

# **DOES INTEGRATED REPORTING MATTER TO THE CAPITAL MARKET?\***

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## **DOES INTEGRATED REPORTING MATTER TO THE CAPITAL MARKET?**

### **ABSTRACT**

Integrated reporting (<IR>) is an emerging international corporate reporting initiative arising to address, inter alia, the limitations of the current corporate reporting suite which are commonly criticized for being both voluminous and disjointed. While <IR> is gaining in popularity, current momentum is limited until there is clear evidence of benefits. Utilising the most suitable setting currently available, being disclosures in accordance with the Johannesburg Stock Exchange <IR> listing requirements, this study provides evidence of such benefits by finding that analysts' forecast error and dispersion reduces as the level of alignment with the <IR> framework increases. Further, the improved alignment is associated with a subsequent reduction in the cost of equity capital for certain reporting companies. The results are obtained after controlling for factors relating to financial transparency and the issue of standalone non-financial reports, suggesting that <IR> is providing incrementally useful information over existing reporting mechanisms to the capital market.

**KEYWORDS:** Integrated Reporting; Cost of Equity Capital; <IR> framework; analyst forecast error and dispersion

## INTRODUCTION

Businesses, investors, capital markets and the broader economy all depend upon the provision of high quality, value-relevant information for the efficient and effective allocation of resources, to encourage a vibrant climate for investment, and ensure transparent, ethical and sustainable business practices. Promoting the optimal use of information produced by companies serves valuable purposes for companies, the providers of financial capital, and other diverse intended audiences of corporate data. While there have been a number of attempts by individuals or groups to expand or enhance the value-relevance of the information produced by companies to aid decision-making, a recent initiative, Integrated Reporting (<IR>) has the potential to change the landscape, or at least significantly influence the quality of the debate. The International Integrated Reporting Council (IIRC)<sup>1</sup>, which is a “global coalition of regulators, investors, companies, standard setters, the accounting profession and NGOs” (IIRC 2013), has played a pivotal role in raising the international profile of, and developing a global framework for, <IR>.

The aim of an Integrated Report is to drive and provide a concise, holistic account of company value and performance by reporting a comprehensive range of financial as well as human, intellectual, environmental and social factors that impact on a company’s short, medium and long term capacity for value creation. As such, it incorporates but goes beyond the types of information currently reported in companies’ financial statements (IIRC 2013). Organizations have increasingly utilized mechanisms beyond financial statements to satisfy increased stakeholder demands for information about their organizations, the chief conduit for which has been stand-alone sustainability reports (Simnett et al., 2009). While the practice of issuing standalone sustainability reports is now a mainstream business practice (KPMG 2013a)<sup>2</sup>, one of the major criticisms of this practice is the sheer volume of information produced, often without identification of strategic or financial implications, which has rendered it little use to information users, especially providers

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<sup>1</sup> The IIRC is actively engaged in developing the International <IR> framework and the promotion of <IR> through various pilot programmes. For more information on the IIRC, please refer to <http://www.theiirc.org/>.

<sup>2</sup> KPMG Survey of Corporate Responsibility Reporting (CSR) 2013 finds that CSR reporting is now a mainstream business practice with 71% of the 4,100 companies surveyed in 2013 providing sustainability reports (KPMG 2013a).

of financial capital<sup>3</sup> (Eccles and Krzus 2010; Eccles and Serafeim 2014). An underpinning aim of <IR> is to reduce the clutter of current corporate reporting by promoting conciseness. <IR> is claimed to do this by having a different materiality lens, which is in effect directors disclosing what is considered material to the value creation activities of the organisation. A claimed benefit of <IR> has been that it combines the most material elements from the separate reporting strands into a concise, coherent report. As such, it shows the connectivity between these elements and explains how they affect the ability of an organization to create and sustain value in the short, medium and long term (IIRC 2011, 2013a), addressing the potential short-termism of current reporting practice .

<IR> has gained significant momentum since the establishment of the IIRC, which released the International <IR> framework in December, 2013 (IIRC 2013). The significance of <IR> is further evidenced by the growing number of participants in the IIRC Pilot Programmes<sup>4</sup> as well as consistent regulatory movements into this area around the world<sup>5</sup>. Anecdotal and survey evidence to date suggests or claims that <IR> brings internal benefits in the form of accelerating integrated thinking within organizations, which leads to better management decision-making. It should also lead to external benefits such as enhanced reputation and increased transparency which could result in a lower cost of capital (IIRC 2011; IIRC and Blacksun 2012, 2014; IRCSA 2011; PWC 2014). However, empirical evidence substantiating the benefits remains sparse, providing the motivation for the current study.

This new type of reporting is aimed at “providers of financial capital” as its primary audience. If this new reporting initiative is indeed helpful to such providers in

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<sup>3</sup> Similar criticisms have also be raised for financial information disclosures, with them considered too lengthy, complex and thus unread by information users (UK FRC 2009, 2011).

<sup>4</sup> The IIRC currently runs three main Pilot Programmes, namely, the IIRC Pilot Programme Business Network, the IIRC Pilot Programme Investor Network and the Public Sector Pioneer Network. For detailed information on these programmes, please refer to <http://www.theiirc.org/companies-and-investors/>.

<sup>5</sup> For example, the Johannesburg Stock Exchange made the production of an integrated report a listing requirement in 2010; A number of other stock exchanges, including those of Sao Paulo, Singapore, Kuala Lumpur and Copenhagen, are calling for a ‘report or explain’ <IR> requirement (IIRC 2014a). In addition, support for the review by the IIRC and International Accounting Standards Board in relation to making corporate reporting more conducive to infrastructure and other long-term investment has been noted by B20 (B20 2014); the International Federation of Accountants (IFAC) has recommended that the G20 formally signal its support for the work being undertaken by the IIRC (IFAC 2014); the corporations law in Australia has required an assessment of an entity's financial performance, position, strategies and future prospects in their annual Operating and Financial Review (OFRs) for all listed entities since 2010; and the European Commission passed legislation in 2014 which will require around 6000 European entities to provide disclosures on non-financial and diversity information (IIRC 2014a).

assessing the prospects of companies, it is expected that some capital market benefits will be accrued to the reporting companies. Therefore, this study aims to provide empirical evidence to answer the question “Does <IR> matter to the capital market”? In doing so, it first examines the effect of the level of alignment of integrated reports with the <IR> framework on sell-side analysts’ earnings forecast properties, from which we can infer whether information contained in integrated reports is useful to sophisticated capital market participants like analysts. The study then examines the potential flow-on effect of the improved information environment through examining whether companies producing integrated reports more aligned with the <IR> framework enjoy the benefit of a reduced cost of equity capital (ICC).

With a strong incentive to promote local corporate governance<sup>6</sup>, South Africa became a forerunner in the adoption of <IR> by making the production of an integrated report one of the listing requirements for the Johannesburg Stock Exchange (JSE) in 2010 (IRCSA 2011). While the recent release of the International <IR> framework is expected to promote the wider adoption as well as the standardisation of <IR>, the significant challenges associated with fully complying with the framework determine that the adoption of <IR> is a journey where companies are moving at their own pace<sup>7</sup>. The South African adoption of the International <IR> framework<sup>8</sup> provides a consistent platform from which changes and any associated impacts in the reporting quality in terms of the alignment with the <IR> framework can be observed. In addition, as the regulatory <IR> requirement in South Africa presents an exogenous shock to companies, it is particularly beneficial in reducing the potential

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<sup>6</sup> The King Committee of South Africa has issued a series of King Reports (King I, II, and III) with the aim to promote the highest standards of corporate governance in South Africa. The King Committee was established by Professor Mervyn King, who is also the Chairman of the IIRC. It is one of the JSE listing rules to comply with King III’s principles or explain the reasons for deviating from them (IODSA 2009).

<sup>7</sup> Research into the quality and extent of integrated reports produced by 100 JSE-listed companies reveals that many companies have begun to adopt <IR> but have been slow in demonstrating the integration of its principles into their business model (Deloitte 2011,2012) This research notes there is a clear distinction between companies that are serious about the principles of <IR> and those that are adopting for the sake of compliance. Overall, the studies indicate that while some areas of reporting are excellent, no company had a report that excelled in all aspects. Evidence of <IR> constituting a journey for South African companies is also reported by the 2013 <IR> yearbook (The Albert Luthuli Centre for Responsible Leadership 2013); KPMG (2013b) in relation to the 80 companies they have involvement with, and by PwC (2014) in their survey of JSE top 40 companies.

<sup>8</sup> The Integrated Reporting Committee of South Africa (IRCSA) announced its endorsement of the International <IR> framework in March 2014. Before that, companies rely on the guidelines provided in the discussion paper of IRCSA issued in 2011 in preparing their integrated reports. The IRCSA shares information with the IIRC with the aim to ensure that local guidance is in line with international guidance issued by the IIRC (IRCSA 2011, 5).

endogeneity bias usually present in studies examining the economic consequences of voluntary disclosures. Additional measures, including the lead lag approach, the changes specification, and the Heckman's two stage analysis, are also employed in the study to further address potential endogeneity concerns.

The sample companies in this study are those listed on the JSE from 2009 to 2012. This time frame allows for differences before and after the adoption of the listing requirement to be observed. Within the JSE mandated "apply or explain" for integrated reports companies are able to choose the level of "integrativeness" of the reports they produce. This discretion creates significant variations in the quality of the integrated reports produced across sample companies. For example, some companies have simply stapled their CSR reports with their financial statements while others have gone much further by adopting the <IR> framework to communicate the strategic intentions, the business model, the risks and opportunities faced by the company and how these factors interact with each other to affect the value-creation ability of the company. As a result, although all are labelled as "Integrated Reports", the level of alignment with the <IR> framework of the various reports differs significantly across companies.

Using the sample of 443 company-year observations listed on the JSE from 2009 to 2012, it is found that the level of alignment of integrated reports with the <IR> framework is beneficial to the capital markets in that it is negatively associated with analysts' earnings forecast error and marginally negatively associated with analysts' earnings forecast dispersion, suggesting the quality of integrated reports affects the information environment of reporting companies. In particular, the quality of the components reflecting the connectivity feature of <IR> and the new components of <IR> over current reporting suite are negatively associated with analysts' forecast error, suggesting these unique and new features of <IR> are useful for analysts in assessing the future profitability of companies.

Further, a negative relationship between the level of alignment of integrated reports and both the ICC and the realized market return is also identified, consistent with the proposition that investors are willing to accept lower rate of return as a result of reduced information risk from the improved information environment for these companies. Support for this view is found in the finding that the benefit of ICC reduction is more evident among companies with a low analyst following, since the benefit is expected to be less significant for those with better information

environments, i.e. those companies with a larger analyst following (Botosan 1997; Griffin and Sun 2014; Merton 1987). The results from this study are obtained after the company level characteristics related to financial transparency and the issuance of standalone CSR reports are controlled for, suggesting that information contained in an integrated report is incrementally useful to analysts and investors in addition to the current reporting suite. Taken together, the evidence suggests that the quality of integrated reports matters to the capital market participants in that the improved level of alignment of integrated reports with the <IR> framework brings the benefit of an improved information environment to reporting companies, which then translates into a lower ICC.

This paper contributes to the literature in a number of ways. First, the original context for the test of voluntary disclosure theory was limited to financial information (Beyer, Cohen, Lys, and Walther 2010; Healy and Palepu 2001) until the recent shift in social awareness to non-financial information (Dhaliwal, Li, Tsang, and Yang 2013; Dhaliwal et al. 2011; Dhaliwal et al. 2012). However, none of these types of information, i.e. financial information and non-financial information, alone narrates a complete value-creating story for companies. <IR> has the potential to bring all material aspects, which critically affect companies' value-creating abilities currently reported in different strands, into a concise and coherent whole (IIRC 2014a). In this way, the current study extends the test of the voluntary disclosure theory into a distinctive form of corporate reporting which many claim will become a norm of corporate reporting in the near future (IIRC 2013a).

Second, the adoption of <IR> can be a market based initiative or a regulatory imposed regime, yet to date there is a lack of empirical evidence to draw conclusions on whether <IR> has real benefits or is just a passing fad. By documenting empirical evidence on whether <IR> is value-enhancing to reporting companies, this study provides market based evidence of the benefit of <IR> and contributes to the debate.

Lastly but not least, <IR> is increasingly on the agenda of regulators around the world (IIRC 2014a). At the international level, support for <IR> has been received from the influential corporate forum, B20 (B20 2014) and the International Federation of Accountants (IFAC), while many countries are revising their corporate reporting regulations in a manner consistent with the principles of <IR>. For example, the reporting requirement of the annual Operating and Financial Reviews (OFRs) in Australia; the Strategic Report and Directors' Report Regulations in the United

Kingdom<sup>9</sup>; and the European parliament's legislative resolution<sup>10</sup>. Other initiatives providing direct support to <IR> include Japan's Corporate Reporting Lab initiative<sup>11</sup>, the participation in the IIRC Pilot Programme of the Deutsche Borse Group of Germany<sup>12</sup> and the recent calls for a 'report or explain' <IR> requirement from a number of stock exchanges including those of Sao Paulo, Singapore, Kuala Lumpur and Copenhagen. The results from the current study are therefore expected to have practical regulatory implications. In particular, the experience and lessons from companies listed on the JSE are anticipated to provide valuable input into regulators' required assessment of the costs and benefits of adopting <IR> in other jurisdictions.

The remainder of this paper is organized as follows: the next section discusses relevant literatures and is followed by the development of the hypotheses. The research methodology and the results are then presented. The final section summarises and concludes the study.

## **THEORY AND LITERATURE REVIEW**

### **Information Quality and Analysts' Earnings Forecasts**

Voluntary disclosure theory asserts that voluntary disclosures help improve the information environment of companies by enhancing analysts' understanding of companies' prospects (e.g. Beyer et al. 2010). Following the theory, empirical studies generally document a positive relationship between the disclosure quality and analysts' earnings forecasting properties, such as lower forecast error and dispersion (Barron, Kyle, and O'Keefe 1999; Barth, Kasznik, and McNichols 2001; Bradshaw, Miller, and Serafeim 2008; Hope 2003; Lang and Lundholm 1993; Plumlee 2003)<sup>13</sup>.

