the difficulty for financial statement users to extract the available information from the financial statements incurring information processing costs.[6] Lehavy et al. (2011), for example, examine the effect of the readability of 10-K filings on the behaviour of sell-side financial analysts. They find that less readable 10-Ks are associated with greater dispersion, lower accuracy, and greater overall uncertainty in analyst earnings forecasts. These results are

[6] However, if by simplifying and cutting down corporate communication relevant information may be lost, investors' processing costs may increase due to less disclosure. This suggests that a state of overload needs to pre-exist before conciseness is effective inferring a non-monotone relationship with information asymmetry. We allude to this in the additional analyses, in which we presume that a state of information overload is more likely to be present in developed capital markets.

consistent with the prediction of an increasing demand for analyst services for firms with less readable communication and a greater collective effort by analysts for firms with less readable disclosures.

In relation to IR, Bernardi and Stark (2018) suggest that the additional ESG data provided in IR will improve the information set available to analysts. However, analysts will not be able to fully utilize this information set if the additional content increases information processing cost because of, for example, filtering through a standardized disclosure, deciphering complex disclosure or even due to sheer content volume. Similarly, it may deter analysts following the firm, as it makes their task of pre-processing information more difficult.[7] A systemic effect on analysts' processing costs will increase the level of information asymmetry resulting in a drop in observable liquidity. Therefore, we expect that changes to the lexical composition will matter to capital market participants post-IRF implementation, if, for example, the use of information by analysts is impeded by the way information is presented. This expectation is reflected in the following hypothesis:

> *H_2: Post-IRF implementation reporting conciseness will improve information available to analysts.*

III. RESEARCH METHOD AND DATA

3.1 Model Specification

We develop our models to test our first hypothesis with reference to prior work in this area (e.g., Lang-Stice Lawrence, 2015; Li 2008). Using a standard regression framework, we estimate Model (1) to test H1:

$$\{CONCISE\} = \alpha 0 + \beta_1 IR + \beta_2 ZA + \beta_3 IRxZA + \beta_4 LN\_MVE + \beta_5 ROA + \beta_6 BIG4 + \beta_7 BM\_RATIO + \beta_8 LEVERAGE + \beta_9 EARN\_SURPRISE + \beta_{10} NI\_LOSS + \beta_{11} AGE + \beta_{12}' X + \mu \quad (1)$$

The main variables of interest are *IR*, which represents reports after IR implementation[8]

[7] Yet, it may attract analysts, who seek out firms with complex and lengthy reporting as an opportunity for generating income (Schipper, 1991).
[8] Following prior literature (e.g. Barth et al., 2017; Daske et al., 2013), we consider the first year to be transitional. We, therefore, ignore the first year of IR implementation in our IR measure.

and the interaction term of *IR* with *ZA,* which is coded 1 for IR observations pertaining to South African firms and 0 otherwise. We use South African firms as the control group here, as IR adoption has been mandated in South Africa under the King III Corporate Governance reform in 2009. *IR* can be interpreted as the overall effect of voluntary IR implementation as opposed to *IRxZA*, which models the mandated use of IR (see section 3.1 and Table 1 for the definitions of the other variables used in Model 1). *X* is a vector of industry and year-fixed effects; μ is the error term. If firms adopted the conciseness principle of IR, we expect β_1 to be positive.

To examine whether concise IR matters to the capital market, we examine the effect of IR implementation on analyst following (*ANALYST*).[9] Following prior literature that investigates the economic consequences of IR implementation (Barth et al. 2017; Zhou et al. 2017; Bernardi and Stark 2018), we test the effect of IR on our capital market efficiency measures as proposed in H2 using the following model specification:

$$\{ANALYST\} = \alpha 0 + \beta_1 \Delta \text{CONCISE} + \beta_2 \text{ZA} + \beta_3 \text{IR} + \beta_4 \Delta \text{CONCISExZAxIR} + \beta_5 CSRPerf + \beta_6 LN\_MVE + \beta_7 ROA + \beta_8 BIG4 + \beta_9 BM\_RATIO + \beta_{10} LEV + \beta_{11} EARN\_SURPRISE + \beta_{12} NI\_LOSS + \beta_{13} AGE + \beta_{14}' X + \mu \quad (2)$$

We use the number of analysts following the firm as a proxy for the information environment, because higher analyst following has been found to be related with lower information asymmetry. There are several reasons why analyst follow firms (Lang and Lundholm, 1996; Lehavy et al., 2011; Schipper 1991; Shon and Young, 2011). Based on the information processing hypothesis, Shon and Young (2011) suggest that analysts choose to cover firms with low information asymmetry, as it requires less effort on their part. In contrast, it is plausible that analysts follow firms with high information asymmetry, as an opportunity for

[9] In our additional analysis we also test using and analyst forecast properties, such including analyst forecast variability (*FE*) and forecast disagreement (*FD*). Lower forecast errors and dispersion are also indicative of lower information asymmetry, as they represent higher accuracy and consensus in estimates. We define *FE* and *FD* following prior studies (Zhou et al., 2017; Bernardi and Stark, 2018), i.e., analysts' forecast errors FE is measured as the absolute difference between the first median consensus forecasts for target earnings made in the 12 months after the fiscal year end of the integrated report and actual earnings. However, *FE* or *FD* are not scaled to avoid spurious results (Cheong and Thomas, 2011).

