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IS THERE AN EARLY-MOVER MARKET VALUE EFFECT FOR SIGNALLING ADOPTION OF INTEGRATED REPORTING?

Abstract

Purpose

It is argued that Integrated Reporting (<IR>) provides a potential solution to the inadequacies of current corporate reporting frameworks through its aims to improve the quality of information available to providers of financial capital. Such claimed benefits from adopting <IR> have spurred multiple firms to voluntarily adopt <IR>. This study has two aims. First, it examines the firm-level determinants of being an early-moving <IR> firm, and second whether capital markets value the disclosures made under <IR> principles by these firms.

Design/Methodology/Approach

We identify a sample of firms signalling early adoption of <IR> (i.e. early-moving firms) through their engagement in the International Integrated Reporting Council (IIRC) Pilot Programme or through self-declaring such adoption in the Global Reporting Initiative (GRI) database. Employing signalling theory, as developed through prior literature on voluntary disclosures of non-financial information, and a modified Ohlson (1995) valuation model we test the value relevance of the early-moving signal. Further, we test whether disclosures made by early-moving firms relating to the principles of <IR> capitals are more value relevant than for firms not signalling their adoption of <IR>, and whether the value relevance of these disclosures increases over time.

Findings

Results show that size, return on assets, and the values of proxies for the <IR> capitals are significant determinants of being an early-moving firm. Further, results indicate that capital markets value the signal as an early-moving firm, as well as their <IR> principles disclosures.

Research Implications

This study contributes to literature on <IR> and builds on existing literature on voluntary disclosures and value relevance. Results of this empirical study inform the IIRC and other proponents of <IR> on the benefits from adopting <IR>. The results also have implications for firms who are still considering adopting <IR>.

Originality/Value

This study is the first to report on determinants of early adoption of <IR> as well as the development of proxies for <IR> capitals and its implication to the capital markets.

Keywords: Integrated Reporting; Value Relevance; Voluntary Disclosures

Paper Type: Research Paper

IS THERE AN EARLY-MOVER MARKET VALUE EFFECT FOR SIGNALLING ADOPTION OF INTEGRATED REPORTING?

1. Introduction

Integrated Reporting (<IR>) has emerged rapidly over the last few years in response to inadequacies with current corporate reporting frameworks, particularly with regard to a gap between investors' information demands and the information content of corporate reports (Adams, Fries and Simnett, 2011; Cohen, Holder-Webb, Wood and Nath 2012; Stebbens and Bray 2013). The International Integrated Reporting Council (IIRC) was formed in 2010 with the purpose of developing a concise reporting framework, labelled <IR>, to address these inadequacies. Specifically, the IIRC notes the aim of <IR> is to integrate financial and non-financial information on six capitals (financial, social and relationship, human, intellectual, natural, and manufactured) in a single report that conveys information about an organisation's value creation processes over the short-, medium-, and long-term (IIRC 2013b). It is expected that integrated reports will help to reduce the information gap and aid the resource allocation decisions of investors. In South Africa, these potential benefits have been embraced through the 2009 King III Report, which recommended firms produce integrated reports (SAICA 2011; GRI 2012) and by subsequently making adherence to <IR> an 'apply or explain' listing requirement in 2010 (SAICA 2011; Hoffman 2013). While other jurisdictions, including Singapore, Malaysia, Brazil and the European Union, are currently deliberating mandating a similar <IR> listing requirement (IIRC 2014b), a growing number of firms worldwide have voluntarily adopted <IR> and integrated thinking¹ principles (IIRC 2013b). This voluntary adoption of <IR> provides the motivation for this study, which aims to determine not only the characteristics, or drivers, of these early-moving firms,² but also whether the capital market values this early-mover signal, or indeed the specific disclosures relating to the principles of the <IR> capitals.

Voluntary disclosure literature suggests that early-moving firms would not have made a move towards <IR> if there were no benefits to doing so (Healy and Palepu 2001). Based on this premise our study examines whether in fact these early-moving firms do receive a benefit in the form of improved market value from their early-adoption of <IR>. Applications of economics-based theory

¹ Integrated thinking is the process by which firms consider multiple capitals and strategic activities to produce an integrated report (IIRC 2013b).

² Early-moving firms are those firms that signal voluntary adoption of <IR> through participation in the IIRC <IR> Pilot Programme, or through self-declaration in the Global Reporting Initiative (GRI) Reports List (2014). For further

that premise on the existence of an information gap between investors and management suggest that the information disclosed in integrated reports will be useful to investors in their valuation models (Verrecchia 1983; Dhaliwal, Li, Tsang and Yang 2011). Furthermore, past literature documents a decrease in the value relevance of financial disclosures in recent decades (Amir and Lev 1996; Brown, Lo and Lys 1999; Ely and Waymire 1999; Francis and Schipper 1999), and an increase in investor interest in nonfinancial information (Eccles, Serafeim and Kruz 2011). Yet it remains an empirical question as to whether the underlying requirement for integrated reports to integrate the financial and nonfinancial information improves the value relevance of these disclosures. Anecdotal evidence from the Pilot Programme Yearbooks (IIRC 2012, 2013a) and the Black Sun (2014) report suggests that businesses have more to gain from <IR> than just improved disclosures, suggesting they will also benefit in terms of organisational changes to outlooks on value creation or 'integrated thinking'. The benefits from adopting <IR> and integrated thinking are likely to be linked with the extent to which a firm adheres to the <IR> principles (henceforth, its level of integrativeness). We provide evidence of this effect through examining whether the level of integrativeness provided by early-moving firms has a greater effect on the value relevance of their disclosures compared to non-early-moving firms.

We identify a sample of firms signaling their voluntary early adoption of <IR> (i.e. early-moving firms) through their engagement in the IIRC's Pilot Programme (pilot firms) (IIRC 2012, 2013a) or through self-declaration of such adoption in the GRI Reports List (2014) (self-declared firms) along with a propensity-matched sample based on size, ROA, industry, and country to examine the determinants of being an early-moving firm and to test value relevance. The determinants of being an early-moving firm are identified through a logistic regression containing firm-level financial variables and proxies for a firm's financial, natural, social and relationship, and human capitals. A modified Ohlson (1995) model is used to test the value relevance of the firms' early-moving signal as well as of the level of adoption of the <IR> reporting principles (hereafter termed integrativeness) which is measured according to a framework developed by the authors in two ways: (1) an overall measure based on proxies that measure the adherence to the <IR> principles relating to disclosures for four of the six <IR> capitals (financial, human, social and relationship, and natural capitals) plus a proxy score that measures the integrativeness of disclosures; and (2) a disaggregated measures of the level integrativeness utilizing each of the individual proxy measures separately.

Results show that size, return on assets, and the values for the <IR> capital proxies are significant determinants of being an early-moving firm. Further analysis reveals that this result is driven by the self-declared <IR> firms (representing 93% of the sample), with only social and relationship capital and human capital proxies found to be significant determinants of being a pilot firm. Tests of value relevance support our hypotheses by indicating that in addition to the signal as an early-moving firm being value relevant, the level of integrativeness of a firm is also value relevant, with the latter even more value relevant and increasing over time for early-moving firms. The results of the tests are robust after sensitivity analyses controlling for South African firms, countries with ESG and sustainability disclosure regulation, and industrial firms (75.5% of the early-moving firm sample)

As a new reporting phenomenon, to date there is little research on <IR>. This study is one of the first to consider the capital market effects of <IR> by examining the determinants of being an early-moving firm and whether the capital markets consider disclosures made under <IR> principles in decision-making. In doing so, this study responds to Cheng et al.'s (2013) call for capital market studies on <IR>, and builds on prior literature examining voluntary disclosures, particularly the disclosure of nonfinancial information. The findings of this study also make an important contribution to the value relevance literature by showing that <IR> (as proxied by the <IR> score) is able to improve the value relevance of corporate disclosures. There is also potential for this study to contribute to the sustainable investing literature (e.g., Schäfer et al. 2006; Kiernan 2009; Sullivan 2011) by contributing to the ongoing debate on whether investors are attentive to firms' corporate responsibility performance and disclosures (Sullivan 2011; Reverte 2012; Cheng, Green and Ko 2015). Findings from this study also provide initial evidence to the IIRC and <IR>'s other proponents on whether <IR> achieves its purpose of making corporate disclosures more useful to investors. The findings of this study provide evidence confirming to early-moving firms that their decision to adopt <IR> is well suited to their investors' needs, while also providing support for adoption of <IR> to those firms currently considering adopting <IR>.

The remainder of the paper is organised as follows: First, a background to <IR> is provided, which is followed by the literature review and hypotheses development. The research design, including sample selection and data gathering processes, as well as the construction of capital proxies and the <IR> score and the models developed for the purposes of this study follows. The final sections present the results and analyses and the conclusions of the study.

2. Background to <IR>

There is belief that current corporate reporting fails to capture a holistic view of what 'value' is in today's economy, particularly in terms of intangible assets that are not recognised by financial reporting principles (Adams et al. 2011; Eccles et al. 2011; Cohen et al. 2012; Ernst and Young Global Limited 2014). The shortcomings in current reporting models have led to the development of <IR>, which its proponents hope will not only satisfy the needs of investors but also shift the financial markets' focus away from the short-term and into the long-term (IIRC 2012). The aim of an integrated report is to address these shortcomings by facilitating communication of a company's short-, medium-, and long-term value creation processes (Cheng et al. 2014). In particular, an integrated report details a company's use of six types of capital, financial, manufactured, intellectual, human, social and relationship, and natural to create value over the short-, medium-, and long-term (IIRC 2013b). Following a period of consultation with various groups, including the networks of companies and investors that had followed the trend towards <IR> from the early days of its conception, such as the IIRC Pilot Programme Business Network and the IIRC Pilot Programme Investor Network³ the IIRC released The International <IR> Framework in late 2013 (IIRC 2013b).

