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The expansion of non-financial reporting: an exploratory study

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We investigate how non-financial reporting (NFR) is defined and has expanded in recent years. First, we explore the heterogeneity in definitions and current NFR practices. We find a lack of convergence between regulators and standard-setters, as well as leading sustainable firms. Second, we examine the changes in the extent and type of NFR reported by firms over the period 2006–2016. Based on a sample of firms in South Africa, we document a significant increase in the amount of NFR, particularly between 2006 and 2011. This change appears to be driven by new environmental, human capital, performance and strategic disclosures. The relative importance of financial information in corporate reporting decreased substantially over the same period. Third, we compare reporting practices for corporate social responsibility (CSR)/sustainability information between constituents of the S&P 500 index and the EuroStoxx 600 index. We find that overall, the percentage of firms issuing CSR/sustainability reports increased dramatically between 2002 and 2015. Constituents of the U.S. stock index and growth firms are less likely to report CSR/sustainability information, whereas firms in the European stock index in environmentally sensitive industries, with high capital intensity and good CSR performance, larger and with better financial performance, are more likely to report CSR/sustainability information.

Keywords: non-financial reporting (NFR); non-financial information (NFI); integrated reporting; corporate social responsibility (CSR) reporting; sustainability reporting; environmental reporting

1. Introduction

Several stakeholders have expressed concerns over the significant rise in financial and non-financial reporting (NFR) by firms in recent years (e.g. Ernst and Young 2012). The term 'information overload' (see Financial reporting faculty 2013) has been coined to describe the confusion felt by users of financial information who find themselves receiving more information than they need for their decisions (Eppler and Mengis 2004). In a speech, Hans Hoogervorst, Chairman of the IASB, acknowledged that the 'widely perceived problem of information and disclosure overload' may be growing bigger and bigger.[1]

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Yet this observation is not entirely new in the academic literature (see, e.g. Casey Jr 1980). One objective of this paper is to explore the contribution made to the information overload debate by firms' NFR practices and changes in those practices in recent years.

NFR has attracted considerable interest in the academic literature. Reviewing 53 accounting and non-accounting journals over the period 1973–2013, Erkens et al. (2015) examine several questions about the state of the art of academic research on NFR (which they call non-financial information). Their study investigates how NFR is defined and how interest in it has evolved over time in the academic literature, the main topics covered by NFR research, the main methodologies used by researchers to address questions related to NFR, and the extent to which studies are country-specific. Notably, it documents that many articles do not define NFR, but instead refer to underlying concepts used in research such as social/environmental/human capital or corporate social responsibility (CSR) reporting. Based on a survey of the theoretical and empirical literature, and on a survey questionnaire (sent to academics, users and preparers), Haller et al. (2017) confirm this lack of convergence in the definition of NFR: 'up to now, neither a common meaning nor a generally accepted definition of 'non-financial information' exists'. Erkens et al. (2015, p. 36) find that 30.1% of all relevant research articles focus on CSR, making CSR one of the two leading topics in terms of number of articles on NFR during the period 1973–2013, and the number one topic over the more recent period 2009–2013 with 118 articles published.[2] For instance, Huang and Watson (2015) review research on CSR published in 13 accounting journals over the last decade. They examine four topics: (1) the determinants of CSR; (2) the connection between CSR and financial performance; (3) the consequences of CSR and (4) the roles of CSR disclosure and assurance. Dienes et al. (2016) review the drivers of sustainability reporting (see also Cho et al. 2014, Gao et al. 2016).[3]

Other studies focus specifically on the consequences of NFR. For instance, Brooks and Oikonomou (2018) review the accounting and finance literature on the effects of environmental, social and governance (ESG) disclosures and performance on firm value. De Villiers et al. (2017) provide an overview of the literature on integrated reporting, a specific form of NFR, and discuss measurement and research design issues that should be taken into account for studies on integrated reporting. They also identify approaches and set an agenda for future research.

In the present study, we extend the above literature which covers mostly the academic definitions of NFR by focusing on NFR practices, for several reasons. Prior research already shows divergences in definitions by academics. We focus on actual divergences of terms by preparers and standard-setters. NFR has attracted considerable interest from a number of key stakeholders such as the United Nations Global Compact, the Global Reporting Initiative (GRI), the International Integrated Reporting Council (IIRC)[4], the Sustainability Accounting Standards Board (SASB) and the Task Force on Climate-related Financial Disclosures (TFCD),[5] regulators such as the European Commission,[6] and the increasing number of investors in the ESG investment segment.[7] This interest seems to have created an increase in the amount and extent of NFR by firms facing multiple demands for information from several stakeholders.

The main objective of this paper is to answer the following research questions: (1) How is NFR defined by regulators or entities acting as quasi-regulators? (2) Where is non-financial information reported? (3) How has NFR evolved over time in corporate reporting practices?

Our research is predicated on three different analyses. First, we study all constituents of the DJSI World Index in September 2015, because these firms are leading sustainable performers which are also likely to be leaders in NFR. We analyse the types of report they published in 2014, i.e. one year before the publication of the 2015 DJSI World Index. Second, we conduct an in-depth longitudinal analysis of a sample of 10 South African firms named as the Top Ten in EY's Excellence in Integrated Reporting Awards 2016. South Africa is an interesting country to examine because since 2010, 'all companies listed on the Johannesburg Stock

Exchange (JSE) have been required to produce an integrated report in line with the requirement of King III [report]' (College of Accounting at the University of Cape Town 2016). The King III report includes three principles related to integrated reporting: 'Principle 9.1: The board should ensure the integrity of the company's integrated report'; 'Principle 9.2: Sustainability reporting and disclosure should be integrated with the company's financial reporting'; and 'Principle 9.3: Sustainability reporting and disclosure should be independently assured'. We study the reporting practices of these firms at three points in time: 2006, 2011 and 2016. This allows us to quantify developments and practices in NFR. We analyse the amount of information reported for 11 categories of NFR (i.e. business, environment, governance, human resources, performance, risk management, shareholder information, society, strategy, value creation and administrative). Finally, our third analysis focuses on CSR/sustainability reporting practices by constituents of the S&P 500 index and the EuroStoxx 600 index over the period 2002–2015, because, as mentioned above, CSR is an important component of NFR. A growing number of investors are incorporating CSR performance into their stock or bond selection process, even if they do not follow a CSR investment strategy (CFA Institute 2017). A survey of investors and financial analysts (Collective 2013) indicates that the most important sources of non-financial information for investors are CSR/sustainability reports, followed by annual reports and company websites. CSR/sustainability reports are thus important because they are the primary source of CSR information. We examine the factors leading firms to report CSR/sustainability information and compare firms in a U.S. stock index with firms in a European stock index. This last analysis allows us to produce statistics on a larger sample, focusing on a narrower category of NFR.

First, in the regulatory and standard-setting environment, we find a lack of convergence in the definition of NFR, with the most striking inconsistencies concerning the concept of 'integrated reporting'. We find that this lack of convergence seems to extend as far as the leading sustainable firms in the DJSI World Index, which also publish heterogeneous reports.