generating income (Schipper, 1991). In line with H2, we expect to see higher analyst following (*ANALYST*) post-IR implementation for firms with concise reporting.[10]

To establish whether firms have taken up concise IR reporting, we use a similar method as Daske et al., (2013). The idea is based on the expectation that a shift in the length, use of boilerplate and readability of annual reports should be observable if firms implement concise reporting because of IR. To detect this shift, we calculate the change rate based on the average conciseness score in the lead up to IR and the average score post-IR starting one-year after IR implementation. Firms with above median change in conciseness are considered implementers of concise IR. These effects are modelled using the interaction between Δ*CONCISExZAxIR*. The interaction term controls for the mandatory setting of South Africa.

3.2 Conciseness Measure

We adopt three measures suggested by Lang and Stice-Lawrence (2015): document length, use of boilerplate statements and use of complex language. First, *LN_WORDS* is measured by the natural log of the total number of words in firm *i*'s integrated report in year *t*.[11] Second, we use the Lang and Stice-Lawrence (2015) algorithm to estimate our *BOILERPLATE* measure, which utilizes the PERL programming language.[12] According to the international IRF (IIRC, 2013: 3.38), IR prepares should avoid "highly generic disclosures, often referred to as 'boilerplate', that are not specific to the organization". This suggests that boilerplate statements are standardised text that is not informative. We follow Lang and Stice-Lawrence (2015) by

[10] In our additional tests we recognise that lower information asymmetry results in higher market liquidity (Diamond and Verrecchia, 1991). We measure liquidity as a proxy using bid-ask spreads and the number of inactive trading days (see Table 3 for the variable definitions). Studies commonly combine their analyses of liquidity effects with the investigation of the effects on other capital market characteristics. For example, Barth et al. (2017) examine the association of their IR quality measure and firm's stock liquidity, firm value, expected future cash flows, and cost of capital. In this study, we choose a similar approach in inspecting a combination of analyst forecast properties and liquidity as our capital market measures.

[11] That is: $LN\_WORDS_{i,t}$ =*NATURAL LOG(TOTAL NUMBER OF WORDS).*

[12] That is: (1) Count all tetragrams (i.e. ordered group of four words within a single sentence) contained in each document in the sample; (2) Filter tetragrams that appear in at least 30% of the integrated reports (in paper it is 30% per a country's document, but we do not have enough data to do that) or 5 times per document; (3) Flag sentences (1 = yes, 0 = not) containing a tetragram appearing in 60% of the sample documents; (4) Examine initial list of boilerplate phrases which appear in 60% of the sample documents; (5) Exclude common phrases such as "as a consequence of" i.e. tetragrams that appear in 80% of the sample documents; (6) The boilerplate measure is calculated as the number of words in boilerplate sentences divided by total words in the integrated report.

defining boilerplate statements as 4-word phrases (i.e., tetragrams) that are very common among reports measuring the extent to which they appear in each report. Prior work has used a similar technique, e.g., the Ferret Copy Detector, to measure cautionary language in annual filings with the SEC (Nelson and Pritchard, 2007).

Our third measure is *FOG* based on the Gunning-Fog Index and represents the use of complex language. The computational linguistics literature defines the index as a measure that combines the number of words per sentence and the number of syllables per word to create a measure of readability. The underlying idea behind the Fog index, which is interpreted as the number of years of education an average person would need to understand a given piece of writing (Li, 2008), is simple: inter alia, more syllables per word or more words per sentence make a document harder to read. Hence, in line with previous research (Lang and Stice-Lawrence 2015; Li, 2008), we define our final measure of conciseness as:

*FOG = (WORDS PER SENTENCE +% OF COMPLEX WORDS) * 0.4*

where *COMPLEX WORDS* = WORDS WITH ≥ 3 SYLLABLES. To create an overall conceptual measure of concise reporting, we use principal component analysis along the three dimensions *LN_WORDS*, *BOILERPLATE* and *FOG*. The three dimensions load onto one factor, which we refer to as our conciseness measure (*CONCISE*). For ease of interpretation, the factor was estimated using the inverse of *LN_WORDS*, *BOILERPLATE* and *FOG*. The variables and their definitions are given in Table 1.

[Insert Table 1 here]

3.3 Sample and Data

We identify our initial sample of firms from the IR section of the IIRC website which listed 264 organizations whose reports refer to the IIRC or the international IRF.[13] We accessed the website of these organizations to retrieve their annual reports. All annual reports that were available on each firm's website were downloaded. This approach allows us to examine reporting periods prior to the adoption

[13] www.examples.integratedreporting.org (accessed 27 November 2015).

of IR. Of the 264 organizations, 69 organizations were not listed mainly because they are state-owned or privately held. This leaves a total of 195 firms for which we could determine the lexical properties of their IR.