The IIRC Pilot Programme is composed of networks of organisations that have aided the development of <IR> through practical application of its principles (IIRC 2012, 2013). Launched in late 2011, the Pilot Programme is currently in its third year, as pilot firms test the <IR> Framework. The number of pilot firms increased from over 75 businesses at the end of its first year to over 100 in June 2014. Investor and business participants of the programme engage with the IIRC and their communities through meetings, web seminars, networks, and a Pilot Programme website. These interactions are then consolidated through an annual IIRC Pilot Programme Conference (IIRC 2013a). Notably, business members of the programme are in different stages of their journey towards <IR>. Some businesses produce private integrated reports to test their application of concepts; others focus on developing capabilities to produce information that is required in the development of integrated reports, while other companies' efforts are directed towards making their current annual reports more strategic and concise (IIRC 2012). Specific examples include Microsoft and Danone that have produced a draft report, OJSC Oil Company Rosneft that focused

³ The IIRC has continued to engage the global community through its most recent efforts to set up a new network, the Public Sector Pioneer Network, that aims to gain a public sector perspective of the applicability of <IR> to the sector, and this network will begin running from the 2014-2015 financial year (IIRC 2014).

on improving its financial reporting between business segments, and The Coca-Cola Company that performed a gap analysis to identify its current data and data needs to help define how <IR> would take shape in its organisation (IIRC 2012).

The production of an integrated report is not the only outcome from shifting to this framework of corporate reporting. Practitioners as well as academics (e.g., Adams 2013; Lodhia 2014) stress that it is also the process of integrated thinking that will ensure a business' success in implementing <IR>. In fact, the IIRC has described <IR> on their website as "a process founded on integrated thinking that results in a periodic integrated report..." (IIRC 2013). Companies such as CLP Holdings and National Australia Bank (NAB) are examples of how integrated thinking has influenced the business outlook by being more forward-looking and breaking down barriers between departments, which in turn led to better communication and stronger relationships (IIRC 2012; 2013a). Integrated thinking has benefitted Energie Baden-Württemberg AG (EnBW) by improving the understanding of challenges faced by the organisation and by breaking down 'silos' within the organisation, which led to better exchanges of information throughout the firm (IIRC 2012). Through such processes of 'integrated thinking', as well as enhanced transparency, the IIRC suggests that companies preparing integrated reports are likely to benefit from positive capital market effects such as improved cost of capital (IIRC 2011). This study aims to provide evidence that <IR> does in fact benefit adopters through improvements in capital market value relevance.

3. Hypotheses Development

Amir, Harris and Venuti (1993) were the first to define information as value relevant if it was predicted to be associated with equity market values, while Ball and Brown (1968) were the first to study such an association by examining the relationship between accounting income and stock prices. Beaver (1968) supported these findings by studying how the market reacted, in terms of trading volume and stock price, to yearly earnings announcements. However, a decline in the relevance of financial information has been documented in recent decades (Amir and Lev 1996; Brown et al. 1999; Ely and Waymire 1999; Francis and Schipper 1999), which is in line with the claim that current corporate reporting frameworks are no longer useful to the needs of investors (Eccles and Mavrinac 1995; Eccles, Herz, Keegan and Phillips 2001; Bontis 2003; Stebbens and Bray 2013). At the same time, there has been increasing investor interest in nonfinancial information (Eccles et al. 2011). For example, studies have provided evidence of value relevance of disclosures of

nonfinancial capitals, including intellectual capital (Lev and Sougiannis 1996; Barth and Clinch 1998; Barth et al. 2001; Hirschey et al. 2001; Bontis 2003; Bukh 2003; Kallapur and Kwan 2004), manufactured capital (Barth and Clinch 1998; Barth et al. 2001), environmental capital (Hughes II 2000; Hassel et al. 2005), social capital (Ullmann 1985), and human capital (Lev and Schwartz 1971). A small number of studies have examined the value relevance of firms' combined financial and nonfinancial disclosures and found that value relevance of financial information increased greatly when combined with nonfinancial information, highlighting the complementarity between the two sets of disclosures and potentially indicating a need for a comprehensive reporting framework such as <IR> (Amir and Lev 1996; Hirschey Richardson and Scholz 2001). Further Bukh (2003) argued that for intellectual capital disclosures to be considered value relevant, they need to be disclosed 'as an integral part of a framework illuminating the *value creation processes* of the firm' (Bukh 2003, p. 53, emphasis added) again echoing <IR>.

Studies on voluntary disclosures assume that firms will choose to voluntarily disclose information if there are benefits to doing so (Healy and Palepu 2001). In the context of corporate social responsibility (CSR) reporting, the voluntary provision of nonfinancial information has been found to be associated with benefits such as reduced firm cost of equity capital (Dhaliwal, Tsang, and Yang 2011) and improved analysts' earnings forecast error and dispersion (Dhaliwal, Radhakrishnan, Tsang, and Yang 2012). Given these findings, we investigate whether <IR> may have a role to play in making corporate disclosures more value relevant through increasing nonfinancial disclosures. At the same time, however, Daske, Hail, Leuz and Verdi (2013) identify the importance of considering whether firms are label or serious adopters of a reporting framework⁴, with label adopters being those that signal adoption but without making material changes to their reporting practices, while serious adopters are those that engage as part of their overall corporate strategy. Daske et al. (2013) find that only serious adopter firms were able to glean capital market benefits. As such, we investigate whether enhancing disclosures in addition to signalling voluntary adoption is rewarded by the market.

While Cheng et al. (2013) identified numerous opportunities for future research examining <IR>, including whether it is indeed value relevant to the capital market, the limited published research on <IR> has mainly focused on the emergence of <IR> (Adams et al. 2011; Humphrey, O'Dwyer, and

Unerman 2014; Mio and Fasan 2014), the country-level determinants of choosing to adopt <IR> over traditional sustainability reporting (Jensen and Berg 2012) as well as the <IR> journeys of individual companies (Lodhia 2014). One notable exception is the finding by Serafeim (2014) that firms who adopt <IR> have an investor base that is more long-term orientated and with less transient investors, suggesting investors do value the longer term strategic disclosures <IR> provides. A further exception, and more closely related to our study, is the examination of <IR> in the South African setting by Zhou, Simnett and Green (2015). Zhou et al. (2015) find analyst forecast accuracy and dispersion is improved and cost of capital is lowered for firms with integrated reports more closely aligned with the IIRC <IR> framework (IIRC 2013b). Our study aims to extend this prior research by answering the following questions: (1) What are the firm-level determinants of being an early-moving <IR> firm? and (2) Does the capital market value disclosures made under <IR> principles.

The IIRC's value proposition for <IR> is that companies and investors alike will benefit from a firm's participation in the Pilot Programme. Adams et al. (2011) discuss the internal and external drivers of <IR>. Internal drivers are those to do with strategy and management, such as a desire to present the relationship between financial and nonfinancial value and performance; cause transformation within the business through the inherent advantages of nonfinancial reporting; improve internal information management systems; signal organisational commitment to environmental, social and governance issues; and extend decision-making timeframes to the long-term. External drivers of <IR> are mostly to do with meeting the information needs of investors to aid them in their decision making, such as the desire to measure material nonfinancial factors; meet the needs of investors concerned with sustainable business practices; and improve risk disclosure and management practice. These drivers of <IR> are evident in the anecdotal evidence from pilot firms⁵. Furthermore, <IR> pushes companies into integrated thinking, which forces businesses to work on the connectivity between information sets and decision-making and their links to the value creation process (IIRC 2012; Adams 2013). Thus, anecdotal evidence so far suggests that businesses and investors alike foresee benefits from pilot firms' participation in the programme that stem from improvements in information that is disclosed to investors, as well as through how the <IR> process

⁵ For example, Colin Mervin, Chair of the Pilot Programme Investor Network, believes that businesses that adopt <IR> are able to gain a new perspective on how companies are run, reconciling a traditional financial performance focus with

will change not only the organisation's reporting practices but also through how the organisation itself changes to adopt the philosophy behind <IR>.

Following investors' dissatisfaction with current reporting frameworks, <IR> may result in the communication of information that is more useful to investors. According to the IIRC, investors stand to benefit from <IR> through: clearer information on the connectivity between a firm's strategy, corporate governance, performance and value prospects; and better risk disclosure that improves investors' assessments of the risks' impacts over the short-, medium-, and long-term. A commitment to <IR> as signalled through adopting the IIRC's <IR> Framework, or through self-declaring reports as integrated, affects early-moving firms' reporting practices. For example, anecdotal evidence sourced from the Pilot Programme Yearbooks shows that while pilot firms differ in their extent of adoption of <IR>, these firms have been improving their reporting practices as part of their process of participating in the Pilot Programme (IIRC 2012, 2013a). Therefore the focus of <IR> on disclosure of the value creation processes of organisations will improve the extent to which early-moving firms' existing disclosures are value relevant, as they will be better linked to value creation over the short-, medium-, and long-term.

Based on the above discussion as well as the aim of <IR> to primarily meet the information needs of investors to enable a more efficient and productive allocation of capital, (IIRC 2013b) we posit that there are benefits to be gained by early-moving firms in adopting <IR>. Specifically, that early-moving firms who adopt <IR> and through doing so improve their reporting practices will have higher value relevance for their level of disclosures, particularly when those disclosures more closely follow the <IR> principles (i.e. integrativeness). This gives Hypothesis One:

Hypothesis One: Ceteris paribus, the value relevance of the level of integrativeness of early-moving firms is higher than that of non-early-moving firms.