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<sup>9</sup> This regulation came into force for 20 September 2013 year ends to enable a simpler framework for narrative reporting that would reduce the burden on companies that are currently producing large, complex reports that lie unread by investors (The Companies Act 2006 Regulations 2013).

<sup>10</sup> This resolution requires certain large European countries to disclose non-financial and diversity information and creates an underpinning for <IR> and stimulates sustainable thinking and practice (Huggins and Simnett 2015; European Parliament 2014).

<sup>11</sup> Japan's Ministry of Economy, Trade and Industry (METI) has established a Corporate Reporting Lab to study <IR> as part of the task of proposing more effective communication and disclosure of corporate value (IIRC 2013b).

<sup>12</sup> This was the first exchange to join the <IR> Pilot Programme in 2013.

<sup>13</sup> The general argument from these studies is that better disclosure quality enhances analysts' understanding of the company's performance and future outlook and helps analysts interpret the disclosures in an informed and similar manner, which in turn results in an improved forecast accuracy and a lower forecast dispersion (Hope 2003; Lang and Lundholm 1996). Meanwhile, better disclosures lower the costs of processing and interpreting the disclosures, and thus enhance the analysts' ability to correctly incorporate all pertinent information, which in turn results in improved earnings forecasts (Lehavy, Li, and Merkley 2011).



Evidence from prior literature also reveals that analysts use non-financial information in their earnings forecasting task (Dhaliwal et al. 2012; Nichols and Wieland 2009; Orens and Lybaert 2007; Simpson 2010). The supply of non-financial information is beneficial in reducing analysts' earnings forecast error and dispersion (Dhaliwal et al. 2011; Dhaliwal et al. 2012; Nichols and Wieland 2009) and analysts issue more optimistic recommendations for companies with higher CSR ratings (Ioannou and Serafeim 2014). In fact, considerable evidence shows that analysts use financial information and non-financial information interactively in their earnings forecast tasks (Coram, Mock, and Monroe 2011; García-Meca and Martinez 2007; Ghosh and Wu 2012; Maines, Bartov, Fairfield, and Hirst 2002; Orens and Lybaert 2010; Simpson 2010; Pflugrath, Roebuck, and Simnett 2011), suggesting that both types of information are integral parts of the input that goes into analysts' earnings forecast tasks.

Theoretically, analysts' earnings forecast ability should improve with the amount of disclosure (regardless of whether disclosures are financial or non-financial) as long as they help analysts in assessing companies' future performance. However, analysts are known to have boundaries in information processing and the complexity of the task is found to adversely affect analysts' earnings forecast error and dispersion<sup>14</sup>. If information load problems exist for analysts relying on complex financial information, including additional non-financial information into their decision-making can pose an even greater problem. This is especially the case when the correlation between non-financial information and financial information is not well articulated, which adds significantly to the total task complexity and thus creates the issue of 'overload' for analysts. Empirical evidence shows that analysts tend to underreact to information in non-financial measures even though those measures (e.g., customer acquisition cost, average revenue per user) can have significant predictive ability for future earnings (Rajgopal, Shevlin, and Venkatachalam 2003; Simpson 2010).

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<sup>14</sup> For example, analysts' forecasts are less accurate if they are associated with complex changes in the tax law (Plumlee 2003), while differences in accounting choices negatively affect forecast accuracy and increase dispersion (Bradshaw et al. 2008). Further, although analysts exert extra effort in generating reports when analysing companies that produce less readable 10-K filings, these less readable 10-Ks are still associated with greater dispersion, lower accuracy and greater overall uncertainty in analyst earnings forecasts (Lehavy et al. 2011).

Meanwhile, the power of information format has also been well documented in psychology and accounting studies, revealing that the way information is systematically presented affects the way people think about that information. Informationally-equivalent disclosures that vary only in their ease of processing can have differential effects on market prices (Hodge 2001; Hodge, Hopkins, and Pratt 2006; Kelton, Pennington, and Tuttle 2010; Koonce and Mercer 2005). The insights from these studies suggest that even if <IR> is simply an improved re-formatting of existing information currently available, it could still impact users' information processing, including sophisticated users like financial analysts'. Incorporating material non-financial information with financial information into one report, <IR> helps to increase the salience of those material non-financial information items, which users may ignore if they are reported separately (Agnew and Szykman 2005; Hirshleifer and Teoh 2003).

To summarise, economic theories and associated empirical evidence document that both financial and non-financial information have the potential to improve analysts' forecasting abilities if they are value-relevant and/or they help reduce information acquisition and processing costs. Studies using psychology theories suggest that analysts' earnings forecasting abilities could be hindered by the current voluminous reporting and by their failure to fully incorporate non-financial information into their decision making.

### **Information Quality and the Cost of Equity Capital**

Theoretical studies have established both direct<sup>15</sup> and indirect<sup>16</sup> links through which financial information can affect the cost of equity capital. Despite the negative link between discretionary disclosures and the cost of equity capital generally concluded from the theoretical studies, the empirical evidence on the link is often less consistent and robust for a definitive and unambiguous conclusion to be drawn (Beyer et al. 2010; Botosan 2006; Core 2001; Healy and Palepu 2001; Kothari 2001; Leuz and Wysocki 2008). Overall, the empirical studies generally provide support for the

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<sup>15</sup> The direct links include risk sharing (Merton 1987) and the reduction of estimation/information risk (Barry and Brown 1984, 1985; Brown 1979; Coles, Loewenstein, and Suay 1995). This line of research suggests that providing better information will reduce the estimation risk, and thereby the cost of capital.

<sup>16</sup> The indirect links include the effect on market liquidity and information asymmetry (Baiman and Verrecchia 1996; Diamond and Verrecchia 1991; Easley and O'hara 2004; Verrecchia 2001) and the effect on companies' real decisions (Lambert, Leuz, and Verrecchia 2007; Lombardo and Pagano 2002).

theoretical negative link between the level/quality of discretionary disclosures and the cost of equity capital, although the results appear to be sensitive to many factors such as the presence of market intermediaries (Botosan 1997; Griffin and Sun 2014), the types and frequency of disclosures (Botosan and Plumlee 2002; Kothari, Li, and Short 2009), missing control variables such as earnings quality (Francis, Nanda, and Olsson 2008) and countries' institutional factors (Chen, Chen, and Wei 2009; Francis, Khurana, and Pereira 2005; Hail and Leuz 2006, 2009).

With the increasing trend of supplementing financial information disclosure with non-financial information disclosure, research has extended voluntary disclosure theory to non-financial information, with the assumption that these non-financial information are value-relevant (Margolis, Elfenbein, and Walsh 2009; Margolis and Walsh 2003; Orlitzky, Schmidt, and Rynes 2003). Following this line of thought, a number of studies examine the impact of CSR disclosures/performance on the cost of equity capital and generally document a negative relationship<sup>17</sup> (Dhaliwal et al. 2013; Dhaliwal et al. 2011; El Ghouli, Guedhami, Kwok, and Mishra 2011; Plumlee, Brown, Hayes and Marshall 2015). While these recent studies on CSR disclosures/performance yield useful insights into how non-financial information affects investor behaviors, they suffer from some limitations. First, these studies generally examine the issuance status of the CSR report (issued versus not issued) without further distinguishing the difference in the quality of those reports, which could provide deeper insights on the research question. Second, while the issuance of the CSR report signals progress towards expanding current corporate reporting to incorporate environmental, social and governance issues, there are criticisms that these reports are not placed in the context of a company's strategy and business model, and thus are less effective in communicating to investors about the company's performance (Eccles and Krzus 2010; Serafeim 2014).

Despite ample evidence suggesting an interconnected relationship between non-financial information and financial information, most existing research examines these in isolation, which also reflects the most common current state of disclosures of these two types of information. The concept of <IR> aims to advance corporate reporting by placing emphasis on the interconnections between different types of

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<sup>17</sup> Richardson and Welker (2001) find a positive association between social disclosures and the cost of equity capital, which they attribute to a lack of credibility for the social statements, or to the perceptions of a negative cash flow impact from current spending on social projects.

information currently reported in the separate strands. Among the limited empirical studies on <IR>, Serafeim (2014) provides empirical evidence on the value of this form of reporting through examining the investor base of companies practicing <IR>. Using the data on <IR> from the Thompson Reuters Asset4 database, Serafeim notes an association between <IR> and the investor clientele, however he also notes that it is an open question as to how investors change capital allocation decisions based on the information within integrated reports. Furthermore, as the data from the Asset4 database does not provide the richness into the content elements of integrated reports, Serafeim is not able to determine which elements of <IR> are most effective in attracting long-term investors.

The current study has the advantage of examining two direct outcomes of user decisions, i.e. the impact on analysts' earnings forecasting tasks and the change in reporting companies' cost of equity capital. The study also benefits from the hand-collected data which examines the level of alignment of companies' integrated reports with the <IR> framework. This allows for a more in-depth analysis into the relationship between the disclosure quality of the integrated report and the associated economic outcomes.

## **HYPOTHESIS DEVELOPMENT**

### **<IR> and Analysts' Earnings Forecast Accuracy and Dispersion**

The preceding literature review suggests analysts' earnings forecasting ability could be improved by having new value-relevant information. It could also be improved by having better disclosed information, which reduces information acquisition costs, and/or a cognitive effect in processing and interpreting the information; and by having better presented information, which facilitates the incorporation of all relevant information into the user decision-making process.

<IR> places emphasis on narrating companies' value-creation stories during the short, medium and long term by providing information such as corporate strategy, business model and future outlook (IIRC 2013a). The long-term focus of <IR> corresponds well to the information demand of analysts with their long-term earnings forecasting horizon. The integrated report is also able to provide new information in addition to that contained in the current corporate reporting suite<sup>18</sup>. Thus, the

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<sup>18</sup> This is confirmed from the investor survey to be described in details in footnote 35.

integrated report is expected to provide new and useful information to analysts in their earnings forecasting tasks.

The principles of <IR> mean that it is more than simply additional value-relevant information. In particular, the materiality, conciseness and connectivity principles<sup>19</sup>, inter alia, aim to alleviate the information overload problem of users by de-cluttering the report and highlighting the connections between different parts of the reports. Therefore, the integrated report not only potentially contains new value-relevant information helpful in assessing the long-term prospects of companies, it is also easier to process, thus enabling analysts to shift their cognitive effort to other decision-enhancing tasks which further enhances their ability to incorporate all pertinent information. In this way, analysts will have a better understanding of the company's performance and future outlook thus making better forecasts. However, the effectiveness of <IR> is dependent on how well the prescribed <IR> principles are followed. In this sense, the integrated reports that are more closely aligned with the <IR> principles are expected to be more helpful to analysts. This discussion leads to the first set of hypotheses to be tested in this study:

*H1a: Companies producing integrated reports more aligned to the <IR> framework will have lower analyst earnings forecast error*

Following on from the previous discussion, if the integrated report contains useful value-relevant information, which is easy to understand and interpret, the reduced level of ambiguity will enhance the consensus among analysts during their earnings forecasting tasks. This effect is hypothesised as follows:

*H1b: Companies producing integrated reports more aligned to the <IR> framework have lower analyst earnings forecast dispersion*

## **<IR> and the Cost of Equity Capital**

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<sup>19</sup> The materiality principle helps to de-clutter the report by including only substantial matters affecting a company's value-creation ability, which reduces the information acquisition and processing costs, thereby relieving the potential information load faced by analysts. The conciseness principle, stressing the cross-referencing among elements in the report and shifting detailed but less changeable standard information to other platforms/documents, helps reduce the cognitive effort exerted by analysts in analysing and interpreting the information. The connectivity among key elements included in the report is not only useful in enhancing analysts' ability to incorporate all value-relevant information into their decision making, but also in easing analysts' information analysing processes.

The literature outlined earlier suggests that the cost of equity capital can be affected by reducing the information asymmetry between the company and its investors (Healy and Palepu 1993; Verrecchia 1983; Lambert, Leau and Verrecchia 2012). <IR> could help reduce information asymmetry through at least three channels:

(i) Signalling the quality of the company. <IR> requires a clear vision and commitment to sustainable value creation activities and helps to identify risks and opportunities within the business. Thus, to report in an integrated manner signals to the readers that sustainability is an integrated part of a company's daily business conduct and significant risks and opportunities are well managed.

(ii) Expanding the information set of the company's disclosure. <IR> has the ability to expand the information set so as to include all value drivers of the company (e.g. financial, environmental, social and human) into one report and to connect them to describe the value creation activities. In this way, it not only saves users' information search costs and therefore helps increase liquidity, but more importantly it creates new information content not necessarily captured in the current corporate reporting suite, such as corporate strategy, the company's business model and future-oriented information. More importantly, it highlights the links among all these value drivers, which in turn reduces information asymmetry between the company and investors.

(iii) Reducing the uncertainty in assessing the company's performance. Many CFOs interviewed by Graham, Harvey, and Rajgopal (2005) state that reducing uncertainty about the company's prospects is the most important motivation for making voluntary disclosures. The principles of <IR> place emphasis on the disclosure of corporate strategy, the company's business model and forward-looking information, with the aim of reducing the uncertainty around the company's long-term performance. If such principles of <IR> are followed properly, the reduced uncertainty relating to the company's long-term performance could help reduce the information risk of the company, thereby resulting in a lower cost of equity capital.

