

The Effect of Ownership Structure on the Sustainability Reporting Assurance Practice

A Quantitative Study on Factors Influencing the Choice of Sustainability Reporting Assurance in a Swedish Setting

Marcus Angelstig^α and Sanna Gustavsson^ω

ABSTRACT: The increasing amount of firms choosing to present corporate social responsibility (CSR) disclosures has led to an increased demand for reliability and credibility of sustainability reports. From an agency theory perspective, involving a third-party to verify the reliability of a firm's CSR report through a sustainability reporting assurance (SRA), can reduce the information asymmetry between a firm's management and its owners. We use logistic regressions with a sample of the listed firms on NASDAQ Stockholm (small, mid and large cap) at year-end 2013 to determine factors that influence the choice of applying SRA. Especially, we focus on the effects of institutional investors and majority owners in order to investigate if ownership structure has an impact on the use of SRA. Our findings show a positive relationship between the probability of using SRA and institutional ownership, indicating that a higher level of institutional ownership increases the likelihood that a firm applies assurance on its CSR report. No statistically significant relation is found between having a majority owner and the decision to apply SRA. In an extended analysis, we raise the question of the investor's identity's impact on the choice of SRA. Our findings suggest that private institutional investors seem to have a positive influence on the decision, while public institutional investors seem to have a negative influence.

Keywords: sustainability reporting; voluntary assurance; institutional investors; ownership structure; sustainability assurance determinants.

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Tutor: Hanna Setterberg, Assistant Professor Department of Accounting

α 22598@student.hhs.se

ω 40714@student.hhs.se

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Marcus Angelstig & Sanna Gustavsson

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ABBREVIATIONS AND DEFINITIONS

TABLE 1

Abbreviations	Definitions
<i><IR></i>	Integrated Reporting framework
<i>CSR</i>	Corporate Social Responsibility
<i>EBIT</i>	Earnings Before Interest and Taxes
<i>GRI</i>	Global Reporting Initiative
<i>IFAC</i>	International Federation of Accountants
<i>PRI</i>	Principles for Responsible Investments
<i>PRIVIs</i>	Private Institutional Investors
<i>PUBIs</i>	Public Institutional Investors
<i>ROA</i>	Return On Assets
<i>SR</i>	Sustainability Reporting, the practice of creating a report based on CSR information
<i>SRA</i>	Sustainability Reporting Assurance, the practice of assuring the CSR report

1. INTRODUCTION

Corporate social responsibility (CSR) is a continuously growing issue and firms across all sectors are increasingly presenting sustainability reporting (SR). Investors, consumers and other stakeholders are raising their demands for corporate transparency and accountability, and the perceived value of CSR is growing (Junior et al. 2014, Perego, Kolk 2012, McWilliams, Siegel 2001, Falck, Heblich 2007, Christofi et al. 2012, Wilson 2003, Kramer 2011, Simnett et al. 2009, Kolk, Perego 2010). The UN meeting in Paris 2015 further demonstrates the crucial importance for countries and organizations to take their impact on the surrounding environment into account and assume responsibility for such impact (Center for Climate and Energy Solutions Dec 2015). An increasing amount of published CSR reports has accompanied this demand for responsibility over the last few years, showing that firms are becoming increasingly interested in providing transparency regarding their CSR issues and operations (King, Bartels 2016). In 2011 however, KPMG reported that one third of the 250 largest global companies issued restatements of their non-financial disclosures, implying a need for increased credibility and confidence of SR (KPMG International Cooperative 2011). This development, hence, illustrates a challenge for the firm's governance actors and stakeholders to assess whether a provided CSR report is trustworthy or not. The development of sustainability reporting assurance (SRA)¹ has tried to address this challenge (Junior et al. 2014, Simnett et al. 2009). The usage of SRA has become an established practice among the largest global companies, and is further growing among organizations on a national level (King, Bartels 2016). As shareholders can impact a firm's management and strategic decisions, including issues regarding social responsibility (Glac 2010), the challenge in reliability assessment calls for further examination of how a firm's governance mechanisms influence the decision to apply SRA (Peters, Romi 2014).

SR has become a global standard practice among many companies, and a main driving force is identified as increased legislation, requiring companies to publish non-financial information in addition to the financial statements (King, Bartels 2016). Nevertheless, in Sweden where disclosure of non-financial information currently is voluntary, approximately 90% of the 100

¹ SRA implies that the firm hires an external party to verify and confirm that the information disclosed in their CSR report is reliable.

largest companies publish a CSR report (King, Bartels 2016). This strong presence of reports shows that legislation evidently is not the only driving force of the SR expansion. The Swedish market is interesting from a sustainability perspective due to various reasons beyond its legal environment. In 2007, Sweden became the first country in the world to require state-owned companies to present a CSR report in accordance with the reporting standard *Global Reporting Initiative* (GRI) (Government Offices of Sweden 2015). In the same year, some of the Swedish national pension funds founded a joint ethical council with the objective to encourage their members to address appropriate sustainability issues. Furthermore, these funds have since 2001 had the mission to “exercise ethical and environmental consideration without compromising the overall objective of attaining a high return” (Etikrådet 2016). Thus, Sweden represents an environment where stakeholders perceive CSR issues and SR as important.

In 2015, almost two thirds of the 250 largest global companies had an external assurance on their CSR report (King, Bartels 2016). The assurance is argued to increase credibility and reliability of the CSR information, making the sustainability report applicable as a decision-making tool for both internal and external users (Simnett et al. 2009, Kolk, Perego 2010, De Beelde, Tuybens 2015, Moroney et al. 2012, Park, Brorson 2005). Earlier research within the field of SRA has focused on mapping the development of the phenomena, identifying variables underlying the decision of what type of assurer to employ and, to a limited extent, the choice of whether to apply assurance or not. It is within this latter field that our research aims to contribute. Recent studies have lightly touched upon the issue of governance characteristics and ownership structure as variables affecting the choice of SRA, however as we argue, not sufficiently to provide a clear picture of the relationship. Therefore, this research intends to provide further knowledge regarding the relationship between a firm’s ownership structure and its choice whether or not to apply SRA.