Evidence to date suggests that those firms who are slowest in their move to adopt <IR> mainly focus on improving their current reporting to improve strategic orientation and conciseness, while those firms that are more advanced in their <IR> adoption produce draft integrated reports (IIRC 2012). This finding echoes that of Cuijpers and Buijink (2005) and Branco and Rodrigues (2006) who suggest that it could take more than one year for benefits from shifts to different reporting frameworks to materialize. Further, literature on the benefits of engaging in social responsibility activities and

realised in the short-term while it may take longer for benefits to materialise (Branco and Rodrigues 2006). These findings suggest that the benefits derived from adherence to <IR> principles could take time before they fully materialize. These findings collectively suggest that there may be a lag in the realisation of benefits from the adoption of <IR>. In fact, the IIRC notes that it may take businesses more than one reporting cycle to fully implement <IR> principles (IIRC 2012). Other reasons that could explain a lagged capital market response are that investors are not immediately able to process and incorporate the content of integrated reports into their investment models, or that early-moving firms fail to immediately significantly improve their levels of integrativeness. Capital markets may not fully recognise changes in the value relevance of disclosures by pilot firms in the immediate term, but will do so in subsequent years. This leads to our second proposed hypothesis:

Hypothesis Two: Ceteris paribus, the value relevance of the level of integrativeness of early-moving firms will increase over time compared to non-early-moving firms.

4. Research Design

Data and Sample Selection

Early-moving firms are identified based on either their participation in the IIRC's Pilot Programme, or through their self-declaration as producers of integrated reports through the GRI Reports List (2014)⁶. Table 1 presents the sample selection process (Panel A) as well as the sample country (Panel B) and industry (Panel C) distributions. The sample consists of two groups of companies. First, the list of pilot firms and the years in which they participated in the Pilot Programme was taken from the IIRC's website⁷. This list comprised over 100 pilot firms which were identified from the 2014 list, however some of these firms were eliminated from the sample as they were not publicly traded firms. The sample was further reduced for firms not covered by the Asset4 ESG database. Second, firms from the GRI Reports List (2014) were identified as early-moving firms if they were publicly traded and had indicated that their report had been prepared in accordance with <IR> principles. This sample was reduced by removal of firms not covered by the Asset4 ESG database.⁸

⁶ The inclusion of self-declared firms as early-moving firms is supported by the similar capital proxy and IR scores between the pilot firms and self-declared firms (See Figure Three).

⁷ Available at: <http://www.theiirc.org/companies-and-investors/pilot-programme-business-network/>

⁸ A number of firms that had indicated their reports were integrated in one or more years, did not indicate their reports

Panel B of Table 1 shows the country distribution of both early-moving firms and non-early-moving firms. The countries with the most observations in the early-moving firm sample are South Africa, Brazil, Australia, Japan, and Spain, together comprising 42.1% of the early-moving firm sample. The difference between the country distributions for the two groups of firms reported in this Table can be attributed to the propensity-matching process that does not find an exact match for a firm. South African firms compose a larger portion of the early-moving-firm sample, which is likely due to the fact that South Africa made <IR> a mandatory “apply or explain” requirement for listed firms. The industry distribution for early-moving and non-early-moving firms, presented in Table 1 Panel C indicates closer matching on industry, with industrial firms dominating both early-moving and non-early-moving firm samples.

Firm-specific data is gathered through the Datastream platform, which allowed access to the Worldscope and Asset4 ESG⁹ databases. Data is gathered from 2009, to eliminate effects from the Global Financial Crisis, until 2013, which is the most recent year with annual reports that have been published and readily available at the time of the study. In testing the hypotheses, this study utilised a matched-firm sample, with control firms (i.e., non-early-moving firms) that are propensity-matched¹⁰ on a number of variables: (1) size, as it is a significant determinant of voluntary non-financial disclosures (Gray et al. 2001; Brammer and Pavelin 2006; Gassen and Sellhorn 2006; Luo et al. 2012); (2) return, given that the variable of interest is abnormal returns; (3) industry, to eliminate industry-fixed effects; and (4) country, to eliminate country-fixed effects. In order to allow for some degree of flexibility, especially in cases where early-moving firms were from countries that were under-represented in the pool of eligible matches, propensity-matching is utilised instead of traditional matching, as the latter requires exact matches. Control firms are selected from the Asset4 ESG database to ensure that these control firms have readily available ESG information.

(Table 1 about here)

adoption of <IR> would be reverted, once a firm declares its reports as integrated, they are considered to have adopted <IR> and prepare their reports following <IR> principles in the years subsequent to the first year of self-declaration.

⁹ Asset4 is a Thomson Reuter business that provides environmental, social and governance (ESG) information founded on over 250 key performance indicators and over 750 individual data points.

¹⁰ Propensity-matching is a method of matching treatment firms with control firms based on a firm's probability of being

Measures of the adherence to <IR> principles

The early-moving status of a firm is indicated by the dummy variable, *EARMOV*. In addition, we measure the level of to which a firm adhere to <IR> principles (or integrativeness) in two ways: (1) we construct an overall level of integrativeness, *IRAGGR*. This score is based on the summation of values measured for proxies for the capitals described in the <IR> Framework (including those measuring Financial Capital (*FINSCR*); Social and Relationship Capital (*SOCSCR*); Human Capital (*HUMSCR*); Natural Capital (*NATSCR*)) plus an <IR> score to proxy for the integrativeness of the provided reporting, *IRSCR*; and (2) we include a set of disaggregated measures of the level of adherence to <IR> principles (i.e. separately including each of the measures aggregated in the previous measure). These measures are discussed in more detail below and full variable definitions are provided in Appendix A.

EARMOV: This first measure of <IR> is the dummy variable *EARMOV* that indicates whether a firm is an early-moving firm (i.e. a participant in the IIRC Pilot Programme, or a self-declared integrated reporter in the GRI Reports List 2014).¹¹

Capital Proxies and <IR> Score

The proxies for the six different <IR> capitals and the <IR> score, *IRSCR* are constructed by the authors through information available from firms' annual reports, or indicator and pillar scores available on the Asset4 ESG database. Only publicly available information is used in the Asset4 ESG database, with data being sourced directly from companies, news sources, exchange filings, and non-government organisations. Indicator scores¹² are the normalised indicator *values*, which in turn are based on individual datapoints that are raw data collected by Asset4. Pillar scores, on the other hand, are an overall score for one of the four pillars¹³ of the Asset4 ESG Database. These indicator scores were compared with the IIRC's <IR> Framework¹⁴ in order to identify those that relate either to the six <IR> capitals, or to reporting in an integrated manner or to integrated thinking. These

¹¹ Note, these early-moving firms are shown in Table 2 Panel B to have higher values for the capital proxies outlined below as well as for the <IR> score *IRSCR*, and thus have a higher level of integrativeness.

¹² Examples of indicator scores are: (1) the total amount of all donations divided by net sales or revenue, and (2) the Yes or No answer to 'Does the company describe the implementation of its balanced board structure policy?'

¹³ The four pillars of the Asset4 ESG database are corporate governance, economic, environmental, and social pillars.

¹⁴ Internationally, the two main frameworks for <IR> i.e. the IIRC <IR> Framework and the South African <IR> guidelines

were then organised into a preliminary framework that formed proxies for the different capitals and the measure for the integrativeness of reporting, *IRSCR*.¹⁵

Financial Capital (FINSCR): The IIRCs <IR> Framework defines financial capital as “the pool of funds that is available to an organization for use in the production of goods or the provision of services, obtained through financing, such as debt, equity or grants, or generated through operations or investments” (IIRC 2013b, p. 11). While there is a measure of financial capital in Ohlson’s (1995) model (BVE), another measure is constructed from the Asset4 ESG database. This is because (1) BVE only encompasses equity capital and not debt capital, and (2) the chosen pillar score is able to reflect a different aspect of financial capital. That is, the *FINSCR* variable is the economic pillar score of a firm that measures a company’s ability to generate high returns and sustain growth, and thus reflects its financial health and ability to generate future value for shareholders.

Manufactured Capital (PPENETR): Manufactured capital is defined as manufactured physical objects, such as buildings, infrastructure, and equipment that can be used by an organisation to produce goods or services (IIRC 2013b). In this study, a company’s manufactured capital is measured through its reported values for Property, Plant, and Equipment scaled by Net Revenues.

Intellectual Capital (INTBOOK): The IIRC (2013b) defines the intellectual capital of a company as its knowledge-based intangibles, such as intellectual property or “organisational capital”.¹⁶ Of the indicator scores available from the Asset4 ESG database, only one score deemed related to intellectual capital was suitable to be included in the proxy for intellectual capital. This indicator score related to the total value of brands owned by the company. Given that this score was limited in its ability to capture the intellectual capital of a firm, an alternative measure was developed based on values from the financial statements of a company. Specifically, Research and Development Expenses and Net Intangible Assets are added and scaled by Total Sales to form the intellectual

¹⁵It was found that some indicator scores downloaded through Datastream had incomplete coverage of early-moving firms. Where missing cases were less than 25% of the number of early-moving firms in the year, these missing values were either (1) substituted with the mean of the available data where the underlying indicator value was a scale variable, or (2) substituted with the normalised value of zero where the underlying indicator value was a yes or no variable. Indicator scores with greater than 25% of the number of early-moving firms in a year unavailable were removed from the framework to form the final framework for the construction of capital proxies and the *IRSCR*.

¹⁶ Examples of organisational capital given by the IIRC (2013b) are an organisation’s systems, tacit knowledge, protocols

capital proxy. As the accounting information-based proxy is broader than the Asset4-based proxy, only the accounting information-based proxy is used in the main tests.

Natural Capital (NATSCR): Natural capital is “all renewable and non-renewable environmental resources that provide goods or services that support the past, current or future prosperity of an organization” (IIRC 2013b, p. 12). The proxy for this type of capital is constructed through a number of different indicator scores that deal with an organisation’s use of and contribution towards natural capital, as well as its policies or objectives in regards to its practices that impact on natural capital.

Human Capital (HUMSCR): The human capital is comprised of the competencies, capabilities, and experience, as well as motivations to innovate of a firm’s human resources (IIRC 2013b). Human capital may also include employees’ alignment with the firm’s governance framework, ethical values and risk management practices; abilities to develop and implement the firm’s strategy; and motivations and commitment to improve the firm’s processes, goods, and services (IIRC 2013b). In constructing the proxy for human capital, indicator scores that related to how an organisation maintains and promotes an employee base that is productive, well-satisfied, and well-trained were captured. The proxy also includes scores for a company’s employee turnover, employment growth, and compensation levels.