Table 2 provides descriptive statistics for the other variables used. As shown in Table 2, approximately half of our observations (53.1%) relate to the IR from South African firms, which is unsurprising given that South African firms listed on the Johannesburg Stock Exchange are required to prepare IR to comply with the King Report on Corporate Governance.[14] European[15] firms lead the group of voluntary adopters of IR with 26.7%, followed by Australasian firms (13.2%). Notably, the median South African reports contain substantially more boilerplate statements compared to other jurisdictions, whereas European firms are more likely to issue more lengthy reports. Over time reporting length and fog increased. This is in line with the trend observed by Lang & Stice-Lawrence (2015).[16]

We also found (untabulated results) that the firms in our sample are mainly from the industrial (23.1%), financial (22.6%) and basic material (15.6%) sectors. The oil & gas sector has the longest reports with a mean report length of 67,946 words including detailed content. The average the use of boilerplate statements from the Utilities sector is 20.4%, which is the lowest compared to the other industries. In contrast, firms in the health care sector issue short reports with an average of 38,782 words, but 38.5% of the median report content is boilerplate. Overall, we observe only slight industry variations in our readability measure. The average fog is around 20.

[Insert Table 2 here]

IV. EMPIRICAL FINDINGS

[14] The King report was published in four volumes. The third report also known as King III requires firms to "issue an integrated report on its economic, social and environmental performance" (Institute of Directors in Southern Africa, 2009 para.16).

[15] In our sample European includes firms from the following countries: Austria, Germany, Denmark, Spain, Finland, France, UK, Greece, Italy, Malta, Netherlands, Poland, Sweden, Switzerland.

[16] We also find (unatabulated results) a curvilinear trend on use of boilerplate statements, which increased from the late 1990s until peaking at 49.9% in 2009. This percentage then gradually decreased to 18.6% in 2015. There is no single country that dominates the sample of voluntary adopters of IR. 6.8% of our sample reports are prepared by UK firms, 5.7% of the observations are from Japan and another 5.4% are from Spain. WE also found that Polish and French reports are quite lengthy, while the use of boilerplate statements seems quite common in small countries such as Bermuda and Malta.

4.1 Univariate Tests & Correlations

Table 3 reports the mean and median differences as well as the *t*-statistic and the Wilcoxon *z*-statistic for the textual measures. We ran the univariate tests of equality for: the entire sample (Panel A), South African firms (Panel B), European firms (Panel C) and firms from developed countries with more disclosure regulations (Panel D). We find that reports have become less concise under IR except in the mandatory setting of South Africa, where conciseness has increased (t=-5.538 p<.01; z= -5.594, p<.01). We also find this is mainly driven by higher word count as well as higher report complexity in other jurisdictions. We find a significant difference in boilerplate use between IR and non-IR in South Africa (t = 14.404, p<.01; z = 14.158, p<.01).

[Insert Table 3 here]

In our untabulated correlation tests we find all three lexical measures, *LNWORDS, BP* and *FOG*, are negatively correlated with *CONCISE*. There is no significant correlation between *LNWORDS* with *FOG*. However, *BP* and *FOG* are significantly positively correlated at the 5% level. We find that *IR* has a significant and negative correlation with *CONCISE* suggesting that IR is less concise (Pearson: -0.081; Spearman: -0.073). This is attributable to: (a) increased document length observed for IR reports (Pearson: 0.071; Spearman: 0.093); (b) higher complexity evident in higher *FOG* scores (Pearson: 0.071; Spearman: 0.123). Interestingly, the use of boilerplate statements is lower for IR reports compared to non-IR reports (Pearson: -0.171; Spearman: -0.120). We also found (results untabulated) the number of analysts following of a firm is negatively correlated with the change in the conciseness measure and its components around IR implementation (Δ*CONCISE,* Δ*WORDS,* Δ*BP,* Δ*FOG*), Δ*WORDS,* Δ*BP,* Δ*FOG*)[17] with ANALYST indicating a lower number of analysts following after the adoption of concise IR reporting.

4.2 Implementation and IR Conciseness

[17] Δ*CONCISE,* Δ*WORDS,* Δ*BP* and Δ*FOG* are the raw change rate based on the average conciseness score (report length, use of boilerplate statements and fog score) in the lead up to IR and the average score post-IR starting one-year after IR implementation, not the dummy variables as used in the main analysis.

Table 4 provides our first set of regression results examining the effect of IR implementation on the textual characteristics of reports. All regression results are based on a standard regression framework with industry and year fixed effects. We include year fixed effects to abstract from trends in textual attributes over time as well as from changes in general macroeconomic conditions. We use two-way clustered standard errors (by firm and by year) which assumes a more realistic error structure. We test the association of our variable of interest in our analyses with our measure of conciseness (*CONCISE*).[18]

[Insert Table 4 here]

Regression results are generally consistent with the correlations and univariate results and suggest that our findings are robust to more restrictive specifications. For our main variables of interest, we observe more concise reporting in South Africa after the introduction of IR (β=0.589, p<.01), while there is less concise reporting for firms voluntarily adopting IR (β=-0.341, p <.01). In the mandatory context of South Africa, we observe an increase in conciseness due to a 42% drop in report length as well as a 52.7% drop in the use of boilerplate statements. While for voluntary adopters, there was a 30% increase in length and a corresponding increase in boilerplate use of 24.9%. Yet, it should be noted that prior to the introduction of IR, reporting in South Africa was very protracted with its conciseness score well below that of other jurisdictions (β=-1.210, p <.01) with substantially longer reports, a higher use of boilerplate, and complex language (*LN_WORDS* β=0.114, p <.05, *LN_BP* β=1.177, p <.01, *FOG* β=1.853, p <.01). Therefore, while we can refute H1 with respect to firms that voluntarily implemented IR, we cannot reject H1 in the mandatory setting of South Africa.