1.1 Research Question and Purpose of Study

In accordance with the presented background, our study aims to answer the following research question:

Does a firm's ownership structure have an impact on its adoption of SRA?

This report aims to address the research question and contribute to the research field in two aspects. First, we intend to extend earlier research that yet only provides preliminary evidence on the impact of ownership structure on the adoption of SRA (De Beelde, Tuybens 2015, Peters, Romi 2014, Castelo Branco et al. 2014). Shareholders can through active ownership gain a role to impact a firm's management and their decisions (Glac 2010). While some categories of owners are less active, others impose their power and influence more frequently. One type of owner that is increasingly conducting an active ownership (Kane, Velury 2004, Del Guercio, Tran 2012) while also presenting an increased interest for CSR issues and SR is the institutional investors (Sjöström 2010, Principles for Responsible Investment 2016). Therefore, due to the important role the institutional investors have on the financial market, together with their positioning regarding CSR issues, the influence of institutional ownership on a firm's choice to apply SRA requests to be further studied.

Second, while research on CSR, SR and SRA has gained global attention from scholars (Simnett et al. 2009, Kolk, Perego 2010, Ferreira Gomes et al. 2015, Gillet 2012, Ruhnke, Gabriel 2013), we do not find any that investigate SRA in a Swedish setting. Due to the Swedish institutional owners' interest in SR and Sweden's prominent position in terms of addressing CSR issues, we believe that Sweden is an environment that can contribute to the research field.

1.2 Delimitations

Our study contains delimitations in terms of time period, companies studied and choices of definition. The sample is limited to the Swedish market, which is partly due to the fact that no adequate database regarding firms' SRA statements is found, and the gathering and analysis of CSR reports and SRA statements is, hence, conducted manually. Therefore, a larger data collection would require a considerable amount of time. Due to the country's position within CSR, we consider the Swedish setting to be sufficiently interesting for a separate examination.

Certain earlier identified variables have not been applied in our study due to the lack of required resources to reliably measure the variables. This matter exposes our models to potential risk of missing relevant variables in the determination of SRA and is therefore discussed in our robustness analysis.

The study aims to investigate the relationship between SRA and ownership structure in the year of 2014. It therefore neither explores the development of SRA nor the change in institutional investor's interest in the phenomena. By conducting a one-year analysis we avoid potential issues related to serial correlation, as the choice of applying SRA is considered to be consistent over time (Simnett et al. 2009).

There is no established definition of what constitutes an institutional investor. The widest definition of the term includes all investors that are corporations, but other narrower definitions exist as well (Sjöström 2010). When identifying which owners to consider as institutional, we choose a relatively limited interpretation based on the members of the association *Institutionella ägares förening för regleringsfrågor på aktiemarknaden*. This definition is used in earlier publications in order to categorize the Swedish institutional sphere (Fristedt, Sundqvist 2009).

2. THEORETICAL FRAMEWORK AND PREVIOUS RESEARCH

2.1 Agency Theory and Voluntary Disclosure

The agency-principal theory is one of the main concepts in the field of corporate governance (Renneboog 2000). Due to the nature of corporations, agency costs are inherent as management (the agent) is given the task to perform on the behalf of the company's shareholders (the principal) (Jensen, Meckling 1976). These costs arise when a potential conflict of interest and information asymmetry exists between the firm's management and its shareholders (Ruhnke, Gabriel 2013), as the owners are given a monitoring role to assert that their interests are prioritized (Renneboog 2000, Jensen, Meckling 1976). Due to the segregation between the owners and management, the monitoring role is hampered by information asymmetry between the two parties. A decrease of the gap of available information and thus lower agency costs can be achieved by, in addition to the mandatory financial reporting, a higher level of voluntary disclosure and transparency in the firm's overall reporting, together with an increase in the credibility and reliability of the information presented (Leuz, Verrecchia 2000).

According to Healy and Palepu (2001), credibility of disclosed information is improved by the impact of regulators, standard setters, auditors and other intermediaries. Therefore, a congruent manner of presenting the information, together with increased reliability through auditing and regulations, can improve the usefulness of the information. Within voluntary disclosure research, focus has been placed on decision makers' expected signaling behavior arising from an increase of voluntary disclosures (Skogsvik 1998). This field of research was initiated by Akerlof (1970) in the article *The market for "lemons"*, where the discrepancy of available information between buyers and sellers of cars illustrate the information asymmetry's effect on the market. Akerlof (1970) concludes that the challenge of distinguishing whether the quality is good or bad is a natural characteristic in the world of business, and that trustworthiness therefore is important in an environment of uncertainty.

2.2 Development of Sustainability Reporting

The concept of CSR has received various definitions by scholars as it has developed over time (Kramer 2011, King, Bartels 2016, Global Reporting Initiative 2013). A common notion of CSR recognizes the importance of financial performance, and in addition underlines the need to also work for a sustainable development and a long-term performance (McWilliams, Siegel 2001, Wilson 2003, De Beelde, Tuybens 2015, Deegan, Unerman 2011). Sustainability reporting (SR) aims, through reporting and presentation, to assist organizations with the linkage between their CSR issues and their strategy and goal setting (Global Reporting Initiative 2013). According to McWilliams and Siegel (2001), sustainability actions are defined as going “beyond the interest of the firm and that which is required by law” (McWilliams, Siegel 2001, p. 117). SR as a voluntary information disclosure can therefore, in line with presented theory, provide a basis to reduce information asymmetry between the firm’s management and its shareholders. In Sweden, reporting of sustainability information is currently voluntary, but a government bill is expected to be presented to the parliament during 2016 (Regeringskansliet 2014).

