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ORIGINAL PAPER

Integrated reporting: boon or bane? A review of empirical research on its determinants and implications

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Abstract
Integrated Reporting (IR) is a fairly new form of corporate reporting that is believed to hold promises for both financial and sustainability reporting. IR goes beyond a mere change in information disclosures and has the potential to influence internal communication processes, strategic considerations and, as a result, decision-making. The simultaneous portrayal of sustainability concerns alongside financial considerations might lead to socially and ecologically advantageous company decisions. A thorough understanding of those factors that potentially mediate the relationship between integrated reporting on one side, and company performance on the other, allows for conclusions on whether integrated reporting substantially affects the way in which companies deal with sustainability issues. To address this question, this article provides a structured review of empirical studies on the implications of integrated reporting within as well as outside of the organization. We reviewed evidence from 32 studies suggesting that integrated reporting has some positive implications, such as an improvement in data quantity and quality as well as an improved collaboration on sustainability issues within the firm. In contrast, our review provided inconclusive results on whether IR advances sustainability performance. We discuss these findings and offer avenues for further research in the field.

Keywords Integrated reporting · Sustainability reporting · International integrated reporting council · Sustainability performance

JEL Classification M1 · M4 · L1

1 The link between integrated reporting and company performance

Integrated reporting (IR) is a fairly new form of corporate reporting that is believed to hold promises for both financial and sustainability reporting. Conventional sustainability reports often provide a plethora of environmental, social and governance

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(ESG) information.[1] However, critics argue that they fail to demonstrate strategic or financial implications for the business (Eccles and Serafeim 2015). The argument is that ESG data are rarely connected to the business model and released later than financial data which are also audited at a higher level of assurance. Hence, their usefulness for investors is said to be limited (Serafeim 2015).

The inadequate integration of financial and non-financial information in conventional sustainability reports (Velte and Stawinoga 2017), combined with their alleged failure to effectively engage with investors, led to the emergence of the consolidating IR approach (Rowbottom and Locke 2013). Rather than treating financial and sustainability reporting separately, IR intends to connect financial and ESG information in a single business narrative (IIRC and SASB 2013; GRI 2015). It thereby intends to offer a solution to the above-mentioned issues with conventional sustainability reporting.

Whether this new reporting strategy is able to live up to its promises, is widely debated. Proponents argue that the establishment of linkages between strategy, financial performance and the economic, social and environmental contexts comes along with distinct advantages: it fosters the development of advanced measurement methodologies, promotes internal collaboration and supports external engagement (Eccles and Krzus 2010). The resulting clarity about reciprocal effects between different performance indicators could improve internal management processes, decision-making and societal relations, thus leading to process efficiencies, improved risk management, and other advantages (e.g., Adams 2015; Eccles and Armbrester 2011).

Moreover, the focus on investors and their informational needs in assessing a firm's prospects might lead to capital market benefits for the company, such as lowered cost of capital (Zhou et al. 2017). Some advocates of the new voluntary reporting format even suggest that the linkages and added metrics cause a profound change towards more environmentally and socially responsible business practices by reconceptualizing the interpretative scheme of managers (e.g., Adams 2016; Maniora 2015; Simnett and Huggins 2015; Stubbs and Higgins 2014). For instance, an increase in the quantification of non-financial information and its inclusion in management and board reporting could improve its consideration in decision-making and possibly lead to environmentally and socially superior outcomes. Maniora (2015) even suggests that the integration of ESG issues into the core business model causes an internalization of ethical norms, which could foster more ethical management.

Despite these alleged benefits, IR is not without its critics. Opponents mainly criticize the dominance of the business case logic over environmental and social issues (e.g., Cheng et al. 2014b; Flower 2015; de Villiers et al. 2014; van Bommel 2014). They fear a setback of sustainability reporting achievements, as the International Integrated Reporting Council (IIRC) recommends to include only those

[1] The terms 'ESG information' and 'non-financial information' are used interchangeably in this review. When referring to 'sustainability' this concerns the social and environmental only, the financial dimension of corporate performance is discussed separately.

social and environmental concerns in the report that are material to the organization's ability to create value for its shareholders (IIRC 2013; IIRC and SASB 2013). Such conflicting views characterize the fierce debate on whether IR is a threat to the progress in accounting for non-financial business impacts (e.g., de Villiers et al. 2014). Or, quite contrary, whether it advances sustainable and economically viable business efforts (e.g., Eccles and Krzus 2010; Maniora 2015).

Whether IR is beneficial or not ultimately remains an empirical question. Consequently, the last decade has observed an upsurge in empirical studies on the consequences of IR. Although several earlier literature reviews have provided important insights into the practice of IR, they offer an incomplete account of its empirical consequences. Perego et al. (2016), for example, discuss the academic literature on IR, but with a specific focus on conceptual arguments. Others analyze the reception and methodological foundations of IR research (Dumay et al. 2016; de Villiers and Hsiao 2016). Quite recently, Velte and Stawinoga (2017) reviewed the empirical literature on the drivers and the financial performance effects of IR.

These reviews have proven useful in clarifying the foundations of IR, and in summarizing work on the effects of IR on the reporting firms' financial performance. However, the mechanisms through which IR may unfold its effects on financial and, even more importantly, on ESG performance still remain to be investigated. We may know that IR affects performance (Maniora 2015), but we do not fully understand how these effects emerge. In particular, we are lacking a clear picture of how IR affects the reporting firm itself, and how it shapes the firm's relations to its stakeholders.

A thorough understanding of such effects is important for an assessment of whether IR as a new concept of corporate reporting changes internal processes and external stakeholder relations as profoundly as its proponents claim. Consequently, the purpose of this article is to review the empirical literature on the internal and external implications of IR. In other words, we are interested in those factors that potentially mediate the relationship between IR on one side, and company performance on the other. The consequences of IR are closely connected to its drivers, because both reflect the reporting company's rationale for issuing an integrated report. Accordingly, our review will also include the empirical literature on the drivers of IR. Taken together, our review will serve two goals: First, it will provide a systematic account of the existing empirical studies. Second, based on the reviewed evidence, it will allow for a tentative conclusion on whether IR as a novel reporting approach substantially affects the way in which companies deal with sustainability issues.

Our review will proceed as follows. The next section describes key concepts and the main forms of IR, reasons for its emergence, and related institutional and regulatory approaches. In the second part of section two, we clarify our methodological approach and the frame of reference we use to organize our review. The third section presents an overview of empirical research of the determinants of IR, consisting of 10 studies. Section four categorizes and reviews 32 empirical studies on internal and external implications of IR. These implications might act as mediators in the direct relationship between the reporting approach and ESG and financial performance.

The final section will discuss these findings critically and derive conclusions with regard to the paper's research question.

2 Background and review methodology

2.1 Emergence, key concepts and types of integrated reporting

Although the term *Integrated Reporting* is used to refer to a certain kind of corporate reporting, it actually reflects a variety of particular reporting approaches. These approaches share the aim of integrating financial and non-financial information, but important differences remain between them. Many companies consolidate their financial and non-financial information in internal and external reporting. But they do not necessarily call it an integrated report, nor do they adhere to just one particular framework (Rodríguez et al. 2016). This leads to a great diversity in the nature, extent and motivation of the reporting approaches (Rowbottom and Locke 2013). Hence, any study on *Integrated Reporting* needs to clarify which particular approach it refers to; although often, the different approaches are not sufficiently held apart (Günther and Schmiedchen 2013; Baboukardos and Rimmel 2016).

In line with the suggestion of Dumay et al. (2016), we will distinguish four reporting approaches: King Report on Governance for South Africa, One Report, IIRC pre-2013 guidelines and IIRC and SASB 2013 guidelines. As summarized in Table 1, major differences exist between the reporting approaches in terms of their governance focus, the level of integration and the target group. We will use this section to provide a short overview on these approaches and the differences between them.

One of the most prominent approaches to integrated reporting is the IR framework provided by the IIRC. The IIRC is a coalition of accounting experts, standard setters, companies, NGOs, investors, regulators and academics. The network was established with the aim of developing a common reporting framework which would help integrate diverse existing reporting approaches and offer clear guidance to firms interested in IR. Despite a handful of integrated reports by 'early movers' at the beginning of the 2000s it was not until 2004 that guidance on 'Connected Reporting' of social, economic and environmental impacts was offered by the foundation of the Prince's Accounting for Sustainability (A4S) Project in the UK (Eccles and Krzus 2010). Another 6 years later the official governing body for IR, the Integrated Reporting Committee, which transitioned into the UK-based not-for-profit IIRC in 2011, was jointly formed by the GRI and the Prince's A4S Project (de Villiers et al. 2014).

The final, principles-based IR framework was published in December 2013 and represents the most important guiding document for companies that wish to publish integrated reports. According to the framework, companies should follow seven

Table 1 Differences in integrated reporting approaches

	Governance focus	Level of integration	Target group
IIRC pre-2013 guidelines (IIRC 2011)	No emphasis of governance-related issues	Demonstrate interactions between financial and CSR-related information in a single document	Primarily Investors, but also other stakeholders
IIRC and SASB 2013 guidelines (IIRC and SASB 2013)	No emphasis of governance-related issues	Demonstrate interactions between financial and CSR-related information either in a standalone report or be included as a distinguishable, prominent and accessible part of another report	Primarily Investors, but also other stakeholders
One Report (Eccles and Krzus 2010)	No emphasis of governance-related issues	Recommends a single document which includes financial and non-financial information and their impact on each other	All stakeholders
King III Report on Governance for South Africa 2009 (The South African Institute of Chartered Accountants 2012)	Prescribes the provision of a corporate governance framework alongside sustainability issues which have an impact on the business and its financial performance	South African companies under King III are able to attach their CSR reports to their financial statements (Zhou et al. 2017)	All stakeholders

Based on the differentiation by Dumay et al. (2016)

guiding principles[2] in its preparation and include eight content elements[3] that are linked to each other. Many of these guiding principles and content elements can be found in other sustainability reporting guidelines such as those of the GRI. But the IR framework includes unique aspects that refer to how well information is integrated. For example, the guiding principle 'Connectivity of information' demands that information in an integrated report to be connected across different content elements, capitals, stakeholders, etc. The company can create or destroy value for itself (e.g., through financial returns for investors) or society at large (e.g., alleviating poverty through microcredits). Such impacts are expressed through increases, decreases or transformations of different forms of capitals[4] (i.e. financial, natural, human, manufactured, intellectual, social and relationship capital) caused by the firm's activities and outputs (IIRC and SASB 2013). The IIRC highlights that there is no reasonable way of measuring uni-dimensionally the organization's stocks or impacts with respect to all six capitals and interactions, because of a missing common measurement unit (IIRC and SASB 2013).