We observe that the association of our control variables is largely in line with Lang and Stice-Lawrence (2015). For example, we find that larger firms produce longer reports (*LN_WORDS* β=0.049, p<.01) that have less boilerplate statements in their reports (*LN_BP*

[18] We took additional analysis using (i) report length (*LN_WORDS*), (ii) use of boilerplate statements (*LN_BP*) and (iii) report language complexity (*FOG*), the components of our conciseness measure but for brevity do not tabulate the results.

β=-0.064, *p* <.01). More profitable firms produce less lengthy (*LN_WORDS β*=-0.011, *p* <.01) reports using less complex language (*FOG β*=-0.018, *p* <.05). The same applies to firms that are audited by the Big4 (*LN_WORDS β*=-0.092, *p*<.05). In addition, we find that firm *AGE* is associated with lower *FOG* scores (*β*=-0.004, *p* <.05). We also find firms with higher *BTM* have small (*LN_WORDS β*=-0.145, *p*<.05) but complex reports (*FOG β*=0.313, *p* <.05). This differs from Lang and Stice-Lawrence (2015)[19]. Also, there is a negative association between report length (β=-0.003, p <.05) and use of boilerplate statements (β=-0.005, p <.01) with leverage leading to more concise reporting (β=0.004, p <.01). We also find that IFRS adoption is related to longer reports (*β*=0.330, *p* <.01) and higher boiler plate (*β*=0.293, *p* <.01). Again, this is different to Lang and Stice-Lawrence (2015) who find report length increases, but boiler plate reporting decreases after IFRS introduction.

4.3 Market Effects and IR Conciseness

In the next step, we assess the association between conciseness of IR and potential capital market effects one would expect to be correlated with an improved information environment. Table 5 reports the effect of concise IR reporting with respect to analyst following, as well as forecast error and forecast dispersion. We find conciseness has a negative significant association with analyst following (*CONCISE* = -2.803, *p<.01)* and greater forecast accuracy (*FE β*=-0.586, *p* <.01, *FD β*=-0.046, *p* <.01) before the introduction of IR in countries other than South Africa. This seems logical: if communication is easy to comprehend there is less disagreement between analysts and a lower demand for analyst following. The concise IR in the voluntary settings would have reduced the information asymmetry considerably, leading to more accurate analyst forecasts.

When we use further tests (Table 5 columns 2 and 3), we find similar to Zhou et al. (2017). For example, size is associated with lower analyst forecast dispersion (*LN_MVE* = -0.017, *p* <.01). Our results show that voluntary concise reporting post-IR is associated with

[19] These differences may be an artefact of sample construction. Our sample has a higher number of observations pertaining to South Africa compared to their sample.

higher forecast dispersion (0.051, p<.05), and marginally less analyst following (-2.648, *p*<.1), Yet, at the same time we find that for firms with less concise reporting (i.e., longer, standardized & complex reports) post voluntary IR adoption, there is less forecast error and dispersion (*FE* = -0.950, *p*<.05; *FD* = -0.061, *p*<.01). We also find an association of greater analyst following with CSR performance (*CSRperf* = 0.058, *p* <.01) .

In the mandatory setting of South Africa (*ZA*), in Table 5 we find concise reporting post-IR is associated with lower forecast dispersion (*FD* = -0.051, *p*<.05), while higher forecast errors and forecast dispersion are associated with less concise IR reporting (*FE* = 0.846, p<.1; *FD* = 0.054, p<.01). H2 is thus rejected in the context of voluntary adoption and to a large extent also in the mandated context of South Africa. In the next section, we will further investigate these stark differences between mandated and voluntary IR.

[Insert Table 5 here]

4.4 Additional analysis: Conciseness components institutional context

In Table 6 we report the results on our examination of changes in the components of conciseness (i.e., report length, boilerplate use and readability of reports) and their association with analyst following. This analysis provides additional detail that is lost when examining the aggregate measure of conciseness. For example, results show that while the overall conciseness measure result was not significantly associated with analyst following in Table 5, it is observed that greater report length is also associated with greater analyst following (*ZA x IR x* Δ*WORDS* β=3.492, *p* <.05). This finding suggests that more content may be desired regardless of the additional boilerplate for adopters of IR that face greater regulatory pressure. For firms that face no such pressure, we find that their analyst following drops significantly if their IR is concise (*IR x* Δ*WORDS* β=-2.593, *p* <.01). This is line with the findings of Table 5.

