INTEGRATED REPORTING AND SUSTAINABLE STAKEHOLDERS:

An examination whether the implementation of an IR mandate enhances sustainable stakeholder benefit

Abstract

This study examines whether the sustainability stakeholders of publicly listed South-African firms have benefited from the implementation of an integrated reporting mandate. Based on a new way of sustainable thinking, society and the accounting profession have concluded that the traditional reporting model is inadequate, as it is based on a shareholder perspective and has an historic emphasis. The IR framework is said to address these needs, as it incorporates a stakeholder perspective and reports on value creation in the short, medium and long term. I attempt to test this assertion by answering the following research question: *Do sustainable stakeholders of publicly listed South-African firms benefit from the implementation of an IR mandate?* Using a propensity matched difference-in-difference research design based on a fixed-effect model, I found that firms issuing an IR are more likely to benefit either societal/communal and environmental stakeholders relative to firms not issuing an IR. In addition, I find minor evidence that both societal/communal and environmental stakeholders are more likely to receive more benefit from firms after the implementation of the IR mandate. For the other sustainable stakeholder groups (the government), no association was found to indicate an increased or decreased likelihood of benefit. Combined, these results suggest that the implementation of an IR mandate is not likely to affect the likelihood that firms will benefit sustainable stakeholders. Based on these findings, I conclude that the sustainable stakeholders of publicly listed South-African firms have not benefited from the implementation of the IR mandate. Future studies should examine associations between sustainable stakeholders and IR by employing different operational measure. Moreover, future studies should examine the two constructs in settings other than South-Africa.

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1 INTRODUCTION

The world has been changing rapidly in recent decades. Take Glacier National Park for instance. This park is located in the U.S. state of Montana and is commonly known as the pride of the continent (Montana , 2017). The park harbours ranges of mountains carved by prehistoric ice river and features alpine meadows, deep forests, waterfalls and 200 sparkling lakes. But its prime set pieces are its beautiful glaciers. At the opening of the park in 1910, 150 active glaciers graced the park. By 2010, however, this number was significantly reduced to 25 (Montana , 2017). Other parts of the world also experience the rapidly changing environment: Ice on rivers and lakes is breaking up earlier, plant and animal ranges have shifted and trees are flowering sooner. This change is expected to continue, as scientists have predicted that, in the long term, the frost-free season will lengthen and both temperatures and sea levels will rise. All these effects on the environment are consequences of the gradual heating of the earth, or global warming (National Aeronautics and Space Administration, 2017).

Global warming is not a natural occurrence; rather, it is the primary result of human activity (IPCC, 2013). Consequently, such trends epitomize the need for society at large to incorporate the concept of sustainability into daily conduct (IFAC, 2017). *Sustainability* is commonly defined as a development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Worlds Commission on Environment and Development, 1987). Yet, the concept of sustainability goes beyond just the protection of the environment. The environment should be viewed as one of the interrelated and complementary pillars that uphold the concept's structure. Social development and economic development are considered the other pillars (Lehtonen, 2004).

Based on the new sustainable way of thinking, society is questioning the basic reason for an organization's existence (IFAC, 2017). The public argues that the current focus of organizations on profit maximization is too narrow, as it excludes the creation of value and justice for people, society, and the environment (Gray, 2006)**.** Society demands that organizations look beyond the shareholder to simultaneously take the future into account (Dumay, Bernadi, Guthrie, & Demartini, 2016). The traditional financial reporting model, however, is not able to meet such a demand, as it is based on a shareholder's perspective and has an historic emphasis. Therefore, society and the accounting profession draw the conclusion that the traditional reporting model is inadequate to address the changed needs of society at large (Flower, 2015; IFAC, 2017).

This is where integrated reporting (IR), which is an evolution of financial reporting, rises to the forefront (Mio, 2016). By integrating governance and sustainability information into annual reports, IR

transcends the stand-alone financial and sustainability report and thereby embedded stakeholder accountability within a firm's core of operations (ACCA, 2012). Consequently, IR is currently being promoted as *the* solution to address the shortcomings of financial reporting, predominately by the *International Integrated Reporting Council* (IIRC).

The IIRC was officially formed in December of 2010. On this date, the two organizations which founded the council, the Prince's Accounting for Sustainability Project (A4s) and the Global Reporting Initiative (GRI)—the two leading organizations in the field of accounting sustainability at the time—issued a joint press release (Dumay et al., 2016; Flower, 2015). This release provided a clear and unambiguous view of the objectives of the council: namely, *to create a globally accepted framework and save the planet* (Flower, 2015)! The first steps taken to attain these idealistic objectives were made with the design and publication in December of 2013 of the *International IR Framework*. The purpose of this IR framework is to "*establish guiding principles and content elements that govern the overall content of an integrated report, and to explain the fundamental concepts that underpin them"* (IIRC, 2011, p. 2). Moreover, the framework aims to "*improve the quality of information available to providers of financial capital to enable a more efficient and productive allocation of capital"* (IIRC, 2013, pp. 1-4).

However, the stated aim of the framework is controversial, as it is a direct contradiction of the initial objectives set out by the IIRC (Gray and Milne, 2013; Flower, 2015; Dumay et al., 2016). By viewing the providers of financial capital—or shareholders, investors and debtors—as the primary users of an IR, the IIRC neglected one of its unique selling points: incorporating a stakeholder perspective. None of these papers, however, have the empirical data to support their claims, which I view as a shortcoming.

What does the empirical literature say about IR? It is shown that IR improves the quantity of social, environmental and ethical information, drives positive changes within organisations, results in a better articulation of strategy and business models, is value-relevant to investors and produces a more long-term-oriented investor base (Serafeim, 2014; Zhou, Simnett, & Green, 2017; ACCA, 2012; Black Sun, 2012). However, I believe these studies have multiple shortcomings.

First, a large number of the studies conducted on IR have been published by organizations that are not only known supporters of IR but are also associated with the IIRC: e.g., the Association of Chartered of Certified Accountants (ACCA) and Black Sun (Flower, 2015; Dumay et al., 2016). Consequently, it is most likely that the goal of these studies is to promote the reporting form rather than to provide a critical note. Thus, the biased findings of organizations such as the ACCA and Black Sun are inadequate to critically assess IR. Second, the majority of the studies of IR have examined the reporting form from a *shareholder* perspective (e.g., ACCA, 2012; Serafeim, 2014; Zhou et al., 2017). These

studies, however, neglect the very component that is supposed to differentiate IR from other forms of corporate reporting: a *stakeholder* perspective. Third, as Gray (2010) points out, despite advances in sustainable accounting, there is little evidence that such initiatives have significantly reduced the negative social and environmental effects of organizations. This argument is also applicable to IR as, to my knowledge, no study has provided evidence of the sustainable effects of IR.

In combination, the shortcomings of both the literature on IR and the IR framework raise an interesting empirical question which this paper attempts to answer. The aim of this thesis is to test the validity of the assertion made by the IIRC: An IR benefits all stakeholders and will lead to the saving of the world. In other words, I examine the association between sustainability, stakeholders, and IR by answering the following research question:

RQ: Do sustainable stakeholders of publicly listed South-African firms benefit from the implementation of an IR mandate?

I focus on the sustainability class of stakeholders: the society/community, the environment and the government. This study utilizes an empirical analysis based on firms that were listed on the South-African Stock Exchange (JSE) during the periods 2005-2016 and 2008-2016 with respect to governmental stakeholders and communal/societal and environmental stakeholders.

Following Zhou et al. (2017), I examine firms that are listed on the JSE. For two reasons, South Africa provides a proper setting in which to assess the effects of IR implementation. First, since the implementation of a new corporate governance code in 2010, King III, South Africa is the only country in the world which mandates publicly listed firms to publish an IR on an "apply-or-explain" basis (Institute Of Directors, 2009). Such an intertemporal change in the legislation of the country provides an exogenous shock, which mitigates the biases which exist in a voluntary setting. Second, the IR principles of King III and the IR framework are closely related, as the IR framework emanates from the King III report (Dumay et al., 2016). Moreover, the Integrated Reporting Committee of South Africa (IRCSA) both endorses the IR framework and maintains a cooperative relationship with the IIRC to ensure that the local guidance is in line with that of the IIRC (2011). Thus, although the IR framework is not officially implemented in this country, both frameworks are closely related. Given this argument plus the fact that this setting mitigates endogeneity concerns, South Africa provides an ideal setting in which to assess the benefits pf IR implementation.

An empirical format is chosen because prior studies have extensively discussed and analysed the IR discourse. However, these studies have failed to provide empirical evidence to corroborate their ideas. In addition, previous empirical investigations of IR have been conducted primarily from a shareholder's perceptive. I believe that such a perspective is too limited to fully comprehend the complexities that make up an IR. Accordingly, I employ a difference-in-difference analysis strategy. Such a strategy enables me to make causal inferences about the effects of changes in rules and regulations by approximating and including a counterfactual sample (Petersen, 2004). The counterfactual or control sample consists of firms that do not issue an IR. Consequently, the control sample is propensity matched with a treatment sample: i.e., firms that do issue an IR. The analysis is performed through a fixed-effect (FE) regression model.

For the full sample period, I document a significant difference between the benefits of both communal/societal and environment stakeholders associated with firms which issue an IR and firms which issue only a financial report. Additionally, the benefits for environmental and societal/communal stakeholders are significantly higher in the period after the mandate relative to the preceding period. On the contrary, for governmental stakeholders, no significant difference is suggested in benefits between either firms which issue an IR and firms which issue only a financial report, or before and after implementation of the mandate. Furthermore, none of the findings associated with the interaction variables of each stakeholder group suggest a statistically significant coefficient. These findings indicate that the benefits of sustainable stakeholders are not affected by the implementation of the IR mandate in South Africa. Consequently, the stated research question of this thesis is answered negatively. That is, I conclude that sustainability stakeholders of South-African publicly listed firms do not benefit from the implementation of the IR mandate.

This thesis is split into six chapters. Chapter 2 provides the theoretical background and describes the most relevant concepts, theories and related literature. Then, in the third chapter, by combining the theory and concepts provided in the second chapter, the hypothesises are formulated to empirically test the research question. The fourth chapter presents the research model and discusses the processes related to data collection and data preparation. Chapter 5 presents the empirical results and discusses the analysis of these results. Finally, I draw a conclusion in the sixth chapter which in effect constitutes an answer to the research question of this thesis.

2 THEORETICAL BACKGROUND

The aim of this chapter is to discuss the background of the research problem. The chapter begins by citing and describing the two relevant concepts and associated theories in sections 2.1 and 2.2. Finally, Section 2.3 combines the insights of 2.1 and 2.2 to discuss the framework's issue.

2.1 SUSTAINABLE STAKEHOLDERS

Sustainable stakeholder is an essential notion for anyone who would grasp the main theme and directive of this thesis. The aim of this paragraph is to demarcate sustainable stakeholders and clarify what the concept entails to the readers. This objective is met by providing answers to three basic questions concerning sustainable stakeholders: *Why,* in relation to stakeholders in general, do firms choose to issue an IR? *Who* are these stakeholders? And *what* benefits do sustainable stakeholders receive from a firm? In what follows, each of these raised questions is discussed in order.

2.1.1 Stakeholder Theory

This section discusses *why* firms choose to publish an IR based on the stakeholder theory. This theory addresses the nature of the organization-stakeholder relation in terms of the processes and outcomes for both groups (Freeman, 1999). Stakeholder theory states that there are various groups of stakeholders, each with divergent expectations about how a firm should perform. Moreover, each of these expectations or interests has an intrinsic value. By confiding in the expectations of each stakeholder group, through social contracts based on mutual trust and cooperation, a firm is able to gain a competitive advantage, and, consequently, increases its value. Vice versa, this proposition does not hold. That is, if a firm fails to take proper account of the associated stakeholders, firm value will either stagnate, remain constant, or decrease (Jones & Wick, 1999). To prove to stakeholders that they are adhering to stakeholder needs, firms attempt to be transparent by issuing information. Thus, in this sense, IR can be viewed as an information vessel designed to improve transparency and prove to stakeholders that a firm is meeting expectations.