Second, in our in-depth analysis of a sample of firms in South Africa, we document significant growth in the amount of NFR specifically between 2006 and 2011 when the mean volume of corporate reports increased by approximately 120 pages. We also document that the number of reports published per company grew, from about one report in 2006 to approximately three reports in 2016. This increase in the volume of information is primarily driven by new environmental, human capital, performance, strategic and value creation disclosures. Because financial information did not expand as much as other categories of disclosures, its relative importance decreased by approximately 14% between 2006 and 2011, before a modest increase of 4% between 2011 and 2016. In comparison, the percentage of strategic and performance disclosures in total NFR increased respectively by 7% and 5% between 2006 and 2011, and remained stable subsequently.

Third, we find that the percentage of firms publishing CSR/sustainability reports rose dramatically between 2002 and 2015 for constituents of the two leading stock indices in Europe and the U.S. (from about 5% in 2006 to 77%). We identify a major shift in CSR/sustainability reporting practices in 2007, when the percentage of firms reporting CSR/sustainability information showed a year-on-year jump from approximately 13% to 47%, after the publication of the GRI's G3 reporting guidelines (GRI 2006). Also, S&P 500 index constituents and growth firms are less likely to report CSR/sustainability information, whereas firms in the EuroStoxx 600 index which are from environmentally sensitive industries, with high capital intensity and good CSR performance, are larger and exhibit better financial performance, are more likely to report CSR/sustainability information.

We contribute to the debate surrounding the expansion of NFR in recent years, which is fuelled by inconsistency in the definitions of NFR used by regulators, quasi-regulators and standard-setters. This study is exploratory and opens up avenues for further research that are presented at the end of the study.

The rest of this paper proceeds as follows. In the next section we discuss the definitions of the main concepts relating to NFR (e.g. sustainability reporting, CSR reporting, integrated reporting) provided by official regulations or softer guidelines, and attempt to assess the degree of convergence in the definitions of NFR. In section 3 we explain our research methodology. Our main findings are presented in section 4, and we discuss our results and additional areas for future research in section 5.

2. Definitions of concepts and reporting channels

In this section, we define 'non-financial reporting' and show that the concept of NFR involves a dual heterogeneity:

- Heterogeneity in the definitions of the underlying concepts,
- Heterogeneity in the type of channels used for reporting non-financial information.

We will analyse each type of heterogeneity in turn.

Before considering the heterogeneity in the definitions of the concepts underlying NFR, we must first acknowledge the diversity in the terminology used to refer to this type of reporting, which is interchangeably called 'non-financial information', 'non-financial reporting' or a 'non-financial statement' (European Union 2014). According to Protin et al. (2014), who analyse publications (research articles, practice-oriented articles, dissertations, working papers) on the topic of NFR, the following terms are used, in decreasing order of frequency: non-financial information, non-financial reporting, non-financial disclosure and extra-financial information/disclosure/reporting.

2.1. *Heterogeneity in the definitions of the underlying concepts*

Erkens et al. (2015, p. 25) define NFR as

> disclosure provided to outsiders of the organization on dimensions of performance other than the traditional assessment of financial performance from the shareholders and debt-holders' viewpoint. [This] definition includes, but is not limited to, items related to social and environmental accounting, CSR, and intellectual capital disclosed outside the financial statements.

One difficulty with the field of NFR is the existence, reflected in this definition, of several interrelated, loosely defined terms including integrated reporting, sustainability reporting and corporate responsibility reporting. Table 1 presents some definitions for these concepts and how they relate to NFR.

As defined by the accounting firm Deloitte, sustainability is 'an ability to create and maintain the conditions of a delicate balance between human and business needs, to improve lifestyle and feeling of well-being and preserve natural resources and ecosystems' (Deloitte 2015, p. 1). In practice, sustainability reporting is 'a process of gathering and disclosing data on non-financial aspects of a company's performance, including environmental, social, employee and ethical matters, and defining measurements, indicators and sustainability goals based on the company's strategy' (Deloitte 2015, p. 1).

According to the EU, 'to fully meet their CSR, enterprises should have in place a process to integrate social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy in close collaboration with their stakeholders, with the aim of:

Table 1. Heterogeneity in non-financial reporting concepts and definitions.

Reporting	Definition	Guidelines	Keywords
Sustainability reporting	'An organization's practice of reporting publicly on its economic, environmental, and/or social impacts, and hence its contributions – positive or negative – towards the goal of sustainable development' (Global Sustainability Standards Board 2016)	Global Reporting Initiative[a]	Economic impact Environmental impact Social impact Sustainable development
Sustainability	'Sustainability refers to *environmental*, *social* and *governance* (ESG) dimensions of a company's operation and performance. More specifically, sustainability includes both the management of a corporation's environmental and social impacts, as well as the management of environmental and social capitals necessary to create long-term value. It also includes the impact of environmental and social factors on innovation, business models, and corporate governance' (Sustainability Accounting Standards Board 2013, p. 7).	–	Environmental Social Governance Long-term value Innovation Business models
Corporate social responsibility [reporting]	'Concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis' (European Commission 2001, p. 6). Corporate social responsibility is 'the responsibility of enterprises for their impacts on society' (European Commission 2011, p. 6).	–	Social concerns Environmental concerns Responsibility Impact on society
Integrated report	'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 over the short, medium and long term' (International Integrated Reporting Council 2013, p. 8).	Integrated Reporting Framework (IIRC)[b]	Strategy Governance Performance Prospects Value creation
Integrated reporting	'Process of building an integrated report by combining financial statements and sustainability reports into a coherent whole that explains company's ability to create and sustain value' (Deloitte 2015).	–	Financial statements Sustainability Value creation

(*Continued*)

Table 1. Continued.

Reporting	Definition	Guidelines	Keywords
Non-financial reporting	Non-financial [consolidated] statement: 'information to the extent necessary for an understanding of the group's development, performance, position and impact of its activity, relating to, as a minimum, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters including: (a) a brief description of the group's business model; (b) a description of the policies pursued by the group in relation to those matters, including due diligence processes implemented; (c) the outcome of those policies; (d) the principal risks related to those matters linked to the group's operations including, where relevant and proportionate, its business relationships, products or services which are likely to cause adverse impacts in those areas, and how the group manages those risks; (e) non-financial key performance indicators relevant to the particular business'. (European Union 2014, articles 19a and 29a)	–	Development Performance Position Impact Environmental matters Social matters Employee matters Human rights Anti-corruption Bribery Business model

[a]See https://www.globalreporting.org/.
[b]See https://integratedreporting.org/.

- maximising the creation of shared value for their owners/shareholders and for their other stakeholders and society at large;
- identifying, preventing and mitigating their possible adverse impacts' (European Commission 2011, p. 6).

In practice, there are differences and even conflicting definitions of integrated reporting. As Table 1 shows, while the IIRC defines an integrated report as a 'concise' document which does not seem to include the financial statements, conversely, Deloitte defines integrated reporting as a combination of the financial statements and the sustainability report. We discuss below the difference between these two approaches to integrated reporting, and provide some examples based on actual reporting by companies.