Social and Relationship Capital (SOCSCR): Social and relationship capital is defined as “the institutions and relationships within and between communities, groups of stakeholders and other networks, and the ability to share information to enhance individual and collective well-being” (IIRC 2013b, p. 12).

In addition to the proxies for the six <IR> Framework capitals, a proxy measure of the overall reporting practices related to integrativeness of reporting was constructed (*IRSCR*).

IRSCR: This proxy is composed of two sets of scores to indicate the integrativeness of reporting: (1) indicator scores that relate to a firm’s reporting practices as described in the content elements of the IIRC <IR> Framework (e.g. reporting practices relating to areas including governance, sustainability, risk disclosures and the environment), and (2) indicator scores that relate to the firm’s level of integration, (e.g., whether the company has an integrated strategy and how it is implemented and monitored). These two sets of scores are then combined to form an overall score (*IRSCR*).

IRAGGR

The proxies for financial capital (*FINSCR*), social capital (*SOCSCR*), human capital (*HUMSCR*), and natural capital (*NATSCR*) are combined with the integrativeness of reporting score (*IRSCR*) to form an aggregate measure of a firm's level of integrativeness (*IRAGGR*). The proxies for manufactured (*PPENETR*) and intellectual capital (*INTBOOK*) are excluded from this measure as they are based on accounting book values instead of Asset4 ESG data. However, these proxies for manufactured and intellectual capital are included in the base model (Model 2) described below.

Models

H1 posits that the value relevance of the level of adherence to <IR> principles (i.e. integrativeness) is higher for early-moving firms compared to non-early-moving firms, while H2 posits that the value relevance of the level of integrativeness increases over time for early-moving firms compared to non-early-moving-firms. We utilize a modified Ohlson (1995) model to test our hypotheses as this model provides a linkage between valuation and accounting numbers, and has been shown to have high explanatory power (Lo and Lys 2000). This Ohlson (1995) model is given as:

(1)

$$MVE_{i,t} = BVE_{i,t} + \alpha_1 AE_{i,t} + \alpha_2 v_{i,t}$$

where:

$MVE_{i,t}$	= the firm's market value of equity at time t
$BVE_{i,t}$	= natural logarithm of the firm's book value of equity at time t
$AE_{i,t}$	= the firm's abnormal earnings at time t
$v_{i,t}$	= other value relevant non-accounting information

The Ohlson (1995) model is modified to include variables of interest to this study for tests of Hypothesis One and Hypothesis Two. First, following Clarkson et al. (2011a), (normal) earnings (i.e., net income) is used instead of abnormal earnings. This is due to the higher significance of net income in the model as compared to using an abnormal return. The base model for this study, Model (2), includes a dummy variable to indicate that a firm is an early-moving firm (*EARMOV*), as well as estimates for the manufactured (*PPENETR*) and intellectual (*INTBOOK*) capitals for the firm. The estimates for manufactured and intellectual capitals are included in this base model as they are

$$(2) \quad MVE_{i,t} = BVE_{i,t} + \alpha_1 NETY_{i,t} + \alpha_2 EARMOV_{i,t} + \alpha_4 PPENETR_{i,t} + \alpha_5 INTBOOK_{i,t} + \varepsilon_{i,t}$$

where:

$NETY_{i,t}$ = firm's net income at time t

$EARMOV_{i,t}$ = dummy: 1 if firm is an early-moving firm at time t , 0 otherwise

$PPENETR_{i,t}$ = proxy for firm's manufactured capital at time t

$INTBOOK_{i,t}$ = proxy for a firm's intellectual capital at time t

Other variables are as defined above.

The aggregate integrated reporting score ($IRAGGR$) and an interaction term are added to Model (2) to produce Model (3):

$$(3) \quad MVE_{i,t} = BVE_{i,t} + \alpha_1 NETY_{i,t} + \alpha_2 EARMOV_{i,t} + \alpha_4 PPENETR_{i,t} + \alpha_5 INTBOOK_{i,t} \\ + \alpha_6 IRAGGR_{i,t} + \alpha_7 EARMOV \times IRAGGR_{i,t} + \varepsilon_{i,t}$$

where:

$IRAGGR_{i,t}$ = aggregate of a firm's values for its capital proxies and IRSCR at time t

Other variables are as defined above.

In the final model, the aggregate integrated reporting score ($IRAGGR$) is disaggregated into its components, $FINSCR$, $SOCSCR$, $HUMSCR$, $NATSCR$, and $IRSCR$. These and an interaction term for $EARMOV$ and $IRSCR$ are added to Model (2) to produce Model (4):

$$(4) \quad MVE_{i,t} = BVE_{i,t} + \alpha_1 AE_{i,t} + \alpha_2 EARMOV_{i,t} + \alpha_4 PPENETR_{i,t} + \alpha_5 INTBOOK_{i,t} \\ + \alpha_6 FINSCR_{i,t} + \alpha_7 SOCSCR_{i,t} + \alpha_8 HUMSCR_{i,t} + \alpha_9 NATSCR_{i,t} \\ + \alpha_{10} IRSCR_{i,t} + \alpha_9 EARMOV \times IRSCR_{i,t} + \varepsilon_{i,t}$$

where:

$FINSCR_{i,t}$ = proxy for a firm's financial capital at time t

$SOCSCR_{i,t}$ = proxy for a firm's social capital at time t

$NATSCR_{i,t}$ = proxy for a firm's natural capital at time t

$IRSCR_{i,t}$ = a firm's score for adherence to IR principles at time t

Other variables are as defined above.

In testing Hypothesis Two, a sub-sample of firms is constructed to test the significance of variables of interest over time. First, early-moving firms that first adopted <IR> in 2011 are identified. Of these, those firms with data available through to 2013 are included in the sub-sample. The sub-sample is further partitioned into the years 2011, 2012, and 2013, for which Equations (2), (3), and (4) are run. Hypothesis Two is also testing through running Equations (2), (3), and (4) on the whole sub-sample (not partitioned into years) with the addition of year dummy variables 2012 and 2013.

Results

A. Descriptive Statistics

Descriptive statistics describing the composition of the early-moving firms and the matched control firms are presented in Figure 1. This figure presents the number of early-moving firms that adopted <IR> in each year covered by this study as well as the number of pilot firms, self-declared firms, and firms that are both pilot firms and self-declared firms. For those categorized as both pilot and self-declared, the earlier reported year that the firm adopted <IR> is taken to be the first year of the firm's adoption. Figure 1 shows that the sharpest increase in early-moving firms is in 2011, coinciding with the year that the IIRC Pilot Programme was launched.

(Figure 1 about here)

Table 2 shows the descriptive statistics for both early-moving and non-early-moving firms with a t-test for the significance in difference in means. While the propensity-matching was carried out to obtain the closest match possible for each early-moving firm, the requirement that Asset4 ESG data should be available for the matched non-early-moving firms restricted the available pool of matches, which made it harder to find exact matches for the early-moving firms. This difficulty is evidenced by the fact that *ROA* and *TOTASS* are found to differ significantly between the two groups of firms (Refer Panel A). This is presented as a limitation of this study. However, Panel B shows that values for capital proxies and *IRSCR* are significantly higher for early-moving firms, lending some support to the belief that early-moving firms are more 'integrated' and perform better non-

Figures 2 and 3. Figure 2 shows that early-moving firms score higher in terms of their capital proxies and *IRSCR*. As shown in Table 2 Panel B, this difference is significant. Thus, the constructed capital proxies and <IR> score can differentiate early-moving firms from non-early-moving firms. Likewise, Figure 3 shows the difference in the capital proxy and <IR> scores between pilot firms and self-declared firms.

(Figures 2 and 3 about here)

(Table 2 about here)

Table 3 presents the correlations between the continuous variables used in the main tests of this study. The relationships of the manufactured capital proxy with total assets and with the market value of equity are negative, which indicates that as firm size increases, the proportion of net property, plant and equipment to net revenue (another measure of size) decreases, which indicates that the larger firms become, the more heavily invested they are in other assets such as intangibles as can be seen through the positive Spearman correlations between *INTBOOK* and *TOTASS*, and *INTBOOK* and *MVE*. The correlations between *MVE* and capital proxies, *IRSCR* and *IRAGGR* are all significantly positive, which gives some initial support to the hypotheses. There are no significant collinearity issues across the three models. The VIF ranges are as follows: Model (1) 1.030 – 2.555; Model (2) 1.027 – 45.527; and Model (3) 1.027 – 38.263. The only variables with VIF figures greater than 10 are: *EARMOV* (36.614), and *EARMOV* x *IRSCR* (45.527) in Model (2); and *EARMOV* (30.634), *IRSCR* (10.616), and *EARMOV* x *IRSCR* (38.263) in Model (3).

(Table 3 about here)

Firm-level Determinants of Early-moving Firms

Logistic regressions were used to examine the characteristics of early-moving firms, pilot firms, and self-declared firms. These regressions include some financial variables and proxies for financial, human, social and relationship, and natural capitals. The *IRSCR* is excluded from these models as it is seen as an effect of being an early-moving firm, rather than a determinant. The results of these regressions are presented in Table 4. Model (1) uses the proxies for manufactured and intellectual capital, *PPENETR* and *INTBOOK*, while Model (2) uses the raw book values for net property, plant, and equipment (*PPE*), research and development expenditure (*RDEXP*), and net intangible assets (*INTASS*). Table 4 reports the results partitioned between pilot firms and self-declared firms and shows that Model (2) yields a slightly higher adjusted R-squared value across the three sets of firms.