2.1.2 Deriving Sustainable Stakeholders

Sustainable stakeholders are a class within the *stakeholder* population. The term *stakeholder* is a literary device created to question the organizational emphasis on shareholders. It is defined as, "*any group or individual who can affect or is affected by the achievement of the organization's objectives"* (Freeman, 1984, p. 46). Like shareholders, stakeholders are considered to have the right to demand certain actions from management (Freeman, 2001). In addition, the term "*sustainable stakeholder*" accumulates in one

class all those stakeholder groups which are considered to be essential to fostering the future generations' ability to meet their own needs without compromising the needs of the present. In line with Andrikopoulos and Webber (2014), I categorize the following stakeholder groups in the sustainable stakeholder class: the community, society, the environment and the government. The latter two groups are considered to be one.

2.1.3 Sustainable Stakeholder Benefits

Various relations exist between sustainable stakeholders and firms. This section discusses these interrelations and emphasizes the benefits that are produced for sustainable stakeholders.

A local community and society give form to a firm's various locations. This stakeholder group provides a firm with a supply of employees and tax benefits and facilitates the local political environment (Andrikopoulos & Webber, 2014). Moreover, the community/society has the ability to enforce regulations upon a firm in reaction to actions which the group deems inadequate. On the other hand, this stakeholder group can receive various benefits from the firm, both in economic and non-economic forms. Through acts such as donating cash, volunteering staff time at communal/societal organizations and donating goods to charities, firms enable a community/society to improve the quality of life by providing it with the means to address its needs, which is a benefit to this stakeholder group. Other benefits include interaction with the firm—e.g., community leaders' attendance at board meetings, the act of protecting public health by the firm and firms' undertaking a culture which respects business ethics (Thomas Reuters, 2013; Andrikopoulos & Webber, 2014).

Evidently, the benefits associated with the community/society stakeholder group are complex and multidimensional in nature. Thus, any operationalization that is focused solely on a sub-component would fail to fully capture the complexities of this stakeholder group, and, consequently, would be inadequate to examine the construct. To address this issue, I employ an environment, social and governmental score comprised by Thomas Reuters (2013). Based on company reported data, Thomas Reuters transparently and objectively measures relative performance among several dimensions to derive an environment, social and governmental score. For the community/society stakeholder group, I utilize the society/community category (*SOCO*). *SOCO* measures the effectiveness and commitment of the management of a specific firm towards the maintenance of its reputation within the community. For a detailed description of this variable, please see the variable definition Table A.1 presented in the appendix.

The environment both directly and indirectly influences a firm, as it has the potential to drastically change the different settings firms operate in. Moreover, the environment provides firms

with raw materials which are essential in the value-making process (Andrikopoulos & Webber, 2014). In practice, the environment is made up of individuals and groups who lobby for or act on behalf of this stakeholder group: e.g., Greenpeace and other nature-protection organizations. In contrast, firms directly affect the environment by producing environmental emissions. Environmental emissions include air emissions such as carbon dioxide (CO_2), greenhouse gases and F-gases, waste, and spilled water (Thomas Reuters, 2013). All of these emissions can have a disastrous effect on the environment, as they enhance global warming (IPCC, 2013). Thus, firms can foster benefit to the environment by minimizing the emissions they produce via pollution and waste management, environmental-product responsibility and appropriate resource planning (Thomas Reuters, 2013; Andrikopoulos & Webber, 2014; Lyon & Maxwell, 2008). To increase the effectiveness of such minimization, firms can partner up with environmental organizations. Like community/society stakeholders, the environmental stakeholder group is complex and multidimensional in nature. Thus, the benefits of this stakeholder group are examined by employing the Thomas Reuter's emission-reduction category (*ENER*). *ENER* measures a company's management commitment and effectiveness towards reducing environmental emission in production and operational processes. For a detailed description of this variable, see the definition Table A.1 in the appendix.

Table 2.1 - Corporate Income Tax in South-Africa

Average	2005	2006-2007	2008-2012	2013-2016
33.03%	37.78%	36.89%	34.55%	28%

This table presents the applicable and average corporate income tax in South Africa for the period 2005-2016.

Finally, governments cater to and oversee the economic processes of a country such that organizations are dependent on this stakeholder group. Governments supply subsidies to firms, design labour-market norms and provide working hours' directives. The main benefit governments receive from organizations are taxes, such as employee- and corporate-income tax (Andrikopoulos & Webber, 2014). A recurring issue, however, is that firms are able to significantly manipulate the percentage of tax paid through aggressive accounting practices (Chen, Chen, Cheng, & Shevlin, 2010). A highly recognized way to assess the aggressiveness of a specific firms' accounting practices related to corporate tax is the effective tax rate (ETR) (Chen, Chen, Cheng, & Shevlin, 2010; Mahenthiran & Kasipillai, 2012). When firms pay a higher percentage of tax, governments are able to collect more capital; hence, they have more financial flexibility in governing. Thus, ETR is inversely related to governmental benefits. Table 2.1 reports the

corporate income tax percentage charged in South Africa. The current rate is 28%, whereas the average rate for the period 2005-2016, is 34.31%.

It should be noted, however, that a fundamental issue with utilizing scores as proxies for a specific variable is that there is an inherent subjectivism embedded within the forming of scores, despite the fact that the organizations which comprise such scores argue otherwise. Objectivity in science is an illusion, as has been shown by promulgators of the sociology-of-scientific-knowledge (SSK) approach. This approach argues that the judgement of every individual is dependent on the beliefs of the community he or she is a part of (Boumans & Davis, 2015). Perfect objectivity and neutrality, therefore, can never be realized. This argument can be extended to the forming of scores: There is an inherent subjectivity in establishing scores which are linked to different groups and communities that exist within the organizations forming the scores. This paper attempts to mitigate the aforementioned inherent risk of scores by employing a second measure in addition to the environment, social and governmental-score. A second quantitative measure makes it possible to corroborate the main findings based on the scores. For respective communal/societal and environmental stakeholders, I employ the following additional measures: The total number of donations and the total amount of CO_2 emissions.

Total donations is an economic measure which reflects the capacity of a firm to maintain its license to operate by being a good citizen (Thomas Reuters, 2013). This variable is chosen as an additional measure due to measuring issues associated with non-economic benefits. Additionally, CO_2 emission is chosen for two reasons. First, CO_2 emissions account for 65 percent of total emissions due to human activity, making it the largest contributor to global warming (IPCC, 2013). Second, the data available in the other emission forms was limited to the point that it is impossible to draw statistical interferences about the associations between IR and sustainable stakeholders (Thomas Reuters, 2013). Despite the addition of these measures, inherent bias is impossible to fully eliminate, which is a limitation of this study.

2.2 THE IR FRAMEWORK

The field related to IR is fragmented, cluttered and highly contested, as Perego et al. (2016) point out. I focus solely on the concept of IR as formulated by the IIRC, which is embodied in the IR framework. The framework adopts a principle-based approach and governs the content of an IR. *IR* is defined as "*a process founded on integrated thinking that results in a periodic integrated report by an organisation about value creation over time and related communications regarding aspects of value creation (IIRC, 2013, p 33)".* This section is divided into two subsections. Section 2.2.1 centres attention on the content

Table 2.2 - The Guiding Principles and Content Elements

Panel A - The Guiding Principles	
Principles	Description
Strategic focus and future orientation	An integrated report should provide insight into an organization's strategy and how it relates to an organization's ability to create value in the short, medium and long term and to its use of and effects on the capitals.
Connectivity of information	An integrated report should show a holistic picture of the combination, interrelatedness and dependencies of the factors that affect an organization's ability to create value over time.
Stakeholder relationships	An integrated report should provide insight into the nature and quality of an organization's relationships with its key stakeholders, including insight into how and to what extent an organization understands, takes into account and responds to legitimate needs and interests.
Materiality	An integrated report should disclose information about matters that substantively affect an organization's ability to create value over the short, medium and long term.
Reliability and Completeness	An integrated report should include consideration of all material matters, both positive and negative, in a balanced way and without material error.
Consistency and comparability	The information in an integrated report should be presented, (a) on a basis that is consistent over time, and (b) in a way that facilitates comparison with other organizations to the extent that it is material to the organization's own ability to create value over time.
Panel B - The Content Elements	
Principles	Description
Organization overview and external environment	What does the organization do and what are the circumstances under which it operates?
Governance	How does the organization's governance structure support its ability to create value in the short, medium and long term?
Business Model	What is the organization's business model?
Risk and Opportunities	What are the specific risks and opportunities that affect the organization's ability to create value over the short, medium and long term, and how is the organization dealing with them?
Performance	To what extent has the organization achieved its strategic objectives for the period, and what are its outcomes in terms of effect on the capitals?
Outlook	What challenges and uncertainties is the organization likely to encounter in pursuing its strategy, and what are the potential implication for its business model and future performance?
Basis of presentation	How does the organization determine what matters to include in the integrated report, and how are such matters quantified or evaluated?

This table presents the guiding principles and content elements of the IR framework (IIRC, 2013). Panel A reports the guiding principles. The guiding principles provide the fundaments for the preparation of an IR by stating the requirement for the information content and the consequential presentation of such information. Panel B presents the content elements. The content elements are associated with one another and are not mutually exclusive.

of the IR framework and discusses the significant features of its approach to IR. Section 2.1.2 discusses what the framework states for stakeholders and how benefits are induced by the issuing of an IR.

2.2.1 The Significant Features

The significant features which distinguish IR from other forms of reporting are the following: the guiding principles, the content elements and the value-creation process (IIRC, 2013). In what follows, each feature will be discussed in order. The framework is based on guiding principles and content elements which, according to Mio (2016), are not only regarded as the spine of IR but also as the embodiment of the main innovative facets of the reporting form. The guiding principles provide the fundaments for the preparation of an IR by stating the requirement for the information content and the consequential presentation of such information (IIRC, 2013). The content elements, on the other hand, are associated with one another and are not mutually exclusive. Table 2.2 lists the guiding principles and the content elements in respective order.

Mio (2016) argues that, compared to traditional financial and non-financial disclosures, the most innovative principles of the IR framework are the following: the business model, strategic focus and future orientation and connectivity and materiality. The business model, strategic focus and future orientation enable a firm to publish relevant information about the future performance of the company, whereas the connectivity and materiality principles reflect both the integrated thinking approach and facilitate conciseness.