In 2014, the European Union adopted a Directive which prescribes the publication of a 'non-financial statement' for both consolidated and non-consolidated information (European Union 2014).[8] Article 29a relates to the 'Consolidated non-financial statement' and states that

> Public-interest entities which are parent undertakings of a large group exceeding on its balance sheet dates, on a consolidated basis, the criterion of the average number of 500 employees during the financial year shall include in the consolidated management report a consolidated non-financial statement.

The content of this statement is presented in Table 1. When a group does not pursue policies relating to one or more of the elements mentioned in article 29a, the consolidated non-financial statement is required to provide a clear and reasoned explanation of why this is so. This directive contains similar provisions for non-consolidated statements (article 19a).

The last column of Table 1 lists the keywords corresponding to each concept. It is clear from this column that several keywords are common to a number of concepts. For example, the environment is present in sustainability reporting, corporate responsibility reporting and also NFR. The concept of firms' social impact also appears in several definitions. Conversely, the importance of economic impact, the business model and strategy is variable in the different definitions. Overall, while a number of underlying concepts overlap, no converging, consistent definition of NFR is observed among the sources of regulations/quasi-regulations and important stakeholders (Deloitte) cited in the table. To some extent the unclear definition of NFR appears to be based on other vague concepts. For example, what is (and what is not) a disclosure about strategy or value creation?

2.2. *Heterogeneity in the reporting channels*

We discuss further below the existence of a heterogeneous terminology with regard to NFR. To illustrate the heterogeneity in firms' reporting practices, we can start by giving a (non-comprehensive) list of the titles used for the reports that contain some (or all) of the non-financial information disclosed during a period: annual report, annual consolidated and separate financial statements, financial statements, annual financial statements, integrated report, integrated annual report, stakeholder report, corporate responsibility report, corporate governance report, sustainability report, social, ethics, and sustainability report, social and environmental report, social and ethics committee report, risk and capital management report. Such heterogeneity may be explained by the lack of a consistent definition of NFR, leading firms to adopt and adjust their ad hoc disclosure practices.

3. Research method

As we are interested in the content of NFR and it is likely that the title chosen for the relevant report reflects its content, we conduct three sets of empirical analyses using three different samples:

- Sample one: Dow Jones Sustainability Index (DJSI) (291 international firms)
- Sample two: Firms named as the Top Ten in EY's Excellence in Integrated Reporting Awards 2016 (10 South African firms)
- Sample three: CSR/sustainability reporting practices of constituents of the S&P 500 index and the EuroStoxx 600 index.

With the first sample, we focus on the nature of the reports published and the terminology used in their titles. With the second sample, we again investigate the terminology used in the report titles, but also perform an in-depth longitudinal study of the content of the reports published from 2006 to 2016. With the third sample, we use existing databases which provide data about CSR/sustainability reporting to compare how this category of NFR evolved in Europe and in the United States from 2002 to 2015.

3.1. *DJSI world index*

We analyse the constituents of the 2015 DJSI World Index. This index is published every year in September, and given the time it takes to analyse firms' reporting (as well as other information required for the index), we searched and retrieved almost all reports published by the firms included in the index for the year 2014 (i.e. one year before the disclosure of the 2015 index constituents), reasoning that this information was used by the DJSI analysts. For firms whose financial years do not coincide with the calendar year, we used the reports published for years ending between 1 February 2014 and 31 January 2015.

Several sustainability indices currently exist to facilitate identification of leading sustainable firms, such as the FTSE4Good sustainability index launched in the UK in 2001. We focus on the DJSI World Index because it was created earlier (in 1999), by Sustainable Asset Management (now named RobecoSAM), an investment firm dedicated to ESG investing, and S&P Dow Jones Indices, a leading provider of stock indices. Further regional (and national) sustainability indices were created by DJSI subsequently, such as the DJSI North America (created in 2005), the DJSI Europe (2010) and the DJSI Emerging Markets (2013). RobecoSAM and S&P Dow Jones work jointly to manage the DJSI indices. RobecoSAM is responsible for CSR performance scores and S&P Dow Jones is in charge of the operational management of the index (construction, maintenance and dissemination). Because it includes the top 10% sustainability performers ('best in class') every year for a number of specific industries, the DJSI World Index is the most selective sustainability stock index in the family of DJSI indices.

3.2. *EY's excellence in integrated reporting awards 2016*

South Africa is often considered as a leading country in NFR (such as integrated reporting or sustainability reporting), probably because of the existence of the King Reports on Corporate Governance, which contain principles for governance of companies in South Africa. The King Committee[9] on Corporate Governance has issued four reports, in 1994 (King I), 2002 (King II), 2009 (King III) and 2016 (King IV). Chapter 9 of the King III report states that financial reports should be 'integrated' with 'sustainability reporting and disclosure'. The King Report guidelines must be followed by firms listed on the JSE. The King III report has been applicable since March 2010.

Since 2011, the accounting firm EY (Ernst & Young) has commissioned the 'Excellence in Integrated Reporting' survey, a 'survey of integrated reports from South Africa's top 100 JSE [Johannesburg Stock Exchange] listed companies and top ten state-owned companies'.

We perform a longitudinal study by studying the titles and content of the reports (annual report, sustainability report, CSR report, integrated report) published in 2006, 2011 and 2016 by the following 10 South African companies, named as the Top Ten in EY's Excellence in Integrated Reporting Awards 2016 (College of Accounting at the University of Cape Town 2016): (1) Kumba Iron Ore Ltd, (2) Oceana Group Ltd, (3) Liberty Holdings Ltd, (4) Sasol Ltd, (5) Redefine Properties Ltd, (6) Truworths International Ltd, (7) Vodacom Group Ltd, (8) Nedbank Ltd, (9) Anglo American plc and (10) Barclays Africa Group Ltd. Our paper extends and differs from the work of Setia et al. (2015) and Ahmed Haji and Anifowose (2016). We adopt a broader sample period (2006, 2011 and 2016). Also, we measure the importance of categories by the number of pages covering topics considered important for NFR, whereas Setia et al. (2015) and Ahmed Haji and Anifowose (2016) use lists of disclosure items that do not measure the relative volume of each topic.

Appendix A offers some explanations for the methodology adopted to analyse the content of these reports. We also applied the following specific rules:

- We did not include reports which are in fact an excerpt from another report. For example, in 2006 Nedbank published a 308-page annual report which includes the financial statements, beginning on page 166. In the same year, Nedbank published a 'Group annual financial statements' report containing only the financial statements section of the annual report from page 166 onwards. We did not include this second report in our analysis.
- We included a corporate governance report (for Redefine Properties 2016)
- We did not include a Transformation report (for Nedbank 2016).

3.3. *CSR/sustainability reporting*

We compare firms in major U.S. and European stock indices because these two regions account for a large share of global GDP, have well-developed financial markets and are influenced by different cultures and regulations. We use companies from two major stock indices: The Standard & Poor's 500 (S&P 500) and STOXX® Europe 600 (EuroStoxx 600).[10] The firms in these indices are international entities that shape the practices of other firms. To allow meaningful comparisons between Europe and the U.S., we exclude S&P 500 firms with headquarters located outside the U.S. (3% of observations). We then study reporting practices with regard to CSR/sustainability over the period 2002–2015.