2.2.1 Opposing Views on the Value of CSR and Sustainability Reporting

According to different scholars, CSR activities and SR can, from the perspective of the firm’s shareholders, be viewed as either value creating or value destroying. Scholars that advocate a positive impact of working with CSR argue that by including sustainability in the operations, companies assume a more long-term focus where a sustainable growth and development is desirable, and where interest is shown to all stakeholders (Global Reporting Initiative 2013, Deegan, Unerman 2011). According to De Beelde and Tuybens (2015), a failure to address sustainability issues can potentially lead to long-term investment risks that are harmful for the company’s both present and potential future investors. Therefore, reporting that address the way the firm is managing its CSR activities can be argued to provide information regarding how the firm responds to its long-term risks, and thus be of importance for, not only the firm’s shareholders, but also other stakeholders. In contrast to these perceived benefits of SR, other scholars argue instead that there is no clear connection between CSR and performance. According to these opinions, working with sustainability constitutes only an additional expense, without corresponding added value for the firm or its shareholders (Baron et al. 2011, Wagner et al. 2002). Friedman (2007) further argue that the only social responsibility that companies should

consider is to increase its profits, and should therefore neither allocate resources on sustainability issues nor SR. In our thesis, we aim to investigate how CSR is affecting the information asymmetry between owners and management and therefore assumes the position that CSR information is relevant for investors.

2.2.2 Developments within the Reporting Practice

In recent years, an increasing number of companies have chosen to include their CSR report within the annual report. This concept, labeled *integrated reporting*, has according to Eccles and Krzus (2010), two interpretations. The first, and also the narrowest, interpretation is that the integrated report is one, single, document with both financial and non-financial information, which communicates that the company is taking a holistic approach to all stakeholders' interest, whether they complement or compete against each other. The second interpretation indicates that the company reports its financial and non-financial information in a manner that also presents their influence on each other, such as how the performance within CSR affects the financial performance, and vice versa (Eccles, Krzus 2010). Overall thus, the idea of integrated reporting is to present more than a static document, by providing more comprehensive information regarding interests of both shareholders and other stakeholders (Eccles et al. 2012). Underlying reasons for publishing a CSR report, integrated or separate, varies depending on the organization, yet common reasons are found to include; meeting investor's demand for information, improving company reputation, assessing risks more effectively and demonstrating an ethical statement for all stakeholders (Simnett et al. 2009, De Beelde, Tuybens 2015, Sethi et al. 2015). Regardless of the objective for publishing the report, its effectiveness is dependent on the information's perceived and actual credibility. Due to an increased use of the reports as marketing tools, so called *green washing*, the question regarding the reports' accuracy and reliability, together with the corporation's accountability, has grown further (Perego, Kolk 2012, Global Reporting Initiative 2013).

One step in order to induce confidence and establish a harmonized manner to present SR is the formation of reporting standards. The development is congruent with a demand for higher credibility of the reported sustainability information together with a lower information asymmetry, further indicating the importance of reliability to the shareholders (Healy, Palepu 2001). Two commonly referred to standards are the *Integrated Reporting framework*, <IR>, and

the *Global Reporting Initiative* (GRI). While <IR> is limited to integrated reports, GRI can be applied on both integrated and separate reports. Earlier research has shown that GRI is the globally most applied reporting standard (Junior et al. 2014). The objective of this standard is to increase the organizations' reporting transparency and obtain a sustainable economy, where organizations manage their environmental, social and governance issues (Global Reporting Initiative 2013). GRI's supporting principles of transparency, completeness, relevance and auditability strongly represent these objectives. Since more resources and efforts are required in order to provide a report that is compliant with a standard, applying the standards can therefore, as in the discussion regarding SR, be viewed as either a way to increase trustworthiness in the disclosed information or constitute an unwanted cost.

2.3 Sustainability Reporting Assurance

As a further step to reduce information asymmetry, third-party assurance practices are becoming more common. An assurance of the report implies that an independent external party accepts to verify that the report's disclosures follow the reporting standard that the company has applied and that the information is trustworthy (Global Reporting Initiative 2013). The assurance process requires supporting evidences for statements presented in the CSR report, and in case these statements are not coupled to operations, a positive assurance statement should not be attainable (CorporateRegister.com 2008). The definition of sustainability reporting assurance (SRA), presented by International Federation of Accountants (IFAC), is "an assurance in which a practitioner expresses a conclusion designed to enhance the degree of confidence of the intended users other than the responsible party about the outcome of the evaluation or measurement of a subject matter against criteria" (Internal Auditing and Assurance Standards Board 2012, p. 16).

2.3.1 Increased Confidence in Sustainability Information

The largest perceived benefit of SRA is, as mentioned, the increase of confidence and reliability that the verification provides (Simnett et al. 2009, Kolk, Perego 2010, De Beelde, Tuybens 2015, Moroney et al. 2012). The increased credibility of the report has importance both internally for management and for the external users of the report (Simnett et al. 2009, Kolk, Perego 2010, De Beelde, Tuybens 2015, Ferreira Gomes et al. 2015). For internal use, information with higher credibility is more likely to be applied in decision-making, and the assurance process can assist in confirming whether internal methods and systems are robust or in need of improvements (Global

Reporting Initiative 2013). Also external users, such as financial analysts and investors, perceive a greater credibility of reports with assurance than of those without (De Beelde, Tuybens 2015). Further supporting this reasoning, Moroney et al. (2012) find that SRA is positively associated with a higher level of SR quality and additionally, the earlier mentioned issue of green washing can, by the use of SRA, be reduced.

Voluntary disclosure assurance and its relationship with agency theory and information asymmetry was first explored by Chow (1982), who demonstrate that agency costs are positively related with the adoption of a voluntary assurance statement. Research has then strengthened this argument and claims that one of the main factors driving firms in providing voluntary disclosure is the desire to reduce agency costs, together with addressing various information requests made by investors and analysts (Dong, Stettler 2011). Ruhnke and Gabriel (2013) add to the research field by providing evidence for the usefulness of stakeholder-agency theory also within the context of SR, and conclude that agency costs provides an underlying reason for the decision to seek voluntary assurance also on CSR reports. Furthermore, since purchasing an assurance from an external party constitutes an upfront cost for the organization, companies can be assumed to accept this cost only if the related benefits are perceived as greater than the cost itself (Simnett et al. 2009). By using SRA, the firm's agency costs are indeed reduced and the perceived confidence in the reported sustainability information is improved (Simnett et al. 2009).