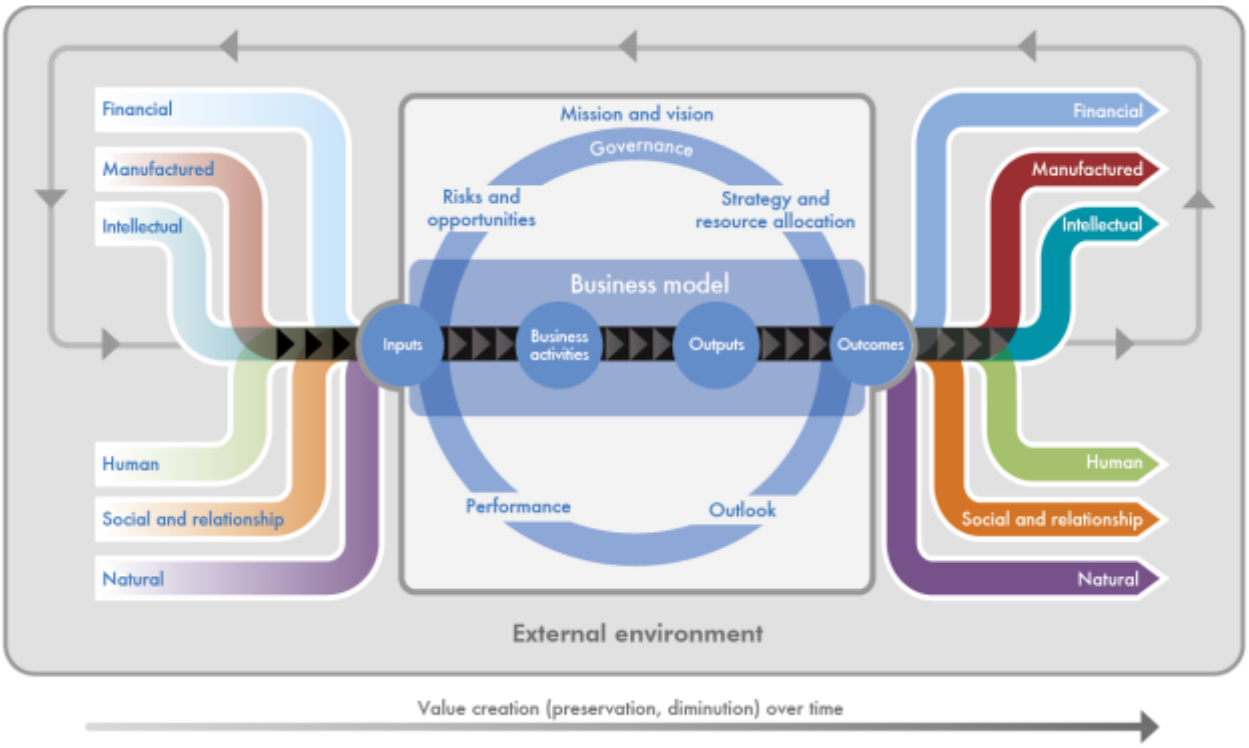

Figure 1 – the value-creation process (IIRC, 2013, p. 13)

Table 2.3 - The Six Capitals

Capital Type	Description
Financial	The pool of funds that is available to an organization for use in the production of goods or the provision of services and are obtained through financing, such as debt, equity or grants, or generated through operations or investments.
Manufactured	Manufactured physical objects that are available to an organization for use in the production of goods or the provision of services, including buildings, equipment and infrastructure. Manufactured capital is often created by other organizations, but it includes assets manufactured by the reporting organization for sale or retained for its own use.
Intellectual	Organizational knowledge-based intangibles, including intellectual property, such as patents, copyrights, software, rights and licences and organizational capital, such as tacit knowledge, systems, procedures and protocols.
Human	People's competencies, capabilities and experience, and their motivations to innovate.
Social and relationship	The institutions and the relationships within and between communities, groups of stakeholders and other networks, and the ability to share information to enhance individual and collective well-being.
Natural	All renewable and non-renewable environmental resources and processes that provide goods or services that support the past, current or future prosperity of an organization.

This table presents the six capitals of the IR framework. *Capital* refers to stocks of value that are increased, decreased or transformed through the activities and outputs of the organization. The capitals underpin the concept of value creation and are categorized as financial capital, manufactured capital, intellectual capital, human capital, social and relationship capital, and natural capital (IIRC, 2013, p. 11).

The value-creation process is discussed in the final section of Chapter 2: Section D (IIRC, 2013). This section provides an overview of the process through Figure 1. From this figure, it is apparent that the value-creation process has three main elements: the organization, the capitals and the external environment. The value-creation process begins when a firm utilizes the six capitals as inputs. The capitals, listed in Table 2.3, are the stocks of value that are increased, decreased or transformed through the activities and outputs of the organization. Thereafter, through a firm's core (i.e., business model), these inputs are converted into output. An organization's ability to create value is influenced by its mission and vision, governance and business model (IIRC, 2013). A mission and vision set out a firm's purpose and intentions, whereas those charged with governance are responsible for creating an appropriate oversight structure. Thereafter, the output results in outcomes in terms of effects on the capitals. Eventually, the cycle repeats itself, as a firm's outcomes are used as components to draw the inputs from. The whole process should be examined and evaluated in the context of the external environment in which an organization operates (IIRC, 2013).

2.2.2 Stakeholder benefits induced by IR

Various sections of the framework are devoted to stakeholders, who, according to the framework, benefit from an IR (IIRC, 2013, pp. 7-20). Section 1C states that, "*An integrated report benefits all*

stakeholders interested in an organization's ability to create value (IIRC, 2013, p. 7)*".* It thus seems that only those stakeholders that are "interested" benefit from the issuing of an IR. After we dive a bit deeper in other sections which cover stakeholders, it will become apparent that stakeholder benefit is predominately induced by a firm reporting on the relationships between it and its associated stakeholders. The framework recognizes that the value created by a specific firm is enacted through the relationships between stakeholders and the firm, which should be reported on. Such reporting involves stating the legitimate needs and interests of key stakeholder groups (IIRC, 2013). It is assumed that firms take the needs and interests of stakeholders into account by reporting on them, and, consequently, this results in benefits for stakeholders, as firms adhere to such needs and interests (IIRC, 2013). The type of benefits an IR fosters, however, is not mentioned in the framework.

2.3 Does IR Enhance the Benefits for Sustainable Stakeholders?

This chapter combines the theory set out in the prior chapters concerning sustainable stakeholders and IR to determine, based on literature, whether IR will lead to benefits for sustainable stakeholders. In executing such an assessment, I follow the structure of Flower (2015). To date, Flower provides the most integral and thorough critical assessment of an IR-related subject by comparing the objectives of the IIRC to its current propositions with respect to the 2011 paper and the IR framework. Based on this comparison, Flower (2015) concludes that the current proposals represent a renunciation of its original objectives in three essential areas: the coverage of sustainability, the coverage of stakeholders and the lack of impact. Hereafter, each deficiency of the IR framework identified by Flower is discussed to answer the following question: Does IR enhance benefits for sustainability stakeholders?

2.3.1 Coverage of Sustainability

Both Flower (2015) and Thomson (2015) conclude that sustainability is not covered by the framework—neither explicitly nor implicitly. This section discusses the main arguments which support this conclusion and examines how it affects the class of sustainable stakeholders.

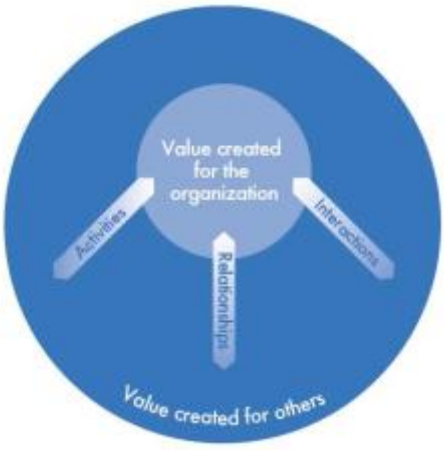

Figure 2 – Value created for the organization and value created for others (IIRC, 2013, p. 10).

First, the term *value*, as used throughout the framework, is interpreted as having a narrow definition (Flower, 2015; Adams, 2015). Section 2B of the framework examines value creation. It states that, *"the value created by an organization over time manifests itself in increases, decreases or transformations of the*

capitals caused by the organization's business activities and outputs (IIRC, 2013, p. 10)". The concept has two aspects: value created for the organization itself and value created for others (IIRC, 2013). Each aspect of value creation is related to the other through a wide range of activities, interactions, and relationships, as depicted in Figure 2. These interrelations are included in an organization's IR. They affect the ability of a firm to create value for itself (IIRC, 2013). Evidently, the centre for value creation is the firm itself. Given that the primary users of an IR are the providers of financial capital, the term *value* should be interpreted as "value for investors". This is a narrow definition (Adams, 2015; Flower, 2015; Thomson, 2015). Such a narrow definition severely limits the scope of the framework. By reporting only on value created for others—that is, on an organization's own ability to create value—the framework excludes a potential significant portion of the value created for others. This, in effect, limits the benefits for sustainability stakeholders, as the needs and interests of this group is only partially taken into account.

Second, the framework incorporates reporting on capital to the extent that it has a material influence on a firm (IIRC, 2013, p. 11). However, vice versa, such an association is not included. For instance, natural capital is covered only to the degree it is determined to be a factor in a firm's production process. How a firm affects the natural capital, on the other hand, is not taken into account. Based on this, one can conclude that the framework does not facilitate the comprehensive reporting of different capitals, which, again, limits the scope of the framework (Flower, 2015). Such a limitation has the same effect on sustainability stakeholders as the narrow definition the framework adapts for *value*: It excludes the effects that the firm has on stakeholders. In addition, it provides firms with an opportunity to neglect reporting on the stakeholder characteristics that are utilized as inputs. Consequently, the firm is not able to take into account the needs of the sustainability stakeholder class. In combination, these deficiencies of the reporting on the six capitals imply that the benefits for the sustainability stakeholder class are either severely limited or take on no value at all.

Finally, overall sustainability is said to be achieved either when each of the six capitals endures no decrease as a result of a firm's actions, or when a decrease in one capital is offset with an increase in another capital (Adams, 2015). Due to the difficulty in measuring the capitals in a consistent and comparable manner, Flower (2015) argues that each trade-off is ambiguous in light of sustainability. Flower (2015) is specifically concerned with the trade-offs related to the natural capitals, since each decline in this capital is unlikely to be in the interests of society, let alone future generations, especially if this decline is offset with financial capital. By allowing trade-offs between adverse capitals, Flower believes that, "*the IIRC is making it easy for firms to justify their negative impact on the environment*"

(2015, p. 8). The suspicion of the author is corroborated by a statement in Section 4.56 of the framework: "[an IR should disclose] *the important trade-offs that influence value creation"* providing as an example *"creating employment through an activity that negatively affects the environment"* (IIRC, 2013, p. 31). In light of sustainable stakeholders, this shortcoming is problematic, as benefits to this stakeholder class are interchangeable with benefits to other stakeholder classes. As shareholders are the primary users of an IR, it is most likely that sustainable stakeholders will take a second seat and have their benefits diluted to enhance the benefits provided to shareholders.

In sum, it has become apparent that the framework adopts a narrow definition for *value*, does not facilitate comprehensive reporting on capitals and allows for disputable trade-offs between capitals, which implies that the framework does not cover sustainability. Both the inputs (i.e., the six capitals) and the outputs (i.e., value) are centered on a firm's perspective, thereby excluding a significant portion of the needs and interests of stakeholders in general and of sustainable stakeholders in particular. If firms do not take the needs and interest of stakeholders into account, then they are also in effect unable to respond to their needs and interests. Moreover, by allowing disputable trade-offs, the framework provides a margin through which all negative effects on stakeholders can be counterbalanced by positive effects on shareholders. Thus, it is most likely that an IR will not enhance benefits for sustainable stakeholders as compared to a financial report, because: How can one provide benefit to a class without addressing what is fundamental to this class?

2.3.2 Coverage of Stakeholders

The IIRC (2013) pretends to adapt a "*business case"* to IR in which a firm automatically benefits society if it maximizes its own value. However, by emphasising the importance of efficient capital allocation (IIRC, 2013, p. 4), primarily focusing on investors (IIRC, 2013, p. 2) and neglecting stakeholders (see Chapter 2.3.1), Thomson (2015), Brown and Dillard (2014) and Flower (2015) conclude that the IIRC's business case is based on a capitalistic rather than on a stakeholder theory. The problem with such a theory is that it is based on the idea of profit maximization for the benefit of capital providers. In deriving the profit for a specific firm, only the losses suffered by the firm are recognized: i.e., private costs. Social costs (i.e., losses suffered by society as a whole), on the other hand, are included in the equation only once the costs are transformed into private costs (Thomson; 2015). Although the framework recognizes the existence of social costs, such costs should only be reported on to the extent that they have a material effect on the firm's ability to create value (IIRC, 2013). Moreover, the framework does not mandate firms to report on social costs (Flower, 2015).