[Insert Table 6 here]

The international focus of our study extends the findings of the single country studies of Barth et al (2017), Zhou et al (2017), and Bernardi and Stark (2018). This extension is

relevant as only limited insights can be gained on the institutional factors that may constrain or enhance the effectiveness of IR implementation from single country studies. We further explore our main findings by (i) focusing on firms from developed markets[20]; (ii) performing an industry comparison between financial and non-financial firms, and (iii) comparing complex versus non-complex firms.[21] The untabulated results shows a lower conciseness post-IR and increase in report length for developed markets supporting the findings of the main analyses. Further, we find an inverse association between concise reporting and liquidity for the developed markets sample. There is also evidence that IR is negatively associated with forecast dispersion, which suggests that the information environment improved for firms in developed capital markets that did not adopt concise reporting. This is consistent with voluntary disclosure theory (Zhou et al., 2018; Tilli et al., 2019).

Our findings of the industry comparison suggest the observed effects are mainly attributable to firms from non-financial industries in which we see less concise reporting because of longer, more standardized reports with more complex language post-IR for voluntary implementers, while we find more standardized language in the financial industry post-IR. Compared to our main findings, we see comparable results in the analysis for the mandatory adoption of IR in South Africa in non-financial industries. That is, non-financial firms in South African issued concise integrated reports that are shorter and use less boilerplate phrases, while for financial firms only the use of boilerplate language decreased.

When studying the information environment effects, we find that non-financial firms do not benefit from concise IR, if voluntarily adopted. Yet, there is some indication that financial firms voluntarily issuing integrated reports do (e.g., less analysts forecast dispersion). We also find different outcomes for mandatory concise reporting for the financial industry. As in the main analysis, we find that for non-financial firms IR - if not concise - is associated with higher forecast errors. We also undertook comparison between complex and non-complex firms to

[20] The developed markets grouping consists of Australia, Austria, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Italy, Japan, Netherlands, New Zealand, Singapore, Spain, Sweden, Switzerland, UK, and US.

[21] The results are not tabulated for brevity.

complement the analyses on industry and country transparency and find that organisational complexity does not clearly moderates the effect of concise reporting post-IRF implementation.

V. SUMMARY AND CONCLUSION

5.1 Summary of Findings

Recognising that communication is an important issue in financial reporting and that IR is a major development aimed at improving reporting quality, this paper investigates how IR affects a firm's information environment considering the lexical properties of the reports. Overall, we find IR has substantially altered the textual properties of reports and this change has impacted the information environment. While the IIRC promotes conciseness, implementation that is not regulated is characterised by longer, more complex reports. A possible interpretation of this finding is that voluntary adopters focus on providing additional content relating to strategy and stakeholder relationships. We find additional content in these voluntarily prepared IR is associated with improved information environment outcomes such as higher analyst forecast accuracy and lower forecast dispersion. This suggests that IR conveys additional content that supports the reduction in information asymmetry in capital markets. This finding is in line with conventional voluntary disclosure theory.

Interestingly, we find that reports of firms required to adopt IR (e.g., in the context of South Africa) have become more concise. Report length has significantly shortened, and there is a reduction in the use of boilerplate. The shift to concise reporting for mandatory IR adopters is associated with lower disagreement between analysts. Our findings extend previous single country studies such as Barth et al. (2017), Bernardi and Stark (2018) as well as Zhou et al. (2017). While these studies rely on content analysis to determine the compliance of firms with additional content requirements, our examination of the lexical properties allows us to make inferences about communication preferences that have not been studied in prior research.

5.2 Practical and policy implications

Our research has some practical implications. Concise reporting is likely to make sense from a cost reduction perspective: firms face higher costs with increased disclosure; users face higher costs in processing the greater volume of information. Therefore, future research is needed to determine how communication in reporting can be improved without the loss of relevant information. Greater consideration of the lexical make-up of reporting as we have demonstrated in our research is a first step in this direction. Given the significant growth in financial and non-financial reporting volume (see Stolowy and Paugham, 2018), a material changes in behaviour to ensure that financial statements are regarded as tools of communication rather than compliance is required (IASB, 2013). Practitioners need to be cognizant of the potential for increased volume in reporting to obfuscate their message rather than inform stakeholders. One potential catalyst for change could be the adoption of IR with its aim of improving the quality of corporate reporting and its emphasis on concise reporting. Yet, other guidelines in the principles based IRF require the communication of aspects such as strategy, stakeholder relationships and outlook that may not easily be conveyed concisely.

Our findings suggest that the implementation of the IRF principles varies. We find that regulating IR can prompt concise communication, but if unregulated reporting under IR remains complex. Given that IR is not a widely accepted practice (and might never be given its overlap with other frameworks such as the GRI), the risk of standing out due to a lack of disclosure outweighs the benefits of improved communication. In an information environment, in which complex and lengthy reporting is common, providing concise communication might be perceived as omitting “bad news” and have adverse repercussions. Our findings suggest that if standard setters and capital market regulators desire reporting to be viewed as tools of communication, a regulated approach might be helpful. What is an appropriate level of detail will need to be assessed taking into consideration both stakeholder demands as well as the national and institutional context of businesses. This is likely to require trade-offs when a business is operating in the global market. Imposing standards designed primarily for a particular market, for example developed countries with strong capital markets, may not be effective in other markets with different institutional features. Our results suggest that IR can

bear significant benefits to the information environment, but realisation of these benefits will be influenced by firms' pre-existing information environment. If regulated, firms that choose non-concise IR reporting suffer from a deterioration of their information environment. In an unregulated setting, firms with non-concise IR reporting benefit from having an improved information environment.