For the two samples, we investigate two issues: (1) the frequency of CSR/sustainability reporting over time and (2) the main factors explaining firms' decision to issue CSR/sustainability reporting. We focus on the following factors: U.S. or European stock index, inclusion in an environmentally sensitive industry (*Sensitive_Industry*), capital intensity (*PPE*), CSR performance (*CSR_Score*), firm size (*SIZE*), financial performance (*ROA*), firm leverage (*LEV*) and growth prospects (*MTB*). Data are obtained from Thomson Reuters ASSET4, available in the Thomson Reuters Eikon and Thomson Reuters Datastream databases.[11]

4. Empirical results

4.1. *DJSI world index*

The DJSI World Index included 317 firms in 2015. We were able to retrieve sufficient information for reports published by 291 firms. Table 2 shows the countries represented in the DJSI World Index sample analysed.

Table 2. List of countries – DJSI World Index.

	N	%
Australia	17	5.8
Belgium	2	0.7
Brazil	6	2.1
Canada	8	2.7
Chile	1	0.3
Colombia	4	1.4
Denmark	3	1.0
Finland	2	0.7
France	24	8.2
Germany	19	6.5
Great Britain	32	11.0
India	3	1.0
Ireland	1	0.3
Italy	9	3.1
Japan	20	6.9
Korea	21	7.2
Netherlands	14	4.8
Norway	2	0.7
Portugal	2	0.7
Singapore	2	0.7
South Africa	6	2.1
Spain	16	5.5
Sweden	6	2.1
Switzerland	11	3.8
Taiwan	7	2.4
Thailand	5	1.7
USA	48	16.5
Total	291	100.0

Note: This table presents the number of analysed DJSI World Index constituents in 2015 per country.

Table 3 presents the titles used for the reports published by the firms included in the 2015 DJSI World Index. As the terminology used by companies can vary, this table uses sub-categories to group similarly titled reports. More precisely:

- '*Sustainability report total'* comprises reports with the titles: 'Sustainability report', 'Sustainable development report', 'Annual review (equivalent to sustainability report)'[12] and 'GRI report'.
- '*CSR report total*' comprises reports with the titles: 'Corporate responsibility report' and 'Responsibility report'.

We identified one specific report title, 'Annual report including a sustainability report', used for a type of report that included the traditional management report and financial statements, plus an extensive section on sustainability.

Our statistics show that no company published a 'Sustainability report' and a 'CSR report' at the same time. Our analysis also shows that the financial statements can be included in any of the following documents: 'annual report', 'financial report', 'annual report including sustainability report' and 'integrated report'. Overall, Table 3 shows the heterogeneity of reporting practices among the DJSI

Table 3. Titles of the reports published by DJSI World Index constituents.

	N Number of firms publishing a report with this title	% of total number of firms
Annual report	219	75.3%
Financial report	33	11.3%
Annual and/or financial report total (number of firms)[a]	*250*	*85.9%*
Annual report including a Sustainability report[b]	33	11.3%
Sustainability report	105	36.1%
Sustainable development report	6	2.1%
Annual review (equivalent to sustainability report)	1	0.3%
GRI report	1	0.3%
Sustainability report total (number of firms)	*113*	*38.8%*
Corporate responsibility report	94	32.3%
Responsibility report	1	0.3%
CSR report total (number of firms)	*95*	*32.6%*
Integrated report	19	6.5%
Number of firms	291	100.0%

Notes: This table presents statistics of the reports published in 2014 by DJSI World Index constituents in 2015.
[a]A few firms publish both reports, which explains the difference between 250 and 252.
[b]These numbers are coincidently identical to those for 'Financial report'.

World Index constituents. These firms are leading sustainable firms that are more likely to have above-average NFR practices, but their reporting practices are quite heterogeneous.

There is one limitation of this study that should be noted: the statistics for 'sustainability reporting' and 'CSR reporting' may be underestimated, because several companies may disclose some information online in their website rather than in a specific report. This adds to the forms of heterogeneity.

We investigated the content of the 'integrated report', which is an intriguing document because it can vary significantly across companies. Four examples are considered below. In 2014, Bayer AG, the German group engaged in the development, manufacture and distribution of products in the areas of healthcare, nutrition and high-tech materials, published an 'annual report' that contains a reference (p. 30) to the 'Integrated Annual Report' stating that:

> [t]his integrated Annual Report combines our financial and our sustainability reporting. In this way we make clear the interactions between financial, ecological and societal factors and underline their influence on our company's long-term development.

On its website[13], Bayer adds that:

> Integrated reporting means that Bayer will no longer publish a separate Sustainable Development Report.

The Bayer annual report is 310 pages long.

Novo Nordisk, a Danish healthcare group, also publishes an 'annual report'. On its website[14], it states:

> Integrated reporting
>
> Every year, Novo Nordisk publishes a single, integrated report on our performance. Most companies publish such reports, but many publish a separate environmental report alongside their annual financial report.
>
> Since 2004, Novo Nordisk has published one integrated report to reflect the Novo Nordisk Triple Bottom Line business principle. This Annual Report covers our financial, environmental and social statements in one integrated report, as well as a management review.
>
> Not only does integrated reporting reflect Novo Nordisk's objective to 'conduct our activities in a financially, environmentally and socially responsible way', but by reporting in one inclusive document we provide a more comprehensive overview of the company's performance, progress, positions and strategic initiatives.

The Novo Nordisk annual report is 114 pages long.

These two examples are consistent with the definition provided by the accounting firm Deloitte (see Table 1 above) where 'integrated' means a combination of the different reports. However, we also found examples of 'stand-alone' integrated reports, and integrated reports published alongside other reports.

Kumba Iron Ore Limited, a South African company engaged in the exploration, extraction, marketing, sale and shipping of iron ore, publishes three main reports: an 'integrated report', a 'sustainability report' and 'annual financial statements'. It defines the integrated report as 'a succinct review of our strategy and business model, operating context, governance and operational performance, targeted primarily at current and prospective investors' (see inside front cover, Integrated report 2016). The report is 108 pages long.

Atlantia SpA, an Italian company operating as a holding company in the infrastructures and mobility network sectors (motorways, airports) publishes an 'integrated report' which mostly focuses on the five types of 'capital': 1. Infrastructural capital, 2. Financial capital, 3. Human capital, 4. Social capital and 5. Natural capital. This report is 194 pages long. This company publishes a separate 'annual report' which includes a review of operations and the financial statements.

These two examples are more in line with the IIRC's definition of integrated reporting (see Table 1) with regard to the content, although they do not seem to respect the principle of 'concise communication'.[15]

The descriptive analysis above is static as it concerns only one year of reporting. The results of our longitudinal analysis of 10 South African companies are provided below, but with regard to 'integrated reporting', we can already report that the content of NFR can evolve throughout the years. For example, in 2011 Oceana published an integrated report which included the full financial statements. In 2016, the integrated report only included summarized financial statements (10 pages) and a separate report was issued for the full financial statements. The same trend can be seen at Vodacom, where the financial statements were removed from the integrated report in 2016.