Thus, the IIRC has failed to acknowledge or seek the boundaries of the business-case view, as the framework does not allow an IR to cover the effects of the firm's activities on stakeholders in a comprehensive matter (Brown & Dillard, 2014). Alternatively, as Flower concludes, "*the approach to financial reporting that has been adopted by the IIRC is inconsistent with full reporting by the firm of the impact of its activities on stakeholders, on society and on the environment* (2015, p. 15)*".* Extending this argument to sustainable stakeholders, it is most likely that an IR will not induce enhanced benefits to sustainable stakeholders—especially as compared to financial reporting—since both are based on the same capitalistic theory. Yet, it is still possible for an IR to have a positive effect on the benefits for sustainable stakeholders. Such an effect, however, is expected to be either insignificant or low because the impact of the firm's activities on its stakeholder are not *fully* reported on.

Mio (2016), on the other hand, attempts to dispute the accusations made by Flower (2015), Brown and Dillard (2015) and Thomson (2015), as they should have examined the IIRC approach to stakeholders from a dynamic rather than a static perspective. Mio argues that the static perspective ends its analysis of IR at the moment the factors that do not have an effect on the firm's ability to create value are excluded from the report. The dynamic perspective, on the other hand, goes beyond such a moment, as it takes into account the potential subsequent actions of both stakeholders and the organization. After excluding certain factors from the IR, stakeholders who disagree with such an action can meddle in the process and make their voices heard. Thereafter, taking the opinions and arguments of the stakeholders into consideration, the firm can decide on three courses of action (Mio, 2016). First, the firm can amend its prior decision of excluding the issue from the IR. Second, the stance of the stakeholder can have a direct influence on the opinion of the providers of financial capital and can consequently lead to an inclusion of the issue at hand in the IR. Finally, the firm holds its stand and continues to exclude the issue from its IR. Fundamental to the process of integration and prioritization is the dialogue which follows after the stakeholder intervenes (2015). Mio (2016, p. 4) asserts that when the framework is examined from a dynamic perspective, as explained above, the IIRC's approach, "*appears to be a necessary first step toward the real integration of information on the six capitals, through interaction between companies and stakeholders".*

Clearly, a dynamic perspective would indicate that an IR has the potential to enhance the benefits for sustainable stakeholders, either by the firm including certain factors on its own, by stakeholders influencing shareholders, or through stakeholder intervention. For the latter to occur, it is expected that stakeholders are "active" throughout the engagement process and take responsibility for their actions (Mio, 2016). Yet it remains questionable whether firms, or providers of financial capital, will

adhere to the needs and interest of stakeholders, as they have divergent interests—especially since the capitalistic theory of prioritizing shareholders and profit maximization is embedded within firms and the framework. Thus, it is most likely, from a dynamic perspective, that the benefits for sustainable stakeholders, induced by an IR, are either insignificant or low.

2.3.3 Lack of Impact

The framework places very few obligations on its preparers (Thomson, 2015). Of the 168 sections contained in the framework, only 19 are considered obligatory (IIRC, 2013). For instance, Section 17 states that firms are not required to adapt the provided categories of the six capitals. Such a statement weakens the incentive for firms to report comprehensively on all the capitals they use or affect (Adams, 2015; Flower, 2015). Other examples include not requiring firms to report on social costs and not requiring firms to issue an IR as one report. There is a substantial risk embedded within the extent of the discretion adapted in the framework. Such discretion has the potential to be exploited by unethical managers to avoid reporting on issues that will cast negativity on a firm. Thus, it is most likely that an IR will have an insignificant effect on the financial reporting of firms, and, consequently, that it will be of little benefit to sustainable stakeholders (Flower, 2015).

In sum, it appears that the framework places an insignificant number of obligations on the preparers. By providing such an extensive margin for discretion, it most likely that the framework will have an insignificant effect on the financial reporting of the firm, and, therefore, that it will have an insignificant effect on sustainable stakeholders' benefits.

3 HYPOTHESES DEVELOPMENT

Based on the theory and insights presented in the previous chapters, this chapter forms hypotheses that will be empirically tested to answer the research question of this thesis. To my knowledge, the approach taken here to this subject is a novelty. This implies that, for environmental, social and communal stakeholders, there are no prior studies on which the hypothesis could be based. Therefore, the formulated hypothesis is developed through rational and logical argumentation.

The initial objectives the published IIRC asserted its ambition to be a sustainable evolution of the outdated financial reporting model mainly by incorporating a stakeholder rather than a shareholder perspective. The IIRC assumes that, by virtue of reporting on the needs and interests of stakeholders, firms automatically also take them into account. Such actions would, consequently, result in benefits for stakeholders, which is in line with the expectations formed by the stakeholder theory. This theorem states that firms issue an IR to show stakeholders that firms adhere to their needs. By adhering to the

needs of stakeholders, it is most likely that firms which issue an IR produce higher benefits for stakeholders in general and for sustainable stakeholders in particular.

The literature, however, presents a more pessimistic view. It is argued that the framework does not cover sustainability and does not allow firms to comprehensively report on the firms' activities on stakeholders. Combined, these deficiencies are such that the needs and interests of stakeholders which are taken into account by firms are severely limited. The needs which are taken into account can be traded off against the needs of shareholders, which are viewed as superior. Moreover, because of the business-case view, organizations are not likely to respond to "active" stakeholders who engage with a firm by making their voices heard. To top this off, the framework lacks the impact needed to force the firm to take the residual part of stakeholders needs and interests into account. Thus, it is most likely that an IR will be of little to no significant benefit to sustainable stakeholders. The likelihood of the latter effect occurring is remotely low, and if this would occur, the effect would be minimal.

Compared to financial reporting, an IR is believed to be superior when the benefits received by sustainable stakeholders are higher than those of financial reporting counterparts. When the benefits for sustainable stakeholders fostered by IR are either lower or equal than those of financial reporting counterparts, IR is believed to have no added value. Consequently, I am only interested in determining whether IR enhances the benefits. I therefore employ a one-sided test. Based on the above reasoning, the following hypothesis is formulated:

H1: Firms issuing an IR provide higher benefits to sustainability stakeholders as compared to firms that do not issue an IR.

The hypothesis above is stated in an alternative form. The corresponding null hypothesis is stated as follows: IR adoption does *not* have a positive effect on the benefits received by sustainable stakeholders. Moreover, the term *benefit* refers to multiple conditions that depend on the specific sustainable stakeholder group. For community/society stakeholders, *benefit* would refer either to the total donations of a firm or to the *SOCO* environment, social and governmental-score, both of which are positively associated with benefits. For environmental stakeholders, on the other hand, *benefit* relates to the total $C0_2$ emissions or the *ENER* environment, social and governmental-score. Where $C0_2$ emissions are inversely related to benefits, the *ENER* score has a positive association. Finally, for the government, *benefit* would refer to the *ETR*, which is positively associated.

4 RESEARCH DESIGN

This chapter provides the research design adapted in this thesis to enable me to empirically test and answer the research question. First, the measurements for the dependent variable, sustainable stakeholders, is presented and motivated in Section 4.1. Next, Section 4.2 presents the regression model. Section 4.3 offers a description of the sample and the data-collection process.

4.1 STAKEHOLDER MEASUREMENTS

Section 2.1.2 identifies each specific stakeholder group and Section 2.1.3 discusses the type of benefits sustainable stakeholders received from firms. This section extends the foundation set out in these prior chapters and describes how each respective group is measured in the empirical model I apply.

Society and the Community

The benefits of the society and community stakeholder group are operationalized through the environment, social and governmental score, *SOCO* and the total donations (*TD*). *TD* is calculated as total community donations relative to the total assets of a firm at the beginning of the year. The relative amount is taken to account for differences in the size of a specific firm. Equation 1 presents the final formula accompanied with each variable.

$$TD_{i,t} = Donations\ Total\ _{i,t}(SOCODP027\ )/Total\ Assets_{i,t-1}(WC02999). \quad (1)$$

The Environment

The benefits of environmental stakeholder group are operationalized through the environment, social and governmental score $ENER$ and the total emissions ($TE_{i,t}$), which is calculated as the sum of the CO_2-equivalent emissions relative to the total assets of a firm at the beginning of the year. The relative amount is taken to account for differences in the size of specific firms. The final formula of $TE_{i,t}$ is presented in Equation 2:

$$TE_{i,t} = C02\ Equivalents\ Emission\ Total\ _{i,t}(ENERDP023\ )/Total\ Assets_{i,t-1}(WC02999)\ . \quad (2)$$

The Government

The benefits associated with governments are operationalized through ETR. Prior studies tend to examine the construct via two distinctive measures: $ETR_{i,t}$ and the cash effective tax rate (Chen et al., 2010; Mahenthiran and Kasipillai, 2012). However, due to a lack of data needed to calculate the latter, I focus entirely on the former. $ETR_{i,t}$ captures aggressive tax planning by examining the differences which

exist between a firm's taxable income and the actual taxes paid (Mahenthiran & Kasipillai, 2012). The rate reflects the relative tax burden per firm and is calculated by dividing a firm's income taxes by its pre-tax income. Equation 3 presents the final computation of $ETR_{i,t}$, including the associated datastream code.

$$ETR_{i,t} = Income\ Taxes_{i,t}(WC01451)/Pretax\ Income_{i,t}(WC01401) \quad (3)$$

4.2 Research Model

4.2.1 Main Model

I examine the relation between IR and sustainable stakeholders by employing the differences-in-differences identification strategy of Li and Yang (2015), Fu, Kraft and Zhang (2012) and Landsman et al. (2011). This strategy makes it possible to draw causal inferences about the effects of changes in rules and regulations through approximating and including a counterfactual sample. Particularly, treatment firms, those that publish an IR, are matched with control firms — i.e., firms that do not publish an IR. Because IR in South Africa is mandated on an "apply or explain" basis, South-Africa provides an ideal setting for such an analysis. Both the treatment firms and the control groups can be derived from the applying firms and the explaining firms. To ensure that treated and control firms are comparable on a number of observable characteristics, I follow Iannou and Serafeim (2011) and use propensity score matching. Specifically, I match firms in the period preceding the implementation of the IR mandate on firm size $(SIZE_{i,t})$, profitability $(PROFIT_{i,t})$, growth opportunities $(GROWTH_{i,t})$ and leverage $(LEVER_{i,t})$. For each firm, the closest neighbour is selected based on the model presented in equation 4. In this model, the dependent variable is the dummy variable $IR_{i,t}$ that assumes the value of 1 if the considered firm issues an IR, and 0 otherwise.

$$IR_{i,t} = SIZE_{i,t} + PROFIT_{i,t} + GROWTH_{i,t} + LEVER_{i,t} + \varepsilon_{i,t} \quad (4)$$

In answering the research question, I utilize cross-section time-series data. The issue with such data is that it contains an inherent bias if it is examined via a simple ordinary least squared (OLS) regression (Fu et al., 2012). This bias is due to two dependencies. On the one hand, the residuals of the regression can be correlated cross-sectionally (i.e., residuals contain time effects); on the other hand, the residuals may be correlated across firms (i.e., residuals contain firm effects) (Petersen, 2004). Combined, firm effects and year effects cause the correlation of the explanatory variables and the error term, thereby causing

variability in the coefficient estimates of an OLS regression to be either over- or under-estimated. As a result, they can cause the OLS estimator to be inconsistent (Petersen, 2004; Chmelarova, 2006). To address this issue, I employ a fixed-effect (FE) regression model. In Section 4.4, additional tests are performed to determine whether a FE-model is appropriate for the examined models. Equation 5 presents the model:

$$SS_{i,t} = \beta_0 + \beta_1 IR_{i,t} + \beta_2 POST_{i,t} + \beta_3 IR * POST_{i,t} + \sum Control\ Variables_{i,t} + \varepsilon_{i,t} . \quad (5)$$

In this model, the dependent variable, $SS_{i,t}$, represents the respective measure for each sustainable stakeholder group's benefits, as is argued in Chapter 4.1. The main independent variables, on the other hand, $IR_{i,t}$ and $POST_{i,t}$, both represent dummy variables. The former assumes a value of 1 if the specific firm publishes an IR; the latter assumes such a value when the applicable observation occurred in the period after the implementation of the IR mandate (2011-2016). Although the mandate was officially introduced in 2010, the first year is considered to be a transition year (ACCA, 2012). Thus, it is likely that firms in this specific period were in the process of adapting to the compulsory reporting requirement, which could potentially affect the $SS_{i,t}$ variable. Therefore, 2010 is excluded from the post period[1]. In testing the hypothesis, the coefficient of focus is β_3, which is the coefficient of the interaction term ($IR * POST_{i,t}$). This variable represents the difference in the changes in each respective benefit received by sustainable stakeholders across treatment and control firms. If publishing an IR improves the benefits received by sustainable stakeholders, this coefficient should be positive and significant.