Collectively, theoretical arguments support the notion that <IR> could potentially help reduce the cost of equity capital if the principles of <IR> are adequately followed, which is formally hypothesized as follows:

*H2: There is a negative association between the level of alignment of the integrated report with the <IR> framework and the cost of equity capital*

It is recognized that companies' annual reports are not the only avenue through which companies disseminate information to stakeholders. On one hand, companies use other channels such as websites, conference calls, managements' forecasts and media to communicate with information users. On the other hand, market intermediaries, such as analysts, also play an important role in analysing, processing and disseminating information about companies. The theoretical model of risk sharing noted by (Merton 1987) suggests that disclosures by less known companies can make investors aware of their existence and therefore enlarge their investor base, which in turn improves risk sharing and which lowers the cost of capital. In this sense, such an effect is likely to be less relevant for large companies, which are likely to have advanced information sharing mechanisms such as a larger analyst and investor following. Voluntary disclosure theory also posits that the benefit of additional disclosure should depend on the company's information environment (Diamond and Verrecchia 1991; Lambert et al. 2007; Verrecchia 1983). This is particularly relevant to the current study as the disclosures in annual reports may be more important for some companies than for others.

This asymmetric effect has been identified in some empirical studies (e.g. Botosan 1997; Griffin and Sun 2014). Our study is similar to Botosan (1997) in the way that the disclosure in annual reports is used as the proxy for companies' overall disclosure quality. Thus, the effect of <IR> on the cost of equity capital could differ between companies with different information environments. This is formally hypothesized as follows:

*H2a: The association between the level of alignment of the integrated report with the <IR> framework and the cost of equity capital is less significant for companies with a larger analyst following*

## **EMPIRICAL ANALYSIS**

### **Sample and Data**

The sample selection process starts with all listed companies on the JSE with fiscal years ending in 2009 to 2012 that are also included on Global Compustat. This

list of companies is then merged with corresponding analyst data from I/B/E/S. The annual fundamental data, market data and exchange rate data are obtained from Global Compustat. All data are downloaded from Wharton Research Data Services (WRDS).

After filtering for analyst data and required control variables, the final sample consists of 443 company-year observations over four years (132 unique companies) for analysts' forecast error<sup>20</sup> and dispersion analysis and 430 company-year observations (130 unique companies) for cost of equity capital analysis.

## Research Model

H1(a) and H1(b) are tested by running the following OLS regression:

$$\begin{aligned} \Delta FCERROR_{i,t+1} = & \beta_0 + \beta_1 \Delta IR\_TOTAL_{i,t} + \beta_2 \Delta SIZE_{i,t} + \beta_3 \Delta VAREARN_{i,t} \\ & + \beta_4 \Delta LnANANO_{i,t} + \beta_5 \Delta FFIN_{i,t} + \beta_6 \Delta LOSS_{i,t} \\ & + \beta_7 \Delta HORIZON_{i,t} + \beta_8 \Delta CSR_{i,t} \\ & + \sum IND_{i,t} + \sum YEAR_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

$$\begin{aligned} \Delta FDISP_{i,t+1} = & \beta_0 + \beta_1 \Delta IR\_TOTAL_{i,t} + \beta_2 \Delta SIZE_{i,t} + \beta_3 \Delta VAREARN_{i,t} \\ & + \beta_4 \Delta LnANANO_{i,t} + \beta_5 \Delta FFIN_{i,t} + \beta_6 \Delta LOSS_{i,t} + \beta_7 \Delta HORIZON_{i,t} \\ & + \beta_8 \Delta CSR_{i,t} + \sum IND_{i,t} + \sum YEAR_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

The models follow those used in Dhaliwal et al. (2012) with the addition of the issuance status of a standalone CSR report as a control variable which was examined in Dhaliwal et al. (2012) and found to help reduce analysts' forecast error. All variables are in their change forms<sup>21</sup> rather than level forms to address the potential endogeneity concern (Dhaliwal et al. 2011) as this approach controls for unobserved company characteristics (whether constant or time-variant) which might be correlated with ICC. Further, to ensure that the results are not driven by the potential endogenous relation between changes in <IR> and ICC, all independent variables are lagged by one year.

H2 is tested by running the following OLS regression:

$$\Delta ICC_{i,t+1} = \beta_0 + \beta_1 \Delta IR\_TOTAL_{i,t} + \beta_2 \Delta SIZE_{i,t} + \beta_3 \Delta BM_{i,t} + \beta_4 \Delta LEV_{i,t} + \beta_5 \Delta LTG_{i,t}$$

<sup>20</sup> To eliminate the possibility of one analyst poorly estimating earnings, and therefore skewing the consensus figure, and to allow a meaningful measure of dispersion, only observations with more than one forecast are retained in the sample. This filter is common in academic studies (e.g., Cheong and Thomas 2011), and in practice, e.g. Thomson First Call at <http://help.yahoo.com/1/us/yahoo/finance/tools/research-03.html>.

<sup>21</sup> The results on the level forms of variables can be found in the additional analysis section.



$$+ \beta_6 \Delta \text{DISP}_{i,t} + \beta_7 \Delta \text{BETA}_{i,t} + \beta_8 \Delta \text{ABS\_DA}_{i,t} + \beta_9 \text{CSR}_{i,t} + \sum \text{IND} + \sum \text{YEAR} + \varepsilon_{i,t} \quad (3)$$

Similarly, all variables are in their changes form and a lead-lag approach is used in the model to ameliorate endogeneity concerns. To test hypothesis H2(a) on the role of the information environment in the relationship between <IR> and ICC, the sample companies are partitioned into high versus low analyst sub-samples based on the sample median number of analysts following. The regression in equation (3) is run separately for the two sub-samples.

## Variable Definition

### *Dependent Variables*

#### *Analyst forecast error (FCERROR)*

Consistent with Dhaliwal et al. (2012), the analyst forecast error is used as an inverse measure of forecast accuracy. Forecast error is defined as the average of the absolute errors of all forecasts for target earnings made in the 12 months after the fiscal year end of the integrated report, scaled by the share price<sup>22</sup> at the fiscal year end:

$$\text{FERROR}(Y)_{i,t} = \frac{1}{N} \sum_{j=1}^N |FC_{i,t,j}^Y - EPS_{i,t}^Y| / |P_{i,t}|$$

Subscripts *i*, *t* and *j* denote company *i*, year *t* and forecast *j*, respectively. Indicator *Y* takes three values, zero, one and two, to denote whether the target earnings and forecasts are for current year, one-year ahead or two-years ahead<sup>23</sup>. *FC* is the analysts' earnings forecast for time *t*, and *EPS* is the actual earnings per share for time *t*. To ensure consistency, both *FC* and *EPS* are obtained from the I/B/E/S database. The forecast horizon is restricted to a maximum of two years for the same reason noted in Dhaliwal et al. (2012), in that analysts typically do not make forecasts for periods beyond the third fiscal year. Further, the sample size significantly decreases for three-year-ahead forecasts, especially when the sample period of this

<sup>22</sup> The share price is one of the most commonly used denominators in measuring forecast error. For a detailed explanation of the advantages of using share price as the denominator over others, please see Cheong and Thomas (2011). Other popular denominators include the actual/forecast earnings. Sensitivity analyses using these alternative denominators do not qualitatively change the results.

<sup>23</sup> For brevity reasons, in the main analyses, only the results on one-year-ahead analyst earnings forecast error and dispersion are reported. Results on the current year and the two-year-ahead analyst earnings forecast properties can be found in the additional analysis section.

study is from 2009 to 2012<sup>24</sup>. Only forecasts made after the fiscal year end month (1 to 12)<sup>25</sup> are used to allow analysts to incorporate the information contained in the integrated reports into their forecasts.

The natural logarithm of analyst forecast error (FERROR) is used in the regression to remove the skewness in the data as shown by the Skewness/Kurtosis tests<sup>26</sup>, and the histogram suggests that the analyst forecast error is significantly right skewed. This approach is similar to that adopted in Lehavy et al. (2011).

#### *Analyst forecast dispersion (FDISP)*

Following Lang and Lundholm (1993), Hope (2003) and Lehavy et al. (2011), the analysts' forecast dispersion is defined as the standard deviation of analysts' EPS median forecasts made in months 1– 12 after the fiscal year end scaled by the share price at the fiscal year end:

$$FDISP(Y)_{i,t} = \frac{1}{N} \sum_{j=1}^N (FC\_stdev_{i,j}) / P_{i,j}$$

As for analysts' earnings forecast error, subscripts i, t, and j denote company i, year t and forecast j, respectively and the indicator Y takes three values (zero, one and two). FC\_stdev is the standard deviation of the analyst EPS median forecast, and FC\_median is the EPS median forecast. Both of these are obtained from the I/B/E/S database. For the same reason noted for forecast error, only forecasts made after the fiscal year end month (1 to 12) are used<sup>27</sup> and the unscaled forecast dispersion is used as an alternative dependent variable in the sensitivity analysis.

#### *Implied Cost of Capital (ICC)*

The implied cost of equity capital<sup>28</sup> in this study is calculated in the first instance using the PEG model from (Easton 2004)<sup>29</sup>, namely *ICC\_PEG*. A number of

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<sup>24</sup> Even for the two-year-ahead forecasts, the sample suffers from a significant loss of data because for most companies in the 2012 sample year, the actual two-year-ahead EPS required to calculate the forecast error, which is year 2014 EPS, is not available at the time of this study.

<sup>25</sup> The average of month 1 to 12 is used because it is impossible to specify the exact month in which the analyst forecast ability is mostly affected by the information contained in the integrated report. This approach is consistent with previous studies on analyst forecast error, such as those by Lang and Lundholm (1996) and Dhaliwal et al. (2012). A similar approach is adopted in Hope (2003) where months 4–12 are used. In the sensitivity analysis, an alternative analyst forecast horizon as used in Hope (2003), i.e. the months 4–12, is used which does not qualitatively change the results.

<sup>26</sup> The chi<sup>2</sup> statistics for both skewness and kurtosis is 0.000, rejecting the null that the sample is normally distributed. Once the natural logarithm is used, the chi<sup>2</sup> statistics become 0.2861 (0.3393) for skewness (kurtosis); hence, the null hypothesis of normal distribution is sustained.

<sup>27</sup> Sensitivity analysis using months 4–12 is also performed and does not qualitatively change the results.

<sup>28</sup> The cost of equity capital is estimated on a monthly basis since the analyst forecast data from I/B/E/S is available every month. To match the monthly estimations of cost of equity capital with the yearly disclosure score from the integrated reports, the average of the 12 months cost of equity capital

different models are available to calculate the cost of equity capital, and there is still significant debate as to which ones are the best measures (Botosan and Plumlee 2005; Easton and Monahan 2005; Botosan and Plumlee 2011). The PEG model is used in this study because of its' popular use in previous studies, its' parsimony and the finding that it tends to outperform other measures (Botosan and Plumlee 2005). As sensitivity tests, however, several other measures are employed to test the robustness of the results including the GLS model developed from Gebhardt, Lee, and Swaminathan (2001), the CT model developed from the Claus and Thomas (2001), the simultaneous estimation method developed from Easton, Taylor, Shroff, and Sougiannis (2002). In addition, in view of the criticisms of the measurement errors associated with the ex-ante implied cost of equity capital, the ex-post realized market return is also used to substantiate the main results.

### ***Independent Variables of Interest***

#### *The level of alignment with the <IR> framework of an integrated report (IR\_TOTAL)*

The independent variable of interest is the level of alignment of an integrated report with the <IR> framework. It is measured as the total disclosure score (*IR\_TOTAL*) derived from a coding framework constructed in accordance with the <IR> Prototype Framework issued by the IIRC in October 2012. As mentioned previously, there are significant variations in the level of “integrativeness” of reports produced, which necessitates proper measures to capture the variations among these reports. Due to the emerging nature of <IR>, there is currently no readily available external provider supplying in-depth information on integrated reports, therefore, in order to capture the heterogeneity in the integrated reports, it was necessary to construct a coding framework from the <IR> Prototype Framework<sup>30</sup> issued by the

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estimation following the fiscal year end of the integrated report is employed. There are two main reasons for this approach. First, it is hard to determine which month's cost of equity capital is mostly affected by the release of the integrated report, hence an average of the 12 months after the fiscal year end month of the integrated report provides a reasonable measure. Notably this approach is also employed in Francis et al. (2008). Second, compared to using a specific month after the fiscal year end month, (e.g. month + 10 as used in Hail and Leuz (2006)), the averaging approach allows the maximum amount of sample to be reserved, which is especially needed given the limited sample size of this study. In sensitivity analyses, the Hail and Leuz (2006) approach of using month + 10, plus month + 12 is also applied and does not change the results qualitatively.

<sup>29</sup> The calculation models and associated assumptions strictly follow the original studies to ensure consistency.

<sup>30</sup> The Prototype Framework was released by the IIRC in November 2012 and provides the basis for the International <IR> Framework released in December 2013. The Integrated Reporting Committee of South Africa (IRCSA) released a discussion paper in 2011 which also provided some guidance in producing integrated reports. The IRCSA shares information with the IIRC with the aim to ensure that

IIRC in October 2012 and an independent double coding process was employed to code each sample companies' integrated reports against the coding framework to determine the level of alignment between the reports and <IR> framework<sup>31</sup>.

The finalized coding framework has 31 components across eight dimensions. The integrated reports produced by sample companies between 2009 and 2012 were scored against the 31 components from zero to one<sup>32</sup>. Thus the maximum possible total score of an integrated report is 31. Due to the principle-based nature of the Prototype Framework issued by the IIRC, and thereby the coding framework used to score sample companies' integrated reports, the scoring process is inherently subjective. To minimize the impact of the subjectivity on the coding process, two coders, including one of the authors, completed the process independently and all disagreements between them were ultimately resolved through iterative rounds of discussions<sup>33</sup>. The validity of the coding framework was further confirmed by the consistency between the scores derived using the coding framework and the external ratings from Ernst and Young on the quality of the integrated reports produced by the top 50 listed companies on JSE in 2011<sup>34</sup> (EY 2012).

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local guidance is in line with international guidance issued by the IIRC (IRCSA 2011, 5). The harmonisation between the discussion paper and the International <IR> Framework was made official in March 2014 when the IRCSA announced its endorsement of the International <IR> Framework (IIRC 2014e). At the time of data collection for this study, the Prototype Framework was the only international Framework on <IR> and thus was given preference over the IRCSA discussion paper. A comparison made between the Prototype Framework, the IRCSA discussion paper and the International <IR> Framework reveals a high level of alignment and few variations that could have significant impact on the construction of the coding framework. A copy of the Prototype Framework and the <IR> Framework can be downloaded from <http://www.theiirc.org/international-ir-Framework/>. A copy of the discussion paper issued by the IRCSA can be downloaded from <http://www.sustainabilitysa.org/Portals/0/IRC%20of%20SA%20Integrated%20Reporting%20Guide%20Jan%2011.pdf>.