4.2. *Longitudinal study of the top ten firms in EY's excellence in integrated reporting awards 2016*

Table 4 displays the titles of all reports published by the 10 firms dated 2006, 2011 and 2016. Given the variety of reports issued, some firms feel it necessary to provide a list and explain their content. This is the case of Kumba Iron Ore (see, e.g. Integrated report 2016) and Redefine Properties (see, e.g. Integrated report 2016).

Table 4 shows that the number of reports published by firms increased between 2006 and 2016. Nine firms out of ten published just one corporate report focusing on financial

Table 4. Report title terminology (South Africa).

Firms	2006		2011			2016			
Anglo American	Annual report		Annual report	Sustainable development report		Annual report	Sustainability report		
Barclays Africa Group	Shareholder report		Annual consolidated and separate financial statements	Integrated annual report		Annual consolidated and separate financial statements	Integrated report		
Kumba Iron Ore	Annual report		Annual financial statements	Integrated report	Sustainable development report	Annual financial statements	Integrated report	Sustainability report	
Liberty Holdings	Annual financial statements		Integrated annual report, including audited annual financial statements	Annual financial results		Annual financial statement and supporting information	Integrated report		
Nedbank	Annual report		Integrated report			Consolidated and separate annual financial statements	Integrated report	Sustainability review	
Oceana Group	Annual report		Integrated report			Annual financial statements	Integrated report	Sustainability report	
Redefine Properties	Annual report		Integrated annual report			Group annual financial statements	Integrated report	Social, ethics and sustainability report	Corporate governance report
Sasol	Annual financial statements	Annual review	Annual financial statements	Integrated annual report	Sustainable development report	Annual financial statements	Integrated report	Sustainability reporting supporting information to Integrated Report	
Trutworths International	Annual report		Audited annual financial statements	Integrated annual report		Group audited annual financial statements	Social and environmental report	Integrated report	
Vodacom Group	Annual report		Integrated report			Consolidated annual financial statements	Integrated report	Sustainability report	

performance in 2006. Only Sasol published an Annual review in addition to its Annual financial statements that year. But in 2016, most firms (six out of ten) published three reports, while one firm (Redefine Properties) published four separate reports and three firms published only two reports. Also, Table 4 shows that firms changed the titles of their reports between 2011 and 2016. Sasol issued a report titled *Sustainable development report* in 2011, which five years later was titled *Sustainability reporting supporting information to integrated report*. Four firms seem to have disaggregated the information in their 2011 Integrated reports into separate reports in 2016 (i.e. Redefine Properties, Oceana Group, Nedbank, Vodacom Group).

Table 5, Panel A, displays the change in the number of reports and their total number of pages over the studied period. Given the small sample size, we perform both parametric (*t*-test) and non-parametric (Mann–Whitney) tests and consider significance below a 0.10 level. We find that the number of reports increased from a mean of 1.1 in 2006 to 1.7 in 2011 and 2.8 in 2016. The difference between 2011 and 2006, and between 2016 and 2011, is significant at the 0.05 level (or better). An increase in the number of reports does not however automatically entail an increase in the number of pages, and indeed, integrated reports are supposed to be concise documents. We find that the number of pages significantly increased between 2006 and 2011 (from a mean of 178.7 to 297.3 pages – statistically significant at the 0.05 level). There was a further minor and non-significant increase between 2011 and 2016 (to a mean of 305.8 pages). This growth in the aggregate volume of all the reports issued by South African firms may have been driven by the requirement for JSE-listed firms to publish an integrated report after 2010. With a growing number of firms issuing integrated reports worldwide, it is likely that a similar growth in the volume of corporate reports will be seen in other countries.

We also examine changes over the period studied in the main categories of NFR. We report descriptive statistics and the statistical significance of changes for the number of pages per category of NFR (Panel B) and for the percentages of pages concerning each category of NFR (Panel C). Panel D presents a definition of the categories identified. We find several interesting results in this table.

In Panel B we find a significant increase in the number of pages dedicated to several categories of information from 2006 to 2011: disclosures about Human resources, Performance, Strategy and Value creation all increased (at the 0.10 level or better). Between 2011 and 2016, only value creation reporting increased (significant at less than 10%).

From Panel C, we see that the mean level of financial statements reporting as a percentage of the total number of pages decreased significantly (at the 0.10 level) between 2006 and 2011, from 50% to 39% (significant at the 0.10 level) before an upturn to 40% in 2016 (non-significant difference from 2011). The increases in percentages concern the same specific NFR categories as the increases in the number of pages between 2006 and 2011: Human resources, Performance, Strategy and Value creation. Only Value creation shows a significant increase between 2006 and 2011 *and* between 2011 and 2016. However, despite the results of a survey (Eastman and Sisson 2014) showing that investment professionals clearly consider the business model an important part of high-quality reporting, we do not find any change in reporting levels on the business model.

4.3. *CSR/sustainability reporting practices from 2002 to 2015: A comparison of the U.S. and Europe*

Figure 1 presents the percentage of firms disclosing CSR/sustainability information from 2002 to 2015.

Table 5. Change in the content of South African reports from 2006 to 2016.

	N	2006 Mean	2006 Median	2011 Mean	2011 Median	2011 vs. 2006 Mean difference (p-value)	2011 vs. 2006 Median difference (p-value)	2016 Mean	2016 Median	2016 vs. 2011 Mean difference (p-value)	2016 vs. 2011 Median difference (p-value)
Panel A – Statistical significance of changes in number of reports and length of reports from 2006 to 2016											
Number of reports	10	1.1	1	1.7	1.5	0.6 (0.045)	0.5 (0.049)	2.8	3	1.1 (0.004)	1.5 (0.007)
Total number of pages	10	178.7	178.5	297.3	309.5	118.6 (0.021)	131 (0.031)	305.8	309	8.5 (0.841)	–0.5 (0.880)
	N	2006 Mean	2006 Median	2011 Mean	2011 Median	2011 vs. 2006 p-value (t-test for mean difference)	2011 vs. 2006 p-value (Mann–Whitney Rank test)	2016 Mean	2016 Median	2016 vs. 2011 p-value (t-test for mean difference)	2016 vs. 2011 p-value (Mann–Whitney Rank test)
Panel B – Statistical significance of changes in number of pages per category of information from 2006 to 2016											
Financial statements	10	90.4	89.5	118.5	92.0	0.283	0.384	121.4	117.3	0.909	0.705
Business	10	17.5	16.0	18.4	13.0	0.907	0.819	11.0	7.5	0.324	0.620
Environment	10	2.7	2.0	8.4	5.0	0.108	0.348	8.7	10.0	0.936	0.672
Governance	10	16.6	10.5	23.1	18.0	0.236	0.130	29.0	24.5	0.281	0.119
Human resources	10	2.7	1.0	12.6	14.0	**0.002**	**0.002**	9.8	11.0	0.316	0.324
Performance	10	6.3	3.5	27.5	13.0	**0.030**	**0.037**	28.6	27.5	0.906	0.384
Risk management	10	5.1	0.5	17.6	9.5	0.168	**0.014**	10.8	6.0	0.469	0.518
Shareholders information	10	2.3	1.3	3.9	1.0	0.565	0.699	1.4	1.5	0.370	0.969
Society	10	2.5	1.0	9.2	3.5	0.161	0.302	8.0	7.0	0.806	0.382
Strategy	10	0.9	0.0	18.0	6.0	**0.012**	**0.001**	18.5	17.5	0.949	0.849
Value creation	10	0.0	0.0	3.7	0.5	0.103	**0.013**	15.7	15.0	**0.057**	**0.069**
Administration and general	10	7.6	4.0	8.9	7.0	0.694	0.287	6.0	4.0	0.278	0.147
	N	2006 Mean	2006 Median	2011 Mean	2011 Median	2011 vs. 2006 p-value (t-test for mean difference)	2011 vs. 2006 p-value (Mann–Whitney Rank test)	2016 Mean	2016 Median	2016 vs. 2011 p-value (t-test for mean difference)	2016 vs. 2011 p-value (Mann–Whitney Rank test)
Panel C – Statistical significance of changes in the percentage of pages per category of information from 2006 to 2016											
Financial statements	10	0.505	0.445	0.388	0.393	**0.065**	**0.059**	0.396	0.353	0.892	0.880
Business	10	0.093	0.097	0.078	0.053	0.709	0.223	0.037	0.023	0.248	0.446