4.2.2 Control Variables

To mitigate endogeneity in the form of the correlated omitted variable, multiple control variables are included in the model. Variables are incorporated based on their correlation with either the measures of sustainable stakeholders or IR adoption, or both[2]. Consequently, I control for the size of the firm ($SIZE_{i,t}$), the firm's profitability ($PROFIT_{i,t}$), the growth opportunities of a firm ($GROWTH_{i,t}$) and the

[1] As a robustness check, each model was revaluated by extending the period for *POST* to 2010-2016. This did not alter the findings. Additionally, the results of each model were reassessed by dropping 2010 from the sample. The resulting findings remain robust.

[2] In this section, the motivations provided for inclusion of the control variables are centered on the association of each variable with the likelihood of IR issuance. However, it should be noted that the variables *SIZE, PROFIT, GROWTH* and *LEVER* are each shown to be associated with both *ETR* (e.g., Chen et al., 2010 and Mahenthiran and Kasipillai, 2012) and the disclosure of information on issues related to greenhouse-gas emissions and climate change worldwide (Prado-Lorenzo, Rodriguez-Dominguez, Gallego-Alvarez, and Garcia-Sanchez, 2009). The latter association is relevant for the variables associated with environmental stakeholders.

leverage of a firm ($LEVER_{i,t}$). Additionally, two dummies are included to control for industry-fixed ($INDUSTRY_{i,t}$) and year-fixed ($YEAR_{i,t}$) effects. The final model is presented below. This section motivates each of the included control variables are motivated in their order.

$$SS_{i,t} = \beta_0 + \beta_1 IR_{i,t} + \beta_2 POST_{i,t} + \beta_3 IR_{i,t} * POST_{i,t} + SIZE_{i,t} + PROFIT_{i,t} + GROWTH_{i,t} + LEVER_{i,t} + YEAR_{i,t} + INDUSTRY_{i,t} + \varepsilon_{i,t} \quad (6)$$

The size of the firm is positively associated with the likelihood of IR issuance (Frias-Aceituno, Rodrgiuez-Ariza, & Garcia-Sanchez, 2014). Furthermore, prior studies indicate a positive association between the size of a firm and the amount of financial and non-financial information issued (Patten, 1991; Deegan & Gordon, 1996; Prado Lorenzo, Gallego Alvarez, & Garcia Sanchez, 2009; Garcia-Sanchez, Rodriguez-Dominguez, & Gallego-Alvarez, 2011). The larger a firm's size, the larger the interests gap between managers on one side and shareholders and creditors on the other—predominately due to the increasing information asymmetry. The issuance of an IR can be motivated by managers as a way to reduce information asymmetry and, thereby provide firms with enhanced competitive advantage on the capital market (Frias-Aceituno et al., 2014).

A firm's profitability, on the other hand, is considered an indicator of the quality of investment (Frias-Aceituno et al., 2014). When a firm generates high returns, it is more likely to seek means to differentiate itself from less lucrative firms and thereby reduce the risk of attracting adverse opinions in the market. The publication of an IR is considered a way to facilitate this. Thus, the likelihood of the production of an IR is positively related to the profitability of a firm, as suggested by Frias-Aceituno et al. (2014).

The majority of prior studies show that the growth opportunities of a firm are positively related to the amount of financial and non-financial information produced (Prado Lorenzo, Gallego Alvarez, and Garcia Sanchez, 2009; Frias-Aceituno et al., 2014). Firms with high growth opportunities increasingly use the issuance of financial and non-financial information to increase market efficiency, consequently reducing information asymmetry and decreasing the cost of external financing (Bushman & Smith, 2001). Therefore, extending these findings to IR, it is most likely that the likelihood of IR issuance is positively associated with the growth opportunities of a firm. Thus, the growth opportunities of a firm are included in the model, following Frias-Aceituno et al. (2014).

The agency costs related to highly leveraged firms are expected to be higher comparted to those of low-leveraged firms (Jensen & Meckling, 1976; Smith & Warner, 1979). Therefore, to reduce agency

costs and consequently reduce information asymmetry, highly leveraged firms are more likely to increase the amount of information produced. This proposition is confirmed by prior studies (Trotman & Warner, 1981; Bradbury, 1992). Therefore, financial leverage is included in the model.

Additionally, dummies $INDUSTRY_{i,t}$ and $YEAR_{i,t}$ take on the value of 1 when firm i is observed in period t, and 0 otherwise. Combined, these two dummies capture the influence of aggregate trends. Table A.1 of the appendix presents the definition of each variable applied in this paper.

4.3 Sample and Data

I examine firms listed on the South-African Stock Exchange (JSE) during the periods 2005-2016 and 2008-2016. Following Zhou et al. (2017), I argue that South Africa provides a proper setting in which to assess the effects of IR implementation, and for two reasons.

First, intertemporal change in the legislation of the country provides an exogenous shock which mitigates the biases existing in a voluntary setting. Second, although the IR framework is not officially implemented in this country, both frameworks—as formulated by King III and the IR framework—are closely related. Combining this last argument with the fact that this setting mitigates endogeneity concerns, South Africa is the proper setting in which to assess the benefits of IR implementation.

During the process of extracting the different variables, it became apparent that data for the societal, communal and environmental variables is severely scarce prior to 2008. Therefore, the decision was made to limit the data period for these specific variables to post-2008. Consequently, the following two periods were examined for respective the governmental variables on one hand, and for societal, communal and environmental variables on the other: 2005 to 2016 and 2008 to 2016.

The full data-selection process is described in table 4.1. The first step embarked on in this process was to identify the treatment firms, which was enabled through GRI's Sustainability Disclosure Database. The concerned database provides a global listing on every firm issuing either an IR or any other form of a sustainability report. By setting the criteria for the presented data to those firms who are South African, listed, and issued an IR in the period ranging 2011-2016, provides this thesis with the foundational data set for the treatment firms.

The control sample, on the other hand, was derived from the official website of the JSE: the primary stock exchange for all publicly listed South-African firms. On this site, the JSE maintains a database of the firms listed on the concerned stock exchange, and it also provides the international security identification number (ISIN) associated with each specific firm. Downloading the firms listed on

Table 4.1 Data Selection Process

Description	Treatment		Control		Total	
	Firms	*Obs.*	Firms	*Obs.*	Firms	*Obs.*
Initial Sample extracted from the GRI database and JSE's website	383	*4596*	8627	*103524*	9010	108120
less: Firms not included in DataStream and early issuers of IR	141	*1692*	8475	*99840*	8461	101532
less: observations with missing variables and an ETR<0	10	*1088*	58	*2470*	68	3558
less: observations dropped due to matching	0	0	0	477	0	477
Final Government Sample	**232**	***1816***	***94***	***737***	**326**	**2553**
less: observations occurring in 2005 to 2008 and missing SOCO and ENER values	113	1160	53	491	166	1651
less: observations dropped due to matching	0	1	11	48	49	49
Final communal, societal and environmental Sample	**119**	**655**	**30**	**198**	**111**	**853**

This table presents the data selection process. It includes the number of firms and observations for the treatment, control and total sample. The initial sample is extracted from the GRI sustainability database and the website of the JSE. The final governmental sample occurred in the period 2005-2016, whereas the communal, societal and environmental sample occurred in the period 2008-2016.

JSE from 2005-2016, and dropping those firms which were already included in the treatment sample, resulted in 9,010 firms and 108,120 total observations.

Thereafter, both firm lists were combined and inserted into DataStream to extract either each specific variable or the components needed to calculate the variable. After merging the different variables into one dataset, computing the main variables and generating the treatment dummy, period dummy and the interaction dummy, the data was prepared by dropping firms based on multiple criteria.

First, following Landsman et al. (2012), firms which were considered to be early adaptors (i.e., firms which issued an IR prior to 2010) were excluded from the sample. This averts the potentially confounding effects of incentives related to firms that issue an IR voluntarily. Subsequently, the subsidiaries of a holding group of which the parent company is already represented in the firm are removed, as these firms are expected to be highly correlated and could consequently bias the results. Next, following Mahenthiran and Kasipillai (2012) and Chen et al. (2010), each observation with an *ETR* lower than zero was dropped from the sample, whereas observations associated with an *ETR higher* than one are *made equal* to one. The reason for this is that the *ETR* does not entail any economic meaning when the denominator is zero or negative. Furthermore, *ETRs* greater than one imply that losses are carried forward. Carried-forward losses have the potential to bias results and should thus be accounted for. Additionally, observations which included missing variables were dropped from the

sample. Finally, observations were dropped due to propensity matching. These actions resulted in a final governmental sample of 326 firms and 2553 observations.

Finally, the society/environmental sample was contrived from the governmental sample by means of dropping all missing observations for the two dependent variables, *ENER* and *SOCO*, dropping all observations which occurred in the period ranging from 2005 to 2008, and, moreover, dropping those control firms and observations which did not match with the treatment firms. The final societal, environmental and governmental sample consists of 111 firms and 853 observations. The final step in the data-preparation process includes converting variables expressed in currencies other than the South-African rand.

4.4 Additional Testing

To mitigate the risk that the models adapted in this thesis will generate biased results, additional statistical tests were performed. This section discusses each of the following tests: a skewness/kurtosis test on each variable included in the different models, a Durbin–Wu–Hausman (DWH) test on each model, and various test to determine whether the underlying assumptions of the FE regression are adhered to by each specific model.

First, a skewness/kurtosis test was performed to determine whether each variable is normally distributed. The results of this test indicate that the variables $TD_{i,t}$, $PROFIT_{i,t}$, $LEVER_{i,t}$ and $GROWTH_{i,t}$ each have a distribution which is considered to be abnormal, and, therefore, that they encompass outliers which could potentially bias the results. Thus, to mitigate this issue, each variable was winsorized at the top and bottom 1% level such that each variable shows a normal distribution.

Second, a DWH test was performed on each model to determine which variant of the effect model should be employed: a FE- or an random effect (RE)-model (Baum, 2006). A FE model assumes that something within an individual may impact or bias the prediction outcome variable which should be controlled for. An RE model, on the other hand, assumes that the variation across entities is random and uncorrelated with the predictor or with the independent variables included in the model (Hoechle, 2007). Consequently, FE removes the effects of those time-invariant characteristics so one can assess the net effect of the predictor and the outcome variables. RE does not address such characteristics. The findings of the DWH test indicate that each model I examine should be based on a FE regression.

To verify that the data examined in this thesis meets the assumptions which underlie an FE regression, I adapt various tests[3] (Hoechle, 2007). First, the residuals of each specific regression model were tested for normality via a kernel density plot (Baum, 2006). These tests indicate that the residuals of each governmental model—i.e., *ETR,* and societal/communal and environmental models exploiting scores, i.e., *ENER* and *SOCO*—are normally distributed. The society/community models exploiting $TE_{i,t}$ and $TD_{i,t}$ as dependent variables, however, suggest no normality of the residuals. To resolve this issue, I transform the latter two variables by employing the natural logarithm. As a result, the residuals of the variables of *TE* and *TD* indicate a normal distribution. Second, a Modified Wald test is performed on each research model to test for group-wise heteroscedasticity (Baum, 2006). From this test, it is apparent that every regression model applied in this thesis is subjected to heteroscedasticity. To resolve this issue, an alternative regression command was applied in Stata, which adjusts the regression standard errors and, consequently, reports results based on "robust" standards errors. Third, the independent variables of each model were tested for multicollinearity via a VIF-analysis. This analysis indicates that none of the independent variables are highly correlated.