Results show that early-moving firms are larger in terms of total assets and have higher return on assets values, but this is only the case for self-declared firms. These variables (*TOTASS* and *ROA*) are not significant predictors of being a pilot firm. While it is apparent that the proxy for intellectual capital (*INTBOOK*) is not a significant determinant of the likelihood to become an early-moving firm, the disaggregated measures, *RDEXP* and *INTASS*, are significant determinants for self-declared firms. The capital measures *SOCSCR*, *HUMSCR* and significant determinants of being an early-moving firm. In addition, *NATSCR* is a significantly positive determinant of being a self-declared firm (although *FINSCR*, is significantly negative for these firms). The insignificance of size and performance for pilot firms may indicate that pilot firms voluntarily join the Pilot Programme not necessarily because they are in the best position to do so, but because of a desire to more strongly commit to the adoption of <IR> in their organisation. The significantly positive coefficient for *SOCSCR* especially shows that early-moving firms have greater value stored in their social and relationship capital, which includes relationships with communities and stakeholders. This means that these firms could be more stakeholder-orientated than non-early-moving firms.

(Table 1 about here)

Tests for Hypothesis One

Hypothesis One posits that early-moving firms have higher value relevance for their levels of integrativeness. Table 5 shows the results for the test of Hypothesis One. *BV*, *NETY*, and *INTBOOK* are significantly positive throughout the three models. The coefficient for *EARMOV* is significantly positive in Model (1), providing support for the value of signaling as an early-moving firm. However, when measures for the level of integrativeness of the reports are added in Models (2) and (3) the sign turns negative, which could potentially be due to the release of information disclosed under <IR> principles that may negatively impact on the market value of the firm. (This also suggests that *IRAGGR* and its disaggregated components are better measures for the level of integrativeness. This is also apparent in the adjusted R-squared values of the models that increase from 0.810 in Model (1) to 0.817 in Models (2) and (3). It can be seen from Table 5 that *IRAGGR* and its interaction with *EARMOV* are positively significant. The disaggregation of *IRAGGR* into the capital proxies and *IRSCR* shows that the *NATSCR* and *EARMOV* x *IRSCR* coefficients are significantly positive.

Overall, these results suggest that there is support for Hypothesis One. The significantly positive coefficient for *IRAGGR* shows that the overall level of integrativeness is value relevant, while the

significantly positive coefficients for both $EARMOV \times IRAGGR$ (0.175) and $EARMOV \times IRSCR$ (0.148) show that the overall level of integrativeness and the level of adherence to <IR> principles, respectively, are significantly more value relevant for early-moving firms. This strongly suggests that capital markets value disclosures made under <IR> principles.

(Table 5 about here)

Tests for Hypothesis Two

Hypothesis Two posits that the value-relevance of the levels of integrativeness of early-moving firms improves in the years following the adoption of <IR> compared to non-early-moving firms. Firms included in the sample for the tests of this hypothesis meet two criteria: (1) the first year of their adoption of <IR> is 2011, and (2) complete data is available from 2011 to 2013. These requirements resulted in a sample of 190 firms that had yearly observations from 2011 to 2013. The results for tests of Hypothesis Two are presented in Table 6. Panels A, B, and C show how the coefficients change for Models (1), (2), and (3) respectively from 2011 to 2013, while Panel D includes dummy variables for 2012 and 2013 in Models (1), (2), and (3) to lend additional robustness to the results. Panel A shows that $EARMOV$ becomes increasingly significant over time. These results are inconsistent with what is seen from Panel B, which shows that $EARMOV$ becomes significantly negative and $EARMOV \times IRAGGR$ becomes significantly positive in 2012, but become insignificant in 2013. Likewise, Panel C reports an increase in significance for $EARMOV$ (-) and $EARMOV \times IRSCR$ (+) in 2012; however, this significance decreases in 2013. The inclusion of year dummy variables in the models as shown in Panel D only results in a significantly positive coefficient for 2013, which indicates a significant increase in the value for firms' <IR> disclosures in 2013. Similarly, the adjusted R-squared values are higher in 2013 across the three models, which indicate that $IRAGGR$, $IRSCR$, and the capital proxies are increasingly associated with firms' market values over time. Taken together, these results provide evidence to support Hypothesis Two, indicating that capital markets increasingly value disclosures made under <IR> principles over time.

(Table 6 about here)

Sensitivity Analyses

Sensitivity analyses are conducted to examine whether the results of this study are sensitive to the inclusion of the South African firms that required to provide an integrated report, to the type of early-moving firm (pilot or self-declared), to the firms facing regulated disclosures and to the dominance of industrial firms in the sample.

Sensitivity to South African Early-moving Firms

South African firms comprise 18.5% of the early-moving firm sample and may affect results due to the fact that <IR> is mandatory for firms listed on the Johannesburg Stock Exchange. South African early-moving firms and their matched non-early-moving firms are removed from the sample, and the tests for Hypotheses One are re-run. Untabulated results indicate that the exclusion of South African firms does not qualitatively change the results.

Sensitivity to Groups of Early-moving Firms

Models (1), (2), and (3) are performed on samples that consist of only pilot firms and their matched non-early-moving firms, and of only self-declared firms and their matched non-early-moving firms to examine whether either group drives the main set of results. Untabulated results reveal that *EARMOV* is only significant in Model (1), and the interaction terms *EARMOV* x *IRAGGR* and *EARMOV* x *IRSCR* in Models (2) and (3) respectively have insignificant coefficients. On the other hand, results do not change when the tests are run only on self-declared firms. This indicates that self-declared firms may be driving the observed results for the hypotheses tests, and in turn may be attributed to the fact that the self-declared firms greatly outweigh the pilot firms in number.

Sensitivity to the Regulation of ESG and Sustainability Disclosures

The value relevance of the level of integrativeness may be impacted upon by regulation that governs firms' ESG and sustainability disclosures. Countries and country groups that have such regulations are identified¹⁷, and a dummy variable (*NFINREG*) is created to indicate if firms belong to these countries. Models (1), (2), and (3) are run again with the inclusion of *NFINREG* and the untabulated results reveal that although the results of this sensitivity analysis do not qualitatively differ from the main results, the coefficient for *NFINREG* is significantly negative in all models. This may be

¹⁷ Countries and country groups that regulate firms' ESG or sustainability disclosures are: Australia, India, the European

indicative that, in countries where ESG and sustainability disclosures are regulated, firms disclose more value-destroying rather than value-creating information. However, as the results for the significance of the measures of the level of integrativeness remain unchanged, the results of this study are not sensitive to the regulation of ESG and sustainability disclosures. This finding adds strength to the results of this study since even in capital market settings with ESG and sustainability disclosure regulation, disclosures made under <IR> principles are perceived as useful by capital markets.

Sensitivity to Industrial Firms

To test whether results are sensitive to the high proportion (75.5%) of industrial firms in the sample of early-moving firms, a dummy variable (*INDUST*) is included in Models (1), (2), and (3) to control for these firms. Untabulated results reveal that results do not qualitatively change upon controlling for industrial firms, and the coefficient for *INDUST* is significantly positive, indicating that the association between the market value of equity and the level of integrativeness is strengthened for industrial firms.

Conclusion

The two research questions this study aims to address are: (1) What are the determinants of being an early-moving <IR> firm?; and (2) Does the capital market value disclosures made under <IR> principles? A review of the bodies of literature on voluntary disclosures, value relevance, and the capital market effects of nonfinancial disclosures led to the hypotheses that (1) the value relevance of the level of integrativeness is higher for early-moving firms compared to non-early-moving firms, and (2) the value relevance of the level of integrativeness increases over time for early-moving firms compared to non-early-moving firms.

Results show that size, return on assets, and proxies for financial, human, social and relationship, and natural capitals are significant determinants of being an early-moving firm. Breaking the early-moving firm sample down into the two groups of pilot firms and self-declared firms, however, revealed that only social and relationship, and human capital proxies were significant determinants of being a pilot firm, while the determinants of being a self-declared firm remained the same. This may indicate that pilot firms place greater value on their stakeholder relationships and actively seek to maintain these relationships, instead of simply being firms with the resources to adopt <IR>.

self-declared firms. These firms can be said to be more committed to their adoption of <IR> as not only do they adhere to IR principles, they have also aided in the development of the IIRC's <IR> Framework through the Pilot Programme.

The signal as an early moving firm as well as the two measures of the level of integrativeness are shown to be significant in the three models used in this study, and the relationship is strengthened for early-moving firms. This provides strong support for the hypothesis that early-moving firms' level of integrativeness is more value relevant than that of non-early-moving firms. Support is also found for Hypothesis Two that posits that the value relevance of the level of integrativeness of early-moving firms increases over time compared to non-early-moving firms as the explanatory power of the three models used increases over time, and given that the coefficients for the measures of the level of integrativeness are more significant at the end of the three-year period than at the beginning. Together, these results show that not only do capital markets value disclosures made under <IR> principles, but the value placed on these disclosures increases over time.

The results of this study should be viewed in the light of a number of limitations. Firstly, this study has a limited sample size, given that there are only 357 unique early-moving firms. An additional concern stems from the fact that the extent to which early-moving firms have adopted <IR> differs quite substantially, as evidenced by the Pilot Programme Yearbooks for pilot firms, which may have an effect on how the markets react to a particular firm's adoption of <IR>. Similarly, the self-declared firms from the GRI Reports List (2014) provide no information on the extent of their adherence to <IR> principles. While the novelty of <IR> presents ample research opportunity, it also prevents the opportunity to perform a long-run study. That is, while this study documents an increase in the value relevance of the level of integrativeness over a period of three years, the examination over a longer time period may yield different results. Further, as with any voluntary disclosure studies, the study faces potential endogeneity concerns. While this study utilises a matched-sample method in an attempt to mitigate these concerns, it may not have been fully able to do so. Lastly, the results may be sensitive to the developed capital proxies and <IR> score. While these were developed based on the <IR> Framework, alternative measures of the level of integrativeness should be considered in future studies. Similarly, alternative measures of value relevance such as the effects on information intermediaries (e.g., analysts) and on the cost of equity capital could be examined in future studies.