2.3.2 Inconsistencies that Questions the Perceived Value

The two most prominent types of assurance providers are auditors and consultants, even though other providers such as engineering firms and non-governmental organizations also compete on the SRA market. Both international and national assurance standards and frameworks have been developed for the process of SRA, where the two most prominent international standards are the *AA1000AS* and the *ISAE3000* (Peters, Romi 2014). Some scholars consider *AA1000AS* to be more prominent among consultants, whereas *ISAE3000* is more prominent among the assurances conducted by auditors (Junior et al. 2014), yet other argue that there are overlaps and combinations of the two standards (Peters, Romi 2014). In the case of the Swedish market, the industry association for auditors, *FAR*, has developed the national standard *RevR6* for overall assurance of sustainability reports (FAR 2016).

In line with presented critique regarding SR, some academics also argue against the perceived benefits of SRA. The absence of an established generic standard for the process of SRA makes the scope and methodology of the assurance differ between the engagements. This variation leads to an undermining of the increased credibility from the assurance, together with a weaker corporate accountability (Deegan et al. 2006). The argued reason companies would apply SRA, despite the absence of increased credibility, is the organizations' willingness to follow external pressure to improve legitimacy. Furthermore, the critique argues that there could also be a discrepancy between the objective of the assurance provider and the objective of the firm. The firms potentially apply the assurance in order to present practices and actions that meet their commercial objectives, while the assurance providers may be primarily concerned with increasing their business. The argued uncertainty could potentially, therefore, enable the user of the report to assess whether the credibility of the information is increased or not (Perego, Kolk 2012, Deegan et al. 2006).

2.4 Institutional Investors' Relation to Sustainability

The role of institutional investors has over the last few years increased as these investors' ownership and influence have grown steadily. In recent years, they are shown to have large holding positions within numerous companies in various countries (Kane, Velury 2004, Sjöström 2010). Globally, this group of investors is interested in high returns on their investments, yet is also increasingly assuming a long-term perspective, making sustainable investments and taking CSR issues into account (Christofi et al. 2012). Also on the Swedish market, research has identified that institutional owners are, through an active ownership, placing increased pressure on their holding companies to improve transparency and openness regarding CSR issues (Sjöström 2010). Four of the Swedish national pension funds founded the *Ethical Council* in 2007, where they together aim to increase the members' consideration of CSR issues (Etikrådet 2016). The UN initiated in 2006 the *Principles for Responsible Investments* (PRI), which aims to further increase investors' understanding of the relevance of CSR issues and long-term stability of the market (Principles for Responsible Investment 2016). As of March 2015, 50 Swedish asset owners, investment managers and professional services partners are registered within this initiative and the country's representation has increased over the last years, showing that the

interest for sustainability among Swedish investors is growing (Principles for Responsible Investment 2016).

Shareholders can influence management through various manners, either by voting or issuing shareholder proposals at the annual general meeting, making investment decisions regarding purchasing and selling shares of the company or through internal dialogue with management in shareholder-management meetings (Glac 2010, Sjöström 2010, Renneboog 2000).

The owners' role in relation to management can further be used to influence the firm's operations and reporting practices. Institutional investors are identified to be positively associated with an increased level of voluntary disclosure and the choice of high quality financial auditing (Kane, Velury 2004). As a result of the institutional investors' large holdings, this group of investors possesses a high potential to influence management, which can be used to monitor management by corporate governance practices. The dialogue between the owners and management is further found to be a continuing process (Glac 2010, Kane, Velury 2004). This internal dialogue could indicate that the need for external assurance is not as required for the large institutional investors as for smaller, individual shareholders.

2.5 Previously Identified Factors

The majority of earlier research within the field of SRA has analyzed issues such as the objective, timing and scope of SRA, the relationship between assurer and assured, and the reporting criteria in the SRA process (Castelo Branco et al. 2014). Research has, further, also focused on factors influencing the choice of which type of assurer to employ (De Beelde, Tuybens 2015). Gillet (2012) argue however that research focusing on identifying factors explaining the decision of applying SRA is yet at an early stage. Therefore, this recent field of research is still very interesting for examination and calls for further understanding of factors affecting the decision.

Previous studies have attempted to identify determining characteristics that are country, industry and company specific on samples ranging from a single nation to a global level (Kolk, Perego 2010, De Beelde, Tuybens 2015, Castelo Branco et al. 2014, Gillet 2012, Ruhnke, Gabriel 2013, Sethi et al. 2015, Dong, Stettler 2011). In the study by Kolk and Perego (2010), the 250 largest global companies are examined and the authors conclude that national-specific variables, such as stakeholder orientation and governance enforcement regime are associated with the choice of

SRA. Furthermore, they find the variable of employing one of the Big 4² as financial auditor to have impact on the adoption of SRA and, together with various other studies, that the company's size is highly associated with the decision (Simnett et al. 2009, De Beelde, Tuybens 2015, Kolk, Perego 2010, Ruhnke, Gabriel 2013, Sethi et al. 2015).

Peters and Romi (2014) introduce the issue of corporate governance within the field of SRA by investigating whether sustainability focused corporate governance factors affect the choice of SRA and SRA assurer. The study shows that certain variables within the corporate governance, especially the composition of the board of directors and the existence of sustainability expertise among the directors, have influence on both the choice of SRA and type of assurer. Peters and Romi (2014) further also consider majority ownership by institutional investors as a dummy variable and find a positive association to the probability of adopting SRA. The issue of ownership is further raised by Castelo Branco et al. (2014), who examine if there is a relationship between ownership structure and the choice of SRA by looking at whether being a state-owned or privately owned company in Portugal influences the decision, yet do not find any significant result.

De Beelde and Tuybens (2015) examine the ownership concentration within a company by focusing on the size of the largest shareholder and hypothesize that a more diffused ownership structure requires a high quality assurance provider. The authors find that ownership concentration is higher for firms that apply SRA than for the ones that do not. Accordingly, these earlier findings indicate preliminary evidence of a relationship between the ownership structure of a firm and the choice of SRA. A further overview of previously identified factors together with this thesis' contributions to the research field are presented in a summary table in appendix 1.