5 EMPIRICAL RESULTS

The aim of this chapter is to present the empirical results of this thesis. Based on these results, I provide an answer to the research question. This chapter is structured as follows: Section 5.1 will provide the descriptive statistics for both samples examined. Thereafter, Section 5.2 will present the univariate results and discuss the implications based on a propensity matched difference-in-difference analysis. Finally, 5.3 reports the results of the multivariate model and, consequently, addresses whether the hypothesis is rejected.

5.1 DESCRIPTIVE STATISTICS

Table A.2 provides the summary statistics pertaining to the matching algorithm. In specific, the table presents the means for respective the treated-, unmatched control- and matched control-firms, and the difference between the treated sample and both control samples, accompanied with the t-statistics in the parentheses. The statistics in Table A.2 suggest that applied matching procedure worked reasonably well. The majority of deltas which were considered to be significant for the unmatched sample lost the significance due to the matching procedure. In effect, the means of *SIZE* and *LEVER* do not significantly

[3] It should be noted that serial correlation is not controlled for, as such tests are only applicable to macro panels with long time series (i.e., 20 to 30 years).

Table 5.1 – Summary Statistics

Panel A.1: Society, Community and Environment Sample - Firms Issuing an IR (i.e., IR=1)					
Variables	N	Mean	SD	Min	Max
SOCO	655	67.406	24.528	4.160	96.120
TD	503	0.724	5.533	0.001	2605.519
ENER	655	57.738	26.547	9.730	95.460
TE	493	0.010	8.688	0.000	0.514
SIZE	655	16.968	1.585	13.298	21.405
PROFIT	655	0.073	0.106	-0.268	0.916
GROWTH	655	2.533	2.350	0.270	13.330
LEVER	655	0.199	0.170	0.000	0.894
Panel A.2: Society, Community and Environment Sample - Firms Not Issuing an IR (i.e., IR=0)					
Variables	N	Mean	SD	Min	Max
SOCO	198	55.163	29.282	3.760	96.740
TD	117	0.863	6.328	0.002	72.651
ENER	198	50.058	30.285	9.260	94.450
TE	120	0.011	7.329	0.000	0.514
SIZE	198	16.928	1.933	13.831	21.478
PROFIT	198	0.046	0.123	-0.300	0.733
GROWTH	198	2.600	2.665	0.270	13.330
LEVER	198	0.187	0.168	0.000	0.946
Panel B.1: Government Sample - Firms Issuing an IR (i.e., IR=1)					
Variables	N	Mean	SD	Min	Max
ETR	1,816	0.285	0.165	0.000	1.000
SIZE	1,816	15.210	2.243	4.727	21.410
PROFIT	1,816	0.099	0.175	-0.964	1.366
GROWTH	1,816	2.337	2.472	-1.900	18.570
LEVER	1,816	0.175	0.167	0.000	0.920
Panel B.1: Government Sample - Firms Not Issuing an IR (i.e., IR=0)					
Variables	N	Mean	SD	Min	Max
ETR	737	0.263	0.207	0.000	1.000
SIZE	737	15.229	2.517	5.697	21.478
PROFIT	737	0.137	0.297	-0.964	1.366
GROWTH	737	2.403	2.968	-1.900	18.570
LEVER	737	0.184	0.195	0.000	0.920

This table includes the number of observations, means, standard deviations, minimum value and maximum value of the dependent variables, independent variables and the control variables used in this thesis. Whereas Panel A presents the statistics for the society, community and environment sample, Panel B represent the governmental sample. Panel .1 refers to the treatment sample, whereas Panel .2 provides the same statistics for the control sample. The variables TD, PROFIT, GROWTH and LEVER are Winsorized at the top and bottom 1% level. TE and TD are presented as the inverse of the natural logarithm to foster clear interpretation. The sample with ETR as a dependent variable includes 2,553 observations for the period 2005-2016. The sample with TE and TD as dependent variables include 620 observations for the period 2008-2016, and the sample with SOCO and ENER as a dependent variable includes 853 observations for the period 2008-2016.

differ between treated and control firms. Only the delta of matching variable *PROFIT* remains significant. Nevertheless, the delta value for the aforementioned variable decreased for both samples I examine, indicating a decreased difference between treated and control firms due to the matching procedure. The final variable, *GROWTH,* remains insignificant, suggesting that the average growth opportunities do not differ significant across treated and control firms.

Table 5.1 presents summary statistics of both of the samples examined in this thesis, categorized based on whether firms issued an IR. From this table, it is apparent that, on average, firms that issue an IR exhibit a sufficient score for the *SOCO* and *ENER* variables: 67.406 and 57.738, respectively. Firms that have not issued an IR, on the other hand, fail to score a sufficient average grade of 60 or higher. Where *SOCO,* with a mean of 55.163, is just barely above a passing level of 55.000, *ENER* is below such a mark with a mean of 50.058. However, neither *TD* nor *TE* seem to corroborate the implications of respective *SOCO* and *ENER*, as the associated means of the former variables change in the opposite direction from the treatment sample (0.724 and 0.010, respectively) to the control sample (0.863 and 0.011, respectively). Shifting the focus to the *ETR* variable, the same reasoning applies as was provided for the *ENER* and *SOCO* variables: Firms issuing an IR seem to have a higher *ETR* (28.5%) compared to non-issuing firms (26.3%). Nevertheless, given that the average corporate tax rate is 33.03%[4], firms that issue an IR still seem to adapt accounting practices to lower the amount of tax paid.

The pairwise correlations between each variable per sample are presented in Table A.3 of the appendix. Examining this table, it becomes apparent that none of the independent variables is highly correlated with another. Thus, as previously indicated by the VIF-tests, the models are not adapted to multicollinearity. Interestingly, the Thomas Reuters scores, *SOCO* and *ENER*, are not highly correlated with the operational measures of the subparts on which they are based: *TD* and *TE*. In addition, both correlations seem to be opposite what was expected. Whereas the correlation between *ENER* and *TE* is positive, the correlation between *SOCO* and *TD* is negative. Moreover, both the society/community and environmental scores (*SOCO* and *ENER)* and the subpart measurements of the same stakeholder benefits (*TD* and *TE*) are highly correlated with each other.

Finally, Table A.4 in the appendix presents the sample composition per industry for each sample observed in this thesis. From this table, it becomes apparent that the three industries which are dominant in the sample are the mining, manufacturing and finance, insurance and real-estate industry segments. In total, these industries account for 64% and 60%, respectively, of the total sample for the society, community and environment sample and the government sample.

[4] See Table 2.1

5.2 Univariate Results

Table 5.2 presents a difference-in-difference analysis of the effects of IR based on a simple univariate FE regression. For both the treatment sample and the control sample, the table provides insight into changes in the applicable dependent-variable measurements between the period preceding the implementation of the IR mandate and the period after this occurrence. Thereafter, the change in the applicable dependent variable for the control firms is subtracted from the same change for the treatments firms to compute the coefficient of interest: the change in difference. The table is divided over three panels, each of which covers a distinctive sustainable stakeholder group. In what follows, each of these are discussed in order.

Panel A presents the univariate results from the community and society-stakeholder group. Examining the *SOCO* variable, it becomes apparent that the *SOCO* mean was 79.230 for the treatment firms before implementation of the IR mandate and decreased to 65.877 after the mandate. Furthermore, the *SOCO* mean for firms not issuing an IR decreased from 63.547 before the mandate to 52.550 after the mandate. The 13.353 decrease in *SOCO* pre- and post-mandate for firms issuing an IR is larger than the 10.997 decrease for control firms, thus resulting in a negative change of difference of 2.094 (not significant). On the other hand, firms issuing an IR have a mean *TD* of 0.381 before the mandate, whereas *TD* changed to 1.271 after the mandate (i.e., a 0.891 increase). In addition, the firms not issuing an IR had a *TD* mean of 0.183 before the mandate, which changed to 1.349 after the mandate (i.e., a 1.166 increase). Consequently, the change of difference amounts to a negative value of 0.275, which, more importantly, is insignificant. Combined, the results for *SOCO* and *TD* suggest no enhanced benefits for societal and communal stakeholder. They thus fail to reject the null-hypothesis.

To continue, Panel B provides the univariate results for environmental stakeholders. Between pre- and post-mandate, the mean of *ENER* seems to have significantly decreased for firms issuing an IR. Whereas before the mandate the treatment group had a mean of 68.712, this amount changed to 56.319 (i.e., a 12.393 decrease). Likewise, the mean for firms not issuing an IR changed significantly from 63.202 before the implementation of the mandate to 46.463 after (i.e., a 16.739 decrease). The decrease for firms issuing an IR is considered to be lower than the decrease for firms not issuing an IR, as indicated by a positive difference in change of 4.345, which, moreover, is considered to be insignificant. Shifting the focus to *TE*, it seems that whereas before the mandate firms issuing an IR had a mean of 0.012, this amount decreased to 0.010 after the mandate, resulting in an insignificant decrease of 0.002. Firms not issuing an IR, on the other hand, initially had a mean of 0.007, which insignificantly increased by 0.006 to 0.013 after mandate implementation. The resulting difference of 0.008 is not only negative,

Table 5.2 – Difference-in-Differences Analysis

Panel A - Community and Society						
	SOCO			*TD*		
	Pre	Post	Difference	Pre	Post	Difference
Treatment	79.230	65.877	**-13.353*** **	0.381	1.271	**0.891*** **
Control	63.547	52.55	**-10.997***	0.183	1.349	**1.166*** **
Difference	**15.683****	**13.327*** **	-2.356	**0.198****	-0.078	-0.275
Panel B - Environment						
	ENER			*TE*		
	Pre	Post	Difference	Pre	Post	Difference
Treatment	68.712	56.319	**-12.393*** **	0.012	0.010	-0.002
Control	63.202	46.463	**-16.739*** **	0.007	0.013	0.006
Difference	5.510	**9.856****	4.345	0.006	-0.002	**-0.008***
Panel C - the Government						
	ETR					
	Pre	Post	Difference			
Treatment	0.284	0.286	0.002			
Control	0.259	0.267	0.008			
Difference	**0.025*** **	**0.019***	-0.006			

*This table presents the results of the propensity matched difference-in-difference analysis of the change in each sustainable stakeholders' benefit following the implementation of the IR mandate by firms adopting IR relative to firms not adopting IR. The results are divided into panels A, B and C, each of which represent the community and society, the environment and the government stakeholders in respective order. The highlighted row shows the difference in each respective measure following the implementation of the IR mandate. The rightmost column shows the difference-in-difference coefficient. The statistical significance of each is obtained by comparing the mean pre-post changes across IR and non-IR adopters using paired t-tests. Whereas the highlighted row is based on a one-side t-test, the residual coefficients are based on a two-sided t-test to allow for tests that possibly are foregone. The sample with ETR as dependent variable includes 2553 observations for the period 2005-2016. The sample with TE and TD as dependent variables include 620 observations for the period 2008-2016, and the sample with SOCO and ENER as dependent variables includes 853 observations for the period 2008-2016. TE and TD are presented as the inverse of the natural logarithm to foster clear interpretation. *, **, *** indicate the significance of the coefficients at 5%, 1% and 0.1% respectively.*

it is also significant at the 5% level, contrary to *ENER*. This contradiction suggests that the significant effect induced by *TE* is offset by other subparts comprising *ENER (e.g.,* spills or impacts on biodiversity). Combined, the univariate results of *ENER* and *TE* provide some evidence that the issuance of an IR does enhance benefits for environment stakeholder, specifically, through lower CO_2 emissions. They thus reject the null hypothesis.

Finally, Panel C represents the univariate results for governmental stakeholders. On average, firms issuing an IR had an *ETR* of 28.40% before the implementation of the mandate, which significantly increased afterward to *28.60%.* Firms not issuing an IR, on the other hand, had a mean *ETR* of 25.90% before the mandate, which insignificantly increased to 26.70%. The difference between pre- and post-mandate implementation is lower for the treatment firms (0.002) than for the control firms (0.008). The

resulting change in difference, 0.006, is not only negative, the coefficient is also insignificant. Thus, this result suggests that the issuance of an IR does not enhance benefits for governmental stakeholders. Consequently, it fails to reject the null hypothesis.