Other approaches to IR, such as the US-based 'One report' approach (Eccles and Krzus 2010) subsist alongside the IIRC's definition, especially among US companies (e.g., Southwest Airlines). National governments demonstrate a growing regulatory interest for making the disclosure of corporate ESG information mandatory.[5] The 2014 EU Directive (2014/95/EU) by the European Parliament is one of the most important developments in this regard, as it had to be translated into national legislation until the end of 2016. Under this Directive around 6000 large companies with more than 500 employees are required to disclose material non-financial information on social and environmental matters for financial years commencing in 2017. It makes explicit reference to the IIRC framework, but also allows a combined or separate financial and sustainability reporting. By 2018, all member states had communicated full transposition of the measures into their national law (European Commission 2017).

The South African government attended to IR in 1994 already (Dumay et al. 2016). A committee led by high court Judge Mervyn King, now chairman of the

[2] Strategic focus and future orientation, connectivity of information, stakeholder relationships, materiality, conciseness, reliability and completeness, consistency and comparability.

[3] Organizational overview and external environment, Governance, Business model, Risks and opportunities, Strategy and resource allocation, Performance, Outlook, Basis of preparation and presentation (Determinants of what to include, methods and frameworks used).

[4] Financial capital are available funds, manufactured capital expresses the manufactured physical objects of the reporting organization (i.e. buildings, equipment, infrastructure), intellectual capital refers to knowledge-based intangibles (i.e. intellectual property), human capital illustrates employee's capabilities, competencies and experience, social and relationship capital the relationships between and within communities, groups of stakeholders and other networks, and natural capital embraces all affected environmental resources and processes (i.e. air, land, minerals, biodiversity) (IIRC and SASB 2013).

[5] The US SEC as well as the European Commission started investigating policy approaches to mandatory ESG disclosure around 2009. The Grenelle II Act in France passed in 2012 represents an advanced national regulation, which extends the reporting on social and environmental impacts to businesses in CO^2-intensive industries with more than 500 employees. Similarly, Denmark required about 1100 of their largest businesses to report on CSR issues in their annual report as of 2008.

IIRC, developed the South Africa's first King Code of Corporate Governance Principles ('King I') (Rowbottom and Locke 2013). In 2010, IR became obligatory for companies listed on the Johannesburg Stock Exchange (JSE) through the King III principles on an apply or explain basis.[6] In 2016 the Committee on Corporate Governance in South Africa issued a draft King IV Report.

The IIRC and its framework are endorsed by the South African government as well as major accounting firms (e.g., Deloitte 2011; E&Y 2014; KPMG 2015; PWC 2015), professional accounting organizations (e.g., CIMA 2014; ACCA 2017) and standard setters (e.g., IIRC and IFRS Foundation 2014; GRI 2017). Endorsements were formulized through several Memoranda of Understanding (MoU) between the IIRC and most of the above-mentioned parties.[7] The amount of parties involved in the development and proliferation of the reporting approach might represent just as big of a challenge as bringing together different target groups that require varying information through an integrated report.

2.2 Review methodology and reference frame

In our review of the literature, we follow the methodology of a systematic review as proposed by Denyer and Tranfield (2011). Systematic reviews are a distinct type of review which differs from other forms of reviews, such as quantitative meta-analyses or purely narrative reviews. Denyer and Tranfield (2011) stress the importance of rigor and reliability in a systematic review process with high quality evidence that is designed to inform decision-making in evidence-based practices. They identify four core principles for locating, selecting and synthesizing evidence on the respective subject matter. Reviews should be transparent, inclusive, explanatory, and heuristic. In the following, we will shortly explain how our review meets each of these criteria.

The first requires transparency with regard to how the sample of studies was constructed. We identify relevant studies by searching the international databases EBSCO, SSRN, Google Scholar and Science Direct. The search comprised the following keywords that had to be included in the title: "integrated reporting", "integrated report", "integrated thinking", or "International Integrated Reporting Council". We focus on empirical studies with either a worldwide (e.g., Jensen and Berg 2012) or a country-specific (e.g., Haji and Anifowose 2016) sample of IR adopters. These further include single case company observations (e.g., Beck et al. 2015) or questionnaires and interviews with preparers or readers of integrated reports (e.g., Burke and Clark 2016). The recency of the concept and sparse amount of empirical data guarantees the timeliness of studies that are not older than 5 years. The initial sample includes 22 studies on the determinants as well as 57 studies on the implications of IR.

[6] In this approach the reporting principles have to be adopted, otherwise reasons for its omittance have to be provided (The South African Institute of Chartered Accountants 2012).

[7] These MoUs are supposed to diminish duplication and demonstrate reciprocity between standards as well as a commitment to IR without colonizing existing reporting approaches (Humphrey et al. 2014).

Table 2 Cited publications per level of analysis, year and VHB-JOURQUAL3 rank

Year	Determinants			Implications		Total
	Country	Industry	Organization	Internal	External	
2017			1 × WP	2 × B; 1 × WP	1 × A; 1 × B; 1 × C; 2 × WP	9
2016	1 × C	1 × C	1 × C	3 × B; 4 × C; 1 × WP	2 × C; 1 × WP	14
2015			1 × C; 1 × WP	3 × B; 3 × C	2 × B; 4 × C	14
2014		2 × B	2 × B	3 × B; 1 × C	2 × C	10
2013	2 × B	1 × B	1 × B; 1 × C			5
2012	1 × B					1
Total	4	4	8	21	16	53

We further reduce this sample by following the principle of 'inclusivity' and identifying relevant studies based on a fit-for-purpose criterion (Denyer and Tranfield 2011). Specifically, and in line with this review's focus on determinants and internal and external implications of IR, we exclude studies with a focus on other aspects of IR. These include research on the preparation of an integrated report, challenges of integrating reporting, or an analysis of the IIRC framework and its differences with other frameworks.

To warrant a high quality of the reviewed articles, our primary focus is on publications in peer-reviewed journals. We thus only include journal articles published in a journal rated in VHB-JOURQUAL3, the latest journal ranking list compiled by the German Academic Association for Business Research (VHB). In addition to the studies published in peer-reviewed journals, we also include working papers that were published during the last 2 years. The exclusion of older working papers is based on the assumption that high-quality working papers are generally published within a time-frame of 2 years.

Eventually, the sample for our review includes ten studies on the determinants and 32 studies on the implications of IR, of which two and seven are working papers respectively. Table 2 presents the distribution of these studies across the levels of analysis in this review, publication year and journal rank.

In our subsequent analysis, notably our summary tables, we follow the third core principle identified by Denyer and Tranfield (2011) and use interpretive and explanatory synthesis in order to go beyond a mere description of evidence. In that vein, after screening all relevant studies and their findings that were collected in a data extraction form in Excel, we inductively developed different categories of determinants and implications to which each study could be assigned. That way, we systematically organized the studies' results to illustrate differences and connections between the reviewed studies, and to facilitate generalizations and conclusions. As result of this systematic literature review and based on the inductive development of respective categories, Fig. 1 was drawn to offer the frame of reference within which our review will proceed.

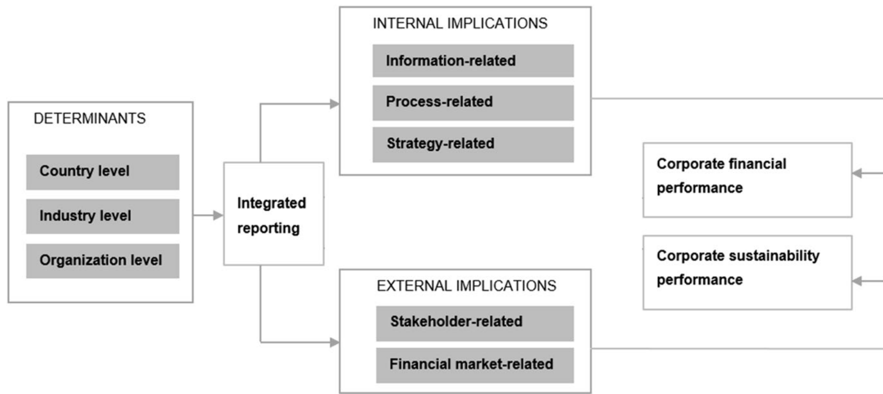

Fig. 1 Reference frame

We begin our review with a discussion of the studies on determinants as they influence the adoption of IR. We then look at company as well as stakeholder-related implications of IR. Empirical evidence on these implications allows for a more profound understanding of how exactly IR may affect a company's ESG and financial performance. Internal implications are either information-, process- or strategy-related, whereas external implications can refer to societal relationships or to financial markets.

Apart from a differentiation between internal and external implications, we also note the underlying method, dependent variable and theoretical approach for each study. When creating their integrated reporting variables, many of the studies reviewed below simply observe whether or not a given company publishes an integrated report. The authors of the studies either checked by themselves whether an integrated report was present, or they coded companies based on reporting databases such as the GRI Sustainability Disclosure database. When studies go beyond the absent/present dichotomy, they assess the quality of integrated reports through content analysis with self-developed indices, or through ratings provided by investment and accounting firms (i.e. RobecoSAM, Ernst and Young), which are partly based on the content elements and guiding principles defined by the IIRC. As IR is obligatory for companies listed on the Johannesburg Stock Exchange (JSE) and recommended by regulation in Australia, South Africa and Australia are the most popular countries from which company reports are sampled. Finally, a variety of theoretical approaches inform the reviewed studies with legitimacy theory being a very prominent one. By assuming that voluntary disclosures intend to demonstrate congruence with societal values and expectations (Preston and Post 1981; Suchman 1995), legitimacy theory offers a great potential in explaining the relation between a company's disclosure strategy and factors such as the information presentation within the report, strategic or capital market implications.

Finally, in line with Denyer and Tranfield's (2011) last principle, we present suggestions on how our findings might be used by the audience for which this review is designed. Our study provides insights on IR relevant to researchers, regulators

and practitioners. By furthering our understanding of the determinants and consequences of integrated reports, we hope to inform decision makers in practice who are interested in evaluating the potential benefits and challenges of IR. The review also allows us to derive some implications for further research which will be discussed in the conclusions section.

3 Determinants of integrated reporting

After having provided some crucial background information for the purposes of this review, we now turn to the empirical studies on determinants of the adoption of IR. We categorize these determinants according to their level of analysis: country, industry, and organizational. Country level characteristics such as cultural values, national laws and economic conditions have an effect on a company's corporate culture, governance structures and, ultimately, the extent and quality of its disclosures. Industry level factors, especially industry affiliation, are likely to explain the uptake of IR as certain industries are pressured to disclose more information than others. Organizational characteristics such as profitability directly influence the decision to adopt IR within the company.

3.1 Overview and prevalent research approaches

Table 3 presents an overview of these studies, their theoretical approach, results, method as well as operationalization of the presence and quality of IR.

Applying the previously specified quality criteria to our selection of studies on the determinants of IR yielded archival research studies only. These studies' samples either consist of those companies that participated in the IIRC pilot program (e.g., Lai et al. 2016), or those that are listed in the IIRC or GRI reports databases (e.g., Vaz et al. 2016). Some studies even base their analysis on larger, worldwide samples (e.g., Frías-Aceituno et al. 2013a). Studies that investigate factors that promote the implementation of IR, mostly use a binary dependent variable. That is, they simply observe the presence or absence of an integrated report in a company and assign values '1' or '0' respectively. Frías-Aceituno et al. (2013a, b) further discriminated between the issuance of only a financial statement, a Corporate Social Responsibility (CSR) report or an integrated report to allow for a more differentiated analysis.