(*Continued*)

Table 5. Continued.

	N	2006 Mean	2006 Median	2011 Mean	2011 Median	2011 vs. 2006 Mean difference (*p*-value)	2011 vs. 2006 Median difference (*p*-value)	2016 Mean	2016 Median	2016 vs. 2011 Mean difference (*p*-value)	2016 vs. 2011 Median difference (*p*-value)
Environment	10	0.020	0.009	0.026	0.025	0.637	0.755	0.029	0.031	0.771	0.818
Governance	10	0.088	0.076	0.083	0.080	0.761	1.000	0.097	0.087	0.408	0.705
Human resources	10	0.016	0.007	0.046	0.044	**0.010**	**0.023**	0.032	0.035	0.160	0.174
Performance	10	0.033	0.026	0.083	0.050	**0.076**	**0.059**	0.094	0.092	0.668	0.226
Risk management	10	0.020	0.002	0.050	0.025	0.194	**0.042**	0.034	0.020	0.506	0.705
Shareholders information	10	0.014	0.009	0.010	0.005	0.584	0.361	0.005	0.005	0.385	0.939
Society	10	0.015	0.004	0.030	0.009	0.306	0.526	0.026	0.025	0.764	0.448
Strategy	10	0.004	0.000	0.070	0.021	**0.019**	**0.001**	0.060	0.060	0.726	0.880
Value creation	10	0.000	0.000	0.011	0.001	**0.060**	**0.013**	0.051	0.044	**0.049**	**0.045**
Administration and general	10	0.041	0.029	0.034	0.026	0.641	0.880	0.020	0.013	0.138	0.112

Category	Keywords
Panel D – Definition of categories	
Administrative and general Information	Glossary; Administration; Index; Feedback form; Form of proxy; Corporate information; Abbreviations and definitions; Contact details.
Business	Our business; Business; Business model; Our business principles; Our context; Group at a glance; Operational activities; The company.
Environment	Environment; Our environment; Environmental sustainability; Environmental Impact ; Water; Energy.
Financial statements	Financial statements; Summarized financial statements; Notes to the financial statements.
Governance	Governance; Leadership and governance; Our governance structure; Remuneration report; Remuneration report; Board composition; Management structure; Corporate governance.
Human resources	Human resources; Human capital; Our people; Our employees; Investing in our staff; Workplace safety; Safety; Health; Remuneration policy.
Performance	Performance; Scorecard; Performance review; Delivering on our strategy; Key performance indicators; Scores; Delivering value; [Year X] data; [Year X] review; Delivering in [Year X].
Risk management	Risk management; Risk and opportunities; Our principal risk.
Shareholders information	Shareholders information; Shareholders details; Share information; Shareholders' analysis; Ownership profile; Share analysis; Unitholder analysis; Ownership.
Society	Society; Social; BBBEE (Broad-Based Black Economic Empowerment, cf. BBBEE Amendment Act of 2013); Our communities; Empowerment; Fight against corruption; Product responsibility; Cultural sustainability; Social sustainability.
Strategy	Strategic matter; Group strategy; Operating context; Strategic context; Vision, mission and strategy.
Value creation	Value creation; Creating shared value; How we create value; How we sustain value.

Notes: *p*-values for mean differences are based on *t*-test. *p*-values median differences are based on Mann–Whitney Rank test. Significant changes (at less than 10%, two-sided) between periods are presented in bold characters.

Figure 1 shows the increase in the percentage of firms reporting CSR/sustainability information over the period, from less than 10% of firms to more than 80% in Europe and more than 60% in the U.S. There is a major leap in 2007, one year after the publication of the GRI's G3 reporting guidelines (GRI 2006): the percentage of firms issuing CSR/sustainability reports increased from 13% to 47% that year. Figure 1 also shows that European firms seem to be more likely to provide CSR/sustainability reports, consistent with the idea that Europe is more stakeholder-oriented than the U.S. (Dhaliwal et al. 2014).

As expected, the total sample shows an increasing trend towards more CSR/sustainability reporting over the period. However, comparing firms listed in the U.S. with firms listed in Europe, it is clear that more European companies publish CSR/sustainability reports (see Figure 1).

Next, in a multivariate analysis we examine the associations between a set of factors likely to influence CSR/sustainability reporting practices and the likelihood of firms issuing CSR/sustainability information. We use the following logistic model:

$$P(\text{CSRreport} = 1) = b_0 + b_1 SP500 + b_2 \text{Sensitive\_Industry} + b_3\,\text{PPE} + b_4 \text{CSR\_Score} + b_5\,\text{SIZE} + b_6\,\text{ROA} + b_7\,\text{LEV} + b_8\,\text{MTB} + \text{Year Fixed Effects} + \varepsilon \quad (1)$$

where:

CSRreport	=	1 if the firm publishes a separate CSR/sustainability report or publishes a section in its annual report on sustainability, 0 otherwise
S&P500	=	1 if the firm is a constituent of the S&P500 stock index, 0 otherwise.
Sensitive_Industry	=	1 if the firm is in the following two-digit SIC codes: 10 'Metal Mining', 13 'Oil and Gas Extraction', 26 'Paper', 28 'Chemical and Allied Products', 29 'Petroleum Refining', 33 'Metals', 49 'Electric, Gas and Sanitary Services' (Cho and Patten 2007).
PPE	=	property, plant and equipment divided by lagged total assets.
CSR_Score	=	sum of Asset 4 environmental score and social performance score.
SIZE	=	natural logarithm of total assets.
ROA	=	earnings before extraordinary items divided by total assets.
LEV	=	total debt divided by total assets.
MTB	=	firm market-to-book ratio.

Descriptive statistics are reported in Table 6, Panel A and estimation results are provided in Table 6, Panel B.