5.3 Multivariate Results

Table 5.3 presents the results of each propensity matched FE-regression performed. It distinguishes between two panels: A and B. Panel A provides results for the models without the main control variables, whereas Panel B provides the model with these variables. As asserted in Chapter 4.2.1, the coefficient of interests is IR*POST. The aforementioned table states whether each model is subjected to year-fixed effects. The results of each sustainable stakeholder group are discussed in order.

The first and second columns of Table 5.3 report the findings for communal/societal stakeholders, *SOCO* and *TD.* Without the main control variables, the findings suggest that *IR* is positively associated to *SOCO* and *TD.* On the other hand, *POST* is negatively associated with *SOCO,* and positively associated to *TD.* Furthermore, *IR*POS*T is inversely associated to both *SOCO* and *TD.* These results have several implications. First, the positive coefficient for IR implies that, compared to firms that did not issue an IR, IR-issuing firms have both a higher *SOCO* and donate more. Second, the negative (positive) coefficient for *POST* implies that, if an observation occurred in the period after implementation of the IR mandate rather than in the preceding period, *SOCO (TD)* would be lower (higher) by 33.960 (4.850). Finally, the negative coefficient for the interaction term, IR*POST, implies that the implementation of the IR mandate in South-Africa has had an adverse effect on *SOCO* and *TD.* It should be noted, however, that the only coefficients that are considered to be significant are *IR* and *POST* for *SOCO* and *TD,* respective. None of the other coefficients of the *SOCO* and *TD* models appear to be statistically significant.

Shifting the focus to the society/community models presented in Panel B, there appears to be change in the coefficients value in *IR, POST* and *IR*POST*, although each sign remained constant. For both *SOCO* and *TD, IR* slightly decreases, whereas the aforementioned coefficient of the former model remains significant. For *POST,* the coefficient associated to both operational measures increase, and, moreover, the coefficient associated to *TD* remains significant. Although the coefficient of the interaction variable, *IR*POST,* becomes stronger for both the *SOCO*- and *TD*-model, both are considered to be statistically insignificant. In addition, the results show that where *SOCO* is significantly negatively associated with *PROFIT, TD* is positively associated to the same variable. Moreover, both *SOCO* and *TD* are positively associated to *GROWTH,* whereas *SOCO* is additionally positively associated to *SIZE* and

Table 5.3 – Multivariate regression results

Panel A – Multivariate tests *without* main control variables

	(1)	(2)	(3)	(4)	(5)
Variables	*SOCO*	*TD*	*ENER*	*TE*	*ETR*
IR	**14.180*****	1.220	5.660	1.021	0.012
	(5.349)	(2.038)	(5.843)	(1.318)	(0.014)
POST	-33.960	**4.850****	-22.94	-1.874	0.045
	(7.862)	**(1.927)**	(8.813)	(1.467)	(0.033)
*IR*POST*	-1.028	-1.756	5.509	1.201	0.001
	(5.877)	(2.088)	(6.577)	(1.408)	(0.021)
Observations	853	620	853	613	2,553
R-squared	0.256	0.355	0.195	0.638	0.049
Number of firms	165	135	165	123	481
Year FE	YES	NO	YES	NO	YES

Panel B - Multivariate tests *with* main control variables

	(1)	(2)	(3)	(4)	(5)
Variables	*SOCO*	*TD*	*ENER*	*TE*	*ETR*
IR	**14.080*****	1.067	5.731	-1.235	0.007
	(4.740)	(1.992)	(4.275)	(1.303)	(0.014)
POST	-26.143	**5.819****	-10.090	**-2.487****	0.040
	(7.598)	**(1.978)**	(6.979)	**(1.465)**	(0.032)
*IR*POST*	-1.443	-1.631	4.502	1.331	0.003
	(5.296)	(2.024)	(4.758)	(1.383)	(0.020)
SIZE	**5.316*****	-1.033	**9.541*****	**-1.330*****	**0.007****
	(0.838)	(1.074)	**(0.526)**	**(1.059)**	**(0.003)**
PROFIT	-21.410	**11.473*****	**-43.02*****	3.028	-0.029
	(11.440)	**(2.098)**	**(8.715)**	(2.230)	(0.028)
GROWTH	**1.268*****	**1.127*****	**1.571*****	-1.003	**0.006****
	(0.347)	**(1.029)**	**(0.391)**	(1.042)	**(0.002)**
LEVER	-12.085	**-3.209***	-0.272	1.587	**-0.097****
	(6.267)	**(1.621)**	(5.336)	(1.575)	**(0.032)**
Observations	853	620	853	613	2,553
R-squared	0.375	0.417	0.543	0.687	0.072
Number of firms	165	135	165	123	481
Year FE	YES	NO	YES	NO	YES

*This table present the results of the propensity matched fixed effect regressions performed. It includes the coefficient for each variable, accompanied with its robust standard errors in the parentheses, the amount of observations per sample, the r-squared for each model, the number of firms included in each sample and whether the specific model was subjected to either year or fixed effects. The amounts in bold implies that the accompanying coefficient is significant. *, **, *** indicate the significance of the coefficients at 5%, 1% and 0.1% respectively. The indicated significance of the coefficient for the variables IR, POST and IR*POST are based on a one-sided test, whereas the variables SIZE, PROFIT, GROWTH and LEVER are based on two-sided t-tests to allow for effects that possibly have been foregone. The variables TD, PROFIT, GROWTH and LEVER are winsorized at the top and bottom 1% level. TE and TD are presented as the inverse of the natural logarithm to foster clear interpretation.*

inversely related to *LEVER.* These finding suggests that highly leveraged and highly profitable firms are less likely benefit to the community and society at large, whereas firms that are large and have high growth opportunities are more likely to benefit this stakeholder group. In combination, the results of *SOCO* and *TD* suggest that the implementation of an IR mandate does not enhance benefits for society and thus do not provide evidence to support the null-hypothesis.

The findings for environmental stakeholders are presented in third and fourth columns (*ENER* and *TE*). The results for both environmental stakeholders' measurements indicate the same patterns, and, consequently, opposite implications. For the models without the main control variables *IR* and *IR*POST* are each positively associated with both *ENER* and *TE*. On the other hand, the *POST* coefficient is negatively associated to *ENER* and positively associated to *TE*. However, the coefficients for *IR*, *POST,* and the interaction variable *IR*POST* are considered to be statistically insignificant.

Continuing to the results of the full model, minor changes seem to occur. The effects of *POST* and *IR*POST* on *ENER* each seem to lessen, whereas the effect of *IR* enhances. The effects on *TE,* on the other hand, show different patterns as the effect of *IR* decreases, and, as a result, the sign transforms from negative to positive. In addition, both *POST and POST*IR* become stronger, where the coefficient of the former variable also became significant at the 1% level, providing strong evidence that firms after the implementation of the IR mandate produce less emission per asset relative to firms before the mandate. Moreover, the results of Panel B indicate a strong positive association between *ENER* and both the size of an organization (*SIZE)* and the growth opportunities of a firm (*GROWTH),* and a strong negative association between *ENER* and the profitability of a firm (*PROFIT).* In addition, the findings of Panel B suggest a strong inverse relation between *TE* and the size of a firm *(SIZE).*

Interestingly, the findings for *ENER* and *TE* suggest adverse associations with the variable of interest, considering they are adversely associated with the benefits of environmental stakeholders. Based on this, it seems likely that the inverse effects associated to the produced emission (*TE)* are offset by other sub-parts which comprise *ENER* (e.g., a company's ability to partner with environmental organizations). Nevertheless, in combination, the results of *ENER* and *TE* provide no support for the notion that the IR mandate has led to enhanced benefits for environmental stakeholders. They thus fail to reject the null-hypothesis.

Finally, Column 5 of Table 5.3 provides the multivariate results of the FE regression performed on *ETR.* Without the main control variables, the results suggest a positive coefficient for *IR, POST* and *IR*POST*, although none of the coefficients of *ETR* is considered to be statistically significant. Extending the analysis to the full model, a few transformations of the main variables seem to occur. First, the

effect of *IR* and *POST,* on *ETR,* slightly decreases from 0.012 to 0.007 and from 0.045 to 0.040. Second, the coefficient for the interaction variable, *IR*POST*, increases, and, more importantly, remains insignificant. In addition, the findings suggest a strong positive association between firm size (*SIZE*), growth opportunities *(GROWTH),* leverage (*LEVER),* and *ETR.* Yet, again, none of the findings related to the main variables are statistically significant, which implies that the implementation of the IR mandate in South Africa did not enhance the benefits for governmental stakeholders.

In sum, the findings discussed in this section suggest that implementation of the IR mandate in South Africa did not enhance the benefits of societal/communal, environmental and governmental stakeholders. In combination, these results imply that societal/communal and environmental stakeholder groups receive higher benefits from firms that issued an IR compared to firms that do not issue an IR, whereas no difference exists between two firm-groups for governmental stakeholders. Nevertheless, these findings are not retraceable to a causal mandate effect. Based on these findings, I reject the alternative hypothesis (*H1)*, as the results fail to reject the null hypothesis.

6 CONCLUSION, CONTRIBUTIONS, LIMITATIONS AND IMPLICATIONS

The IIRC is currently promoting the IR framework as the solution to morphed societal needs. Due to novelty trends such as global warming, society at large epitomizes the need to incorporate the concept of sustainability into its daily conduct. Based on this new way of thinking, society and the accounting profession derive the conclusion that the traditional reporting model is inadequate, as it is based on a shareholder perspective and has an historic emphasis. The IR framework is said to address these needs, as it incorporates a stakeholder perspective (i.e., benefits all stakeholders) and reports on value creation in the short, medium and long term.

This study tests the validity of the assertion made by the IIRC—i.e., an IR benefits all stakeholders and will lead to the saving of the world—by examining the association between sustainable stakeholders and IR. I attempt to answer the following research question: *Do the sustainable stakeholders of publicly listed South-African firms benefit from the implementation of an IR mandate?* The stakeholder groups that were considered to be part of the sustainability stakeholder class are the following: the society/community, the environment and the government. In addition, the study focused on JSE listed firms for a sample period ranging from 2005 and 2008 to 2016 for governmental and societal/communal and environmental stakeholders.

My motivation for this study is based on the deficiencies of prior studies. The majority of studies examining IR either generate biased results, incorporate a shareholder's perspective or fail to examine

the sustainable effects of the reporting form. In addition, although prior studies have extensively discussed, analysed and criticized the IR discourse, none of them provided the empirical evidence needed to corroborate their ideas.

Using a propensity matched difference-in-difference research design based on a fixed-effect model, I found that firms issuing an IR are more likely to benefit either societal/communal and environmental stakeholders relative to firms not issuing an IR. In addition, I find minor evidence that both societal/communal and environmental stakeholders are more likely to receive more benefit from firms after the implementation of the IR mandate. For the other sustainable stakeholder groups (the government), no association was found to indicate an increased or decreased likelihood of benefit. Combined, these results suggest that the implementation of an IR mandate is not likely to affect the likelihood that firms will benefit sustainable stakeholders. Specifically, the findings of this thesis imply that the adaption of an IR mandate does not enhance the benefit of either societal/communal, environmental or governmental stakeholders. Based on these findings, this thesis disavows the answer to the stated research question. That is, this thesis concludes that the sustainable stakeholders of publicly listed South-African firms have not benefited from the implementation of the IR mandate.

This thesis makes several contributions to existing literature. First, this paper contributes to the literature on sustainability accounting in general, as it is, to my knowledge, the first study to examine whether an advance in sustainable accounting results in reduced negative social and environmental effects of organizations. Second, it contributes to the emerging stream of literature which seeks to critically assess the suggestions made by the IIRC. To my knowledge, this is the first study to examine the IR framework from both a *stakeholder* and *empirical* perspective. The evidence I provide moves the IR debate forward and provides incentives for regulators to avoid implementing an IR mandate.