5.3 Future research

A few caveats apply to our study. While we draw from a large pool of observations pre-IR, we are limited in the number of observations post-IR given that it is a relatively new phenomenon. Additional insights can be gained by revisiting our study at a later point in time. Additionally, further research examining institutional settings and organizational contexts in which IR may be used to serve a symbolic purpose (Higgins et al., 2014; Lai et al. 2016; Argento et al., 2018; Michelon et al., 2018; Petcharat and Zaman, 2019; Rinaldi et al., 2018) and where their market-benefits may be less than expected are interesting avenues for future research. Likewise, further research on the implementation of IR and how their quality is affected by board oversight and governance processes (see Girella et al., 2019; Raimo et al., 2021) can help to add to the emerging literature.

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Table 1: Variable Definitions

Variable	Definition
IR	Coded 1 if report prepared under IR; 0 otherwise. First year treated as 0 to account for transition period.
ANALYST	Number of unique analysts issuing forecasts for firm *i*'s annual earnings, logged for analysis
FE	Log of the average of the absolute difference between the first median consensus forecasts for target earnings made in the 12 months after the fiscal year end of the integrated report and actual earnings.
FD	Log of analyst forecast standard deviation for the year *t*
BIDASK	Median bid-ask spread over the fiscal year, where bid-ask is defined as (ask-bid)/((ask+bid)/2), logged for analysis reported in basis points
ZERORET	% of total trading days in a year when firm had a stock return of zero, logged for analysis.
CSRPerf	Corporate social responsibility performance score calculated as the average of the environmental (ENV) and the social performance score (SOC) from the Asset 4 database
LN_MVE	Log of firm's market value of equity (in $'000)
ROA	Return on assets. Net income before extraordinary items / total assets
BIG4	Coded 1 if firm has Big4 auditor; 0 otherwise.
BM_RATIO	Book-to-market ratio using book value of common equity / market value of common equity
LEVERAGE	Total debt (short + long-term) divided by total assets
SURPRISE	Change in basic EPS measured as $(EPS_{i,t} - EPS_{i,t-1})/P_{t-1}$
NI_LOSS	Coded 1 if firm reported loss in year *t*; 0 otherwise.
IFRS	Coded 1 if firm reports under IFRS in year t; 0 otherwise.
AGE	Age of firm in years, approximated using the date of initial coverage of OSIRIS

Table 2: Descriptive Statistics

A) All Variables	N	Mean	Med.	SD	P25	P75
IR	1471	0.31	0.00	0.46	0.00	1.00
ANALYST	1471	10.44	8.00	9.39	3.00	15.00
FE	712	-1.55	-1.66	2.30	-3.07	-0.26
FD	1171	-2.65	-2.69	1.17	-3.37	-2.01
BIDASK	1460	1.06	0.36	3.28	0.19	.83
ZERORET	1471	0.14	0.08	0.15	0.06	0.14
CSRPerf	875	71.00	82.36	27.31	61.48	91.26
LN_MVE	1473	9.46	9.31	2.16	8.14	10.55
ROA	1471	8.42	6.78	8.20	2.98	12.14
BIG4	1471	0.71	1.00	0.46	0.00	1.00
BM_RATIO	1471	0.67	0.56	0.53	0.35	0.83
LEVERAGE	1471	21.53	18.56	17.15	7.33	32.08
SURPRISE	1471	0.03	0.01	0.23	-0.01	0.02
NI_LOSS	1471	0.08	0.00	0.27	0.00	0.00
IFRS	1471	0.70	1.00	0.46	0.00	1.00
AGE	1471	31.18	16.00	33.09	10.00	42.00
LEVERAGE	1471	21.53	18.56	17.15	7.33	32.08
SURPRISE	1471	0.03	0.01	0.23	-0.01	0.02
NI_LOSS	1471	0.08	0.00	0.27	0.00	0.00
IFRS	1471	0.70	1.00	0.46	0.00	1.00
AGE	1471	31.18	16.00	33.09	10.00	42.00
LEVERAGE	1471	21.53	18.56	17.15	7.33	32.08
SURPRISE	1471	0.03	0.01	0.23	-0.01	0.02
NI_LOSS	1471	0.08	0.00	0.27	0.00	0.00
IFRS	1471	0.70	1.00	0.46	0.00	1.00
AGE	1471	31.18	16.00	33.09	10.00	42.00

B) Length	N%	Mean	Med.	SD	P25	P75
Africa	53.1%	38,985	34,825	23,206	23,735	48,929
Americas	7.0%	31,899	25,076	22,792	14,154	48,314
Australasia	13.2%	29,322	26,736	18,697	16,089	39,384
Europe	26.7%	56,124	48,229	38,951	25,498	82,218

C) Fog	N%					
Africa	53.1%	21.18	21.67	2.97	19.87	22.82
Americas	7.0%	19.27	19.43	1.85	18.04	20.48
Australasia	13.2%	19.35	19.32	2.64	17.90	20.81
Europe	26.7%	19.03	19.25	2.69	17.58	20.35

D) Boilerplate	N%					
Africa	53.1%	62.9%	57.4%	41.4%	30.5%	85.1%
Americas	7.0%	9.3%	8.2%	7.2%	4.6%	11.9%
Australasia	13.2%	12.6%	9.9%	12.1%	6.2%	14.5%
Europe	26.7%	22.8%	19.0%	19.4%	11.8%	27.8%

This table reports the summary statistics (mean, median, standard deviation, 25 and 75 percentiles) for our full sample and our textual measures (length, fog and boilerplate) by major regions (N% by region: Africa = 53.7%; Europe = 26.7%, Australasia = 13.2%, Americas = 7%).