The finding of this study provides that capital markets value disclosures made under <IR> principles provides a basis for future research to examine the relationship between <IR> and the capital markets. Future studies may consider extending to the capital market effects of disclosures made under <IR> principles and carry out more long-run capital market studies. Studies examining whether it is <IR> or integrated thinking that drives the benefits gleaned from the adoption of <IR> principles provide fruitful areas of research. Also, while some firm-level determinants of being an early-moving firm have been identified, future studies may uncover more determinants at industry or country levels.

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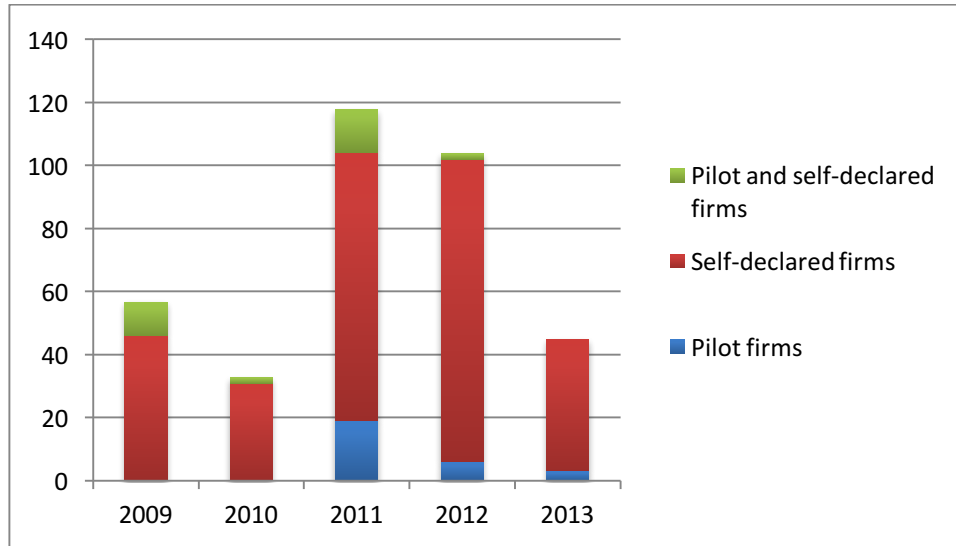
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APPENDIX A: VARIABLE DEFINITIONS

Financial Variables	
AE	Abnormal earnings (not used in modified models)
BVE	Book value of shareholder's equity at the end of the financial year, measured in US\$
INTASS	Reported net intangible assets at the end of the financial year, measured in US\$
INTBOOK	Measure of intellectual capital = (Research and Development Expenditure + Net Intangible Assets) ÷ Net Revenue
MVE	Market value of equity three months ¹⁸ from end of the financial year, measured in US\$
NETY	Reported net income, measured in US\$
PPE	Reported net property, plant and equipment, measured in US\$
PPENETR	Measure of manufactured capital = Net Property, Plant and Equipment ÷ Net Revenue
RDEXP	Reported research and development expenditure, measured in US\$
RET	Buy-hold abnormal return measured three months after financial year end
ROA	Return on assets = Net Income ÷ Total Assets
TOTASS	Reported total assets, measured in US\$
Capital Proxies and <IR> Score Variables	
EARMOV	Dummy variable: 1 if firm is an early-moving firm; 0 otherwise
FINSCR	Proxy for a firm's financial capital
HUMSCR	Proxy for a firm's human capital
IRAGGR	Aggregate measure of capitals and overall level of integrativeness = FINSCR + HUMSCR + NATSCR + SOCSCR + IRSCR
IRSCR	<IR> score that measures a firm's adherence to <IR> principles
NATSCR	Proxy for a firm's natural capital
SOCSCR	Proxy for a firm's social and relationship capital
Additional Test Variables	
2012	Dummy variable: 1 if firm-year observation is for the year 2012; 0 otherwise
2013	Dummy variable: 1 if firm-year observation is for the year 2013; 0 otherwise
INDUST	Dummy variable: 1 if the firm's industry is classified as industrial; 0 otherwise
NFINREG	Dummy variable: 1 if the firm's country is identified as having its ESG or sustainability disclosures regulated; 0 otherwise. Countries and country groups identified as having such regulation are: Australia, India, Brazil, the European Union, Hong Kong, South Africa, Malaysia, Singapore, and Canada (Ceres 2014).

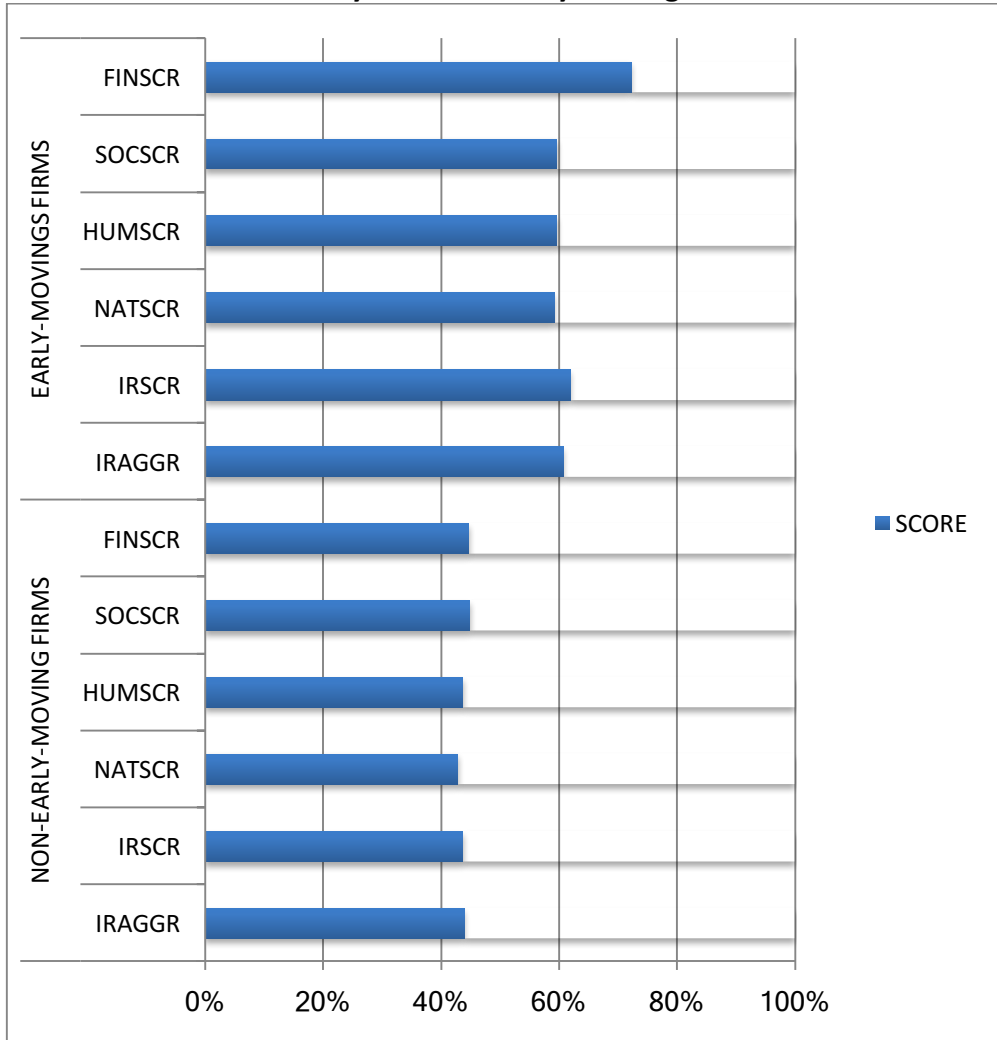
¹⁸ MVE is measured three months after financial year end to ensure that information contained in disclosures under IR

Figure 1: The Number of Firms adopting IR by Year



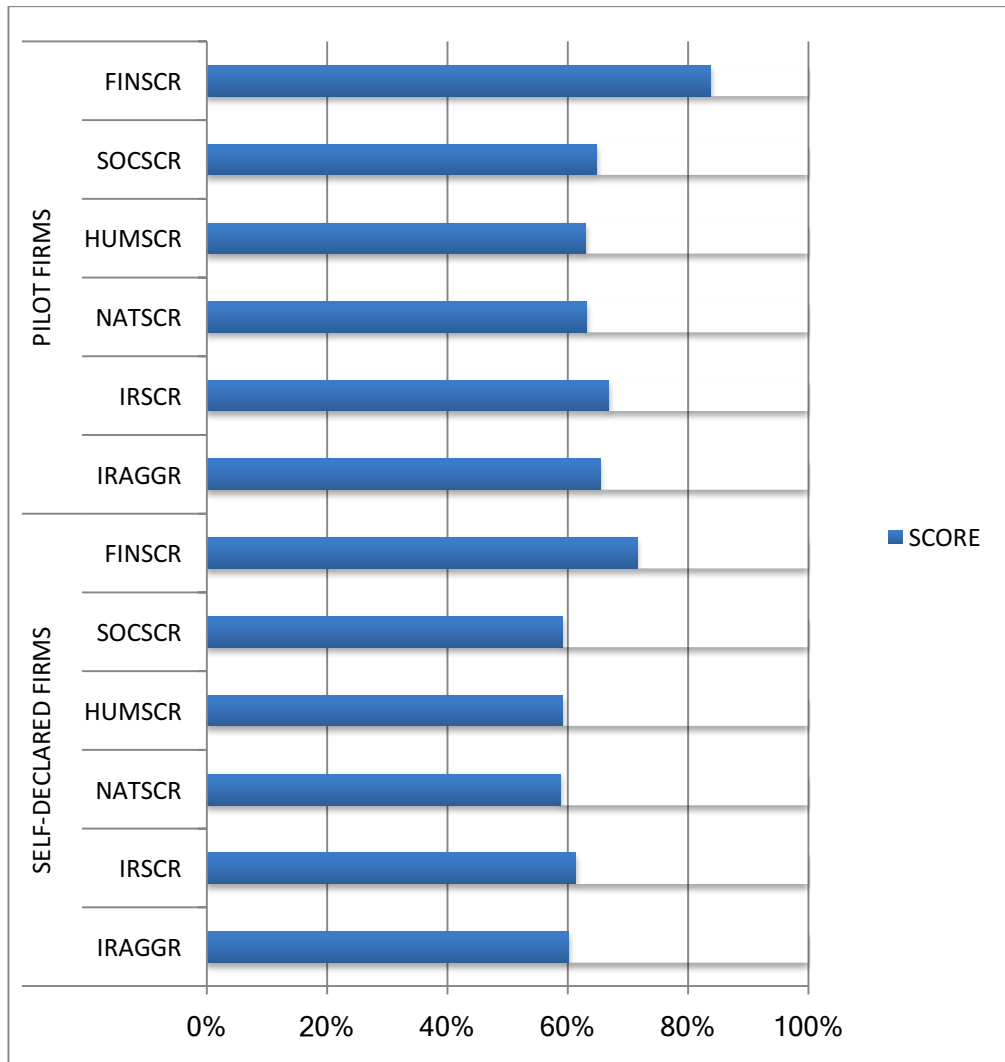
A t-test of differences between means for the two groups (shown in Table 2 Panel B) showed that the early-moving firms had significantly higher values for the capital proxies, IRSCR, and IRAGGR than the non-early-moving firms. Refer to Appendix A for variable definitions.