The findings of this study have several implications. First and foremost, the findings of this thesis have severe implications for the IIRC. On the hand, this thesis provides no support for the assertion that an IR benefits all stakeholders. On the other hand, it indicates that there are no signs of the IIRC achieving its initial objective of saving the world through sustainability. Consequently, the IIRC should re-evaluate and revise the essence of the framework and make adjustments where necessary. In doing so, they should limit the input of biased organizations—e.g., ACCA and Black Scholes—and predominantly consider the suggestions of independent academics such as Flower (2015), Adams (2015) and Thomson (2015). Second, these findings have implications for all governments and policy setters that seek ways to incorporate sustainability into the corporate market. The first signs are that a mandate for the issuance of an IR is not the way to enact this.

The findings of this thesis should be considered in the light of the following limitations. First, the control variables included in each model were predominantly based on correlation with the likelihood of the issuance of an IR. However, empirical studies of the explanatory factors and economic determinates of benefits that are related to societal/communal stakeholders (and, to a lesser extent, related to environmental stakeholders) are, to my knowledge, non-existent. Consequently, it is possible that the results of this thesis are subject to endogeneity concerns in the form of correlated omitted variables. Second, this study employs scores to operationalize the benefits for environmental and societal/communal stakeholders. However, there is an inherent subjectivism to the construction of scores which can potentially bias the findings of this thesis. This study attempts to mitigate the inherent bias of these operational measures by adding additional measures for both constructs. Nevertheless, it is not possible to claim that the bias has been fully eliminated. Third, due to the restriction induced by data unavailability, this study employs one operational measure for the ETR. Consequently, this study was unable to validate the robustness of the findings associated with ETR. Finally, this study uses South-Africa as its sample setting. However, it is questionable whether these results are generalizable to other countries, given South-Africa's distinctive characteristics.

Based on these limitations, several suggestions for future research are made. First, studies should be conducted to determine the economic determinants and the explanatory factors associated with firms fostering benefit to sustainability stakeholders in general, and communal/societal- and environmental- stakeholders in specific. Second, as a robustness check for scores, this study employs additional measures for communal/societal stakeholders (i.e., management's commitment to maintain its license to operate by being a good citizen) and environmental stakeholders (i.e., total CO_2 emissions) which focus on a subpart of the complex and multidimensional nature of the benefits related to these stakeholder groups. However, this study does not provide sufficient insight into the effects induced by the other subparts of these two stakeholder groups. Consequently, for communal/societal stakeholders, studies should examine the association of IR with the firm's commitment to protecting public health and respecting business ethics. For environmental stakeholders, future studies should investigate the association between IR and a firm's capacity to reduce air emissions other than CO_2, waste, hazardous waste, water discharges, spills or its impacts on biodiversity. Studies should also consider firms' abilities to partner with environmental organizations to reduce their environmental impact. Third, future studies should examine associations with tax avoidance by employing other measures to ensure the robustness of the results. Finally, although South-Africa is the only country which mandates firms to issue an IR,

firms all over the world are issuing IRs. Future studies should examine associations between IRs and sustainable stakeholder benefits in other settings to see whether these results remain robust.

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APPENDIX

Table A.1 – Variable Definitions

Variable	Description
Dependent Variables	
SOCO	*SOCO* represents the society/community category. It measures a company's management commitment and effectiveness towards maintaining the company's reputation within the general community, either at a local, national or global scale. It reflects a company's capacity to maintain its license to operate by being a good citizen (e.g., with donations of cash, goods or staff time), by protecting public health (e.g., through the avoidance of industrial accident), and by respecting business ethics (e.g., by avoiding corruption and bribery).
TD	*TD* measures the total donations (SOCODP027) for each firm scaled by the total assets at the beginning of the year (WC02999) and is transformed by its natural logarithm.
ENER	*ENER* represents an emission-reduction category. It measures a company's management commitment and effectiveness towards reducing environmental emission in production and operational processes. It reflects a company's capacity to reduce greenhouse gases, F-gases, ozone-depleting substances, NOx and SOx, waste, hazardous waste, water discharges, and spills or impacts on biodiversity. It also measures a company's ability to partner with environmental organizations to reduce environmental impacts in the local or broader community.
TE	*TE* measures the total CO_2 emissions (ENERDP023) for each firm scaled by the total assets at the beginning of the year (WC02999). It is transformed by its natural logarithm.
ETR	*ETR* represents the relative tax burden per firm. The rate is calculated by dividing the income tax (*WC01451*) for firm *i* in period *t*, with its associated pre-tax income (*WC01401*).
Variables of Interest	
IR	*IR* represents a dummy variable which assumes a value of 1 if the firm issued an IR in the period ranging from 2011-2016 and a 0 otherwise.
POST	*POST* represents a dummy variable which assumes a value of 1 if the specific observation for firm *i* occurred in the period after the implementation of mandatory IR (i.e., 2011-2016) and a 0 otherwise.
*IR*POST*	This interaction variable measures the interaction between IR and POST.
Control Variables	
SIZE	The SIZE of organization for firm *i* per year is computed as the natural logarithm of the total assets (WC01651) at the beginning of the year.
PROFIT	The profitability of a firm is captured by its return on assets. The ratio is computed as the net income (WC01651) scaled by the total assets (WC02999) at the beginning of the year.
GROWTH	Growth opportunities for firm *i* in year *t* EW captured by a firm's market-to-book value (*PTBV*). It is calculated by dividing a firm's share price by the book value per share.
LEVER	The leverage is calculated as the total debt (*WC03255*) divided by the total assets (*WC02999*) at the beginning of the year.
INDUSTRY	This is an industry dummy for the different industries included in this sample. It takes on the value of 1 if the firm is active in the specific industry and a 0 otherwise.
YEAR	This is a year dummy for the different year periods included in this sample. It takes on the value of 1 if the observation occurred in a specific year and a 0 otherwise.

This table presents each final variable applied in this thesis accompanied with its definition.

Table A.2 –Propensity Score Matching Summary Statistics

Panel A: Society, Community and Environment Sample

		Mean		**Delta**	
Variable	Treated	Control Unmatched	Control Matched	Unmatched	Matched
SIZE	16.968	17.156	16.928	**0.188**	0.040
				(-1.65*)	(0.41)
LEVER	0.199	0.236	0.187	**0.037**	0.011
				(-2.81*)**	(1.19)
PROFIT	0.073	0.043	0.046	**0.030**	0.027
				(3.72*)**	**(4.28***)**
GROWTH	2.533	2.510	2.600	0.023	0.067
				(0.12)	(-0.48)

Panel B: Government Sample

		Mean		Delta	
Variable	Treated	Control Unmatched	Control Matched	Unmatched	Matched
SIZE	15.206	13.909	15.229	**1.297**	0.023
				(14.28*)**	(-0.29)
LEVER	0.175	0.191	0.184	**0.016**	0.009
				(-2.30)**	(-1.47)
PROFIT	0.099	0.054	0.137	**0.045**	**0.038**
				(2.86*)**	**(-4.70**)**
GROWTH	2.337	2.179	2.403	0.158	0.066
				(1.56)	(-1.73)

*This table includes the means of the matching variables used in this thesis. Panel A presents the statistics for the society, community and environment sample, whereas Panel B represent the governmental sample. Each panel includes the mean for the treated, unmatched control and matched control samples and the difference between the treated sample and each of the latter two samples. The difference is accompanied with a t-statistic in the parentheses. The asterisks *, **, and *** indicate the significance of the coefficients at 10%, 5% and 1%, respectively. The variables PROFIT, GROWTH and LEVER are Winsorized at the top and bottom 1% level. The sample with ETR as a dependent variable includes 2553 observations for the period 2005-2016. The sample with TE and TD as dependent variables include 621 observations for the period 2008-2016, and the sample with SOCO and ENER as a dependent variable includes 853 observations for the period 2008-2016.*

Table A.3 – Pairwise Correlations

Panel A: Society, Community and Environment Sample

	ENER	*TE*	*SOCO*	*TD*	*SIZE*	*PROFIT*	*GROWTH*	*LEVER*
ENER	1							
TE	0.0427	1						
SOCO	0.5883	-0.0587	1					
TD	-0.0458	0.4961	-0.0196	1				
SIZE	0.5126	-0.4787	0.3185	-0.3039	1			
PROFIT	-0.1143	0.1531	0.0097	0.2933	-0.1722	1		
GROWTH	0.0742	0.094	0.1622	0.2431	-0.0409	0.3627	1	
LEVER	-0.0234	0.0025	-0.0885	-0.136	0.0416	-0.1366	0.1397	1

Panel B: Government Sample

	ETR	*SIZE*	*PROFIT*	*GROWTH*	*LEVER*
ETR	1				
SIZE	0.0808	1			
PROFIT	0.0569	0.0036	1		
GROWTH	0.0534	0.0502	-0.0065	1	
LEVER	-0.0931	0.0527	-0.1335	0.0690	1

This table presents pairwise correlations between all the variables in the dataset, accompanied with their p-values in the brackets, for the society, community, environment and government samples. For the period 2008-2016, the society, community and environment sample includes 853 observations for the main variables (i.e., ENER, SOCO, SIZE, PROFIT, GROWTH AND LEVER) and 620 observations for the secondary variables (i.e., TE and TD). The government sample includes 2,553 observations for the period 2008-2016.The variables TD, PROFIT, GROWTH and LEVER are Winsorized at the top and bottom 1% level.

Table A.4 – Sample Composition per Industry

Panel A: Society, Community and Environment Sample

	Treatment		Control		Total	
Industry	*Obs*	*%*	*Obs*	*%*	*Obs*	*%*
Agriculture, Forestry and Fishing	*11*	2%	*0*	0%	*11*	1%
Mining	*111*	17%	*28*	14%	*139*	16%
Construction	*38*	6%	*5*	2%	*43*	5%
Manufacturing	*129*	20%	*54*	27%	*183*	21%
Transportation, Communications, Electric, Gas and Sanitary service	*38*	6%	*8*	4%	*46*	5%
Wholesale Trade	*33*	5%	*1*	0%	*34*	4%
Retail Trade	*68*	10%	*18*	9%	*86*	10%
Finance, Insurance and Real Estate	*175*	27%	*60*	30%	*235*	27%
Services	*45*	7%	*9*	4%	*54*	6%
Non-classifiable	*7*	1%	*17*	8%	*24*	3%
Total	*655*	100%	*198*	100%	*853*	100%

Panel B: Government Sample

	Treatment		Control		Total	
Industry	*Obs.*	*%*	Obs.	*%*	Obs.	*%*
Agriculture, Forestry and Fishing	*43*	2%	*0*	0%	*43*	2%
Mining	*184*	10%	*99*	13%	*283*	10%
Construction	*91*	5%	*15*	1%	*106*	4%
Manufacturing	*446*	25%	*163*	20%	*609*	23%
Transportation, Communications, Electric, Gas and Sanitary service	*109*	6%	*50*	7%	*159*	6%
Wholesale Trade	*146*	8%	*33*	5%	*179*	7%
Retail Trade	*160*	9%	*40*	5%	*200*	8%
Finance, Insurance and Real Estate	*423*	23%	*258*	32%	*681*	27%
Services	*193*	11%	*52*	13%	*245*	10%
Non-classifiable	*21*	1%	*27*	3%	*48*	2%
Total	*1,816*	100%	*737*	100%	*2,553*	100%

This table presents the number of observations per industry for the society, community and environment sample (Panel A) and the government sample (Panel B). For each industry, the table distinguishes between the treatment and control subsamples and the total sample. Where Obs *refers to the number of observations, % represents the percentage of observations relative to the total observations per industry. Industry types are based on the two-digit codes of the standard industrial industry code. The society, community and environment sample includes 853 observations for the period 2008-2016, whereas the governmental sample includes 2,553 total observations for the period 2005-2016.*