Table 3: IRF and non-IRF Lexical Properties

Variable	MEAN IRF	MEAN Non-IRF	*t-stat/z-stat*	MEDIAN IRF	MEDIAN Non-IRF	*t-stat/z-stat*
A: All	***(N=451)***	***(N=1,027)***				
1) Concise	-0.094	0.086	*3.191***	-0.143	0.04	*2.836****
2) LNWORDS	10.502	10.367	*-2.847****	10.596	10.44	*-3.585****
3) BP	0.31	0.448	*6.714****	0.228	0.312	*4.644****
4) FOG	20.999	19.802	*-8.319****	21.084	19.922	*-7.862****
B: South Africa	***(N=286)***	***(N=471)***				
1) Concise	-0.365	-0.653	*-5.538****	-0.396	-0.756	*-5.594****
2) LNWORDS	10.421	10.463	*0.85*	10.52	10.483	*0.055*
3) BP	0.376	0.745	*14.404****	0.291	0.694	*14.158****
4) FOG	20.82	21.655	*-4.820****	21.782	21.187	*-4.244****
C: Europe	***(N=86)***	***(N=292)***				
1) Concise	-0.073	0.475	5.877***	-0.109	0.421	5.895***
2) LNWORDS	11.068	10.621	-4.979***	11.194	10.702	-5.326***
3) BP	0.275	0.216	-2.604***	0.21	0.185	-2.113**
4) *FOG*	19.971	18.846	-3.769***	19.879	19.127	-3.041***
D: Developed countries	***(N=123)***	***(N=424)***				
1) Concise	0.346	0.651	3.486***	0.225	0.608	3.828***
2) LNWORDS	10.701	10.382	-3.721***	10.848	10.423	-4.806***
3) BP	0.216	0.193	-1.229	0.164	0.149	-0.54
4) *FOG*	19.717	19.013	-2.981***	19.282	19.195	-2.123**

This table reports the mean and median differences in lexical properties between IRF and non-IRF reports as well as the the *t*-test and *Mann-Whitney U* test results for: a) the overall sample; b) South African firms; c) European firms; and d) Firms from developed countries (i.e. Austria, Australia, Canada, Switzerland, Germany, Denmark, Spain, Finland, France, UK, Greece, Hong Kong, Italy, Japan, Korea, Netherlands, New Zealand, Sweden, Singapore and USA). *** p<0.01, ** p<0.05, * p<0.

Table 4: Effects of IR Implementation: Conciseness

VARIABLES	(1) CONCISE	(2) LN_WORDS	(3) LN_BP	(4) FOG
IR = 1	-0.341***	0.300***	0.249***	0.227
	(0.075)	(0.084)	(0.077)	(0.215)
ZA = 1	-1.210***	0.114**	1.177***	1.853***
	(0.053)	(0.053)	(0.053)	(0.179)
IRxZA = 1	0.589***	-0.420***	-0.527***	-0.224
	(0.090)	(0.102)	(0.085)	(0.279)
LN_MVE t-1	0.038***	0.049***	-0.064***	-0.040
	(0.011)	(0.014)	(0.011)	(0.033)
ROA	0.004*	-0.011***	0.001	-0.018**
	(0.003)	(0.003)	(0.002)	(0.008)
BIG4 = 1	0.083*	-0.092**	0.007	-0.158
	(0.046)	(0.045)	(0.045)	(0.129)
BTM t-1	-0.105**	-0.145**	0.059	0.313**
	(0.044)	(0.063)	(0.048)	(0.148)
LEV t-1	0.004***	-0.003**	-0.005***	-0.001
	(0.001)	(0.001)	(0.001)	(0.003)
SURPRISE	-0.071	0.093	0.155*	-0.072
	(0.085)	(0.089)	(0.080)	(0.281)
NI_LOSS = 1	-0.037	-0.010	0.022	0.071
	(0.069)	(0.080)	(0.075)	(0.210)
AGE	0.001**	0.000	-0.001	-0.004**
	(0.001)	(0.001)	(0.001)	(0.002)
IFRS = 1	-0.335***	0.330***	0.293***	0.209
	(0.057)	(0.065)	(0.058)	(0.157)
Constant	0.433**	9.651***	-0.817***	18.168***
	(0.204)	(0.237)	(0.199)	(0.844)
Industry fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	1,471	1,471	1,356	1,356
Adjusted R^2	0.459	0.120	0.504	0.286