<sup>31</sup> The coding framework was carefully designed under the supervision of the key personnel involved in developing the <IR> Framework and was validated through an investor survey. The investor survey was conducted in December, 2012 using Qualtrix. The survey samples 35 global investor organizations participating in the IIRC's Pilot Programme Investor Network (PPIN). These are large organizations with billions of dollars' worth of assets under management. For a complete list of these organizations, please refer to [www.theiirc.org](http://www.theiirc.org). Fifteen responses were received during the two weeks survey period. The survey instrument is the self-constructed coding framework. The respondents were asked to comment on the completeness and appropriateness of using this coding framework to measure the quality of integrated reports. Further, they were asked to rate the "importance" (the extent to which this component is important to investor decision making) and "newness" (the estimated proportion of organisations for which this information is not currently disclosed in publicly available reports, such as annual reports and CSR reports) of each of the 31 components in the coding framework.

<sup>32</sup> The score can be fractional.

<sup>33</sup> The Pearson/Spearman/Cronbach's Alpha/Standardized Cronbach's Alpha scores between the two coders are 0.975/0.975/0.986/0.987.

<sup>34</sup> The mean total disclosure scores (*IR\_TOTAL*) for companies ranked by EY as Top/Excellent/Good are 15.275/11.188/8.793 respectively.

The higher the total score of the integrated report, the more aligned the report is with the <IR> framework, which is expected to improve information transparency, thereby reducing the cost of equity capital. Thus *IR\_TOTAL* is expected to have a negative coefficient.

### ***Control Variables***

The control variables follow Dhaliwal et al. (2011, 2012) and Francis et al. (2008). The definitions of these control variables can be found in Appendix one. All continuous variables are winsorised at the 1 and 99 percentile to deal with potential outliers<sup>35</sup>.

### **Descriptive Statistics**

#### ***Sample for Analyst Earnings Forecast Analysis***

Table 1 Panel A presents the descriptive statistics for the pooled sample used for the analysts' earnings forecast analysis. The mean disclosure score of integrated reports is 6.273 out of a maximum possible score is 31, reflecting the early stage of the practice of producing integrated reports. The total number of observations for each of the sample years (2009 – 2012) is 114/113/110/106 respectively. The yearly statistics (not reported) do not reveal particular patterns among dependent variables, although the level of alignment of integrated reports with the <IR> framework, measured by the total disclosure score (*IR\_TOTAL*), displays an upward trend across the sample years, reflecting a learning effect over time. There is also a jump (from 4.902 to 7.724) in the disclosure score between 2010 and 2011, consistent with the adoption of the “apply or explain” requirement by the JSE. On average, over 30 percent of the companies were found to still issue standalone CSR reports in addition to integrated reports. Since the variables are included in the regression models in their changes form, Panel B of Table 1 presents statistics for the variables in their change forms. The sample size thus reduces from 443 to 307<sup>36</sup>. Overall, there is very little change to the dependent variables ( $\Delta FCERROR$  and  $\Delta FDISP$ ). The total disclosure score of integrated reports ( $\Delta IR\_TOTAL$ ) on the other hand, improves by an average of 2 scores each year.

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<sup>35</sup> Sensitivity analyses with variables winsorised at the 2.5 and 97.5 percentile yield qualitatively similar results.

<sup>36</sup> Because of the use of change forms, the observations (114) from the first sample year of this study, i.e. 2009, are no longer included. In addition, there are 22 observations which do not have previous data to calculate the changes in some variables.

### *Sample for Cost of Equity Capital Analysis*

Table 1 Panel C provides summary statistics for the sample for the cost of equity capital analysis. The average implied cost of capital for JSE listed companies during the period 2009 to 2012 is 0.137, which is slightly higher than that of US listed companies (which is usually around 0.11, see Easton and Monahan (2005)), but is closer to the results for South African companies in international studies (i.e. 0.16, see Hail and Leuz (2006)). Overall, the cost of capital shows a moderate downward trend across the sample years. Similar to the results in Panel A, the average total score for integrated reports is 6.283 and displays a slight increase from 2009 (3.479) to 2010 (4.733), but almost doubles in the year 2011 (7.493), reflecting the JSE regulatory effect on <IR>.

As H2(a) hypothesizes that the negative relationship between the level of alignment of reports and the cost of equity capital will be more significant among companies with a low analyst following. Panel D of Table 1 displays a mean comparison between companies with a high (low) analyst following<sup>37</sup>. The results show that companies with a high analyst following have a lower ICC ( $t = 5.515$ ), higher <IR> disclosure scores ( $t = 11.196$ ), are larger in size ( $t = 13.803$ ), have a lower book-to-market ratio ( $t = 5.806$ ), are more highly leveraged ( $t = 2.679$ ), have a lower growth rate ( $t = 2.816$ ), and are more likely to issue standalone CSR reports ( $t = 3.550$ ).

Panel E of Table 1 presents the summary statistics for all the variables used for the cost of equity capital analysis in their change forms. Because of the use of change forms, the sample size reduces from 430 to 294<sup>38</sup>. On average, there is a decrease in the ICC of 0.8 percent ( $\Delta ICC\_PEG$ ) and an increase in the integrated report disclosure score of nearly 2 ( $\Delta IR\_TOTAL$ ) across the sample years. When the difference between companies with differing levels of analyst following<sup>39</sup> is examined, there are no significant differences between the two groups except for the changes in

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<sup>37</sup> The median (mean) number of analysts following is 5.42 (6.03) with a standard deviation of 3.68. The minimum number is 1.08 and the maximum number is 16. Those with an above sample median number of analysts following are categorized into the high analyst following group while those below the median number belong to the low analyst following group.

<sup>38</sup> The observations (103) from 2009 are no longer included. In addition, there are 33 observations, which do not have previous data to calculate the changes in some variables.

<sup>39</sup> Within the reduced sample, the median (mean) number of analyst estimates is 6.25 (6.49) with a standard deviation of 3.74. The minimum number is 1.08, and the maximum number is 16.

the integrated report disclosure score ( $\Delta IR\_TOTAL$ ,  $t = 4.213$ ,  $p < 0.000$ ) and issue of a standalone CSR report ( $\Delta CSR$ ,  $t = 1.982$ ,  $p < 0.048$ ). Companies with a larger analyst following made more improvement in their disclosure scores which is consistent with the findings from Graham et al. (2005) that companies with a large analyst coverage view reputation for transparent reporting as a relatively important motivation for voluntary disclosures. Meanwhile, companies with a larger analyst following issue less standalone CSR reports, which is likely because they perceive the practice of <IR> rendering the standalone CSR report to be less relevant.

[INSERT TABLE ONE HERE]

The Pearson correlations (untabulated) suggest a negative relationship between analysts' forecast error ( $FCERROR$ ) and the disclosure scores ( $IR\_TOTAL$ ) ( $-0.196$ ,  $p < 0.000$ ). Similarly, a negative relationship is identified between analysts' forecast dispersion ( $FDISP$ ) and the disclosure scores ( $-0.099$ ,  $p < 0.038$ ), although with a much smaller magnitude. A negative relationship between the disclosure score of integrated reports ( $IR\_TOTAL$ ) and the cost of equity capital measures is also identified ( $-0.161$ ,  $p < 0.0008$ ). Other variables all have expected signs and none of the unexpected correlations are high enough to raise potential collinearity concerns.

## **Empirical Results**

### ***H1(a) Testing***

In H1(a), a negative relationship is hypothesized between the level of alignment of integrated reports with the <IR> framework and analysts' earnings forecast error. H1(a) is tested by running an OLS regression of the changes in analysts' earnings forecast error ( $\Delta FCERROR$ ) on the changes in the total disclosure scores ( $\Delta IR\_TOTAL$ ) of companies' integrated reports. As outlined earlier, the sample size now decreases from 443 to 307. The results are reported in Table 2 (column 1). The total disclosure scores of integrated reports are observed to be negatively and significantly related to analysts' earnings forecast error, providing support for H1(a). In particular, a one unit increase in the total disclosure score ( $IR\_TOTAL$ ) decreases the scaled analysts' forecast error ( $FCERROR$ ) by 9.72 percent.

Other variables significantly impacting the analysts' earnings forecast error include company size (*SIZE*,  $t = 1.681$ ,  $p < 0.100$ )<sup>40</sup> and earnings volatility (*VAREAN*,  $t = -3.075$ ,  $p < 0.001$ )<sup>41</sup>. Overall, supporting evidence has been found for H1(a) that the level of alignment of integrated reports with the <IR> framework is negatively associated with analysts' earnings forecast error.

### ***H1(b) Testing***

H1(b) hypothesizes a negative association between the level of alignment of integrated reports and the analysts' forecast dispersion. The regression results for H1(b) are shown in column 2 of Table 2. Although a negative sign is observed for the measure of the level of alignment, i.e. the total disclosure score of integrated reports (*IR\_TOTAL*), it is not statistically significant enough for inferences to be drawn ( $t = -1.374$ ). It is also noted that the coefficient on the disclosure score (*IR\_TOTAL*) is on a much smaller magnitude (-0.000447) compared to that for the analysts' forecast accuracy (-0.0972) as reported in column 1 of Table 2. This finding indicates that the level of alignment of integrated reports has a stronger effect in influencing the analysts' forecast error than the analysts' forecast dispersion. The only control variable that is significant in affecting the analysts' forecast dispersion is the company size ( $t = -2.037$ ,  $p < 0.050$ ). Given that the negative relationship is not statistically significant, H1(b) is not found to be supported.

Collectively, there is evidence that the improvement in the level of alignment of companies' integrated reports helps improve the analysts' earnings forecast accuracy. There is no evidence statistically significant enough for us to conclude that such improvement also helps reduce the analysts' forecast dispersion.

### ***H2 and H2(a) Testing***

H2 hypothesizes a negative relationship between the ICC and the disclosure score of companies' integrated reports. H2 is tested by running OLS regressions of the

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<sup>40</sup> The positive sign on company size suggests that as company size gets larger, so does the analysts' forecast error. This could be true as company size can proxy for complexity and increased complexity is expected to decrease analysts' forecast accuracy.

<sup>41</sup> The negative sign on earnings volatility suggests that as earnings volatility increases, the analysts' forecast error decreases. This could happen if companies with more volatile earnings have more incentive to meet/beat analysts' forecasts. In sensitivity analysis, using the Heckman's two stage analysis instead of the change specification to address the potential endogeneity; the negative sign on earnings volatility (*VAREARN*) becomes insignificant.



changes in the cost of equity capital ( $\Delta ICC\_PEG$ ) on the changes in the disclosure scores of integrated reports ( $\Delta IR\_TOTAL$ ), with the regression results presented in Table 3. This changes approach helps to address concerns about the existence of potential endogeneity (Dhaliwal et al. 2011). As explained earlier, the sample size is now reduced from 430 to 294, which works against finding statistically significant results for the hypothesis testing. Nonetheless, a negative and significant relationship is identified for the overall sample (column 1), providing support for H2 and H2(a). Specifically, a one unit improvement in the level of alignment of the integrated report brings down the cost of equity capital by 0.216 percent (column 1). The sub-sample analysis shows that this negative relationship is mainly contributed by the sub-group with a lower analyst following (column 3), providing support for H2(a). The finding is consistent with Botosan (1997) and Griffin and Sun (2014). It also provides support for the voluntary disclosure theory and the Merton (1987) theoretical model that the benefit of higher quality disclosures is expected to be more pronounced in environments with low public information availability.

[INSERT TABLE3 HERE]

## Sensitivity Analysis

### *Heckman's Two Stage Analysis*

Although multiple measures are employed in the main analysis to ameliorate the potential endogeneity concern, we run the commonly used Heckman's two stage analysis in this section as a sensitivity analysis. In order to perform the Heckman's two stage analysis, the endogenous variable (i.e.  $IR\_TOTAL$ ) is converted into a dummy variable using the sample median split (i.e.  $HIGHIR$ )<sup>42</sup> and used in the first stage as the dependent variable. Two exclusion restrictions are included in the first stage analysis.  $IR\_POLICY$  is a dummy variable coded one if the company's annual report is subject to the <IR> policy, i.e. if the company's fiscal year starts on or after March, 2010 and zero otherwise<sup>43</sup>. The other exclusion restriction we use is

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<sup>42</sup> It is coded one if the company's <IR> disclosure score ( $IR\_TOTAL$ ) is greater than the sample median and zero otherwise.

<sup>43</sup> This variable is ideal for the Heckman's two stage analysis because it is expected to be highly positively related to the level of alignment with the <IR> framework ( $IR\_TOTAL$ ) due to the policy effect while being exogenous to all the dependent variables.

profitability, measured as the income before extraordinary items over total assets (ROA) of the reporting company<sup>44</sup>.

Results from the second stage of the Heckman's analysis (Table 4 and 5) show that once the Heckman's two stage analysis is performed<sup>45</sup>, the dummy variable of <IR> disclosure score (*HIGHIR*) now becomes negatively and significantly related to analysts' forecast error and dispersion, lending additional support for H1(a) and H1(b). As for the results on H2, the coefficient on *HIGHIR* (column 5 of Table 5) now becomes negative as hypothesized, and with a t-statistic ( $t = -1.430$ ) close to conventional significance level compared to a positive sign (column 1 of Table 5) before the Heckman's two stage analysis is used. The sub-sample analysis produces results consistent with H2(a) and the main analysis.

Overall, compared to the results when the endogeneity concern is not controlled for, the Heckman's two stage analysis produces results consistent with other approaches used in the main analysis to control for endogeneity concerns.