² The Big 4 constitutes of the four accounting firms; Deloitte, EY, KPMG and PwC.

3. HYPOTHESES

Following the theoretical background and previous research, we have formulated our hypotheses in order to better understand a firm's choice to adopt SRA. Firm specific variables affecting the choice of SRA have, as presented, been partly studied by earlier research however, as we argue, the effects from ownership structure have only been lightly explored. SR and SRA can, from a theoretical perspective, be argued to decrease information asymmetry between a firm's owners and its management. Further, institutional investors are gaining power on the investment market and have also increased their interest in sustainable investments (Christofi et al. 2012, Kane, Velury 2004, Sjöström 2010). Since a decreased information asymmetry is preferred, SRA can become an important tool for these investors in assessing the reliability of the CSR reports. With increased ability to affect management, a higher level of institutional ownership can therefore, on the one hand, indicate a higher level of SRA usage. On the other hand, influential owners can potentially have their own representative on the board of directors or obtain information through direct dialogue with management (Glac 2010, Kane, Velury 2004), and thereby decrease the demand for SRA. This tension leads us to the following hypothesis:

H1: *Institutional ownership has an impact on the choice of SRA.*

In the absence of any shareholder agreement, or similar contracts, a voting power of 50 percent is usually seen as the threshold for when an individual owner has control over a company (IFRS Foundation 2014a, Picker et al. 2013). The same argumentation is also in accordance with the Swedish Companies Act, which only has a few exceptions for when a higher voting percentage is needed for decisions at the annual general meeting (Munck 2016). Following the same argumentation as previous hypothesis, a majority owner has the necessary power to enforce SRA, but may also have the ability to receive information through unofficial channels. Hence, to further examine the relationship between owners' influence and the decision to use SRA, the following hypothesis is formulated:

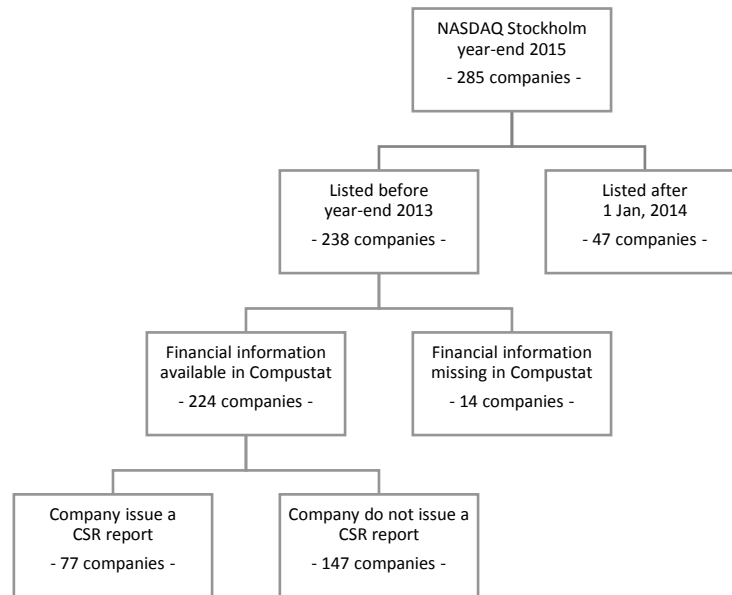
H2: *Having a majority owner has an impact on the choice of SRA.*

4. RESEARCH DESIGN

The population selected for our study is the listed companies on the Stockholm Stock Exchange, NASDAQ Stockholm (small, mid and large cap), at year-end 2013. The limited geographical extension of the sample enables us to control for country-level differences identified in previous research, such as impacts of being a common law or code law country (Kolk, Perego 2010, Simnett et al. 2009, De Beelde, Tuybens 2015). As also mentioned, the Swedish government was the first administration in the world to make it a mandatory requirement for the state-owned firms to publish a CSR report and in general, the country is recognized as proactive within the field of sustainability (Government Offices of Sweden 2015, Park, Brorson 2005). This leading position indicates that a study within sustainability in the Swedish context may result in findings that are also of interest for other countries (Park, Brorson 2005). In line with earlier studies (De Beelde, Tuybens 2015, Gillet 2012, Ruhnke, Gabriel 2013), our sample is based on CSR reports concerning the most recent year with obtainable data. Thus, our study is conducted using exclusively CSR reports concerning the financial years ended in 2014. Using multiple years for the sample would potentially create problems with autocorrelation, due to the fact that the choice to produce a CSR report and to have it assured is steady over time (Simnett et al. 2009). We identify a CSR report as either a stand-alone report containing sustainability information, a separate section within the annual report that represents at least 10%³ of the total report or as reported in accordance to a sustainability reporting standard. The firms that present the exact same information in a separate report as in the annual report are considered to be using integrated reporting.

³ In order to be categorized as a *sustainability report*, we consider that the sustainability section needs to constitute at least 10% of the total annual report. In this manner we assure that the preparation of the sustainability report has required a sufficiently amount of resources to not be a pure marketing technique. Other approaches to define a sustainability report may exist.

FIGURE 1
Number of Observations for Analysis



4.1 Data Collection

The CSR reports are collected from the entities' webpages and merged with corporate and ownership information gathered from the databases *Holdings* and *Compustat*. Because of difficulties in receiving a credible report of listed companies at year-end 2013, we extract the list as of year-end 2015. Of the initial sample of 285 companies, 47 are excluded as they were listed after 1 Jan 2014, and subsequently not a listed company during the time period of this study.