The results reported in this table examine changes in lexical attributes around IR implementation. Results are reported for the following outcome measures: Column 1: Report conciseness as measured by the factor scores estimated using principal component analysis. Column 2: Log of document length measured in word count. Column 3: Log of boilerplate measure. Column 4: Fog score measuring the number of years of education needed to understand the document. The models are estimated using a standard regression model with industry and year fixed effects. All continuous variables are winsorized at the 1% level. *LN_MVE* (Size), *BTM* and *LEV* are measured for the previous reporting period. IR is coded 1 for report observations the year after the firm implemented IR for the first time; 0 otherwise. I*RxZA* is an interaction term that is 1 for IR observations in South Africa, 0 otherwise. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Effects of IR Implementation: Analyst

VARIABLES	(1) ANALYST	(2) FE	(3) FD
ΔCONCISE = 1	-2.803***	-0.586***	-0.046***
(pre-IR; voluntary)	(0.777)	(0.220)	(0.012)
South Africa ZA = 1	-15.285***	-0.653*	-0.101***
(pre-IR, mandatory, non-concise)	(0.994)	(0.386)	(0.021)
ΔCONCISE x ZA	1.954*	0.992**	0.043***
(pre-IR, mandatory, concise)	(1.082)	(0.422)	(0.015)
IR = 1	2.102*	-0.950**	-0.061***
(post-IR, voluntary, non-concise)	(1.204)	(0.398)	(0.017)
ΔCONCISExIR	-2.648*	0.177	0.051**
(post-IR, voluntary, concise)	(1.454)	(0.468)	(0.022)
ZA x IR	-1.071	0.846*	0.054***
(post-IR, mandatory, non-concise)	(1.327)	(0.510)	(0.017)
ZA x IR x ΔCONCISE	2.316	-0.411	-0.051**
(post-IR, mandatory, concise)	(1.684)	(0.630)	(0.025)
CSRPerf	0.058***	0.006*	-0.000
	(0.011)	(0.003)	(0.000)
LN_MVE t-1	0.895***	0.636***	-0.017***
	(0.144)	(0.056)	(0.004)
ROA t-1	0.051**	-0.019**	-0.000
	(0.021)	(0.008)	(0.000)
BIG4 = 1	-0.575	-0.283*	0.009
	(0.538)	(0.171)	(0.008)
BTM t-1	-0.952	0.869***	0.014
	(0.673)	(0.188)	(0.012)
LEV t-1	-0.039***	-0.004	-0.000*
	(0.013)	(0.004)	(0.000)
SURPRISE t-1	-0.315	0.378**	0.088***
	(0.528)	(0.190)	(0.026)
AGE	0.028***	-0.001	0.001***
	(0.008)	(0.002)	(0.000)
IFRS = 1	6.717***	-0.240	0.022**
	(0.839)	(0.254)	(0.011)
Constant	16.820***	-6.041***	0.309***
	(3.813)	(1.136)	(0.117)
Observations	737	712	705
Adjusted R-squared	0.680	0.468	0.413

This Table examines the effects of concise reporting around IR implementation on the following capital market outcome: analyst following (ANALYST), analyst forecast error (FE) and analyst forecast dispersion (FD). Results reported for above (below) median changes in the conciseness score around IR implementation. All continuous variables are winsorized at the 1% level. *LN_MVE* (Size), *ROA* (Profitability) *BTM*, *LEV SURPRISE*, and *LOSS* are lagged by one year. IR is coded 1 for above median changes around IR implementation in the respective textual attribute; 0 otherwise. The interaction terms ΔCONCISE x IR x ZA contrasts concise versus non-concise reporting, preIR versus post-IR implementation as well as mandatory versus voluntary implementation. Tests included industry and year fixed effects, which have not been reported. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Further Analysis – Conciseness Components

VARIABLES	ANALYST
Panel A: Report Length	
IR = 1 (post-IR, longer, voluntary)	1.347
	(1.051)
IR x ∆WORDS (post-IR, shorter, voluntary)	-2.593*
	(1.361)
ZA x IR (post-IR, longer, mandatory)	-0.814
	(1.186)
ZA x IR x ∆WORDS (post-IR, shorter mandatory)	3.492**
	(1.581)
Observations	732
Adjusted R-squared	0.690
Panel B: Boilerplate	
IR = 1 (post-IR, more BP, voluntary)	0.756
	(1.075)
IR x ∆BP (post-IR, less BP, voluntary)	-1.936
	(1.482)
ZA x IR (post-IR, more BP, mandatory)	0.869
	(1.147)
ZA x IR x ∆BP (post-IR, less BP, mandatory)	0.735
	(1.714)
Observations	733
Adjusted R-squared	0.677
Panel C: Readability	
IR = 1 (post-IR, less readable, voluntary)	0.896
	(1.213)
IR x ∆FOG (post-IR, more readable, voluntary)	-1.995
	(1.476)
ZA x IR (post-IR, less readable, mandatory)	0.540
	(1.274)
ZA x IR x ∆FOG (post-IR, more readable, mandatory)	1.317
	(1.666)
Observations	733
Adjusted R-squared	0.681

This table examines the effects of improvements versus impairment of lexical properties around IR implementation on the following capital market outcome: Analyst following (ANALYST). Panel A examines the effect of wordcount, Panel B use of boilerplate statements and Panel C readability. Results reported for above (below) median changes in either word count, boilerplate, or readability around IR implementation. Table only reports main effects, however the same model specification as in Table 5 were used. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.