3.2 Country level determinants

There are several factors on the country level that influence a firm's propensity to engage in IR. Stakeholder theory offers a theoretical perspective for the analysis of these factors. Stakeholder theory assumes an implicit contract between society and the company, by which the company uses up natural and other forms of resources to create wealth for a diverse set of stakeholder groups (e.g., in the form of goods and services or job generation) (Hess 2008). Based on this contract the company's success depends upon the effective management of its various stakeholder groups

Table 3 Country, industry and organizational level determinants

Level	Determinant	(Result) References	Method/sample/year(s)	Dependent variable/operationalization	Theoretical approach
Country level	Level of power distance, uncertainty avoidance and long- vs. short-term orientation in national culture	(0) García-Sánchez et al. (2013)	Archival/1590 companies worldwide/2008–2015	Presence ('1') or absence ('0') of IR	Stakeholder theory
	Level of collectivism in national culture	(+) Vaz et al. (2016)	Archival/1449 companies from GRI database/2012	Presence ('1') or absence ('0') of IR	Institutional theory; Stakeholder theory
	Level of femininity in national culture	(+) García-Sánchez et al. (2013)	Archival/1590 companies worldwide/2008–2013	Presence ('1') or absence ('0') of IR	Stakeholder theory
		(0) Vaz et al. (2016)	Archival/1449 companies from GRI database/2012	Presence ('1') or absence ('0') of IR	Institutional theory; Stakeholder theory
	Prevalence of secular-rational values	(+) Jensen and Berg (2012)	Archival/204 companies worldwide/2009	Presence ('1') or absence ('0') of IR, example companies in Eccles and Krzus (2010), CRRA Awards (2010), A4S	Institutional theory
	Level of national corporate responsibility	(+) Jensen and Berg (2012)			

Table 3 (continued)

Level	Determinant	(Result) References	Method/sample/year(s)	Dependent variable/operationalization	Theoretical approach
	Region	(0) Lai et al. (2016)	Archival/52 IIRC pilot program (PP) members and 52 non-IR reporters/2009–2011	Presence ('1') or absence ('0') of IR	Legitimacy theory
		(+) Vaz et al. (2016)	Archival/1449 companies from GRI database/2012	Presence ('1') or absence ('0') of IR	Institutional theory; Stakeholder theory
		(−) Sierra-García et al. (2015)	Archival/7344 company-year observations from GRI database/2009–2011	Presence ('1') or absence ('0') of IR	Not specified
	Level of economic development	(0) Vaz et al. (2016)	Archival/1449 companies from GRI database/2012	Presence ('1') or absence ('0') of IR	Institutional theory; Stakeholder theory
		(+) Jensen and Berg (2012)	Archival/204 companies worldwide/2009	Presence ('1') or absence ('0') of IR, example companies in Eccles and Krzus (2010), CRRA Awards (2010), A4S	Institutional theory

Table 3 (continued)

Level	Determinant	(Result) References	Method/sample/year(s)	Dependent variable/operationalization	Theoretical approach
	Civil law political system	(0) Vaz et al. (2016)	Archival/1449 companies from GRI database/2012	Presence ('1') or absence ('0') of IR	Institutional theory; Stakeholder theory
		(+) Frías-Aceituno et al. (2013a)	Archival/750 companies worldwide/2008–2010	Presence ('1') or absence ('0') of IR	Institutional theory
		(+) Jensen and Berg (2012)	Archival/204 companies worldwide/2009	Presence ('1') or absence ('0') of IR, example companies in Eccles and Krzus (2010), CRRA Awards (2010), A4S	Institutional theory
	Degree of market coordination	(+) Jensen and Berg (2012)			
	Strength of investor protection laws	(−) Vaz et al. (2016)	Archival/1449 companies from GRI database/2012	Presence ('1') or absence ('0') of IR	Institutional theory; Stakeholder theory
		(+) Jensen and Berg (2012)	Archival/204 companies worldwide/2011	Presence ('1') or absence ('0') of IR, example companies in Eccles and Krzus (2010) CRRA Awards (2010), A4S	Institutional theory
	Degree of ownership dispersion	(+) Jensen and Berg (2012)			
	Share of private expenditures for tertiary education	(+) Jensen and Berg (2012)			
	Trade union density	(+) Jensen and Berg (2012)			
	Strength of employment protection laws	(−) Jensen and Berg (2012)			

Table 3 (continued)

Level	Determinant	(Result) References	Method/sample/year(s)	Dependent variable/operationalization	Theoretical approach
Industry level	Industry-affiliation	(0) Vaz et al. (2016)	Archival/1449 companies from GRI database/2012	Presence ('1') or absence ('0') of IR	Institutional theory; Stakeholder theory
		(+) Lai et al. (2016)	Archival/52 IIRC pilot program members and 52 non-IR reporters/2009–2011	Presence ('1') or absence ('0') of IR	Legitimacy theory
		(0) Frias-Aceituno et al. (2014)	Archival/1590 companies worldwide/2008–2010	Issuance of only financial statement ('0'), CSR report ('1') or IR ('2')	Agency theory, Signalling theory, Theory of political costs
		(−) Sierra-García et al. (2015)	Archival/7344 observations from GRI database/2009–2011	Presence ('1') or absence ('0') of IR	Institutional theory
		(+) García-Sánchez et al. (2013)	Archival/1590 companies worldwide/2008–2011	Presence ('1') or absence ('0') of IR	Stakeholder theory
	Monopoly position	(−) Frias-Aceituno et al. (2014)	Archival/1590 companies worldwide/2008–2010	Issuance of only financial statement ('0'), CSR report ('1') or IR ('2')	Agency theory, Signalling theory, Theory of political costs
	Presence of GRI industry supplement	(+) Sierra-García et al. (2015)	Archival/7344 observations from GRI database/2009–2011	Presence ('1') or absence ('0') of IR	Institutional theory

Table 3 (continued)

Level	Determinant	(Result) References	Method/sample/year(s)	Dependent variable/operationalization	Theoretical approach
Organizational level	Profitability	(0) Lai et al. (2016)	Archival/52 IIRC pilot program members and 52 non-IR reporters/2009–2011	Presence (‘1’) or absence (‘0’) of IR	Legitimacy theory
		(+) Frias-Aceituno et al. (2014)	Archival/1590 companies worldwide/2008–2010	Issuance of only financial statement (‘0’), CSR report (‘1’) or IR (‘2’)	Agency theory, Signalling theory, Theory of political costs
		(+) García-Sánchez et al. (2013)	Archival/1590 companies worldwide/2008–2011	Presence (‘1’) or absence (‘0’) of IR	Stakeholder theory
		(0) Frías-Aceituno et al. (2013b)	Archival/568 companies worldwide/2008–2010	Issuance of only financial statement (‘0’), CSR report (‘1’) or IR (‘2’)	Stakeholder theory, Agency theory
		(+) Frías-Aceituno et al. (2013a)	Archival/750 companies worldwide/2008–2010	Presence (‘1’) or absence (‘0’) of IR	Institutional theory
		(+) Arguelles et al. (2015)	Archival/960 company-year observations worldwide/2011–2013	Self-developed score for level of integration based on Asset4 proxies for IIRC CE and capitals	Signalling theory

Table 3 (continued)

Level	Determinant	(Result) References	Method/sample/year(s)	Dependent variable/operationalization	Theoretical approach
	Firm size	(0) Vaz et al. (2016)	Archival/1449 companies from GRI database/2012	Presence ('1') or absence ('0') of IR	Institutional theory; Stakeholder theory
		(0) Lai et al. (2016)	Archival/52 IIRC pilot program members and 52 non-IR reporters/2009–2011	Presence ('1') or absence ('0') of IR	Legitimacy theory
		(+) Sierra-García et al. (2015)	Archival/7344 observations from GRI database/2009–2011	Presence ('1') or absence ('0') of IR	Institutional theory
		(+) Arguelles et al. (2015)	Archival/960 company-year observations worldwide/2011–2013	Self-developed score for level of integration based on Asset4 proxies for IIRC CE and capitals	Signalling theory
		(+) Frias-Aceituno et al. (2014)	Archival/1590 companies worldwide/2008–2010	Issuance of only financial statement ('0'), CSR report ('1') or IR ('2')	Agency theory, Signalling theory, Theory of political costs
		(+) García-Sánchez et al. (2013)	Archival/1590 companies worldwide/2008–2011	Presence ('1') or absence ('0') of IR	Stakeholder theory
		(+) Frías-Aceituno et al. (2013b)	Archival/568 companies worldwide/2008–2010	Issuance of only financial statement ('0'), CSR report ('1') or IR ('2')	Stakeholder theory, Agency theory

Table 3 (continued)

Level	Determinant	(Result) References	Method/sample/year(s)	Dependent variable/operationalization	Theoretical approach
	ESG disclosure score	(+) Lai et al. (2016)	Archival/52 IIRC pilot program members and 52 non-IR reporters/2009–2011	Presence ('1') or absence ('0') of IR	Legitimacy theory
	Board diversity (foreign background and women)	(+) Frías-Aceituno et al. (2013b)	Archival/568 companies worldwide/2008–2010	Issuance of only financial statement ('0'), CSR report ('1') or IR ('2')	Stakeholder theory, Agency theory
	Board size				
	Board independence	(−) Frías-Aceituno et al. (2013b)			
	Business growth opportunities (market to book value ratio of corporate assets, business activity etc.)	(0) Frias-Aceituno et al. (2014)	Archival/1590 companies worldwide/2008–2010	Issuance of only financial statement ('0'), CSR report ('1') or IR ('2')	Agency theory, Signalling theory, Theory of political costs
		(+) Frías-Aceituno et al. (2013b)	Archival/568 companies worldwide/2008–2010	Issuance of only financial statement ('0'), CSR report ('1') or IR ('2')	Stakeholder theory, Agency theory
		(−) García-Sánchez et al. (2013)	Archival/1590 companies worldwide/2008–2011	Presence ('1') or absence ('0') of IR	Stakeholder theory
	Stock exchange listing	(0) Vaz et al. (2016)	Archival/1449 companies from GRI database/2012	Presence ('1') or absence ('0') of IR	Institutional theory; Stakeholder theory

Table 3 (continued)

Level	Determinant	(Result) References	Method/sample/year(s)	Dependent variable/operationalization	Theoretical approach
	Leverage	(0) Lai et al. (2016)	Archival/52 IIRC pilot program members and 52 non-IR reporters/2009–2011	Presence (‘1’) or absence (‘0’) of IR	Legitimacy theory
	Number of analyst following	(+) Wachira et al. (2017)	Archival/174 SA companies/2014	Presence (‘1’) or absence (‘0’) of IR	Institutional theory; Stakeholder theory
	CSR report assurance	(0) Vaz et al. (2016)	Archival/1449 companies from GRI database/2012	Presence (‘1’) or absence (‘0’) of IR	Institutional theory; Stakeholder theory
		(+) Sierra-García et al. (2015)	Archival/7344 observations from GRI database/2009–2012	Presence (‘1’) or absence (‘0’) of IR	Institutional theory
		(0) García-Sánchez et al. (2013)	Archival/1590 companies worldwide/2008–2011	Presence (‘1’) or absence (‘0’) of IR	Stakeholder theory
		(0) Frías-Aceituno et al. (2013a)	Archival/750 companies worldwide/2008–2010	Presence (‘1’) or absence (‘0’) of IR	Institutional theory
		(0) Frías-Aceituno et al. (2013b)	Archival/568 companies worldwide/2008–2010	Issuance of only financial statement (‘0’), CSR report (‘1’) or IR (‘2’)	Stakeholder theory, Agency theory

(0) no/weak link; (+) link detected/positive relationship; (−) negative relationship

GP, guiding principles, *CE* content elements, *C* capitals, *PP* pilot program

with legitimate interests in corporate activities (Donaldson and Preston 1995). IR might serve as a tool to inform them about social and environmental considerations in these activities. As stakeholders' expectations of corporate behavior strongly depend on a diverse set of norms and values inherent in local culture (Carroll 1979), such cultural conditions might influence the decision of whether or not to adopt IR (García-Sánchez et al. 2013).