Figure 2: Capital Proxies Comparison (IRSCR, and IRAGGR) for Early- and Non-early-moving Firms



A t-test of differences between means for the two groups (shown in Table 2 Panel B) showed that the early-moving firms had significantly higher values for the capital proxies, IRSCR, and IRAGGR than the non-early-moving firms. Refer to Appendix A for variable definitions.

Figure 3: Capital Proxy Comparison (IRSCR, and IRAGGR) for Pilot and Self-declared Firms



A t-test of differences between means for the two groups showed that the pilot firms had significantly higher values for the capital proxies, IRSCR, and IRAGGR than the self-declared firms.

Refer to Appendix A for variable definitions.

Table 1: Sample Distribution

Panel A: Sample Selection					
	Purely Pilot Firms	Purely Self- declared Firms	Both Pilot and Self- declared Firms	Total unique firms	Firm-year Observations
Total firms available	75	540	29	644	3041
Less: Non-listed firms	-37	0*	0	-37	-111
Less: Firms with missing observations	-10	-240	0	-250	-1970
Total	28	300	29	357	960**

* The initial pool of self-declared firms are selected from the GRI Reports List (2014) and must meet two criteria: (1) They are publicly listed firms, and (2) They have self-declared that their reports are integrated.

** The number of firm-year observations remaining is not a perfect product of the number of firms multiplied by the number of years covered by the study given the different years of IR adoption for unique firms. Furthermore, the Asset4 ESG database has incomplete observations for the firms it covers in 2013.

* - The initial pool of self-declared firms are selected from the GRI Reports List (2014) and must meet two criteria: (1) They are publicly listed firms, and (2) They have self-declared that their reports are integrated.

** - The number of firm-year observations remaining is not a perfect product of the number of firms multiplied by the number of years covered by the study given the different years of IR adoption for unique firms. Furthermore, the Asset4 ESG database has incomplete observations for the firms it covers in 2013.

Table 1 Continued

Panel B: Country Distribution					
EARMOV = 0	Freq.	Percentage	EARMOV = 1	Freq.	Percentage
Australia	759.0	79.1	South Africa	178.0	18.5
Belgium	44.0	4.6	Brazil	69.0	7.2
Brazil	36.0	3.8	Australia	56.0	5.8
United States	23.0	2.4	Japan	53.0	5.5
Austria	16.0	1.7	Spain	49.0	5.1
Denmark	16.0	1.7	United States	48.0	5.0
Sweden	16.0	1.7	United Kingdom	42.0	4.4
Finland	13.0	1.4	Sweden	39.0	4.1
United Kingdom	9.0	0.9	Finland	37.0	3.9
France	8.0	0.8	Netherlands	37.0	3.9
South Africa	5.0	0.5	Switzerland	37.0	3.9
Germany	4.0	0.4	France	33.0	3.4
Abu Dhabi	3.0	0.3	Canada	31.0	3.2
New Zealand	2.0	0.2	Germany	31.0	3.2
Spain	2.0	0.2	Singapore	30.0	3.1
Hungary	1.0	0.1	Norway	28.0	2.9
Italy	1.0	0.1	Belgium	17.0	1.8
Philippines	1.0	0.1	Italy	17.0	1.8
Switzerland	1.0	0.1	South Korea	17.0	1.8
			Denmark	15.0	1.6
			Portugal	12.0	1.3
			New Zealand	11.0	1.1
			Philippines	10.0	1.0
			India	8.0	0.8
			Greece	7.0	0.7
			Thailand	7.0	0.7
			Taiwan	6.0	0.6
			Colombia	5.0	0.5
			Hong Kong	5.0	0.5
			Mexico	5.0	0.5
			Russian Federation	5.0	0.5
			Hungary	4.0	0.4
			Poland	4.0	0.4
			Chile	3.0	0.3
			Sri Lanka	2.0	0.2
			Indonesia	1.0	0.1
			Malaysia	1.0	0.1
Total	960.0	100.0	Total	960.0	100.0

Table 1 Continued

Panel C: Industry Distribution					
EARMOV = 0	Freq.	Percentage	EARMOV = 1	Freq.	Percentage
1	725.0	75.5	1	633.0	65.9
6	97.0	10.1	2	130.0	13.5
2	55.0	5.7	4	80.0	8.3
4	42.0	4.4	6	43.0	4.5
3	22.0	2.3	5	40.0	4.2
5	19.0	2.0	3	34.0	3.5
Total	960.0	100.0	Total	960.0	100.0

Industry codes are as follows: 1 – Industrial, 2 – Utility, 3 – Transportation, 4 – Bank/Savings & Loan, 5 – Insurance, 6 – Other Financial

Table 2: Descriptive Statistics

Panel A: Financial Descriptive Statistics										
EARMOV = 0 N = 960					EARMOV = 1 N = 960					T-test for Difference in Means
	MIN	MAX	MEAN	STD. DEV		MIN	MAX	MEAN	STD. DEV	
ROA	-290.38	161.33	0.56	22.24	ROA	-109.24	65.99	4.38	8.50	0.000 ***
TOTASS	46	1395419	34468	172404	TOTASS	68	1395419	74788	203461	0.000 ***
MVE	43	116846	5368.08	15864.49	MVE	87	116846	16873.02	23844.43	0.000 ***
RET	-0.50	1.33	0.09	0.30	RET	-0.50	1.33	0.06	0.19	0.020 *
BVE	15	81601	3756	11446	BVE	15	81601	10648	16451665.52	0.000 ***
NETY	-2645	10329	316	1308	NETY	-2644974.36	10329271.22	1135660.45	2150	0.000 ***
PPENETR	0.00	485009.37	2202.89	18891.27	PPENETR	0.00	189096.02	507.21	8075.61	0.010 **
INTBOOK	0.00	2659689.97	3569.80	86552.37	INTBOOK	0.00	87728.67	122.49	2831.20	0.220

Panel B: Integrated Reporting and Capital Proxies Descriptive Statistics										
EARMOV = 0 N = 960					EARMOV = 1 N = 960					T-test for Difference in Means
	MIN	MAX	MEAN	STD. DEV		MIN	MAX	MEAN	STD. DEV	
IRAGGR	3588.94	8659.61	5307.07	1248.49	IRAGGR	3796.81	9088.41	7341.15	1014.23	0.000 ***
IRSCR	1569.07	4179.94	2403.02	633.30	IRSCR	1569.07	4179.94	3402.60	533.04	0.000 ***
FINSCR	4.42	98.18	44.61	28.40	FINSCR	4.42	98.18	72.26	25.04	0.000 ***
SOCSER	963.84	2303.68	1391.17	296.97	SOCSER	963.84	2303.68	1846.86	263.58	0.000 ***
HUMSCR	473.20	1220.50	697.87	171.96	HUMSCR	473.20	1220.50	953.58	140.84	0.000 ***
NATSCR	565.39	1384.68	770.39	198.99	NATSCR	568.95	1384.68	1065.84	196.43	0.000 ***

Monetary values are in \$000s* - Significant at the 0.1 level (two-tailed), ** - Significant at the 0.01 level (two-tailed), *** - Significant at the 0.001 level (two-tailed). Refer to Appendix A for variable definitions.

Table 3: Correlation Matrix for Continuous Variables

	ROA	TOTASS	MVE	BVE	NETY	PPENETR	INTBOOK	IRAGGR	FINSCR	SOCSCR	HUMSCR	NATSCR	IRSCR
ROA		-0.019	.101***	0.031	.148***	-.092***	-0.017	.116***	.250***	.141***	.134***	.077***	.093***
TOTASS	-.063**		.552***	.738***	.474***	-0.026	-0.008	.278***	.218***	.298***	.270***	.266***	.246***
MVE	.222***	.866***		.842***	.851***	-0.040*	0.013	.488***	.410***	.486***	.430***	.444***	.467***
BVE	0.002	.949***	.888***		.778***	-0.041*	-0.007	.460***	.378***	.458***	.398***	.424***	.442***
NETY	.487***	.679***	.806***	.708***		-0.039*	-0.015	.388***	.364***	.403***	.358***	.334***	.365***
PPENETR	-.231***	-.151***	-.147***	-.083***	-.169***		.159***	-.089***	-.130***	-.091***	-.097***	-.080***	-.078***
INTBOOK	.060**	.203***	.232***	.189***	.158***	-.234***		-0.032	-0.044*	-0.030	-0.025	-0.034	-0.031
IRAGGR	.056*	.757***	.737***	.740***	.559***	-.079***	.169***		.772***	.938***	.887***	.922***	.982***
FINSCR	.252***	.638***	.677***	.638***	.612***	-.221***	.181***	.766***		.760***	.720***	.670***	.731***
SOCSCR	.088***	.727***	.716***	.704***	.561***	-.146***	.190***	.936***	.759***		.841***	.818***	.876***
HUMSCR	.102***	.670***	.665***	.640***	.525***	-.119***	.166***	.881***	.713***	.838***		.749***	.831***
NATSCR	0.005	.702***	.670***	.687***	.491***	-.077***	.128***	.922***	.667***	.818***	.749***		.900***
IRSCR	0.029	.733***	.705***	.723***	.521***	-0.019	.143***	.980***	.723***	.872***	.824***	.899***	

The upper diagonal represents Pearson correlation coefficients, while the lower diagonal represents Spearman correlation coefficients.