### ***Alternative Measures of the Cost of Equity Capital***

In this section, we report results using several alternative measures of the cost of equity capital. First, the GLS model developed from Gebhardt et al. (2001), second, the CT model developed from Claus and Thomas (2001) and third, the simultaneous estimation method developed from Easton et al. (2002). All three alternative measures produce results consistent with the main analysis, albeit not statistically significant. The insignificant results from using these three alternative measures could potentially be due to the different assumptions that go into these measures, and perhaps more importantly, because *ICC\_PEG* is much more parsimonious in calculation compared to any of the other measures and thus suffers less measurement errors and is recommended as one of the superior models in Botosan and Plumlee (2005).

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<sup>44</sup> It is theorized and found that resource constraint is one of the factors determining the degree of disclosure, especially for non-financial information (Dhaliwal et al. 2011; Matsumura, Prakash, and Vera-Muñoz 2014). Meanwhile, there is no theoretical nor empirical evidence suggesting that the profitability of a company is directly related to analyst earnings forecast properties or the cost of equity capital.

<sup>45</sup> Before the Heckman's two stage analysis is used (column 1-2 of Table 5 and 1-3 of Table 6), the regression with all variables in their level form suggests no significant relationship between the level of integrativeness and any of the dependent variables, i.e. the analyst forecast error, the forecast dispersion, and the cost of equity capital

As a second type of alternative measure, the realized (ex-post) return<sup>46</sup> is used as the dependent variable to replace the implied (ex-ante) cost of equity capital. One of the most commonly used measures to evaluate the validity of accounting-based estimates of the implied cost of equity capital is to test their association with realized returns (Easton and Monahan 2005; Guay, Kothari, and Shu 2011). Further, the ex-post realized return has the advantage of suffering less measurement errors than the implied (ex-ante) cost of equity capital. Thus, the realized returns are commonly used as an additional analysis to see if the results corroborate those from using the ex-ante implied return, i.e. implied cost of equity capital (Francis et al. 2008). The regression results (untabulated) reveal that companies with higher <IR> scores are associated with a lower return, consistent with the expectation that these companies are regarded as having lower risks to investors, who therefore are willing to invest with lower returns. This is supported by the finding and argument in Hong and Kacperczyk (2009) that sin stocks (alcohol, tobacco, and gaming) have higher expected returns than otherwise comparable stocks, consistent with them being neglected by norm-constrained investors and facing greater litigation risk heightened by social norms. The sub-sample analysis also produces similar results to the main analysis in that the negative relationship between the disclosure score and the monthly return is only significant among those with a low analyst following. Therefore, the result on the realized return corroborates those found on the implied cost of equity capital in the main analysis, thus providing further support to H2 and H2a.

### ***Alternative Measures of the Analysts' Earnings Forecast Error and Dispersion***

The measure of forecast error and dispersion in the main analysis is consistent with previous studies such as Lang and Lundholm (1996), Hope (2003), Lehavy et al. (2011) and Dhaliwal et al. (2012). However, another recent study, Cheong and Thomas (2011), challenged the routinely followed way of measuring the analyst forecast error on scale (usually by share price or actual/forecast EPS) because they observed that both analysts' forecast error and dispersion vary little with scale for EPS forecasts in a number of large markets around the world<sup>47</sup>. In view of the

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<sup>46</sup> The realized returns are calculated as the 12-month monthly market-adjusted cum-dividend returns calculated from daily security prices after fiscal year end.

<sup>47</sup> Cheong and Thomas (2011) observed that the assumed scale variation resulting in the use of the deflated forecast error or dispersion as an independent (dependent) variable generates spurious results if the dependent (independent) variable happens to be correlated with scale (p. 361). However, this study has limitations as the findings only apply to the U.S. and other large markets as mentioned.

findings by Cheong and Thomas (2011), the unscaled/raw analyst forecast error is used as an alternative dependent variable in the sensitivity analysis.

The results for H1(a) and H1(b) hold, supporting the conclusion that the improvement in the disclosure score of the integrated report helps improve the analysts' forecast accuracy<sup>48</sup>, but not forecast dispersion.

#### *Alternative Measures of the Level of Alignment of Integrated Reports with the <IR> framework*

In the main analysis, the level of alignment of integrated reports is measured using the total disclosure score of those reports ranging from 0-31. Although the use of a continuous score is deemed appropriate and necessary given the significant variations in the level of alignment of integrated reports produced, a potential downside is that such a measure is noisy given the limitations of a user-defined coding framework and the inevitable subjectivity that goes into the coding process. To address the aforementioned limitation in the total disclosure score (*IR\_TOTAL*), a dichotomous variable (*HIGHIR*) is created which equals one if the disclosure score on the integrated report produced by the company is greater than the sample median disclosure score and zero otherwise. Although the level of variation is restricted in the use of the dichotomous variable (*HIGHIR*), it is believed to have the benefit of being less noisy. The use of the dichotomous variable produces qualitatively similar results to those obtained from the main analysis, except when testing H1(b) on the relationship between the level of integrativeness and the analysts' earnings forecast dispersion, where a significant and negative relationship was identified ( $t = -2.084$ ,  $p < 0.05$ ) as opposed to insignificant results using the continuous disclosure score (*IR\_TOTAL*), lending some support for H1(b).

Another limitation of the total disclosure score (*IR\_TOTAL*) is the potential bias derived from the check-list approach of the scoring process. In order to circumvent such limitation in the total disclosure score (*IR\_TOTAL*), an impression score (*IR\_IMPR*) is also collected during the coding process. The coder was required to score the report from 0 – 7 based on his/her overall impression of the report against the principles of an integrated report set out by the IIRC. Thus, the impression score

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Whether the same finding will apply to the South African market remains an empirical question. In addition to scaling the analysts' earnings forecast error and dispersion by share price, alternative denominators are used, including actual and forecast earnings and the main results hold.

<sup>48</sup> In particular, one unit increases in the total disclosure score (*IR\_TOTAL*) decreases the unscaled analyst forecast error by 10.43 percent (compared to 9.72 percent of the scaled forecast error).

(*IR\_IMPR*) is inherently more subjective than the total disclosure score (*IR\_TOTAL*) but suffers less bias induced by the check-list approach of coding. The use of the impression score (*IR\_IMPR*) as the independent variable of interest produces results qualitatively similar to those obtained from the main analysis.

## **Additional Analyses**

### ***Tests on the Unique Characteristics of <IR>***

As mentioned previously, an investor survey was carried out preceding the data collection process to collect respondents' ratings on the level of "importance" and "newness" of the 31 components included in the coding framework. The ratings collected from the survey were then used to create the following three variables: (i) the importance score (*IMP*), which is the sum of the scores of each component<sup>49</sup> weighted by the median ratings on "importance" from the investor survey; (ii) the newness score (*NEW*), which is the sum of the scores of each component<sup>50</sup> weighted by the median ratings on "newness" from the investor survey; (iii) the importance times newness score (*IMPNEW*), which is the sum of the scores of each component weighted by the median ratings on "importance" and "newness" from the investor survey. The regressions in the main analysis were re-run with these three variables as independent variables of interests to see if the results identified in the main analysis are driven by any of these characteristics of <IR>.

In addition, another variable is created to capture one of the unique features of <IR>, i.e. connectivity. The connectivity score (*CONNECT*) is the sum of the scores of those elements reflecting the connectivity principle outlined in the <IR> framework<sup>51</sup>. Results show that all four measures are negatively and significantly

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<sup>49</sup> The components with above sample median 'importance' ratings from the investor survey discussed in footnote 35 include 1.3 (Business overview), 1.4 (Operation context), 2.1 (Governance structure), 2.2 (Governance and strategy), 3.1 (Risks), 4.1 (Strategic objectives), 4.2 (Strategy and others), 5.1(Business model), 5.2 (Business model and others), 5.3 (Stakeholder dependencies), 6.1 (KPIs against strategy), 6.2 (Explanation of KPIs), 6.6 (Supply chain performance), 6.7 (the quality of quantitative indicators) and 7.3 (Estimates).

<sup>50</sup> The components with above sample median 'newness' ratings from the investor survey discussed in footnote 35 include: 2.3 (Remuneration and performance), 2.4 (Governance and others), 4.4 (Stakeholder consultations), 5.2 (Business model and others), 6.2 (Explanation of KPIs), 6.3 (Stakeholder relationship), 6.5 (Financial implications), 6.6 (Supply chain performance), 6.7 (the quality of quantitative indicators), 7.1 (Anticipated changes), 7.2 (Potential implications) and 7.3 (Estimates).

<sup>51</sup> These components are 2.2 (governance and strategy), 2.3 (remuneration and performance), 2.4 (governance and others), 4.2 (strategy and others), 5.2 (business model and others), 6.1 (KPIs against strategy), 6.4 (past, current and future performance), 6.5 (financial implications of other capitals) and 8.1 (conciseness and links).

related to analysts' forecast error, but not dispersion, and three of the four measures, namely, the importance score (*IMP*), the newness score (*NEW*) and the importance times newness score (*IMPNEW*) are found to be significantly negatively related to the cost of equity capital. Hence, the unique connectivity feature of <IR> seems to have a direct effect on analysts' earnings forecast tasks, but the flow-on effect of the reduction in the cost of equity capital does not materialize. One possible reason is that given the very early stage of the practice of <IR>, the average score on connectivity is very low and lacks variation<sup>52</sup>. This may limit the power of the test which is particularly pertinent in the analysis of the cost of equity capital.

### ***Current Year and Two-Year-Ahead Analysts' Earnings Forecast***

In the main analysis, only the one-year-ahead analysts' earnings forecast properties are used as the dependent variable. However, as an additional analysis, the current year<sup>53</sup> and the two-year-ahead<sup>54</sup> forecast error and dispersion are also calculated and regressed on the disclosure score of sample companies. Results (untabulated) demonstrate that the disclosure scores of companies' integrated reports are not significantly related to either the current year or the two-year ahead analysts' forecasts error and dispersion.

## **CONCLUSION**

This study is motivated by a need to provide empirical evidence substantiating the claimed benefits of <IR> which has been described by some as the "future of corporate reporting" (IIRC 2014a). The significance of <IR> has been evidenced in the growing number of companies voluntarily producing integrated reports; the convening of multiple influential parties including investors under the global authority

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<sup>52</sup> In the sample for the cost of equity capital analysis (N = 430), the mean connectivity score is 1.629 out of 31 with a minimum of 0 and maximum of 5.75.

<sup>53</sup> The current year earnings forecasts are not used in the main analysis because first there are only a few months' observations available between the fiscal year end and the actual release of the earnings which makes the results less comparable to the one-year-ahead examined which contains the average of 12 months observations. Second and more importantly, it is the purpose of this study to infer whether information contained in the integrated report is useful for analysts in making forecasts and the fact that analysts will not be able to use the information in the current year's integrated report to predict current year's earnings renders the current year forecast irrelevant.

<sup>54</sup> The two-year-ahead analysts' earnings forecast properties are not used because first, as the forecast horizon increases, the forecast tends to be less reliable (Easton 2007). Second, as the sample period spans from 2009 to 2012, the two-year-ahead forecast is not available for most observations in 2011 and 2012 at the time of the study. This constraint means the sample size further shrinks dramatically (from 307 to 202), which presents a significant concern for the power of the statistical tests used.

of the IIRC to provide guidance and impetus to <IR>, and the prioritized position that <IR> has on the list of regulators around the world.

On one hand, the advocates of <IR> have listed a number of benefits of <IR> to multiple parties including the reporting entities, the providers of financial capital and the broader stakeholders. On the other hand, to date few of those claimed benefits have been able to be tested empirically. This study is among the first to provide evidence on the capital market benefits of <IR> by examining first, whether the level of alignment of integrated reports with the <IR> framework affects analysts' earnings forecast accuracy and dispersion. Second, whether companies producing integrated reports with a high level of alignment enjoy the benefit of reduced cost of equity capital.

This study takes advantage of the 2010 requirement for companies listed on the JSE in South Africa to produce an integrated report on an "apply or explain" basis. With 443 company-year observations listed on the JSE from 2009 to 2010, it is found that the level of alignment of integrated reports is negatively associated with the analysts' earnings forecast error, demonstrating that information contained in the integrated report is helpful for analysts in formulating their prediction for earnings, probably because the integrated report contains information on corporate strategy, business model and future-oriented information. Particularly, information representing the connectivity and newness feature of <IR> is negatively associated with analysts' forecast error, suggesting an integrated report contains new information over and above the current reporting suite in helping analysts in predicting the future profitability of companies. There is only marginal evidence, however, suggesting that the level of alignment is also negatively associated with the analysts' earnings forecast dispersion.

Further, it is found that the improvement in the level of alignment of integrated reports with the <IR> framework is associated with a subsequent reduction in the cost of equity capital and the realized market returns, consistent with the notion that investors are willing to accept lower rate of return as a result of reduced information risk. Sub-sample analysis reveals that this benefit is more evident among companies with a low analyst following. Taken together, the evidence suggests that the benefit of a reduced cost of equity capital from producing high quality integrated reports (measured by a higher level of alignment with the <IR> framework) could potentially be attributed to an improved information environment for reporting

companies. As such, the effect is less significant for those companies with better information environments, i.e. those companies with a larger analyst following.

The results are obtained after company level financial transparency and the issuance of standalone CSR reports are controlled for, suggesting that information contained in an integrated report is incrementally useful to investors and analysts in addition to the current reporting suite. Overall, the results from this study provide evidence supporting the claim that <IR> is helpful in improving the information environment of reporting companies, which then translates to a lower cost of equity capital.

This study has extended the test of voluntary disclosure theory into the context of <IR> which integrates financial information and non-financial information and has found some evidence consistent with the theory. The results of this study provide empirical evidence supporting some of the claimed benefits of <IR>, which therefore contributes to creating a market incentive for the wider adoption of <IR>. Last but not least, the study sheds light onto the current state and consequences of <IR> adoption in South Africa right before and after the listing requirement on <IR>, which offers valuable information for regulators' assessments regarding adopting <IR> in other markets.