An investigation by García-Sánchez et al. (2013) on the influence of a country's cultural system based on Hofstede's (1980) cultural dimensions showed that neither the *level of power distance*, *uncertainty avoidance* and *long- vs. short-term orientation*[8] had an influence on the uptake of IR. However, a high *level of collectivism* and *femininity* in the underlying cultural system increased the probability of the company publishing an integrated report. Hofstede's dimension of individualism/collectivism expresses the prevalence of individual versus group values.[9] As the company is influenced by a stronger commitment to society in collectivist countries, it is also more willing to disclose information about its impact on this society. García-Sánchez et al. (2013) suggest that companies in female-oriented countries are more likely to publish an integrated report based on their long-term goal of improving the overall quality of life compared to male-oriented countries that are more assertive and focused on material success.[10]

In addition, the prevalence of *secular-rational values* (e.g., an interest in politics) as opposed to traditional values (e.g., based on religion or national pride) also influences the adoption of IR positively (Jensen and Berg 2012), possibly because secular-rational societies exhibit a greater sense of responsibility (Inglehart 2011). In this vein, an investigation of the impact of *national corporate responsibility*[11] found a positive relationship (Jensen and Berg 2012). Three studies have investigated the relation between a company's geographical *region* and IR and identified a negative (Sierra-García et al. 2015), positive (Vaz et al. 2016) and no relation (Lai et al. 2016). These dissimilar results might be explained by the different samples of IR adopters. Whereas Sierra-García et al. (2015) included 7344 company-year observations from six regions around the world in their sample, Lai et al. (2016) compared 52 IIRC pilot program members to 52 companies that did not publish an integrated report. Although the latter sample is much smaller, it is more representative than the former one which is based on a self-declaration of IR by companies without ensuring minimum requirements for the level of integration of the report.

[8] Power distance indicates the acceptance of unequal power distribution by less powerful members. Uncertainty avoidance describes societal members are (un)comfortable with uncertainty, whereas long- vs. short-term orientation expresses the encouragement of societal change or a preference for time-honoured traditions.

[9] Collectivist countries include Indonesia, China or Mexico; Individualistic countries are Germany, the U.S. or Australia.

[10] Masculine countries are Japan, Hungary and Mexico; Feminist countries include Sweden, Chile or South Korea.

[11] The score is based on an international assessment of the state of corporate responsibility by Account Ability, the Environmental Performance Index (EPI) by Yale University and Human Development Index (HDI) by the UNDP.

Apart from national culture affecting stakeholder expectations and ultimately the decision to adopt IR, other national factors (e.g., degree of market coordination or ownership dispersion) might also have an effect on this decision. As organizations and their adoption of instruments and structures are strongly influenced by their institutional context (Meyer and Rowan 1977), the spread of IR might be attributed to institutional pressure through legislation, stakeholder expectations or competition (Walgenbach and Beck 2003). For example, legal reporting specifications that prioritize shareholder concerns over those of stakeholders represent such institutional aspects that have an influence on the decision to engage in IR. Institutional theory seeks to explain conformity and standardization among companies through the broader political and social structures within which organizations exist (DiMaggio and Powell 1983).

The *level of economic development*, for instance, affects the capacity for innovation within companies. In this respect, companies from countries with higher economic development are more likely to adopt new management instruments, such as IR, than in less developed countries. While Jensen and Berg (2012) found evidence for this association, a more recent study could not identify this effect (Vaz et al. 2016).

Another factor that has been analyzed is the *political system* of the country in which a company is based. Here, researchers often distinguish between common law and code or civil law countries (La Porta et al. 1996). Common law countries are characterized by a weak political influence and a focus on company revenues as well as shareholder needs. In contrast, code or civil law countries are characterized by a high degree of governmental intervention and stakeholder-orientation. Probably based on the fact that companies in civil law political systems are more sensitive to stakeholder interests, two out of three studies found a positive relation between such a system and the adoption of IR (Jensen and Berg 2012; Frías-Aceituno et al. 2013a). Although the study by Jensen and Berg (2012) investigated the difference between traditional sustainability and IR, they also found that 70% of investigated integrated reports originated from a civil law country.

Jensen and Berg (2012) further identified six other institutional country level characteristics that could explain the decision to engage in IR. Firstly, a high *degree of market coordination* constitutes a stronger dependence of companies on a number of stakeholders rather than banks. The UK or the US are such market-based economies. Companies in countries with a lower degree of market coordination, such as Germany and Japan, are more dependent on bank capital and need to provide banks with direct access to financial data. While bank-based economies might reduce the need for external communication in the form of IR, powerful stakeholder groups in market-based economies require ESG alongside financial information and increase the probability to publish an integrated report (Jensen and Berg 2012).

Secondly, countries with strong *investor protection laws* exert pressure on companies to meet shareholder needs, possibly driving the adoption of IR. A high *degree of ownership dispersion* as compared to ownership concentration illustrates a third institutional condition that favors the publication of an integrated report. In a situation of ownership concentration a few dominating owners, such as in family-controlled companies, usually get the information directly from the company and are

not dependent on published information. Higher ownership dispersion, however, favors the publication of an integrated report, because of a general demand for information (Jensen and Berg 2012).

Fourthly, companies with a higher *share of private expenditures for tertiary education* are more likely to adopt innovative management techniques sooner than others and therefore publish an integrated report. The involvement in tertiary education, such as through corporate universities, already represents a strong interest in new research findings and management know-how. The degree of employee involvement in employment-related company decisions reflects a corporate culture and value system that takes into account other interests than those of shareholders. Thus the fifth factor, a higher *density of trade unions*, increases the probability of engaging in IR. Lastly, this probability is lower in countries with weaker *employment protection laws*, contrary to the authors' expectations (Jensen and Berg 2012).

3.3 Industry level determinants

On the industry level, three factors encouraging the uptake of IR have been investigated so far: a company's specific *industry*, the presence of a *GRI industry supplement*, and a company's *monopoly position*.

Firstly, industry affiliation seems to affect the adoption of IR insofar as certain industries are more exposed to public scrutiny than others (Cho and Patten 2007; Cho et al. 2012). Companies in environmentally sensitive industries, such as the chemicals or energy sector are expected to suffer from more stakeholder and regulatory pressure than those with lower environmental impacts, such as the service sector (Bowen 2000). Such pressure heightens the demand for disclosure on corporate ESG performance. The previously mentioned institutional context does not only regard country-specific factors, but also industry-related structures and norms with which an organization has to conform in order to maintain legitimacy and survive. Companies within the same industry might adopt similar norms and behaviors, such as the publication of an integrated report, under what is called institutional mimetic isomorphism (DiMaggio and Powell 1983). Two studies found such an industry effect (García-Sánchez et al. 2013; Lai et al. 2016). Lai et al. (2016) discovered that those industries classified as 'basic materials', 'industrials' and 'financials' are more likely to adopt IR than others.

Secondly, Sierra-García et al. (2015) found a positive relation between the presence of a GRI industry supplement and the adoption of IR. The GRI publishes sector supplements with sector-specific issues that are not covered in the reporting guidelines, such as for the mining and metals, oil and gas or financial services sector (GRI 2016). In line with the previously mentioned exposure to public scrutiny by certain industries, the fact that an industry needs supplementary advice on their social and environmental issues might imply they are operating in a critical industry and therefore engage in more extensive external reporting.

Thirdly, Frias-Aceituno et al. (2014) have found a negative relation between a company's monopoly position and the adoption of IR. The notion that firms in less

competitive industries have higher proprietary costs and therefore disclose less information to protect the abnormal profits derived from this position (e.g., Botosan and Stanford 2005) seems to hold true. As competition increases, however, they disclose more information to reduce information asymmetries (Bilson et al. 2006). The argument that increased competition yields less corporate disclosure as it could harm the competitive position of the company (e.g., Verrecchia 1983; Wagenhofer 1990) is not supported (Frias-Aceituno et al. 2014).

3.4 Organizational level determinants

Profitability might be a determinant of IR on the organizational level, since more profitable firms can devote more resources to the production of information and disclosure of such (Frías-Aceituno et al. 2013a). Slack resources theory suggests that those firms with higher financial returns have more discretionary resources available for CSR- or disclosure-related activities (Miles and Covin 2000). Four studies found such a positive relation between profitability and IR (Frías-Aceituno et al. 2013a; García-Sánchez et al. 2013; Frias-Aceituno et al. 2014; Arguelles et al. 2015), whereas two did not find a significant relation at all (Frías-Aceituno et al. 2013b; Lai et al. 2016). Five studies further detected a positive relation between the adoption of IR and *firm size*.[12] Firm size plays a role when deciding on a ESG disclosure strategy, because larger firms tend to interact more with society, attract greater political and external pressure and therefore engage in more extensive voluntary disclosure (Brown and Deegan 1998). Only two studies (Lai et al. 2016; Vaz et al. 2016) identified firm size as insignificant in the decision to adopt IR.

The relation between a company's ESG performance and disclosure is a prominent topic for research. In line with voluntary disclosure theory (e.g., Dye 1985; Verrecchia 1983), there is a positive relation between a company's Bloomberg *ESG disclosure rating* score and IR (Lai et al. 2016). Such a behavior can be explained through the following three assumptions. Firstly, increased transparency conveys a signal to the market and reduces information asymmetries for relevant stakeholders (e.g. Baiman and Verrecchia 1996). Secondly, the principal-agent relationship is marked by an imbalance of power as managers have incentives to strategically release or withhold information (Heckerman 1975). Agency theory encourages the disclosure of information as it reduces the agency costs[13] arising from conflicts of interest between managers and external stakeholders, and enables them to supervise managerial actions (Jensen and Meckling 1976). Thirdly, a company with a superior social and environmental performance can differentiate itself from the competition through the communication of this performance in a sustainability report. Such a

[12] See Arguelles et al. (2015), Frías-Aceituno et al. (2013b), Frias-Aceituno et al. (2014), García-Sánchez et al. (2013) and Sierra-García et al. (2015).