The results in Panel B indicate that firms in the U.S. S&P 500 index are approximately 32% less likely to issue CSR/sustainability information than firms in the EuroStoxx 600 index (significant at less than 1%, two-sided). In addition, firms from sensitive industries are approximately 6% more likely to issue CSR/sustainability information than firms from other industries (significant at less than 1%, two-sided). We also find that larger, more profitable, capital-intensive, high CSR performance firms are more likely to issue a CSR/sustainability report. An extensive stream of literature refers to legitimacy theory to show that firms that are large and in environmentally sensitive industries are more likely to use CSR/sustainability reporting to legitimize their actions (see, e.g. Cho and Patten 2007, Cho 2009, Laine 2009).

5. Discussion and conclusion

In this study we explore the definitions of NFR given by regulators, quasi-regulators and standard-setters. We also examine NFR practices and changes in those practices in recent years, using different empirical research designs and samples. First, we find that there is a lack of

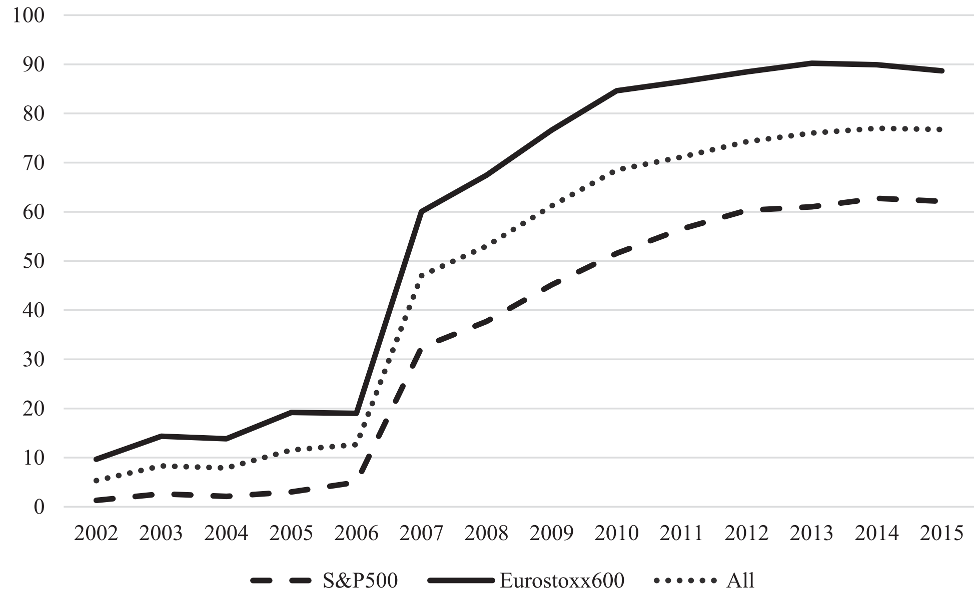

Figure 1. Percentage of firms reporting CSR/sustainability information from 2002 to 2015 in the U.S. and in Europe. Source: Thomson Reuters Asset4.

convergence in definitions of NFR between regulators, quasi-regulators and standard-setters. Second, we show the heterogeneity of NFR practices by leading sustainable firms, identified by the membership of the DJSI World Index, and a sample of firms located in South Africa. Third, we document a rise in the amount and extent of NFR from 2006 to 2016 in a leading country on matters of corporate reporting: South Africa. We identify which categories of NFR have seen an increase in disclosures. Finally, we also find a significant increase in CSR/sustainability reporting both in the U.S. and Europe over the period 2002–2015, and identify factors influencing the likelihood of issuance of a CSR/sustainability report. We contribute to the debate about the growth of NFR in recent years and explain the inconsistency in the definitions of NFR used by major stakeholders such as regulators, quasi-regulators and standard-setters (Leinaweaver 2015, GRI 2017).

This study also aims at generating ideas for further research. To complement our first set of tests, future studies could explore the behaviour of leading sustainable firms, identified by their inclusion in a sustainable stock index, in a time series approach which should produce useful findings regarding the convergence or absence of convergence in the terminology used by those firms. For our second set of tests, we explore a limited sample of firms from a single country: South Africa. South Africa offers a unique empirical setting because of its integrated reporting requirement, which makes it a 'best in class' country with regard to NFR. Future research could use the categories identified in this study and apply them to a larger sample of South African firms or compare firms across countries. Also, we have explored and compared CSR/sustainability reporting across two major U.S. and European stock indices, but more research could be done concerning smaller firms or other forms of reports, using the different categories of NFR identified for South African firms. It would also be interesting to explore whether and how the production of integrated reports has an influence on other forms of NFR.

Table 6. CSR/sustainability reporting in Europe vs. the U.S.

	S&P500				Eurostoxx600					
	N	Mean	Median	St. Dev	N	Mean	Median	St. Dev	Diff Mean	
Panel A: Descriptive statistics										
CSR_Reporting	5,007	0.384	0.000	0.487	5,500	0.638	1.000	0.481	−0.253	***
Sensistive_Industry	5,007	0.234	0.000	0.423	5,500	0.223	0.000	0.416	0.011	
PPE	5,007	0.461	0.334	0.410	5,500	0.431	0.321	0.390	0.030	***
CSR_Score	5,007	107.794	108.400	56.970	5,500	142.983	162.815	49.021	−35.189	***
SIZE	5,007	9.534	9.447	1.326	5,500	9.486	9.243	1.783	0.048	
ROA	5,007	0.062	0.057	0.074	5,500	0.055	0.044	0.084	0.007	***
LEV	5,007	0.255	0.235	0.176	5,500	0.241	0.229	0.163	0.015	***
MTB	5,007	1.779	1.385	1.404	5,500	1.397	1.029	1.876	0.382	***

	Coeff.	St.Error	*p*-value
Panel B – Determinants of CSR/sustainability reporting			
S&P500	−1.319	0.072	0.000
[Marginal effect]	[−31.5%]		
Sensistive_Industry	0.247	0.082	0.003
[Marginal effect]	[+ 6.1%]		
PPE	0.273	0.085	0.001
CSR_Perf	0.036	0.001	0.000
SIZE	0.143	0.027	0.000
ROA	0.952	0.522	0.068
LEV	0.069	0.201	0.733
MTB	−0.054	0.028	0.051
Year fixed Effects		Yes	
Constant	−9.625	0.387	0.000
N		10,507	
Pseudo R^2		0.584	

Notes: ***, ** and * denote significance (two–tailed) at the .01, .05 and .10 levels, respectively. Marginal effects are included in brackets for dummy variables. *CSR_Reporting* = 1 if the firm publishes a separate sustainability report or publishes a section in its annual report on sustainability, 0 otherwise. *S&P500* = 1 if the firm is a constituent of the S&P500 stock index, 0 otherwise. *Sensitive_Industry* = 1 if the firm is in the following two-digit SIC codes: 10 ‘Metal Mining’, 13 ‘Oil and Gas Extraction’, 26 ‘Paper’, 28 ‘Chemical and Allied Products’, 29 ‘Petroleum Refining’, 33 ‘Metals’, 49 ‘Electric, Gas and Sanitary Services’ (Cho and Patten 2007). *PPE* = property, plant and equipment divided by lagged total assets. *CSR_Score* = sum of Asset 4 environmental score and social performance score. *SIZE* = natural logarithm of total assets. ROA = earnings before extraordinary items divided by total assets. *LEV* = total debt divided by total assets. MTB = Firm market-to-book ratio.