Holdings contain ownership and corporate governance information for companies listed in Sweden. The ownership data for companies registered in Sweden comprise of a complete list of the so called *large shareholders*, by *Holdings* defined as a legal owner with minimum 500 shares, or as an individual with minimum 500 shares which also represent at least 0.1% of the total voting rights. For companies registered outside of Sweden, *Holdings* only provide a list of the large Swedish shareholders. This limitation might have potential effects for the recognition of majority ownership, however does not present a concern for measuring the influence of the Swedish institutional investors considered in our study. The available information in *Holdings* is limited to currently listed firms, and therefore our sample disregards potential firms that were

listed at the time of the sample period but have been de-listed since. The ownership data is merged with the financial data gathered from Compustat, which provides financial, market and statistical information for companies globally. The merging of information is conducted on the basis of the company's name. Following the merge, we perform extensive checks in order to assure that the combination is done correctly. Regardless of the extensive coverage of Compustat, 14 companies are excluded due to lack of available information. Finally, 147 companies are excluded from the sample since they did not publish a CSR report concerning 2014, leaving us with a final sample of 77 companies listed in Sweden⁴.

The credibility and reliability of accounting data of quantitative research, especially in the existence of extreme or unreasonable values, is questioned by Lev and Sunder (1979). Because of difficulties in statistically determining which observations should be labeled as outliers, a common method is plotting the data and conducting an ocular inspection (Woolridge 2008). During this procedure we did not detect any obvious erroneous observations or outliers.

4.2 Regression 1

Similar to previous research (Kolk, Perego 2010, Simnett et al. 2009, Peters, Romi 2014, Castelo Branco et al. 2014, De Beelde, Tuybens 2015), we use logistic regressions⁵ in this study. The advantages of a logistic regression, compared to a linear one, are that the dependent variable is a binary number that assumes the value of either 0 or 1, instead of an otherwise infinitive value. Furthermore, logistic regressions are usually preferred for accounting purposes, as they do not require the underlying assumptions of multivariate normality for the independent variables. These assumptions are usually violated within accounting, which can create issues in a linear model (Richardson and Davidson 1983).

⁴ Our obtained number of published CSR reports is not consistent with the figures presented by King and Bartels (2016). This variance can potentially be due to different definitions of a *Swedish company*, where we only consider firms listed on the small, mid and large cap on NASDAQ Stockholm.

⁵ For additional information regarding logistic regressions we recommend other literature focusing on econometrics, for example Woolridge (2008).

The following regression is constructed to test the relationship between SRA and the independent variables, assuming a linear relationship of the log odds of applying SRA and total institutional ownership.

$$SRA_{i,t} = \alpha + \beta_1 \cdot INSOWN_{i,t-1} + \beta_2 \cdot NBR_INSOWN_{i,t-1} + \beta_3 \cdot MAJOWN_{i,t-1} + \beta_4 \cdot INTEG_{i,t} + \beta_5 \cdot INDUSTRY_{i,t-1} + \beta_6 \cdot ROA_{i,t-1} + \beta_7 \cdot SIZE_{i,t-1} + \beta_8 \cdot BSIZE_{i,t-1} + \beta_9 \cdot LEVERAGE_{i,t-1} + \varepsilon_{i,t}$$

TABLE 2
Variable Descriptions,
Regression 1

Variables	Definitions
<i>SRA</i>	1 if the company has an assured CSR report, 0 otherwise
<i>INSOWN</i>	Total institutional ownership as percentage of votes
<i>NBR_INSOWN</i>	Number of institutional investors which own shares in the company
<i>MAJOWN</i>	1 if the largest shareholder owns more than 50% of the votes, 0 otherwise
<i>INTEG</i>	1 if the company uses integrated reporting for its CSR report, 0 otherwise
<i>INDUSTRY</i>	1 if the company belongs to one of the industries identified as risk-exposed from a sustainability perspective, 0 otherwise
<i>ROA</i>	Return on assets, calculated by dividing the earnings before interest and taxes (EBIT) with the average total assets for the last two years
<i>SIZE</i>	The natural logarithm of total assets
<i>BFSIZE</i>	Number of people serving on the board of directors
<i>LEVERAGE</i>	The fraction of total debt divided by total assets

4.2.1 Dependent Variable

SRA is a binary variable which assumes the value 1 if company *i* has any form of assurance of its CSR report, and 0 otherwise. Hence, in the determination of SRA we do not make any distinction between if auditors or consultants conduct the assurance, nor if the degree of assurance is considered to be *reasonable* or *limited*⁶. Reviews that only confirm compliance to applied SR standard is not considered to be a SRA, as it does not provide statement on the disclosed information's reliability. Integrated reports require an assurance concerning specifically the sustainability information, as the audit of financial statements does not include these sections of the annual report.

⁶ A *reasonable assurance* aims to contribute a high, but not absolute, level of assurance while a *limited assurance* refers to a more moderate level of assurance (Gillet 2012).

4.2.2 Institutional Investors

The term *institutional investor* has many interpretations, ranging from including all corporations to only incorporate a handful of them (Sjöström 2010). In the classification of institutional investors, we use the members of the group *Institutionella ägares förening för regleringsfrågor på aktiemarknaden*. The group embodies the Swedish institutional sphere, which in 2012 consisted of 15 members with combined investments of 800 billion SEK in Swedish listed companies, representing approximately 20% of the Swedish market capitalization. Due to lack of available data, the identification of institutional investors is based on the composition of the group in 2012 (Fristedt, Sundqvist 2009, IÄF 2012). The composition is, however, not expected to have changed from this date to the end of 2013, when ownership data for this study is assessed. Due to difficulties in merging the names of the institutional owners with the data extracted from Holdings, we include 2 different investors under the names of *Länsförsäkringar* and *Skandia*. See appendix 2 for a complete list of the owners classified as institutional investors.

The variable *INSOWN* measures the summation of percentage of ownership within each company that is controlled by parties identified as institutional. In accordance with IFRS 10's definition of control, the measure of ownership is denoted as the number of voting rights associated with shares owned by a party, divided by the total amount of existing voting rights (IFRS Foundation 2014b). The definition of control can however also be defined in terms of percentage of total capital, which may indicate that the variable can be sensitive to how control is measured. This sensitivity risk is further discussed in our robustness tests. The ownership data is collected from Holdings per December 31, 2013, in order to allow for some time to pass from the owners' ability to influence management to the potential introduction of SRA concerning the financial years ending in 2014. This practice is consistent with the study of Peters and Romi (2014).