[13] Jensen and Meckling (1976) define agency costs as (1) the monitoring expenditures by the principal, such as through the control of budget restrictions, compensation policies or operating rules, (2) the bonding expenditures by the agent and (3) the residual loss as dollar equivalent of the divergence between the welfare reduction of the principal and the agent's decisions.

competitive advantage will lower the cost of equity capital (Dhaliwal et al. 2011), companies face lower capital constraints and have better access to finance as a result (Cheng et al. 2014a).

Frías-Aceituno et al. (2013b) identified a positive relation between *board diversity*,[14] *size* and the probability to engage in IR. A larger and more diverse board of directors presumably enhances its overall expertise, which positively influences the breadth and integration of corporate information. The authors further found that greater *independence of the board*[15] does not drive IR. An independent board is of key importance to control management actions and ensure the fulfillment of shareholder interests. If the information through integrated reports is somehow disadvantageous to shareholders, it might not be disclosed. Vaz et al. (2016) found that *stock exchange listing* is not related to the adoption of IR. Similarly, the argument that firms with higher *leverage* might want to engage in IR, in order to meet the informational needs of lending institutions according to legitimacy theory, could also not be supported (Lai et al. 2016).

Ambiguous results were reached with regard to the firm's *growth opportunities* measured as market to book value. Higher market to book values require a more extensive disclosure in order to reduce information asymmetry (Frías-Aceituno et al. 2013b). Frías-Aceituno et al. (2013b) found a positive relationship, suggesting that business expansion goes hand in hand with improved accountability demanded by investors or politicians. When the researchers repeated the same study with a sample three times larger, they found no significant relation. García-Sánchez et al. (2013) even found a negative relation. Despite the fact that García-Sánchez et al. (2013) look at reports from a larger period (i.e. 2008–2011 as compared to 2008–2010), they base their dependent value (the presence of IR) solely on the report database provided by the GRI in which companies self-declare whether they engage in IR or not. Frias-Aceituno et al. (2013b, 2014) examined whether the company issued only a financial statement, CSR report or integrated report by hand. Lastly, studies examining the link between the *assurance of the company's CSR report* and the introduction of IR yielded no clear results. Only one out of five studies found a positive link (Sierra-García et al. 2015).

4 Implications of integrated reporting

4.1 Overview and prevalent research approaches

Next to identifying the drivers of IR, our review's main purpose is to identify the internal and external implications that IR has on the reporting firm and its stakeholders. In line with this purpose, the following section discusses various empirical studies on such implications. A thorough understanding of the internal and external

[14] Is expressed by the disparity of characteristics of its members, i.e. presence of foreigners, gender diversity.

[15] The percentage of non-executive directors on the board is used as a proxy variable.

implications of IR is important for an evaluation of the overall consequences of IR in terms of a company's financial and sustainability performance. This is because such internal and external implications mediate any potential link between IR and company performance (recall Fig. 1). For instance, the enhanced collaboration between departments might foster integrated thinking and the inclusion of non-financial information in managerial decision-making. This could have strategic implications within and outside the organization and further affect its financial or ESG performance.

Based on a review of 32 empirical studies, we identified a total of 17 implications of IR. We distinguish internal from external implications and group them into five sub-categories: non-financial information, processes, and strategy-related internal implications; and societal and market-related external implications. These categories may not be exhaustive, but they represent the most frequently investigated implications of IR. Table 4 presents an overview of studies on internal implications, their theoretical underpinnings and the methodological approaches used in each study.

4.2 Internal implications

4.2.1 Non-financial information

The first sub-category of internal implications refers to the quality and the kind of non-financial information that a company reports. More specifically, the studies included in our review investigate four different such implications: explicit connections between financial and non-financial data in the report; data quality; data quantity, and the level of assurance.

An integrated report intends to illustrate the relationship between the firm's most material financial and non-financial information and metrics as explicitly as possible. In the process of compiling and organizing the necessary information, new *connections* and even cause-and-effect relationships between ESG and financial outcomes are established (Eccles and Krzus 2010). For example, integrated reports may quantify the positive impact of greenhouse gas (GHG) emissions reductions on operating profit.[16] However, only one out of three studies on connectivity detected such connections between financial and non-financial information in integrated reports (Carels et al. 2013). The two other studies rather identified a general lack of disclosures on such interdependencies and potential trade-offs between those factors that play a role in the organizational value creation process. Haji and Anifowose (2016) concluded that instead of depicting contextualized, company-specific connections between financial and non-financial measures, integrated reports are mostly generic and aimed at acquiring organizational legitimacy.

However, the potential lack of useful indicators for these contextualized connections might foster the development of improved measurement methodologies and

[16] SAP's Integrated Performance Analysis is a prominent example for such a depiction of cause-and-effect relationships, i.e. that a one percent reduction in GHG emissions would have a positive impact of 4 million € on operating profit (SAP 2016).

Table 4 Internal Implications of Integrated Reporting

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
Non-financial information	Connections between financial and non-financial information	(0) Haji and Anifowose (2016)	Archival/reports of 82 South African (SA) companies/2011–2013	Self-developed index with 52 items based on IIRC GP, IRC's SA GP and CE, King III recommendations and E&Y IR awards; weighted and un-weighted scoring method	Legitimacy theory
		(0) Veltri and Silvestri (2015)	Case study/South African university/2013	IR quality based on IIRC CE	Stakeholder theory
		(+) Carels et al. (2013)	Archival/reports of 15 SA companies/2008–2012	Self-developed matrix with 21 axial codes based on report sections and 5 content codes based on GRI G3	Agency theory
	Data quality	(+) Cortesi and Venay (2017)	Archival/reports of 636 companies worldwide/2003–2016	Presence ('1') or absence ('0') of IR	Not specified
		(+) Burke and Clark (2016)	Archival/19 panel interviews at IR symposium/2014	Questions on future, preparation, legal and ethical implications and assurance of IR, and market for ESG information	Not specified

Table 4 (continued)

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
	Amount of non-financial information	(+) Setia et al. (2015)	Archival/reports of 25 SA companies/2009–2012	Self-developed index with 37 items based on four IIRC capitals, Presence (‘1’) or absence (‘0’)	Legitimacy theory
		(+) Carels et al. (2013)	Archival/reports of 15 SA companies/2008–2012	Self-developed matrix with 21 axial codes based on report sections and 5 content codes based on GRI G3	Agency theory
	Level of assurance	(+) Haji and Anifowose (2016)	Archival/reports of 82 SA companies/2011–2013	Self-developed index with 52 items based on IIRC GP, IRC’s SA GP and CE, King III recommendations and E&Y IR awards; weighted and un-weighted scoring method	Legitimacy theory

Table 4 (continued)

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
Processes	Collaboration across departments (basis of integrated thinking)	(+) Burke and Clark (2016)	Archival/19 panel interviews at IR symposium/2014	Questions on future, preparation, legal and ethical implications and assurance of IR, and market for ESG information	Not specified
		(0) Perego et al. (2016)	Interviews/3 international IR experts and practitioners/2014	Questions on personal experience with IR, current state and future of IR and role of academia	Not specified
		(+) Beck et al. (2015)	Case study (2 interviews and archival)/Australian company/2009–2013	Questions on the role and audiences of reporting, its determinants, external guidelines, internal reporting systems and processes, assurance and prospects	Legitimacy theory
		(+) Stubbs and Higgins (2014)	Interviews/23 managers in 15 Australian firms/2012	Questions on internal reporting processes and mechanisms	Laughlin's (1991) model of organzational change
		(+) Mio et al. (2016)	Case study (10 interviews, field observations and archival)/Italian company/2014/2015	Questions on Management Control Systems and internal integrated report	Not specified
	Risk management	(+) Moloi (2015)	Archival/reports of Top 20 JSE listed companies/2013	Presence ('1') or absence ('0') of IR	Not specified
		(+) Steyn (2014)	Survey/50 SA managers responsible for IR/2013/2013	Questions on benefits and implementation challenges of IR and reasons its production	Legitimacy theory, Stakeholder theory

Table 4 (continued)

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
	Effect on decision-making	(+) Barth et al. (2017)	Archival/reports of 100 SA companies/2011–2013	E&Y Excellence in IR awards mean score of three adjudicator's scores annually ranked into deciles	Agency theory
		(0) Chen et al. (2016)	Experiment/154 US managers/	IR as one of six different reporting frameworks	Legitimacy theory
		(+) Adams (2017)	Interviews/7 SA and 9 Australian board chairs and non-executive directors/2015	Questions on role sustainability reporting an IR in creating value for companies	Llewellyn's level three and four theorising
		(+) Venter et al. (2017)	Archival/reports of 45 SA companies/2013	Integrated thinking based on Asset4 data (Corporate Governance: Vision and Strategy)	Theory of proprietary costs
		(0) Steyn (2014)	Survey/50 SA managers responsible for IR/2013/2013	Questions on benefits and implementation challenges of IR and reasons its production	Legitimacy theory, Stakeholder theory
		(+) Lodhia (2015)	Case study (4 interviews and archival)/Australian company/2008–2013	Questions on understanding of IR, transition to IR, motives, benefits, success factors and challenges of IR	Practice theory

Table 4 (continued)

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
Strategy	Social and environmental accountability	(+) Adams (2017)	Interviews/7 SA and 9 Australian board chairs and non-executive directors/2015	Questions on role sustainability reporting an IR in creating value for companies	Llewellyn's level three and four theorising
		(0) Haji and Anifowose (2016)	Archival/reports of 82 SA companies/2011–2013	Self-developed index with 52 items based on IIRC GP, IRC's SA GP and CE, King III recommendations and E&Y IR awards; weightend and un-weighted scoring method	Legitimacy theory
		(0) van Bommel (2014)	Interviews/62 Dutch professionals with IR knowledge/2011/2012	Questions on understanding, opinion, goal, problems of IR, stakeholders involved and conflicts during IR emergence	Thevenot's (2006) 'Sociology of worth' framework

Table 4 (continued)

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
	Integration of sustainability issues in strategy	(−) Lai et al. (2016)	Archival/reports of 54 companies worldwide/2011–2013	Publication of IIRC Best Practice Report	Impression Management Framework
		(+) Adams et al. (2016)	Case study (archival)/reports of 4 multinational companies/2009–2013	Participation in IIRC PP	Stewardship theory, Institutional theory
		(+) Beck et al. (2015)	Case study (2 interviews and archival)/Australian company/2009–2013	Questions on the role and audiences of reporting, its determinants, external guidelines, internal reporting systems and processes, assurance and prospects	Legitimacy theory
		(−) Maniora (2015)	Archival/200–300 companies worldwide/2002–2011	ESG integration effect based on Asset4 data (e.g. public commitment to ESG integration into strategy, monitoring and engagement)	Not specified
		(+) Churet and Eccles (2014)	Archival/2,000 companies worldwide/2011/2012	RobecoSAM assessment of IR quality	Not specified