There are some limitations to this study. The first limitation is that the availability of analysts' forecasts data and the labor intensive nature of the coding process constrained the sample size of the study, however, this will only work against finding any statistically significant results. Second, the use of a self-constructed coding framework makes future replication difficult. In addition, the principle-based nature of the coding framework brings a certain level of individual judgment to the coding process. The double independent coding process is expected to significantly alleviate this concern. Third, similar to other studies examining the economic impact of voluntary disclosures, there is an endogeneity concern. In this study, multiple measures, including the use of the change specification, the lead-lag approach, and the natural experimental setting are used to ameliorate the concern. In addition, other commonly used approaches, including the instrumental variable analysis and the Heckman's two stage analysis are also used as sensitivity analyses to address the issue. Nonetheless, due to the inherent limitations of each measure, it is hard to claim that the endogeneity issue has been completely removed from the analysis.



The findings from this study point to several future research opportunities. First, this study only focuses on one type of avenue through which companies communicate to their stakeholders, i.e. the integrated annual reports. The sole focus on annual reports may not be a proper proxy for the overall disclosure policy of sample companies, which could particularly be the case for companies with a high analyst following. Future research should consider incorporating other avenues into the examination. Second, this study takes advantage of the unique mandatory adoption of <IR> in South Africa. The downside, however, is that this may limit the generalization of the results to other countries where <IR> is completely voluntary. Future research which extends the investigation to other countries and provides a cross-country comparison may be fruitful. In addition, the sample period of this study is limited to between 2009 and 2012 due to data availability. However, <IR> is a journey which has just started, and it will take time for more benefits of <IR> to be empirically documented, especially the long-term benefits. It is expected that more research opportunities will emerge once <IR> becomes a more widely adopted and standardized practice.

**Table 1 Summary Statistics**

**Panel A: Full sample and yearly sample for analyst earnings forecast analysis**

Variable	Full Sample					
	Obs	Mean	Median	Std. Dev.	Min	Max
FCERROR	443	-4.406	-4.339	1.240	-7.594	0.118
FDISP	443	0.013	0.008	0.018	0.000	0.183
IR_TOTAL	443	6.273	5.250	4.400	0.250	18.000
SIZE	443	9.760	9.760	1.704	6.325	13.871
VAREARN	443	0.593	0.593	1.344	-3.281	3.597
ANANO	443	6.363	6.363	3.883	1.083	16.000
LnANANO	443	1.615	1.615	0.739	0.080	2.773
FFIN	443	-0.427	-0.427	0.495	-1.000	0.000
LOSS	443	0.059	0.059	0.235	0.000	1.000
HORIZON	443	240.953	240.953	18.481	123.200	355.000
CSR	443	0.312	0.312	0.464	0.000	1.000

**Panel B: Summary statistics of the variables used in the full sample for analyst earnings forecast analysis in their changes forms**

Full Sample						
Variable	Obs	Mean	Median	Std. Dev.	Min	Max
$\Delta$ FCERROR	307	-0.048	-0.029	1.135	-2.955	2.904
$\Delta$ FDISP	307	0.002	0.000	0.013	-0.035	0.082
$\Delta$ IR_TOTAL	307	1.938	1.500	2.028	-1.750	8.750
$\Delta$ SIZE	307	0.093	0.079	0.150	-0.412	1.242
$\Delta$ VAREARN	307	0.035	-0.003	0.218	-0.709	1.582
$\Delta$ ANANO	307	0.180	0.080	0.180	-3.250	3.750
$\Delta$ LnANANO	307	0.007	0.015	0.300	-0.875	0.865
$\Delta$ FFIN	307	0.101	0.000	0.427	-1.000	1.000
$\Delta$ LOSS	307	0.000	0.000	0.302	-1.000	1.000
$\Delta$ HORIZON	307	2.713	-0.583	18.694	-139.300	112.750
$\Delta$ CSR	307	-0.010	0.000	0.338	-1.000	1.000

**Panel C: Full sample and yearly sample for cost of equity capital analysis**

Variable	Full Sample					
	Obs	Mean	Median	Std.Dev.	Min	Max
ICC_PEG	430	0.137	0.126	0.050	0.000	0.372
IR_TOTAL	430	6.283	5.250	4.412	0.250	18.000
SIZE	430	9.433	9.418	1.532	5.264	13.002
BM	430	0.644	0.510	0.546	0.063	4.108
LEV	430	0.552	0.536	0.216	0.012	1.000
LTG	430	0.210	0.116	0.192	-0.167	1.297
DISP	430	-2.489	-2.560	0.841	-5.725	0.069
BETA	430	0.886	0.862	0.400	-0.018	2.145
DA	430	0.051	0.032	0.054	0.000	0.355
CSR	430	0.302	0.000	0.460	0.000	1.000

Please refer to Appendix 1 for variable definitions.

**Panel D: Mean comparisons for sub-samples of cost of equity capital analysis (means in bold are significantly different at  $p < 0.05$ , two-tailed)**

Full Sample			High Analyst Following		Low Analyst Following		t-value	p-value
Variable	Obs	Mean	Obs	Mean	Obs	Mean		
ICC_PEG	430	0.137	216	<b>0.126</b>	214	<b>0.148</b>	4.619	0.000
IR_TOTAL	430	6.283	216	<b>8.370</b>	214	<b>4.175</b>	-11.196	0.000
SIZE	430	9.433	216	<b>10.279</b>	214	<b>8.580</b>	-13.803	0.000
BM	430	0.644	216	<b>0.497</b>	214	<b>0.792</b>	5.806	0.000
LEV	430	0.552	216	<b>0.580</b>	214	<b>0.524</b>	-2.679	0.008
LTG	430	0.210	216	<b>0.184</b>	214	<b>0.236</b>	2.816	0.005
DISP	430	-2.489	216	-2.544	214	-2.433	1.362	0.174
BETA	430	0.886	216	0.884	214	0.888	0.098	0.922
DA	430	0.051	216	0.048	214	0.054	1.018	0.309
CSR	430	0.302	216	<b>0.380</b>	214	<b>0.224</b>	-3.550	0.000

**Table 2 Summary Statistics – cont.**

**Panel E: Summary statistics of the variables used in the full sample for the cost of equity capital analysis in their changes forms plus mean comparisons for sub-samples partitioned by the sample median number of analysts following (means in bold are significantly different at  $p < 0.05$ , two-tailed)**

<i>Variable</i>	<b>Full Sample</b>						<b>High Analyst Following</b>		<b>Low Analyst Following</b>		<b>t-value</b>	<b>p-value</b>
	<i>Obs</i>	<i>Mean</i>	<i>median</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>	<i>Obs</i>	<i>Mean</i>	<i>Obs</i>	<i>Mean</i>		
$\Delta$ ICC_PEG	294	-0.00835	-0.01004	0.03335	-0.18110	0.13476	147	-0.00810	147	-0.00861	-0.1303	0.8964
$\Delta$ IR_TOTAL	294	1.92260	1.50000	2.02450	-1.75000	8.75000	147	<b>2.40646</b>	147	<b>1.43878</b>	-4.2134	0.0000
$\Delta$ SIZE	294	0.13443	0.13782	0.28915	-1.13943	1.55216	147	0.12112	147	0.14775	0.6410	0.5220
$\Delta$ BM	294	-0.00235	-0.00571	0.26678	-1.57491	1.58686	147	0.01805	147	-0.02275	-1.3125	-1.3125
$\Delta$ LEV	294	-0.00968	-0.00595	0.05095	-0.26873	0.17475	147	-0.00929	147	-0.01008	-0.1320	0.8951
$\Delta$ LTG	294	-0.00175	-0.00201	0.20035	-0.96200	0.98587	147	0.00029	147	-0.00379	-0.1167	0.9072
$\Delta$ DISP	294	-0.06487	-0.08024	0.60574	-1.63937	1.77347	147	-0.10335	147	-0.02639	0.9216	0.3575
$\Delta$ BETA	294	-0.00883	-0.00624	0.12012	-0.55675	0.42747	147	-0.01302	147	-0.00465	0.6053	0.5454
$\Delta$ DA	294	-0.00287	-0.00018	0.06609	-0.23071	0.30895	147	-0.00502	147	-0.00072	0.5578	0.5774
$\Delta$ CSR	294	-0.00340	0.00000	0.32525	-1.00000	1.00000	147	<b>-0.04082</b>	147	<b>0.03401</b>	1.9822	0.0484

Please refer to Appendix 1 for variable definitions.

**Table 2 OLS regression results of yearly changes in analysts' earnings forecast error (*FCERROR*)/dispersion (*FDISP*) on yearly changes of <IR> scores (*IR\_TOTAL*)**

	Predicted Sign	(1)	(2)
		DV = $\Delta$ <i>FCERROR</i>	DV = $\Delta$ <i>FDISP</i>
$\Delta$ IR_TOTAL	-	-0.0972*** (-3.148)	-0.000447 (-1.374)
$\Delta$ SIZE	-	0.694 (1.645)	-0.0126** (-2.037)
$\Delta$ VAREARN	+	-0.799*** (-3.075)	0.000854 (0.379)
$\Delta$ LnANANO	-	0.121 (0.503)	0.00192 (0.593)
$\Delta$ FFIN	+	-0.146 (-0.873)	-0.00177 (-1.410)
$\Delta$ LOSS	+	-0.110 (-0.452)	-3.19e-05 (-0.0129)
$\Delta$ HORIZON	+	0.00453 (1.194)	-3.34e-05 (-0.839)
$\Delta$ CSR	-	0.110 (0.487)	0.000160 (0.0892)
Year		Yes	Yes
Industry		Yes	Yes
Clustered by companies		Yes	Yes
Constant		-0.353*** (-2.812)	0.00287 (1.195)
Observations		307	307
R-squared		0.097	0.133
Adjusted R-squared		0.0370	0.0752

Coefficient values (Robust t-statistics) are shown with standard errors clustered at the company level.

\*\*\*, \*\*, \*, indicate statistical significance at the 1%, 5% and 10% levels, respectively, two-tailed.

Please refer to Appendix 1 for variable definitions.

**Table 3 OLS regression results of the yearly changes in the cost of equity capital (*ICC\_PEG*) on the yearly changes of <IR> scores (*IR\_TOTAL*)**

	Predicted Sign	DV = $\Delta ICC\_PEG$		
		(1)	(2)	(3)
		Full Sample	High Analyst Following	Low Analyst Following
$\Delta IR\_TOTAL$	-	-0.00216* (-1.863)	-0.000936 (-1.032)	-0.00560* (-1.953)
$\Delta SIZE$	-	-0.0429** (-2.339)	-0.00547 (-0.334)	-0.0579*** (-2.709)
$\Delta BM$	+	-0.0177 (-1.078)	-0.0234 (-0.845)	-0.00985 (-0.624)
$\Delta LEV$	+	0.0443 (1.076)	0.0147 (0.386)	0.0906 (1.040)
$\Delta LTG$	+	-0.00524 (-0.582)	0.0159* (1.688)	-0.0172 (-1.238)
$\Delta DISP$	+	-0.00329 (-0.698)	0.00373 (0.687)	-0.00804 (-1.310)
$\Delta BETA$	+	-0.0109 (-0.437)	-0.0285 (-1.633)	0.000471 (0.0131)
$\Delta DA$	+	0.00803 (0.249)	-0.0137 (-0.653)	0.0775 (1.264)
$\Delta CSR$	-	-0.00930** (-2.197)	-0.0140* (-1.877)	-0.00644 (-0.855)
Year Indicators		Yes	Yes	Yes
Industry Indicators		Yes	Yes	Yes
Clustered by companies		Yes	Yes	Yes
Constant		-0.000129 (-0.0289)	-0.00705* (-1.746)	0.00292 (0.443)
Observations		294	147	147
R-squared		0.132	0.189	0.258
Adjusted R-squared		0.0687	0.0603	0.140

Coefficient values (Robust t-statistics) are shown with standard errors clustered at the company level.

\*\*\*, \*\*, \*, indicate statistical significance at the 1%, 5% and 10% levels, respectively, two-tailed.

Please refer to Appendix 1 for variable definitions.

**Table 4 Heckman's two stage analysis -- Analyst forecast error/dispersion**

IVs	Raw analysis		Heckman's two stage analysis	
	(1) DV = FERROR	(2) DV = FDISP	(5) DV = FERROR	(6) DV = FDISP
IR_TOTAL	-0.0320 (-1.263)	-0.000420 (-1.406)		
HIGHIR			-0.351** (-2.266)	-0.00459** (-2.286)
SIZE	-0.00411 (-0.0616)	-0.000114 (-0.104)	0.202* (1.885)	0.00367 (1.425)
VAREARN	0.0298 (0.535)	-0.000675 (-0.563)	-0.0205 (-0.386)	-0.00155 (-1.513)
LnANANO	-0.444*** (-3.693)	-0.00326* (-1.806)	-0.237* (-1.834)	0.000619 (0.326)
FFIN	0.0424 (0.330)	0.000789 (0.475)	0.0593 (0.469)	0.00115 (0.640)
LOSS	0.422 (1.270)	0.00788 (1.412)	0.592* (1.797)	0.0110** (2.003)
HORIZON	0.00796** (2.002)	4.32e-05 (0.953)	0.00692 (1.506)	2.38e-05 (0.485)
CSR	0.232* (1.843)	0.00136 (0.833)	0.302** (2.352)	0.00255 (1.517)
INVMILLS			0.762** (2.352)	0.0142 (1.561)
Year Indicators	Yes	Yes	Yes	Yes
Industry Indicators	Yes	Yes	Yes	Yes
Constant	-6.176*** (-5.291)	0.00942 (0.851)	-8.740*** (-6.543)	-0.0380 (-1.173)
Observations	443	443	443	443
R-squared	0.292	0.182	0.318	0.221
Adjusted R-squared	0.259	0.143	0.284	0.182

Coefficient values (Robust t-statistics) are shown with standard errors clustered at the company level.

\*\*\*, \*\*, \*, indicate statistical significance at the 1%, 5%, and 10% levels, respectively, two-tailed.

Please refer to Appendix 1 for variable definitions.