As mentioned, *INSOWN* represents the summation of total institutional ownership, but the size of the individual ownership may also affect the amount of influence an owner has. A higher number of institutional owners indicate that each investor holds an, in relation, lower ownership share. A more dilute ownership structure may increase agency costs, which would increase the benefits of using SRA. Having a lower ownership portion can also reduce the owner's ability to influence management to introduce SRA, which hence could affect the decision negatively. To control for

these potential conflicting effects, the variable *NBR_INSOWN* is included in our model, representing the number of individual institutional owners who own shares in company *i*.

4.2.3 Majority Ownership

In the absence of any shareholder agreement or other specific restrictions, as previously explained, holding more than 50% of the votes in a company is considered to have control (IFRS Foundation 2014a, Picker et al. 2013). In order to account for the case where one owner, institutional or non-institutional, has self-sufficient control over company *i*, the dummy variable *MAJOWN* is included in the regression. We expand the approach from Peters and Romi (2014) and Beelde and Tuybens (2015), which only separately test for majority ownership from institutional investors and the largest shareholder, by considering both institutional investors and other types of owners that own more than 50% of the votes.

4.2.4 Control Variables

A previously unexplored control variable, yet interesting from an empirical perspective, is the usage of integrated reporting. Integrated reporting represents, as earlier described, the recent development within SR. In the global ranking, Sweden currently holds the fifth place of number of integrated reports among the 100 largest national companies (King, Bartels 2016). We argue that the firms applying this concept are taking a leading position within SR, and therefore would also be more prone to adopt the usage of SRA. In order to separate the potential effect from the usage of an integrated report on the decision to apply SRA, the dummy variable *INTEG* is comprised in the model.

We further include variables that control for industry and firm specific characteristics identified in earlier research. Specific industries are identified as having a negative impact on the environment, and as a consequence would therefore have a higher degree of SR and SRA in order to legitimize their operations. Consequently, we include the dummy variable *INDUSTRY*, based on the companies' reported SIC codes, to distinguish the effect of operating in one of these industries. Previous literature defines the sensitive industries as construction and materials, financials, oil and basic materials, utilities, technology and telecommunications (Simnett et al. 2009, Kolk, Perego 2010, Sierra et al. 2013, Ruhnke, Gabriel 2013). In addition to the industry we include firm specific financial variables for return on assets (*ROA*), size (*SIZE*) and leverage

(*LEVERAGE*). *ROA* is calculated in accordance with White et al. (2003) and is used as a measure for profitability, since earlier research have found a positive correlation between SRA and profitability (Simnett et al. 2009, Castelo Branco et al. 2014, Kolk, Perego 2010, Peters, Romi 2014, De Beelde, Tuybens 2015). Also *SIZE*, measured as the natural logarithm of total assets, has previously been identified to have a positive association with the adoption of SRA (Simnett et al. 2009, Kolk, Perego 2010, De Beelde, Tuybens 2015, Ruhnke, Gabriel 2013, Sethi et al. 2015). Leverage has in earlier research been identified as a variable affecting the choice of SRA, though the leverage ratio's impact on the assurance decision has varied (Simnett et al. 2009, Peters, Romi 2014, Ferreira Gomes et al. 2015, Sierra et al. 2013). Consistent with the studies of Peters and Romi (2014) and Gillet and Martinez (2011), which show that larger board of directors has higher influence on management, we include the variable *BFSIZE*, measured as the number of individuals serving on the board. Kolk and Perego (2010) identify a relationship between using one of the Big 4 accounting firms as financial auditor and the decision to apply SRA. All the firms in our sample employ one of the Big 4 as auditor for the financial statements, and consequently this variable is omitted in our tests. An overview of the control variables applied in our model together with our contributions to the field of research is presented in appendix 1.

4.3 Regression 2

Because of the limited research previously conducted on the relationship between SRA and institutional investors, it is necessary to investigate both potential linear as well as non-linear relationships between the change in the log odds of applying SRA and different levels of institutional ownership. In order to control for a non-linear relationship, the variable *INSOWN* is divided into four quartiles represented by four dummy variables. Quartile 1 (*INSOWN_Q1*) represents the lowest level of institutional ownership, and therefore also the base for the regression, while quartile 4 (*INSOWN_Q4*) represents the highest level. In other aspects regression 1 and 2 are identical. Therefore, in order to further test the relationship between SRA and the presented independent variables, the following model is formed:

$$\begin{aligned}
SRA_{i,t} = & \alpha + \beta_1 \cdot INSOWN_Q2_{i,t-1} + \beta_2 \cdot INSOWN_Q3_{i,t-1} + \beta_3 \cdot INSOWN_Q4_{i,t-1} + \beta_4 \\
& \cdot NBR_INSOWN_{i,t-1} + \beta_5 \cdot MAJOWN_{i,t-1} + \beta_6 \cdot INTEG_{i,t} + \beta_7 \\
& \cdot INDUSTRY_{i,t-1} + \beta_8 \cdot ROA_{i,t-1} + \beta_9 \cdot SIZE_{i,t-1} + \beta_{10} \cdot BSIZE_{i,t-1} + \beta_{11} \\
& \cdot LEVERAGE_{i,t-1} + \varepsilon_{i,t}
\end{aligned}$$

TABLE 3
Variable Descriptions,
Regression 2

Variables	Definitions
<i>INSOWN_Q1</i>	1 if the company belongs to the first quartile based on the total percentage of votes owned by institutional investors, 0 otherwise
<i>INSOWN_Q2</i>	1 if the company belongs to the second quartile based on the total percentage of votes owned by institutional investors, 0 otherwise
<i>INSOWN_Q3</i>	1 if the company belongs to the third quartile based on the total percentage of votes owned by institutional investors, 0 otherwise
<i>INSOWN_Q4</i>	1 if the company belongs to the fourth quartile based on the total percentage of votes owned by institutional investors, 0 otherwise

The definitions of the other variables can be found in table 2. More detailed information regarding the ownership holdings within the different quartiles in the model is presented in appendix 3.