Table 4 (continued)

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
	Potential for organizational change	(0) Chaidali and Jones (2017)	Interviews/15 senior managers/2014	Questions on role of sustainability in IR; credibility and benefits of IR	Theory of trust in social relationships
		(0) Stubbs and Higgins (2014)	Interviews/23 managers in 15 Australian firms/2012	Questions based on internal reporting processes and mechanisms	Laughlin (1991) model of organzational change
		(0) Stubbs et al. (2014)	Interviews/23 managers in 15 Australian firms/2012	Questions on understanding, emergence, differentation of IR, internal processes and structures driving IR	Institutional theory
		(0) Steyn (2014)	Survey/50 SA managers responsible for IR/2013/2013	Questions on benefits and implementation challenges of IR and reasons its production	Legitimacy theory, Stakeholder theory

(0) no/weak link; (+) link detected; (−) negative relationship

GP guiding principles, *CE* content elements, *C* capitals, *PP* pilot program

new metrics, such as the measurement of physical processes (Eccles and Krzus 2010). This overall improvement of the *quality of data* could occur in the form of an increase in non-financial information or in the quantification of non-financial information (Eccles and Krzus 2010). A 2014 study of IIRC pilot program companies supports this argument, as 84% of company respondents see an improvement in their data quality upon the adoption of IR[17] (IIRC and Black Sun Plc 2014). Given that the study was conducted by the primary governing body of IR, the research results may be subject to bias. In their analysis of 19 panel interviews Burke and Clark (2016) also concluded that an enhanced data quality was generally regarded as an implication of IR. Whereas their study is based on perceptional survey and interview data, Cortesi and Venay (2017) came to the same result by an archival analysis of reports of 636 companies.

Two studies further detected an increase in the quantity of *non-financial information*, such as human, natural, and intellectual capital (Carels et al. 2013; Setia et al. 2015). The IIRC framework (just like the GRI guidelines) includes the guiding principle 'reliability', which may be enhanced by independent, external assurance that ensures the quality of the information provided.

Given the investor focus of IR with potentially more quantitative information, a final data-related implication concerns the application of existing CSR assurance standards as there is no specific assurance benchmark for IR yet (Velte and Stawinoga 2017). Research investigating the *level of assurance* of integrated reports delivers positive results in this regard (Haji and Anifowose 2016).

Despite these alleged improvements, several researchers criticize the lack of assurance standard considerations for integrated reports in the IIRC's reporting framework (e.g., Adams 2015; Haji and Anifowose 2016). A sustainability report that uses the GRI framework, for example, can only be called 'in accordance' with GRI when information on all indicators is provided or a valid reason for not reporting has been given. The IIRC does not have such an assurance requirement for materiality. Adams (2015) exemplifies her concerns with the integrated report of the energy and chemical company Sasol which was ranked 5th in the E&Y 2013 "Excellence in Integrated Reporting Awards". The fact that the company did not mention concerns about the carbon bubble and the risk of devaluation through the inability of extracting carbon, questions the credibility of such a highly ranked report. The IIRC shares these concerns (IIRC 2015) and works on the possibility of obtaining an integrated audit and assurance statement.

4.2.2 Processes

The next sub-category includes three internal implications that refer to various managerial processes within an organization: inter-departmental cooperation, risk management, and decision-making processes.

[17] The IIRC and their communications service provider Black Sun Plc received 66 valid questionnaires and conducted 29 subsequent telephone interviews to gather more detailed information about the surveyed responses.

As explained in more detail above, the identification of cause-and-effect relationships between financial and non-financial information comes along with specific and new requirements, including the compilation of information from multiple sources, the development of innovative metrics, and new ways of compiling such information in an integrated report. These processes presuppose a high *degree of internal collaboration and communication* (Eccles and Krzus 2010). The enhanced cooperation may, in turn, be of great benefit to the company because it helps to overcome departmental silos between different teams of different departments, including finance, sustainability management and investor relations (e.g., Simnett and Huggins 2015). Correspondingly, 79% of 66 surveyed businesses regarded an increased collaborative thinking about goals and targets of the board, strategy departments and executives as a benefit of the IR process (IIRC and Black Sun Plc 2014). Four out of five studies found empirical evidence on such an increase in collaborative thinking through interviews with Australian managers (Stubbs and Higgins 2014; Beck et al. 2015), a case study of an Italian company (Mio et al. 2016), or as part of a conference on IR (Burke and Clark 2016). In contrast, three interviews with international IR experts by Perego et al. (2016) did not yield comparable evidence.

The most important benefit of increased interdepartmental cooperation has been argued to be integrated thinking (e.g., Krzus 2011; Vesty et al. 2016). Tweedie and Martinov-Bennie (2015) describe two dimensions of integrated thinking. In the first one an increased understanding and dialogue arises across organizational units. The cooperation between the accounting team and scientific experts in different departments when reporting on natural capital creates such a dialogue and facilitates integrated thinking. The second dimension regards the understanding of interactions between the organization and its external stakeholders and their needs and interests. The fairly unambiguous results from the above-mentioned studies (e.g., Beck et al. 2015; Burke and Clark 2016) indicate that such an enhanced cooperation and interaction is actually taking place, which lends support to the integrated thinking notion.

A second potential process-related implication is a more effective *identification of risks and opportunities* (e.g., Eccles and Armbrester 2011) as noted by 79% of the surveyed 66 businesses (IIRC and Black Sun Plc 2014). The identification, assessment and prioritization of those aspects that "materially affect the organization's ability to create value" (IIRC and SASB 2013) mainly takes place at the procedural level, making it a process-related implication. Such an enhanced risk management was detected by two studies based on survey (Steyn 2014) as well as archival data (Moloi 2015).

Finally, a holistic understanding about the organization's strategy and performance, and changes in management information have been argued to facilitate better *informed decisions*, for instance with regard to resource allocation, cost savings or the assessment of priorities and product offers (IIRC 2015). Based on interview data, Lodhia (2015) and Adams (2017) concluded that IR practitioners were indeed able to make more informed decisions. In their analysis of 100 integrated reports by South African companies over the course of 3 years, Barth et al. (2017) also inferred that it improves managerial decision-making through a better utilization of assets. Steyn (2014) who collected survey data from 50 South African managers concluded that better resource allocation decisions and cost reductions were not indicated as an

outcome of IR. In a similar vein, Chen et al. (2016) found that integrated information does not have an effect on managers' willingness to invest in a CSR project.

Several researchers even suggest that IR bears the potential of inducing more socially and environmentally responsible decisions as it aligns notions of profit maximization with ESG issues (e.g., Adams 2015). This assertion is challenged by the fact that decisions often require trade-offs, such as when a reduction in carbon emissions can show positive investment returns, but hurts short-term cash flows and dividends (Krzus 2011). Strictly seen, the IIRC's interpretation of value as 'value for investors' as opposed to 'value for society' (e.g., Flower 2015) could favor economic interests. Whether economic considerations take precedence over social and environmental concerns on single occasions is case-dependent and cannot be generalized. However, researchers also investigated potential strategic implications of IR as described in the following paragraphs.

4.2.3 Strategy

Strategy-related implications form the third category of effects within the organization. It includes three specific implications: accountability, the integration of sustainability issues into strategy, and organizational change.

To begin with, it has been argued that IR may foster an organization's accountability (IIRC and SASB 2013). Assuming and explaining the responsibility for one's actions directly happens at the process level, but is reinforced and influenced by the organizational culture (Sinclair 1995). The degree to which an organization accepts *social and environmental accountability* thus depends on its culture and its fundamental structures, making it a strategy-related implication. Following the abovementioned argument that IR bears the potential of inducing more socially and environmentally responsible decisions (e.g., Adams 2015), this would require a greater accountability for the natural environment and civil society in the first place. By contrast, the previously mentioned allegations of IR privileging providers of financial capital over other stakeholders, and organizational over social and environmental sustainability (e.g., Tweedie and Martinov-Bennie 2015), would assume a lowered accountability in this regard.

Three studies in our sample are concerned with the relation between IR and an organization's social and environmental accountability. However, only one of them has identified a positive effect from adopting integrated reports. Adams (2017) interviewed 16 South African and Australian board chairs and non-executive directors and identified a high level of awareness of ESG issues and the role their businesses play in addressing these issues, especially in South African companies. Two other studies, however, found that integrated reports are hardly used as an organizational accountability tool that balances positive and negative trends. Rather, the primary function of integrated reports seems to be to help enhance a company's legitimacy (Haji and Anifowose 2016).

A key objective of IR is "linking the organization's strategy and business model with changes in its external environment, such as increases or decreases in the pace of technological change, evolving societal expectations, and resource

shortages as planetary limits are approached" (IIRC and SASB 2013). In line with a potential heightened accountability, this would result in the *integration of social and environmental issues into the organizational strategy* (e.g., Eccles and Krzus 2010; IIRC and Black Sun Plc 2014; IIRC 2015). Embedding social investment activities (Adams 2015) or ESG key performance indicators (KPIs) into corporate strategy exemplifies this integration (IIRC 2015). Mio et al. (2016) point out that the IIRC's principles can be fruitfully applied to internal management control systems in that regard.

Three of the five studies that investigated this potential implication did find that IR leads to a more extensive integration of sustainability issues in a company's strategy. Based on the analysis of companies' social investment disclosures, Adams et al. (2016) conclude that IR has an impact on how disclosures are linked to strategy. Beck et al. (2015) find that IR can enhance managers' willingness to include non-financial considerations into their strategic portfolio; and Churet and Eccles (2014) tested the relation between IR and the quality of ESG management.

Whereas these three studies derived their conclusions from interviews, the quantitative study of Maniora (2015) examined the impact of IR on the integration of ESG issues into the business model and the related economic and ESG performance changes. She found that the new reporting approach only effectuated such an integration when compared to no ESG reporting at all or ESG reporting in annual reports. Compared to standalone sustainability reporting, IR was negatively associated with ESG integration. Similarly, Lai et al. (2016) concluded that IR does not favor the management of sustainability issues by analyzing reports and corporate information of 54 companies.

The *potential for organizational change* of IR is a third strategy-related implication, which partly also follows from the previous two. Information connections and increasing collaboration at the procedural level have been argued to drive morphogenetic organizational change by re-conceptualizing the interpretive scheme of managers (e.g., Stubbs and Higgins 2014). This results in a heightened accountability for social and environmental issues, which could in turn lead to the integration of these issues in strategic decisions. Different interpretations of information possibly reshape organizational structures at the core, affecting individuals, but also the whole organization (Levy 1986), which is why it is categorized as a strategic implication. Despite evidence for some of the previously mentioned process- and strategy related organizational changes, there is no evidence of change taking place at the organization's core (Higgins et al. 2014; Steyn 2014; Stubbs and Higgins 2014; Chaidali and Jones 2017).