* - Correlation is significant at the 0.1 level (two-tailed). ** - Correlation is significant at the 0.01 level (two-tailed). *** - Correlation is significant at the 0.001 level (two-tailed).

Refer to Appendix A for variable definitions.

Table 4: Logistic Regressions for the Determinants for Early-moving Firms, Self-declared Firms, and Pilot Firms

EARLY-MOVING FIRMS (N = 1920)					SELF-DECLARED FIRMS (N = 1786)					PILOT FIRMS (N = 344)									
Model	1		2		Model	1		2		Model	1		2						
	Beta	Sig.	Beta	Sig.		Beta	Sig.	Beta	Sig.		Beta	Sig.	Beta	Sig.					
ROA	0.016	0.003	**	0.015	0.006	**	ROA	0.017	0.002	**	0.016	0.004	**	ROA	-0.011	0.503	-0.009	0.595	
TOTASS	0.000	0.000	***	0.000	0.000	***	TOTASS	0.000	0.000	***	0.000	0.000	***	TOTASS	0.000	0.768	0.000	0.509	
NETY	0.000	0.822		0.000	0.793		NETY	0.000	0.598		0.000	0.776		NETY	0.000	0.608	0.000	0.696	
RET	-0.251	0.367		-0.279	0.318		RET	-0.014	0.354		-0.014	0.327		RET	-0.045	0.826	-0.032	0.862	
PPENETR	0.000	0.723					PPENETR	0.000	0.701					PPENETR	-0.002	0.306			
INTBOOK	0.000	0.735					INTBOOK	0.000	0.721					INTBOOK	0.000	0.999			
PPE				0.000	0.708		PPE				0.000	0.896		PPE			0.000	0.969	
RDEXP				0.000	0.015	*	RDEXP				0.000	0.014	*	RDEXP			0.000	0.170	
INTASS				0.000	0.005	**	INTASS				0.000	0.005	**	INTASS			0.000	0.220	
FINSCR	-0.019	0.000	***	-0.019	0.000	***	FINSCR	-0.020	0.000	***	-0.019	0.000	***	FINSCR	-0.005	0.658	-0.005	0.657	
SOCSCR	0.003	0.000	***	0.003	0.000	***	SOCSCR	0.003	0.000	***	0.003	0.000	***	SOCSCR	0.006	0.000	***	0.006	0.000
HUMSCR	0.006	0.000	***	0.006	0.000	***	HUMSCR	0.006	0.000	***	0.006	0.000	***	HUMSCR	0.007	0.003	**	0.007	0.005
NATSCR	0.003	0.000	***	0.002	0.000	***	NATSCR	0.002	0.000	***	0.002	0.000	***	NATSCR	0.002	0.188	0.001	0.414	
CONSTANT	-10.375	0.000	***	-10.329	0.000	***	CONSTANT	-10.309	0.000	***	-10.255	0.000	***	CONSTANT	-16.666	0.000	***	-16.384	0.000
R2	0.433			0.437			R2	0.421			0.426			R2	0.584			0.589	
Chi-square	1088.117	0.000	***	1101.960	0.000	***	Chi-square	978.528	0.000	***	992.409	0.000	***	Chi-square	301.434	0.000	***	306.211	0.000

* - Significant at the 0.1 level (two-tailed); ** - Significant at the 0.01 level (two-tailed); *** - Significant at the 0.001 level (two-tailed). Refer to Appendix A for variable definitions.

Table 5: OLS Regression (Dependent Variable = MVE) – Tests for Hypothesis One

Model	1				2			3		
N = 1920	Beta	t	Sig.	Beta	t	Sig.	Beta	t	Sig.	
(Constant)						0.00		-	0.0	**
	3.744	0.000	***	-3.920	0	***	4.186	00	*	
BV	0.44	28.156	0.000	0.412	25.377	0	0.410	0	00	*
	8	0.000	***			0.00				**
NETY	0.49	30.893	0.000	0.486	31.114	0	0.490	6	00	*
	0	0.000	***			0.00				**
EARMOV	0.05	5.645	0.000	-0.164	-2.769	6	-0.139	2.571	10	**
	8	0.000	***			0.00				**
PPENETR	-	0.00	0.729	0.001	0.099	1	0.000	0.022	83	0.9
	3	-0.346	0.729			0.92				0.9
INTBOOK	0.02	2.590	0.010	0.027	2.690	7	0.027	2.691	07	**
	6	0.010	**			0.00				**
IRAGGR				0.089	4.995	0				0.4
EARMOV X						0.00				0.4
IRAGGR				0.175	2.661	8				0.1
FINSCR							-0.013	0.827	09	0.1
SOCSCR							0.033	1.360	74	0.5
HUMSCR							0.013	0.631	28	0.0
NATSCR							0.051	2.224	26	*
IRSCR								0.416	0.6	0.6
EARMOV X							0.013		77	0.0
IRSCR							0.148	2.454	14	*
Adj. R2	0.810			0.817			0.817			
F-stat	1637.3	0.00	**	1222.3		**	777.6			**
	83	0	*	71	0.000	*	91	0.0	00	*

* - Significant at the 0.1 level (two-tailed); ** - Significant at the 0.01 level (two-tailed); *** - Significant at the 0.001 level (two-tailed).

There are no significant collinearity issues across the three models. The VIF ranges are as follows: Model (1) 1.030 – 2.555; Model (2) 1.027 – 45.527 (EARMOV (36.614), and EARMOV x IRSCR (45.527)); and Model (3) 1.027 – 38.263 (EARMOV (30.634), IRSCR (10.616), and EARMOV x IRSCR (38.263)),

Refer to Appendix A for variable definitions.

Panel C: Results for Model (3)										
Year	2011			2012			2013			
N = 190	Beta	t	Sig.	Beta	t	Sig.	Beta	t	Sig.	
(Constant)		-0.296	0.767		-1.107	0.270		-0.818	0.414	
BV	0.225	3.971	0.000 ***	0.234	4.025	0.000 ***	0.206	4.124	0.000 ***	
NETY	0.711	12.638	0.000 ***	0.643	11.581	0.000 ***	0.712	14.588	0.000 ***	
EARMOV	-0.027	-0.166	0.868	-0.372	-2.113	0.036 *	-0.273	-2.016	0.045 *	
PPENETR	-0.004	-0.144	0.886	-0.002	-0.079	0.937	0.003	0.128	0.898	
INTBOOK	0.014	0.487	0.627	-0.003	-0.120	0.904	0.005	0.243	0.808	
FINSCR	-0.028	-0.644	0.521	-0.045	-0.984	0.327	0.013	0.347	0.729	
SOCSCR	-0.073	-1.004	0.317	0.029	0.385	0.701	0.017	0.286	0.775	
HUMSCR	0.067	1.049	0.295	0.018	0.289	0.773	0.045	0.957	0.340	
NATSCR	-0.041	-0.703	0.483	-0.095	-1.312	0.191	-0.057	-1.069	0.287	
IRSCR	0.107	1.215	0.226	0.150	1.451	0.149	0.043	0.574	0.567	
EARMOV X IRSCR	0.041	0.224	0.823	0.438	2.192	0.030 *	0.310	2.092	0.038 *	
Adj. R2		0.859	0.000		0.853			0.909		
F-stat		105.512	***		100.368	0.000 ***		172.806	0.000 ***	

Table 6 continued

Panel D: Inclusion of Year Dummy Variables											
Model	1			2			3				
N = 570	Beta	t	Sig.	Beta	t	Sig.	Beta	t	Sig.		
(Constant)		0.429	0.668		-2.089	0.037	*		-1.792	0.074	*
BV	0.257	8.236	0.000	0.231	7.389	0.000	***	0.236	7.545	0.000	***
NETY	0.681	22.065	0.000	0.675	22.189	0.000	***	0.675	22.091	0.000	***
EARMOV	0.062	3.916	0.000	-0.172	-1.763	0.078	*	-0.203	-2.302	0.022	*
PPENETR	-0.004	-0.271	0.786	0.001	0.060	0.952		0.000	0.003	0.998	
INTBOOK	0.000	-0.008	0.993	0.002	0.108	0.914		-0.001	-0.052	0.959	
IRAGGR				0.067	2.414	0.016	*				
EARMOV X											
IRAGGR				0.199	1.839	0.066	*				
FINSCR								-0.021	-0.867	0.386	
SOCSCR								-0.005	-0.119	0.905	
HUMSCR								0.047	1.455	0.146	
NATSCR								-0.060	-1.735	0.083	*
IRSCR								0.092	1.866	0.063	*
EARMOV X											
IRSCR								0.237	2.404	0.017	*
2012	0.021	1.186	0.236	0.019	1.117	0.264		0.018	1.081	0.280	
2013	0.039	2.232	0.026	0.036	2.132	0.033	*	0.037	2.157	0.031	*
Adj. R2		0.872			0.876				0.877		
F-stat		554.690	0.000		447.620	0.000	***		314.199	0.000	***

* - Significant at the 0.1 level (two-tailed). ** - Significant at the 0.01 level (two-tailed). *** - Significant at the 0.001 level (two-tailed). Refer to Appendix A for variable definitions.