**Table 5 Heckman's two stage analysis – The Cost of Equity Capital**

	Raw analysis			Heckman's two stage analysis		
	(1) DV = ICC_PEG	(2) DV = ICC_PEG	(3) DV = ICC_PEG	(4) DV = ICC_PEG	(5) DV = ICC_PEG	(6) DV = ICC_PEG
IVs	Full Sample	High analyst following	Low analyst following	Full Sample	High analyst following	Low analyst following
IR_TOTAL	0.000225 (0.328)	0.00114* (1.696)	-0.00305 (-1.497)			
HIGHIR				-0.00764 (-1.430)	0.00668 (1.500)	-0.0229** (-2.478)
SIZE	-0.00541** (-2.533)	-0.00198 (-0.787)	-0.00418 (-0.934)	-0.0101*** (-2.931)	-0.00335 (-0.950)	-0.0135** (-2.440)
BM	0.0105 (1.589)	0.00912* (1.974)	0.0114 (1.324)	0.00699 (1.010)	0.00740 (1.433)	0.00524 (0.602)
LEV	0.0136 (0.925)	-0.0255* (-1.699)	0.0450 (1.598)	0.00199 (0.122)	-0.0300* (-1.750)	0.0210 (0.725)
LTG	0.0556*** (4.254)	0.0475*** (3.077)	0.0520** (2.518)	0.0590*** (4.467)	0.0516*** (3.113)	0.0569*** (2.768)
DISP	0.0140*** (3.543)	0.0196*** (4.892)	0.0119** (2.150)	0.0137*** (3.564)	0.0191*** (4.631)	0.0119** (2.204)
BETA	0.0291*** (3.888)	0.0190** (2.008)	0.0374*** (3.379)	0.0273*** (3.583)	0.0177* (1.795)	0.0326*** (2.971)
DA	0.0238 (0.725)	-0.0107 (-0.443)	0.0741 (1.199)	0.0293 (0.904)	-0.0128 (-0.499)	0.0792 (1.309)
CSR	-0.0109** (-2.134)	-0.0150*** (-2.990)	-0.00419 (-0.406)	-0.0119** (-2.363)	-0.0167*** (-3.232)	-0.00816 (-0.815)
INVMILLS				-0.0197* (-1.763)	-0.00889 (-0.788)	-0.0281* (-1.790)
Year Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Industry Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Clustered by companies	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.164*** (4.911)	0.166*** (5.987)	0.150** (2.636)	0.238*** (4.789)	0.191*** (3.995)	0.270*** (3.504)
Observations	430	216	214	430	216	214
R-squared	0.429	0.557	0.407	0.438	0.553	0.427
Adjusted R-squared	0.399	0.509	0.342	0.408	0.502	0.361

Coefficient values (Robust t-statistics) are shown with standard errors clustered at the company level.

\*\*\*, \*\*, \*, indicate statistical significance at the 1%, 5% and 10% levels, respectively, two-tailed.

Please refer to Appendix 1 for variable definitions.

## APPENDIX 1 VARIABLE DEFINITIONS

ABS_DA	<p>The absolute value of discretionary accruals is measured from the performance-adjusted cross-sectional modified Jones model following Kothari et al. (2005). Discretionary accruals are estimated using the residual term (<math>\epsilon_{it}</math>) from the annual cross-sectional industry regression model as follows:</p> $TA_{it} = \beta_0 + \beta_1(1/ASSETS_{it-1}) + \beta_2(\Delta Sales_{it} - \Delta REC_{it}) + \beta_3PPE_{it} + \beta_4ROA_{it} + \epsilon_{it}$ <p>where <math>TA</math> is the total accruals measured as the change in non-cash current assets minus the change in current liabilities excluding the current portion of long-term debt, minus depreciation and amortisation, scaled by lagged total assets; <math>\Delta Sales</math> is the change in net sales revenue; <math>\Delta REC</math> is the change in net receivables; <math>PPE</math> is gross property, plant and equipment; and <math>ROA</math> is return on assets. All variables are scaled by lagged total assets (except <math>ROA</math>). Discretionary accruals were winsorised at 1 and 99 percentile values within each year.</p>
ASU	A dummy variable coded 1 if the non-financial information included in the annual (integrated) report is assured by an independent third party and 0 otherwise.
BETA	Market Beta as of the fiscal year-end month. The beta is calculated using the Capital Assets Pricing Model (CAPM) from 60-month monthly returns up to the fiscal year-end month $t$ and requiring at least 24-month data, winsorised at 1 and 99 percentile values within each month. The market return is calculated using the FT-South Africa index. The risk-free rate is the 91 days treasury bill rate obtained from the South Africa Central Bank.
BM	The book-to-market ratio at fiscal year-end, winsorised at 1 and 99 percentile values within each year.
CONNECT	The sum of scores from those components representing connectivity principle of integrated reports, as described in the IR Prototype Framework released by IIRC.
CSR	A dummy variable is coded '1' if the company issues a standalone sustainability report in addition to the annual (integrated) report during the fiscal year, and '0' otherwise.
DISP	Analyst forecast dispersion, which is calculated as the logarithm of the standard deviation of analyst EPS forecasts divided by the median forecast. The variable is winsorised at 1 and 99 percentile values within each month.
FERROR	The forecast error, measured as the logarithm of the average of the absolute errors of all forecasts made in the 12 months following the fiscal year-end concerned for target earnings, scaled by the share price at the fiscal year-end.
FDISP	The forecast dispersion, measured as the standard deviation of analyst EPS median forecast and scaled by the share price at the fiscal year-end, averaged over the 12 months following the fiscal year-end.
FFIN	A dummy variable is coded '1' if a company's average absolute accruals is less than the median of those within the same industry and same year. This variable proxies for financial transparency.
HIGHIR	A dummy variable coded one if the score of the company's integrated report is higher than the sample mean scores within a certain year.
HORIZON	The forecast horizon, measured as the length of time between the forecasting date and the earnings announcement date.
ICC_PEG	The average implied cost of capital calculated using the PEG model developed in Easton (2004) in the 12-month period after the fiscal year-end, winsorised at 1 and 99 percentile values within each month.
IR_TOTAL	The total score assigned to integrated reports produced by sample companies. This score is hand collected from reading the sample companies' annual (integrated) reports against a self-constructed coding framework. It ranges



	from 0 to 31.
IR_IMPR	The impression score given to the overall quality of the annual (integrated) report on a scale of 0–7.
IMP	The total scores from the components of the framework weighted by the median rating on ‘importance’ from the investor survey.
IMP*NEW	The total scores from the components of the framework weighted by the median rating on both ‘importance’ and ‘newness’ from the investor survey.
LnANANO	The natural logarithm of the average number of forecasts made during the 12 months following fiscal year-end.
LOSS	An indicator variable equals ‘1’ if the company reports negative earnings in the prior year, and ‘0’ otherwise.
LEV	The ratio of total debt divided by total assets, winsorised at 1 and 99 percentile values within each year.
LTG	The average of the monthly long-term growth rate during the fiscal year. Long-term growth rate forecast data was obtained from I/B/E/S. The long-term growth rate was winsorised at 1 and 99 percentile values within each month.
NEW	The total scores from the components of the framework weighted by the median rating on ‘newness’ from the investor survey.
SIZE	The natural logarithm of the company’s total assets (in ZAR Millions) or the market value of common equity (in ZAR Millions) at the end of each fiscal year.
VAREARN	The natural logarithm of the times-series standard deviation of earnings per share computed using a rolling window of a minimum of three years up to ten years prior to the year concerned.

## REFERENCES

- Agnew, J. R., and L. R. Szykman. 2005. Asset Allocation and Information Overload: The Influence of Information Display, Asset Choice, and Investor Experience. *Journal of Behavioral Finance* 6 (2):57-70.
- B20. 2014. B20 Infrastructure & Investment Taskforce Policy Summary. Available at: <http://www.b20australia.info/Documents/B20%20Infrastructure%20and%20Investment%20Taskforce%20Report.pdf>, last accessed October, 2014.
- Baiman, S., and R. Verrecchia. 1996. The Relation among Capital Markets, Financial Disclosure, Production Efficiency, and Insider Trading. *Journal of Accounting Research*:1-22.
- Barron, O. E., C. Kyle, and T. B. O'Keefe. 1999. MD&A quality as measured by the SEC and analysts' earnings forecasts. *Contemporary Accounting Research* 16 (1):75-109.
- Barry, C., and S. Brown. 1984. Differential Information and the Small Firm Effect. *Journal of Financial Economics* 13:283-294.
- . 1985. Differential Information and Security Market Equilibrium. *Journal of Financial and Quantitative Analysis* 20:407-422.
- Barth, M. E., R. Kasznik, and M. F. McNichols. 2001. Analyst coverage and intangible assets. *Journal of Accounting Research* 39 (1):1-34.
- Beyer, A., D. A. Cohen, T. Z. Lys, and B. R. Walther. 2010. The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics* 50:296-343.
- Botosan, C. A. 1997. Disclosure level and the cost of equity capital. *The Accounting Review* 72 (3):323-349.
- Botosan, C. A. 2006. Disclosure and the cost of capital: what do we know? *Accounting and Business Research, International Accounting Policy Forum*:31-40.
- Botosan, C. A., and M. A. Plumlee. 2002. A re examination of disclosure level and the expected cost of equity capital. *Journal of Accounting Research* 40 (1):21-40.
- . 2005. Assessing alternative proxies for the expected risk premium. *Accounting Review*:21-53.
- . 2011. The Relation between Expected Returns, Realized Returns, and Firm Risk Characteristics. *Contemporary Accounting Research* 28 (4):1085-1122.
- Bradshaw, M. T., G. S. Miller, and G. Serafeim. 2008. Accounting method heterogeneity and analysts' forecasts. *Working paper, Harvard University and University of Michigan*.
- Brown, S. 1979. The Effect of Estimation Risk on Capital Market Equilibrium. *Journal of Financial and Quantitative Analysis* 15:215-220.
- Chen, K. C. W., Z. Chen, and K. C. J. Wei. 2009. Legal protection of investors, corporate governance, and the cost of equity capital. *Journal of Corporate Finance* 15:273-289.
- Cheong, F. S., and J. Thomas. 2011. Why Do EPS Forecast Error and Dispersion Not Vary with Scale? Implications for Analyst and Managerial Behavior. *Journal of Accounting Research* 49 (2):359-401.
- Claus, J., and J. Thomas. 2001. Equity risk premium as low as three percent? Evidence from analysts' earnings forecasts for domestic and international stocks. *Journal of Finance* 56:1629-1666.
- Coles, J. L., U. Loewenstein, and J. Suay. 1995. On equilibrium pricing under parameter uncertainty. *Journal of Financial and Quantitative Analysis* 30 (03):347-364.
- Coram, P. J., T. J. Mock, and G. S. Monroe. 2011. Financial analysts' evaluation of enhanced disclosure of non-financial performance indicators. *The British Accounting Review* 43:87-101.

- Core, J. E. 2001. A review of the empirical disclosure literature: discussion. *Journal of Accounting and Economics* 31 (1-3):441-456.
- Deloitte. 2011. Integrated Reporting: Navigating your way to a truly Integrated Report, Edition 1. *Deloitte publication*, available at [www.deloitte.com](http://www.deloitte.com), last accessed February, 2014.
- . 2012. Integrated Reporting: Navigating your way to a truly Integrated Report, Edition 2. *Deloitte publication*, available at [www.deloitte.com](http://www.deloitte.com), last accessed February, 2014.
- Dhaliwal, D. S., O. Z. Li, A. Tsang, and Y. G. Yang. 2011. Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review* 86 (1):59-100.
- Dhaliwal, D., O. Z. Li, A. Tsang, and Y. G. Yang. 2013. Corporate social responsibility disclosure and the cost of equity capital: The roles of stakeholder orientation and financial transparency. *Journal of Accounting and Public Policy* 33 (4):328-355.
- Dhaliwal, D. S., S. Radhakrishnan, A. Tsang, and Y. G. Yang. 2012. Nonfinancial Disclosure and Analyst Forecast Accuracy: International Evidence on Corporate Social Responsibility Disclosure. *The Accounting Review*: May 2012 87 (3):723-759.
- Diamond, D. W., and R. E. Verrecchia. 1991. Disclosure, liquidity, and the cost of capital. *The Journal of Finance* 46 (4):1325-1359.
- Easley, D., and M. O'hara. 2004. Information and the cost of capital. *The Journal of Finance* 59 (4):1553-1583.
- Easton, P. 2004. PE ratios, PEG ratios, and estimating the implied expected rate of return on equity capital. *The Accounting Review* 79:73-96.
- Easton, P., G. Taylor, P. Shroff, and T. Sougiannis. 2002. Using forecasts of earnings to simultaneously estimate growth and the rate of return on equity investment. *Journal of Accounting Research* 40 (June):657-676.
- Easton, P. D., and S. J. Monahan. 2005. An Evaluation of Accounting-Based Measures of Expected Returns. *The Accounting Review* 80 (2):501-538.
- Eccles, R., and M. Krzus. 2010. One Report: Integrated Reporting for a Sustainable Strategy. *John Wiley and Sons, United States of America*.
- Eccles, R. G., and G. Serafeim. 2014. Corporate and Integrated Reporting: A functional perspective. *Working Paper, Harvard Business School*.
- El Ghoul, S., O. Guedhami, C. C. Y. Kwok, and D. R. Mishra. 2011. Does corporate social responsibility affect the cost of capital? *Journal of Banking & Finance* 35 (9):2388-2406.
- EY. 2012. Ernst & Young's Excellence in Integrated Reporting Awards 2012. Available at <http://www.ey.com/ZA/en/Services/Specialty-Services/Climate-Change-and-Sustainability-Services/2012---EIR---main-page> ( last accessed August 21, 2013).
- European Parliament. 2014. Texts adopted. Available at <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-%2f%2fEP%2f%2fTEXT%2bTA%2b20140917%2bTOC%2bDOC%2bXML%2bV0%2f%2fEN&language=EN>, last accessed September 2014.
- Francis, J., D. Nanda, and P. Olsson. 2008. Voluntary Disclosure, Earnings Quality, and Cost of Capital. *Journal of Accounting Research* 46 (1):53-99.
- Francis, J. R., I. K. Khurana, and R. Pereira. 2005. Disclosure incentives and effects on cost of capital around the world. *The Accounting Review*:1125-1162.