4.3 External implications

In addition to the internal implications, we next consider external implications which may indirectly influence a company's financial and ESG performance. For example, a secured legitimacy and intensive stakeholder engagement have been shown to come along with positive reputational effects, which in turn positively

Table 5 External implications of integrated reporting

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
Societal relations	Stakeholder engagement	(+) Burke and Clark (2016)	Archival/19 panel interviews at IR symposium/2014	Questions on future, preparation, legal and ethical implications and assurance of IR, and market for ESG information	Not specified
		(+) Beck et al. (2015)	Case study (2 interviews and archival)/Australian company/2009–2013	Questions on the role and audiences of reporting, its determinants, external guidelines, internal reporting systems and processes, assurance and prospects	Legitimacy theory
		(+) Mio et al. (2016)	Case study (10 interiews, field observations and archival)/Italian company/2014/2015	Questions on Management Control Systems and internal integrated report	Not specified
		(0) Veltri and Silvestri (2015)	Case study/South African university/2013	IR quality based on IIRC CE	Stakeholder theory
		(+) Lodhia (2015)	Case study (2 interviews and archival)/Australian company/2008–2013	Questions on understanding of IR, transition to IR, motives, benefits, success factors and challenges of IR	Practice theory
		(+) Steyn (2014)	Survey/50 SA managers responsible for IR/2013/2013	Questions on benefits and implementation challenges of IR and reasons its production	Legitimacy theory, Stakeholder theory

Table 5 (continued)

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
	Effect on legitimacy	(+) Haji and Anifowose (2016)	Archival/reports of 82 SA companies/2011–2013	Self-developed index with 52 items based on IIRC GP, IRC's SA GP and CE, King III recommendations and E&Y IR awards; weightend and un-weighted scoring method	Legitimacy theory
		(+) Beck et al. (2015)	Case study (2 interviews and archival)/Australian company/2009–2013	Questions on the role and audiences of reporting, its des, external guidelines, internal reporting systems and processes, assurance and prospects	Legitimacy theory
		(+) Steyn (2014)	Survey/50 SA managers responsible for IR/2013/2013	Questions on benefits and implementation challenges of IR and reasons its production	Legitimacy theory, Stakeholder theory
		(+) Lodhia (2015)	Case study (2 interviews and archival)/Australian company/2008–2013	Questions on understanding of IR, transition to IR, motives, benefits, success factors and challenges of IR	Practice theory
Financial market	Information asymmetry	(−) García-Sánchez and Noguera-Gámez (2017)	Archival/995 companies worldwide/2009–2013	Presence ('1') or absence ('0') of IR	Information asymmetry theory

Table 5 (continued)

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
	Lowered cost of capital	(0) Barth et al. (2017)	Archival/100 SA companies/2011–2013	E&Y Excellence in IR awards mean score of three adjudicator's scores annually ranked into deciles	Agency theory
		(0) Martinez (2016)	Archival/96 pair of treated and control companies in IIRC database/2011–2015	Dichotomous variable that takes the value of one for 'treated' firms and zero for 'control' ones	Agency theory, Voluntary disclosure theory
		(−) Zhou et al. (2017)	Archival/443 company-year observations SA/2009–2012	Self-developed matrix with 31 items across 8 dimensions based on IIRC framework; Presence ('1') or absence ('0')	Voluntary disclosure theory
		(0) Steyn (2014)	Survey/50 SA managers responsible for IR/2013/2013	Questions on benefits and implementation challenges of IR and reasons its production	Legitimacy theory, Stakeholder theory
	Analyst forecast accuracy	(+) Zhou et al. (2017)	Archival/443 company-year observations SA/2009–2012	Self-developed matrix with 31 items across 8 dimensions based on IIRC framework; Presence ('1') or absence ('0')	Voluntary disclosure theory
		(+) Bernardi and Stark (2015)	Archival/200 company-year observations SA/2008–2012	Differentiation between pre-IR and post-IR era	Not specified

Table 5 (continued)

Dimension	Implication	(Result) References	Method/sample/year(s)	Independent variable/operationalization	Theoretical approach
	Incorporation of non-financial information/integrated reports in investment decisions	(+) Slack and Tsalavoutas (2017)	Interviews/22 UK fund managers and equity analysts/2015	Questions on usefulness and diffusion of IR	Diffusion theory
		(−) Bucaro et al. (2017)	Experiment/213 non-expert participants assuming role of investors	Simultaneous (IR) or separate (SR) information presentation	Not specified
	Long-term investor base	(+) Serafeim (2015)	Archival/1114 US companies/2002–2010	Asset4 score for level of integration (0–100)	Not specified
		(+) Knauer and Serafeim (2014)	Case study/1 Irish pharmaceutical company/2014	Presence of IR	Not specified

(0) no relationship; (+) positive relationship; (−) negative relationship

GP guiding principle, *CE* content, *C* capital, *PP* pilot program

affects a company's financial performance (Roberts and Dowling 2002). As summarized in Table 5, we discuss two societal-related and five financial markets-related implications.

4.3.1 Societal relations

A key function of corporate reporting is to demonstrate the adequate management of a company's assets and risks to external stakeholders (Eccles and Krzus 2010). The previous section discussed the argument that the establishment of connections between different kinds of information requires a high degree of internal collaboration and communication. A similar argument applies to *engagement with external stakeholders*, such as through consultations or surveys (e.g. Burke and Clark 2016). Despite its focus on investors, the IIRC and SASB (2013) suggests that "an integrated report should provide insight into the nature and quality of the organization's relationships with its key stakeholders" (ibid: 5). Even though these key stakeholders have a direct and indirect influence on a firm's reporting behavior,[18] the relation might also work the other way around in that a certain reporting behavior influences the firm's degree of engagement with its stakeholders.

Five out of the six relevant studies in our sample identified an increased stakeholder engagement upon the introduction of IR. This result has been obtained through both interviews (Beck et al. 2015; Lodhia 2015; Burke and Clark 2016; Mio et al. 2016) and survey data (Steyn 2014). Even though investors are the primary target group of integrated reports, other external stakeholders also benefit from these reports (Burke and Clark 2016). Only one study found that companies are not engaging with their key stakeholders when defining and drafting the content of their integrated report (Veltri and Silvestri 2015).

A second stakeholder-related implication of IR is the retention and enhancement of an organization's *legitimacy* and a reduction of reputational risk through increased transparency (Eccles and Armbrester 2011). Organizations that lack legitimacy are vulnerable to criticism and unfulfilled stakeholder claims (Meyer and Rowan 1977). The engagement with external stakeholders through IR can secure legitimacy through presenting the company in a meaningful, predictable and trustworthy way (Suchman 1995). All four relevant studies have found evidence of secured legitimacy through the adoption of IR (Steyn 2014; Beck et al. 2015; Lodhia 2015; Haji and Anifowose 2016). As an example, in a case study of an Australian bank, Beck et al. (2015) found that CSR and a subsequent IR led to a shift from legitimacy restoration to gaining strategic legitimacy in aligning disclosures with strategic goals.

[18] E.g., Günther et al. (2016) identified GHG politics acting as moderators of the relationship between the carbon disclosure and carbon performance. They further found that other stakeholders, such as media, employees, and customers appear to be directly related to the carbon disclosure score.

4.3.2 Financial markets-related

IR could have a number of financial market-related implications. Our review of the empirical literature identified five potential benefits of this novel reporting practice. Firstly, it is generally advantageous for the firm to reduce *information asymmetries* between the company and the market through extensive disclosures. This might reduce the information risk for investors when forecasting future returns and therefore lower the company's costs of capital (Healy and Palepu 2001). A recent study by García-Sánchez and Noguera-Gámez (2017) lend support to this argument. Based on the observation of 995 companies over the course of 5 years, they found a negative relationship between information asymmetry and IR.

In addition to the study by the IIRC and Black Sun Plc who found that only one out of 66 companies were able to lower their cost of capital, three academic studies also failed to detect a *reduction in cost of capital* upon the adoption of IR (Steyn 2014; Martinez 2016; Barth et al. 2017). One study even found a negative relationship between the level of alignment of integrated reports and the internal cost of capital (Zhou et al. 2017). This supports findings that the benefit of a reduction of internal cost of capital through company disclosures is less significant for those that have a larger analyst following, because financial analysts contribute substantially to the dissemination of information (Botosan 1997).

Thirdly, voluntary disclosure theory suggests that firms might utilize IR to improve their information environment (Dye and Verrecchia 1995), which enhances analysts' understanding of their performance and future outlook and therefore improves their forecast accuracy (e.g., Beyer et al. 2010). Two studies investigated how *analyst forecast accuracy* changed upon the publication of an integrated report and both found a positive relationship (Bernardi and Stark 2015; Zhou et al. 2017).

A fourth market-related implication concerns an enhanced decision-making by the investment community, such as an increased *integration of non-financial information into investment decisions* upon the publication of IR. Slack and Tsalavoutas (2017) identified such an integration taking place through conducting interviews with UK fund managers. Those that are familiar with IR recognized its decision-usefulness based on its links between a company's value creation process, strategy and associated key performance indicators. An experiment with 213 non-expert participants conducted by Bucaro et al. (2017), however, found that CSR measures are more likely to be incorporated into investors decision making when presented separately as compared to integrated.

Fifthly, companies practicing IR have a more long-term oriented *investor base*, representing the difference in percentage of shares held by dedicated and transient investors. Serafeim (2015) analyzed the degree of integration of ESG information in the financial reporting of 1,066 companies as well as the composition of their institutional investors between 2002 and 2010. Knauer and Serafeim (2014) also found evidence for such a long-term investor base by conducting a case study.

5 Discussion

5.1 Drivers and consequences of integrated reporting

The purpose of the two preceding sections was to provide a systematic account of the existing empirical studies, their specific focus, and their main findings. The purpose of this section is to discuss these findings against the background of our main point of interest: Does IR as a novel reporting approach substantially change the way in which companies deal with sustainability issues?

To ease the discussion, Fig. 2 summarizes our results based on the previously presented reference frame. The last column indicates whether we found no, weak or strong evidence as well as the hypothesized direction of the relationship. Mixed results indicate that there was no tendency towards a specific relationship at all. Weak evidence was found when only one study found the respective relationship and strong evidence is present when at least the majority of studies in the respective sub-category came to the same conclusions. In the following discussion, we will highlight the most important implications in terms of our research questions.

To begin with, IR seems to improve the reporting companies' *sustainability data*. The studies we reviewed provided fairly clear evidence on the effects that the adoption of IR as a new reporting approach has on the quality and quantity of the data compiled in the company. Those companies who publish integrated reports tend to rely on better and on more extensive sustainability data. This finding is remarkable as it supports the notion that the introduction of a new reporting tool which is primarily designed to inform external stakeholders, has important consequences for internal management processes. The existence of such a relation between an external reporting tool and internal management processes is a prerequisite for the assumption that IR will affect how companies deal with sustainability internally (Eccles and Armbrester 2011; Adams 2015).