As more research is needed on the economic implications and other real effects of NFR, it would be informative to further develop the existing research stream, which has recently been significantly expanded by using the South African institutional setting and the case of integrated reports. Barth et al. (2017) find a positive association between integrated report quality (IRQ) and firm value (liquidity and expected future cash flows). They also find that higher IRQ is associated with higher investment efficiency. Together, their findings are consistent with integrated reporting achieving its dual objective of improved external information and better internal decisions. Zhou et al. (2017) provide evidence that analyst forecast error reduces as a company's level of alignment with the integrated reporting framework increases, and Bernardi and Stark (2018) also show that analyst forecast accuracy increases with the volume of integrated reporting. Lee and Yeo (2016) find that firm valuation is positively associated with integrated reporting disclosures. Baboukardos and Rimmel (2016) show that the value relevance of earnings has increased with the mandatory adoption of an integrated reporting approach.

There has been extensive research on the link between different aspects of NFR (e.g. CSR) and legitimacy (e.g. Cho and Patten 2007, Cho 2009). Lai et al. (2016) provide evidence suggesting that corporate engagement in integrated reporting is not a matter of strategic legitimisation. Rowbottom and Locke (2016) use actor network theory and its conceptions of detour, affordance and laboratory to examine the development of integrated reporting. More qualitative research on NFR could be fruitful.

Only a few academic studies focus on the opinion of preparers of NFR. In one article, Steyn (2014) analyses how CEOs, CFOs and senior executives of South African listed companies perceive the benefits and implementation challenges resulting from integrated reporting requirements, as well as the motives for preparing an integrated report. Another interesting area is users' perceptions. Amel-Zadeh and Serafeim (2017) provide insights into why and how investors use reported environmental, social and governance (ESG) information. This type of study could be extended to other countries.

It is also important to investigate the consequences of NFR. We have already mentioned several papers that take South Africa as a setting to study the impact of integrated reporting on a range of elements, such as firm value. Several other papers have explored the consequences of NFR in other contexts. Li, Gong, Zhang and Koh (2018), using a British sample, investigate whether superior ESG disclosure affects firm value. They find a positive association between ESG disclosure levels and firm value, suggesting that improved transparency and accountability and enhanced stakeholder trust play a role in increasing firm value. They also report that higher CEO power enhances the ESG disclosure effect on firm value. This research stream deserves further development.

Finally, another avenue for future research could be the assurance of NFR. Although the question of assurance has already been covered by several papers in the case of CSR/sustainability reports (e.g. Cho et al. 2014, Cohen and Simnett 2015, Birkey et al. 2016, Fuhrmann et al. 2017, Shen et al. 2017), it is interesting to note the emergence of papers on the specific case of assurance of integrated reporting (see, e.g. Maroun 2017).

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Disclosure statement

No potential conflict of interest was reported by the authors.

Notes

1. http://www.ifrs.org/news-and-events/2017/09/iasb-chairmans-speech-the-times-the-are-achangin/ (Last accessed: 1 April 2018).
2. The number two topic in the same period is Environmental disclosure/reporting, with 88 articles.
3. Cho, Michelon, Patten and Roberts (2014) examine the factors leading a sample of U.S. companies to issue assured CSR reports. Gao, Dong, Ni and Fu (2016) examine the determinants and economic consequences of non-financial disclosure quality, measured according to a rating of CSR performance.
4. See for example a recent report by the IIRC available at: http://integratedreporting.org/wp-content/uploads/2017/11/Creating_Value_BenefitstoInvestorsWeb.pdf (Last accessed: 1 April 2018).
5. See https://www.fsb-tcfd.org/.
6. The European Directive on disclosure of non-financial and diversity information (2014/95/EU) (effective from December 2014) impacted the disclosures of large public-interest entities with more than 500 employees.
7. According to Global Sustainable Investment Alliance (2014), in 2014, ESG investing accounts for 30.2% of all the assets managed globally for that year ($21.4 trillion).
8. Camilleri (2015) investigates the ratification of this Directive in several EU member states.
9. Named after the chair of this committee, the judge Mervyn E. King.
10. The S&P 500 index tracks large-cap U.S. stocks (Source: http://us.spindices.com/index-literacy/the-sp-500-and-the-dow (Last accessed: 1 April 2018). The STOXX Europe 600 Index is drawn from the STOXX Europe Total Market Index (TMI) and is a subset of the STOXX Global 1800 Index. With a fixed number of 600 constituents, the STOXX Europe 600 Index represents large, mid and small capitalization companies across 17 European countries: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom (Source: https://www.stoxx.com/index-details?symbol=SXXP (Last accessed: 1 April 2018). One important difference between these two indices is that the S&P 500 index includes only large-cap firms whereas the EuroStoxx 600 index includes mid and small-cap firms. We control for size in our empirical tests.
11. We retrieve the following variables: TR.CSRReporting, TR.CSRReportingExternalAudit, TR.CSRReportingExternalAuditName, DS. ENVSCORE and DS. SOCSCORE.
12. We found that some reports called 'Annual review' have a similar content to a sustainability report.
13. https://www.bayer.com/en/integrated-annual-reports.aspx (Last accessed: 1 April 2018).
14. https://www.novonordisk.com/sustainability/performance/Integrated-reporting.html (Last accessed: 1 April 2018).
15. Melloni, Caglio and Perego (2017) examine a selection of performance determinants to gain insights into the factors associated with conciseness, completeness and balance in integrated reports.

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Appendix A. Methodology for analyzing the content of the 10 South African companies' reports.

For each category, we identified the relevant sections in the report using the report's table of contents and the keywords detailed above (Table 5, Panel D). When there was no table of contents or when we needed more precise information, we analysed the report's content.

We then calculated the number of pages for each relevant section. Some sections dealt with several categories at once (examples: performance and strategy; risk management and strategy; creating value and business). In those cases, the number of pages was allocated between the categories. If the categories were too difficult to separate, the number of pages was split evenly between the topics.

This methodology has several limitations. The first and major issue is that not all pages are accounted for in this analysis. Around 10% of each report's pages 'go missing', for several reasons:

(1) In each report, a substantial number of pages included in the total number of pages do not correspond to an actual content: covers, blank pages, etc.
(2) There are 'gaps' in the categories. These 'gaps' are inevitable given that each company produces different reports. Most of them correspond to introductory and/or very general sections (table of contents, introductory statements, notice of annual general meetings, etc.).

The second limitation relates to the fact that we relied heavily on the table of contents. Each company has its own way of expressing major issues in non-financial reporting. When in doubt, however, we systematically analysed the report's content. The 'keywords' section in Table 5, Panel D, shows the rhetoric associated with each section.