- García-Meca, E., and I. Martinez. 2007. The use of intellectual capital information in investment decisions – an empirical study using analyst reports. *International Journal of Accounting* 42 (1):57-81.
- Gebhardt, W., C. Lee, and B. Swaminathan. 2001. Toward and Implied Cost of Capital. *Journal of Accounting Research* 39:135-176.
- Ghosh, D., and A. Wu. 2012. The Effect of Positive and Negative Financial and Nonfinancial Performance Measures on Analysts' recommendations. *Behavioral Research in Accounting* 24 (2):47-64.
- Graham, J. R., C. R. Harvey, and S. Rajgopal. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40 (1-3):3-73.
- Griffin, P. A., and Y. Sun. 2014. Going green: Market reaction to CSR newswire releases. *Journal of accounting and public Policy*, forthcoming.
- Guay, W., S. Kothari, and S. Shu. 2011. Properties of implied cost of capital using analysts' forecasts. *Australian Journal of Management* 36 (2):125-149.
- Hail, L., and C. Leuz. 2006. International differences in the cost of equity capital: Do legal institutions and securities regulation matter? *Journal of Accounting Research* 44 (3):485-531.
- . 2009. Cost of capital effects and changes in growth expectations around U.S. cross-listings. *Journal of Financial Economics* 93:428-454.
- Healy, P. M., and K. G. Palepu. 1993. The effect of firms' financial disclosure strategies on stock prices. *Accounting Horizons* 7:1-1.
- . 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics* 31 (1-3):405-440.
- Hirshleifer, D., and S. H. Teoh. 2003. Limited attention, information disclosure, and financial reporting. *Journal of Accounting and Economics* 36 (1-3):337-386.
- Hodge, F., P. Hopkins, and J. Pratt. 2006. The credibility of classifying hybrid securities as liabilities or equity. *Accounting, Organizations and Society* (October):623-634.
- Hodge, F. D. 2001. Hyperlinking unaudited information to audited financial statements: Effects on investor judgments. *The Accounting Review* 76 (4):675-691.
- Hong, H., and M. Kacperczyk. 2009. The price of sin: The effects of social norms on markets. *Journal of financial economics* 93 (1):15-36.
- Hope, O. K. 2003. Disclosure practices, enforcement of accounting standards, and analysts' forecast accuracy: An international study. *Journal of Accounting Research* 41 (2):235-272.
- Hopkins, P. E. 1996. The effect of financial statement classification of hybrid financial instruments on financial analysts' stock price judgments. *Journal of Accounting Research* 34:33-50.
- Huggins, A., and R. Simnett. 2015a. Integrated Reporting and Assurance: Where Can Research Add Value? *Sustainability Accounting, Management and Policy* 6 (1): 29-53.
- Huggins, A., R. Simnett and A. Hargovan. 2015b. Integrated reporting and directors' concerns about personal liability exposure: Law reform options. *Companies and Securities Law Journal*, May.
- IFAC. 2014. Supporting Economic Growth and Building Economic Resilience: Recommendations for the G-20 Leaders' summit -- November 15-16, 2014. Available at: <https://www.ifac.org/sites/default/files/publications/files/IFAC%20G-20%20Submission%202014%20FINAL.pdf>, last accessed October, 2014.

- IIRC. 2011. Towards Integrated Reporting: Communicating Value in the 21st Century. *Discussion Paper, International Integrated Report Council*, Available at: [www.theiirc.org](http://www.theiirc.org) (last accessed July 16, 2014)
- . 2013a. The International <IR> Framework. Available at <http://www.theiirc.org/international-ir-framework/> (last accessed July 16, 2014).
- . 2013b. Business and Investors explore the sustainability perspective of Integrated Reporting. *IIRC Pilot Program Yearbook 2013*, available at [www.theiirc.org](http://www.theiirc.org) (last accessed February, 2014).
- . 2014a. April Newsletter, available at <http://www.theiirc.org/2014/04/30/april-newsletter-2/> (last accessed 29 July 2014).
- . 2014e. IIRC welcomes South Africa's endorsement of the International Integrated Reporting Framework. Available at <http://www.theiirc.org/2014/03/21/iirc-welcomes-south-africas-endorsement-of-the-international-integrated-reporting-framework/> (last accessed July 16, 2014).
- IIRC, and Blacksun. 2012. Understanding transformation: Building the business case for integrated reporting. *Publication, International Integrated Reporting Council*, available at [www.theiirc.org](http://www.theiirc.org).
- . 2014. Realizing the Benefits: The Impact of Integrated Reporting. Available at: [http://www.theiirc.org/wp-content/uploads/2014/09/IIRC.Black\\_Sun\\_Research.IR\\_Impact.Single.pages.18.9.14.pdf](http://www.theiirc.org/wp-content/uploads/2014/09/IIRC.Black_Sun_Research.IR_Impact.Single.pages.18.9.14.pdf), last accessed September, 2014.
- Ioannou, I., and G. Serafeim. 2014. The impact of corporate social responsibility on investment recommendations. *The Academy of Management Journal*, forthcoming.
- Institute of Directors Southern Africa (IODSA). 2009. 'King Code of Governance Principles (King III)'. Available at [http://c.ymcdn.com/sites/www.iodsa.co.za/resource/collection/94445006-4F18-4335-B7FB-7F5A8B23FB3F/King\\_Code\\_of\\_Governance\\_for\\_SA\\_2009\\_Updated\\_June\\_2012.pdf](http://c.ymcdn.com/sites/www.iodsa.co.za/resource/collection/94445006-4F18-4335-B7FB-7F5A8B23FB3F/King_Code_of_Governance_for_SA_2009_Updated_June_2012.pdf), last accessed September, 2014.
- IRCSA. 2011. Framework for Integrated Reporting and the Integrated Report. *Discussion Paper, Integrated Report Committee of South Africa*, Available at: [www.sustainabilitysa.org](http://www.sustainabilitysa.org) (last accessed at July 16, 2014)
- Kelton, A. S., R. R. Pennington, and B. M. Tuttle. 2010. The Effects of Information Presentation Format on Judgment and Decision Making: A Review of the Information Systems Research. *Journal of Information Systems* 24 (2):79-105.
- Koonce, L., and M. Mercer. 2005. Using psychology theories in archival financial accounting research. *Journal of Accounting Literature* 24:175.
- Kothari, S., X. Li, and J. E. Short. 2009. The effect of disclosures by management, analysts, and financial press on cost of capital, return volatility, and analyst forecasts: A study using content analysis. *The Accounting Review* 84:1639-1670.
- Kothari, S. P. 2001. Capital markets research in accounting. *Journal of Accounting and Economics* 31:105-231.
- KPMG 2013a. The KPMG Survey of Corporate Responsibility Reporting 2013, KPMG Publication. Available at [www.kpmg.com/sustainability](http://www.kpmg.com/sustainability), last accessed September, 2014.
- KPMG 2013b. Integrated Reporting in practice: The South African story. KPMG International Cooperative. Available at:



<https://www.kpmg.com/Global/en/topics/corporate-reporting/better-reporting/Documents/the-south-african-story.pdf>, last accessed April 2015.

- Lambert, R., C. Leuz, and R. E. Verrecchia. 2007. Accounting information, disclosure, and the cost of capital. *Journal of Accounting Research* 45 (2):385.
- Lang, M., and R. Lundholm. 1993. Cross-sectional determinants of analyst ratings of corporate disclosures. *Journal of Accounting Research* 31 (2):246-271.
- Lang, M. H., and R. J. Lundholm. 1996. Disclosure policy and analyst behavior. *The Accountitng Review* 71 (4):467-492.
- Lehavy, R., F. Li, and K. Merkley. 2011. The Effect of Annual Report Readability on Analyst Following and the Properties of Their Earnings Forecasts. *The Accountitng Review* 86 (3):1087-1115.
- Leuz, C., and P. Wysocki. 2008. Economic consequences of financial reporting and disclosure regulation: A review and suggestions for future research. *Working paper. University of Chicago Booth School of Business.*
- Libby, R., and H. T. Tan. 1999. Analysts' reactions to warnings of negative earnings surprises. *Journal of Accounting Research* 37 (2):415-435.
- Lombardo, D., and M. Pagano. 2002. Law and Equity Markets: A Simple Model. *CSEF Working Paper No. 25, and CEPR Discussion Paper No. 2276, in Corporate Governance Regimes: Convergence and Diversity, edited by J. McCahery, P. Moerland, T. Raaijmakers, and L. Renneboog. Oxford, UK: Oxford University Press.:343-362.*
- Maines, L., E. Bartov, P. M. Fairfield, and E. Hirst. 2002. Recommendations on disclosure of nonfinancial performance measures. *Accounting Horizons* (December):353-362.
- Margolis, J., H. Elfenbein, and J. Walsh. 2009. Does it pay to be good, and does it matter? A meta-analysis of the relationship between corporate social and financial performance. *working paper, Harvard University, Cambridge, MA.*
- Margolis, J. D., and J. P. Walsh. 2003. Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly* 48 (2):268-305.
- Matsumura, E. M., R. Prakash, and S. C. Vera-Muñoz. 2014. Firm-Value Effects of Carbon Emissions and Carbon Disclosures. *The Accounting Review* 89 (2):695-724.
- McWilliams, A., and D. Siegel. 2011. Creating and capturing value: Strategic corproate social responsibility, resource-based theory, and sustainable competitive advantage. *Journal of Management* 37 (5):1480-1495.
- Merton, R. C. 1987. A simple model of capital market equilibrium with incomplete information. *Journal of Finance* 42 (3):483-510.
- Nichols, C., and M. Wieland. 2009. Do firms' non-financial disclosures enhance the value of analyst services? *Working paper, Cornell Univeristy.*
- Orens, R., and N. Lybaert. 2007. Does the financial analyst' usage of non-financial information influence the analysts' forecast accuracy? Some evidence from the Belgian sell-side financial analyst. *International Journal of Accounting* 42 (3):237-271.
- Orens, R., and N. Lybaert. 2010. Determinants of sell-side financial analysts' use of non-financial information. *Accounting and Business Research* 40 (1):39-53.
- Orlitzky, M., F. L. Schmidt, and S. L. Rynes. 2003. Corporate social and financial performance: A meta-analysis. *Organization Studies* 24 (3):403.
- Pflugrath, G., P. J. Roebuck, and R. Simnett. 2011. Impact of Assurance and Assurers' Professional Affiliation on Financial Analysts? Assessment of Credibility of Corporate Social responsibility Information. *Auditing: A Journal of Practice & Theory* 30 (3):32-43.

- Plumlee, M., D. Brown, R. Hayes, and S. Marshal. 2015. Voluntary Environmental Disclosure Quality and Firm Value: Further Evidence. *Journal of Accounting and Public Policy*, forthcoming 34.
- Plumlee, M. A. 2003. The effect of information complexity on analysts' use of that information. *The Accountitng Review* 78 (1):275-296.
- PWC. 2014a. Corporate Performance: What do Investors Want to Know? Available at <http://www.pwc.com/gx/en/audit-services/corporate-reporting/publications/investor-view/investor-survey-edition.jhtml>, last accessed September, 2014.
- PWC. 2014b. Value creation: The journey continues: A survey of JSE Top-40 companies' integrated reports 2014 PWC.: Available at: [http://www.pwc.co.za/en\\_ZA/za/assets/pdf/integrated-reporting-survey-2014.pdf](http://www.pwc.co.za/en_ZA/za/assets/pdf/integrated-reporting-survey-2014.pdf), last accessed April 2015.
- Rajgopal, S., T. Shevlin, and M. Venkatachalam. 2003. Does the stock market fully appreciate the implications of leading indicators for future earnings? Evidence from backlog. *Review of Accounting Studies* 8 (4):461-492.
- Regulations, T. C. A. S. R. a. D. R. 2013. The Companies Act 2006 (Strategic Report and Directors' Report) Regulations, Available at: <http://www.legislation.gov.uk/ukdsi/2013/9780111540169/contents>, last accessed October, 2014.
- Richardson, A. J., and M. Welker. 2001. Social disclosure, financial disclosure and the cost of equity capital. *Accounting, Organizations and Society* 26 (7-8):597-616.
- Sadowski, M., K. Whitaker, and F. Buckingham. 2010. Rate the Raters: Phase Two: Taking Inventory of the Ratings Universe. Available at <http://www.sustainability.com/projects/rate-the-raters>, last accessed September, 2014.
- Serafeim, G. 2014. Integrated Reporting and Investor Clientele. *Working Paper, Harvard Business School*.
- Simpson, A. 2010. Analysts' use of nonfinancial information disclosures. *Contemporary Accounting Research* 27 (1):249-288.
- The Albert Luthuli Centre For Responsible Leadership <IR> Yearbook. 2013. Current realities and future considerations. University of Pretoria. Available at: <http://archivedpublicwebsite.up.ac.za/default.asp?ipkCategoryID=10099>, lastt accessed April 2015.
- UK Financial Reporting Council (UK FRC). 2009. 'Louder than Words: Principles and Actions for making Corporate Reports Less Complex and More Relevant'. Available <https://frc.org.uk/getattachment/7d952925-74ea-4deb-b659-e9242b09f2fa/Louder-than-words.aspx>, last accessed September, 2014.
- . 2011. 'Cutting Clutter: Combating Clutter in Annual Reports'. Available <https://www.frc.org.uk/Our-Work/Codes-Standards/Accounting-and-Reporting-Policy/Cutting-Clutter.aspx>, last accessed September, 2014.
- Verrecchia, R. E. 1983. Discretionary disclosure. *Journal of Accounting and Economics* 5:179-194.
- . 2001. Essays on disclosure. *Journal of Accounting and Economics* 32 (1-3):97-180.