Quite surprisingly, however, we found no consistent evidence for one of the most important alleged benefits of Integrated Reporting: The *connectivity of sustainability and financial data*. A key aspect of IR is that connections should be established between different kinds of financial and non-financial information. So far, however, there is no empirical support for the assumption that the information compiled in integrated reports are more connected than those in conventional sustainability reports.

To be sure, this result may partly be due to methodological aspects, because the three studies we reviewed use very different methodological approaches. Carels et al. (2013) conducted an interpretative text analysis using the reports of 15 companies; Veltri and Silvestri (2015) base their case study analysis on just one integrated report. Finally, Haji and Anifowose (2016) developed a sophisticated measure assessing the degree to which 82 integrated reports adhere to the IR framework. Two of the three studies conclude that the connectivity of information principle is not sufficiently implemented, but given the different research approaches, these studies are hard to compare. In light of the prominent role that connectivity plays in the

	Level of analysis/ dimensions	Sub-categories	Evidence for relationship (Direction)
Determinants	Country level	Level of power distance, uncertainty avoidance & long- vs. short-term orientation in national culture	Weak (Positive)
		Level of collectivism in national culture	Mixed (Positive)
		Level of femininity in national culture	Mixed (Positive)
		Prevalence of secular-rational values	Weak (Positive)
		Level of national corporate responsibility	Weak (Positive)
		Region	Mixed (n/a)
		Level of economic development	Mixed (Positive)
		Political system	Mixed (n/a)
		Degree of market coordination	Weak (Positive)
		Strength of investor protection laws	Mixed (Positive)
		Degree of ownership dispersion	Weak (Positive)
		Share of private expenditures for tertiary education	Weak (Positive)
		Trade union density	Weak (Positive)
		Strength of employment protection laws	Weak (Positive)
	Industry level	Industry-affiliation	Mixed (Positive)
		Monopoly position	Weak (Negative)
		Presence of GRI industry supplement	Weak (Positive)
	Organization level	Profitability	Weak (Positive)

Fig. 2 Summary of results

		Firm size	Weak (Positive)
		ESG disclosure score	Weak (Positive)
		Board diversity (foreign background & women)	Weak (Positive)
		Board size	Weak (Positive)
		Board independence	Weak (Positive)
		Business growth opportunities (market to book value ratio of corporate assets, business activity etc.)	Mixed (Positive)
		Stock exchange listing	None (Positive)
		Leverage	None (Positive)
		Number of analyst following	Weak (Positive)
		CSR report assurance	None (Positive)
Implications	Information-related *(internal)*	Connections between financial and non-financial information	Weak (Positive)
		Data quality	Strong (Positive)
		Amount of non-financial information	Strong (Positive)
		Level of assurance	Weak (Positive)
	Process-related *(internal)*	Collaboration across departments (basis of integrated thinking)	Strong (Positive)
		Risk management	Strong (Positive)
		Decision-making quality	Mixed (Positive)
	Strategy-related *(internal)*	Social and environmental accountability	Weak (Positive)
		Integration of sustainability issues in strategy	Mixed (Positive)
		Potential for organizational change	None

Fig. 2 (continued)

			(Positive)
	Stakeholder-related *(external)*	Stakeholder engagement	Strong (Positive)
		Legitimacy	Strong (Positive)
	Financial market-related *(external)*	Information asymmetry	Weak (Negative)
		Cost of capital	None (Negative)
		Analyst forecast accuracy	Strong (Positive)
		Incorporation of non-financial information/ integrated reports in investment decisions	Mixed (Positive)
		Long-term investor base	Strong (Positive)

Fig. 2 (continued)

IR framework, it is surprising how little research exists on that topic, and how inconclusive the existing studies' results are.

Despite the lack of evidence for higher levels of connectivity in integrated reports, the studies we reviewed suggest that IR does have an effect on internal management processes. Notably, it leads to *enhanced collaboration* and *improved risk assessment* procedures. We note, however, that these results are based on surveys and may therefore be prone to subjective response biases. Further qualitative and quantitative studies would thus be important to corroborate these preliminary findings.

Taken together, our review of the empirical literature suggests that IR is neither a threat to the progress in accounting for non-financial business impacts, as we found no worrying evidence for the systematic negligence of important sustainability issues (e.g., de Villiers et al. 2014). Nor does IR seem to advance sustainable business efforts profoundly (e.g., Lai et al. 2016). Rather, the results lend support to an interpretation of sustainability reporting as a strategic tool. Such an interpretation has been championed by researchers of conventional sustainability reporting before. They argue that firms voluntarily disclose sustainability information for mainly strategic reasons, be it to signal their superior sustainability performance (Clarkson et al. 2008; Schreck and Raithel 2015), or to seek legitimacy in the market when it is threatened (Cho and Patten 2007; Aerts and Cormier 2009). This argument can be extended to the case of Integrated Reporting because the evidence we reviewed suggests that firms adopt this new reporting format when they can afford it and when there is something to gain from it.

More precisely, our analysis of *determinants* of IR revealed that the firms issuing integrated reports tend to be large, profitable companies that operate in highly competitive markets and countries with a strong economy and civil law political system. These companies have the resources as well as political, public and competitive

pressure to engage in extensive reporting. IR, in turn, is a rational response to such pressures: For example, the evidence we reviewed suggests that IR has positive effects on external stakeholder engagement (e.g., Burke and Clark 2016), it helps enhance a company's legitimacy (e.g., Beck et al. 2015) and has positive effects on market valuation (e.g., Barth et al. 2017).

5.2 Research implications and limitations

Our findings have important consequences and offer avenues for future research. We first comment on two methodological issues before we highlight three potential avenues for further research.

To achieve a higher level of comparability, we propose that future studies should be *more homogenous in terms of both methodology and data*. Differences in research designs and samples might explain some of the ambiguity in the results we reviewed. For example, sample sizes of the archival studies ranged from 15 (Clayton et al. 2015) to 2000 companies (Churet and Eccles 2014). And our review of literature analyzing whether the collaboration between departments has increased, includes only one study which failed to detect this relation, but which is based on three interviews only (Perego et al. 2016).

Another methodological issue concerns the *quality, as opposed to the quantity of the information* disclosed in integrated reports; and the exact operationalization of the two constructs. As the quality of integrated reports generally increases over time (e.g., Haji and Anifowose 2016), a more sophisticated measure of this quality and level of integration might improve the operational foundations of future studies. So far, researchers have applied very different approaches to quantifying IR. Some studies simply use dummy variables to indicate whether the IIRC's guiding principles, content elements, and capitals are present or absent in an integrated report (Moloi 2015). Others use more complex measures. For instance, Haji and Anifowose (2016) developed an index with 52 items based on the IIRC framework and used weighted scores in order to determine the report's level of integration and quality.

Interestingly, hardly any study on the determinants of IR considers reporting quality. Only Arguelles et al. (2015) have developed a score to match the level of integration with certain determinants. Most other studies simply use dummy variables with values '1' or '0', depending on whether or not the firm publishes an integrated report. Given the diverse institutional approaches and pressures to IR in different countries, however, it would be interesting to relate reporting quality to determinants such as region or political system. The relation between CEO characteristics or other person factors and IR might also be of great interest, but has not been examined yet.

Based on our review of the empirical literature, we further propose that more research is needed in mainly three areas. The first relates to the *connectivity* of the information included in an integrated report. Although the principle of connectivity between different kinds of financial and non-financial information is central to the concept of IR (IIRC and SASB 2013), our review suggests that there is almost no research on this very topic. This research gap calls for more conceptual work on how connections between different kinds of performance indicators could be

established and measured. For example, researchers could develop techniques to express sustainability issues in financial terms and vice versa. These may relate to the costs of meeting certain sustainability goals; the specific (financial) returns on investments in sustainability issues; or the marginal environmental impact of alternative sustainability investment opportunities. To the extent that integrated reporting is meant to reflect a profound integration of hitherto separated concepts, we are in need of more suggestions on how to construct truly integrating indicators; more rigorous ways to measure levels of connectivity; and more empirical research on the consequences of varying levels of connectivity.

A second area of future research relates to potential *shifts in reporting content* that may come along with the adoption of IR. One of the critics' main worries is that IR is too much financial markets oriented and hence would lead to a negligence of information that may be important in terms of sustainability, but that has little financial impacts for the company (e.g., Cheng et al. 2014b; Flower 2015; van Bommel 2014). Although our review did not find any support for this potential drawback of IR, this is mainly because of a lack of empirical studies on the matter. We hence call for more qualitative and quantitative content analyses of integrated reports to evaluate whether any disadvantageous shifts in content come along with the new reporting approach. Given the steadily rising number of reports issued according to the IIRC framework, the time is apt for such analyses.

Thirdly, our review reveals that we know a lot about the financial market impacts of IR, such as on a company's cost of capital, market value, and investor behavior (Velte and Stawinoga 2017). However, much less is known about the effects of IR on sustainability performance. Only one study in our sample analyzed the impact of the level of integration in integrated reports on ESG performance (Maniora 2015). The author detected a negative relation between the reporting approach and ESG performance suggesting that IR prioritizes financial over non-financial information and does not necessarily drive a more holistic understanding and decision-making within the company. This study is an important step towards a deeper understanding of the ultimate consequences of IR. But whether IR is a threat to or a support for the advancement of sustainability, still remains a remarkably underresearched topic. Future studies should thus continue to investigate the consequences that IR has on the reporting firms' ESG performance, and on its particular subdimensions such as environmental, social and governance issues.

These implications notwithstanding, we acknowledge our study has certain limitations. One such limitation exists due to our review not being designed as a quantitative meta-analysis. Our systematic, narrative review does not allow for robust conclusions on the magnitude of the various effects of IR, for example on sustainability performance. To estimate such effect sizes would require more primary quantitative studies on the effects of IR on sustainability performance, which do not exist, yet. However, given the speed at which the field develops, such analyses should be possible soon. Another limitation of our review is implied by the bird's-eye view it takes. This perspective was necessary to provide a comprehensive account of the internal and external implications of IR. However, such a comprehensive approach fails to go in-depth with any of the particular implications such as integrated thinking and

managerial decision making. More fine-grained, in-depth analyses will become possible as soon as more qualitative studies exist on the effects of IR.

6 Conclusion

In order to gain a deeper understanding of the rationale for, and the consequences of IR, we set out to systematically review the empirical literature on IR. In particular, our goal was to provide a systematic account of existing empirical studies that identify antecedents of the adoption of this new reporting approach; and the consequences that IR has inside and outside the firm. The evidence we reviewed from 32 studies suggests that integrated reporting has some positive implications, such as an improvement in data quantity and quality, and improved collaboration on sustainability issues within the firm. In contrast, our review provided inconclusive results on whether IR advances sustainability performance. We took these findings to call for more research in the field of IR, notably on the connectivity of financial and non-financial information included in integrated reports; potential shifts in the content of such reports; and the ultimate consequences of IR on companies' ESG performance.

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