5. RESULTS AND ANALYSIS

Our findings from the two regressions are presented below. First, descriptive data regarding the explanatory variables and the control variables are analyzed. Then, the results of the two regressions are presented and considered from the perspective of our defined hypotheses.

5.1 Results of Content Analysis

Out of our sample of 77 firms, a total of 27 (35.1%) have their CSR reports assured, showing that the majority do not apply SRA. Out of these assurances, consultancy firms conduct 4 (14.8%) while the Big 4 accounting firms conduct 23 (85.2%), indicating that the Big 4 dominates the SRA market in Sweden. Out of the assurance statements, 2 (7.4%) are labeled *partial assurance*, where only certain defined areas in the report are reviewed and verified. 69 firms (89.7%) use GRI as SR standard while 8 firms (10.3%) do not use any SR standard. No case of firms using <IR> or other standard is found in the sample. Among the firms that apply SRA, all use GRI. This finding confirms earlier research that GRI is the most applied SR standard (King, Bartels 2016, De Beelde, Tuybens 2015).

5.1.1 Explanatory Variables

TABLE 4
Descriptive Information,
Main Tests

Explanatory variables	SRA	Obs.	Mean	Std. Dev.	Min.	Max.
<i>INSOWN</i>	1	27	0.159	0.092	0.019	0.421
	0	50	0.137	0.098	0.006	0.496
<i>NBR_INSOWN</i>	1	27	13.778	3.984	3.000	17.000
	0	50	11.140	3.648	2.000	17.000
<i>MAJOWN</i>	1	27	0.185	0.396	0.000	1.000
	0	50	0.140	0.351	0.000	1.000

SRA equals 1 for the companies that have an assured CSR report, 0 otherwise

Descriptive information regarding the explanatory variables is presented in table 4 and for the control variables in table 5. In total, institutional ownership within the companies in the sample that issue a CSR report vary from 0.6% to 49.6% of the votes. Thus, institutional investors are present in every company, but do not have a direct majority in any. On average, institutional

ownership is 15.9% of the votes in the firms that apply assurance and 13.7% in the companies that do not. The average number of institutional investors in the firms applying SRA is 14 while the corresponding number for the firms that do not apply SRA is 11. In addition, 12 firms have a majority owner and out of these, 5 (41.7%) firms apply assurance.

5.1.2 Control variables

TABLE 5
Descriptive Information,
Main Tests

Control variables	SRA	Obs.	Mean	Std. Dev.	Min.	Max.
<i>INTEG</i>	1	27	0.556	0.506	0.000	1.000
	0	50	0.520	0.505	0.000	1.000
<i>INDUSTRY</i>	1	27	0.481	0.509	0.000	1.000
	0	50	0.380	0.490	0.000	1.000
<i>ROA</i>	1	27	0.082	0.067	0.014	0.362
	0	50	0.092	0.064	-0.004	0.346
<i>SIZE</i>	1	27	11.244	1.814	7.945	15.535
	0	50	9.175	1.577	5.885	12.751
<i>BFSIZE</i>	1	27	8.481	1.929	5.000	12.000
	0	50	7.000	1.471	4.000	10.000
<i>LEVERAGE</i>	1	27	0.239	0.147	0.000	0.567
	0	50	0.174	0.157	0.000	0.633

SRA equals 1 for the companies that have an assured CSR report, 0 otherwise

Approximately half the sample reports their CSR information using an integrated reporting approach, though it has a slightly larger proportion among the companies applying SRA, with an average value of 55.6% compared to 52.0%. In addition, among the firms applying SRA a similar proportion (48.1%) are classified as operating within one of the sensitive industries, where the corresponding number for the other firms is 10 percentage points lower, at 38.0%. *ROA* is on average lower among the firms applying SRA than the ones that do not. Despite this lower average, the firms applying SRA have both higher minimum as well as maximum levels of *ROA*. *SIZE* is remarkably larger for the firms with assurance, and the average *BFSIZE* is approximately one position larger in the assuring firms than in the non-assuring. Furthermore, the average *LEVERAGE* is slightly higher for the companies that apply SRA.

5.2 Results of Regression 1

As can be seen in the results of regression 1, *INSOWN* is significant on the 5% level and has a high, positive coefficient. The result of *INSOWN* shows that an increased level of institutional ownership provides a greater probability that the firm applies SRA. The result of *NBR_INSOWN* and *MAJOWN* are not significant. *NBR_INSOWN* is, however, just outside the threshold of 10%, indicating that the variable might still be slightly relevant for the decision. The results from regression 1 are shown in table 6 below.

Pseudo R ²	0.348		
Chi ² (Sign.)	22.250	(0.008)	
Classification rates (overall %)	77.92%		
Variables	Coefficient	Std. Err.	p value
Constant	-16.330 ***	3.621	0.000
<i>INSOWN</i>	6.637 **	3.014	0.028
<i>NBR_INSOWN</i>	-0.235	0.148	0.113
<i>MAJOWN</i>	0.854	0.858	0.320
<i>INTEG</i>	-0.023	0.724	0.975
<i>INDUSTRY</i>	-0.770	0.868	0.375
<i>ROA</i>	10.591 *	6.146	0.085
<i>SIZE</i>	1.374 ***	0.387	0.000
<i>BSIZE</i>	0.351 *	0.207	0.089
<i>LEVERAGE</i>	1.510	2.311	0.513
* Significant on the 10% level (two-tailed)			
** Significant on the 5% level (two-tailed)			
*** Significant on the 1% level (two-tailed)			

Other than *INSOWN*, the control variables *ROA* (0.09), *SIZE* (0.00) and *BSIZE* (0.09) are found statistically significant and positively associated with the choice of SRA. Consequently, a higher profitability and a higher number of positions within the board of directors are, in line with earlier research, shown to be positively associated with the choice of SRA (Simnett et al. 2009, Kolk, Perego 2010, De Beelde, Tuybens 2015, Peters, Romi 2014, Gillet, Martinez 2011, Castelo Branco et al. 2014). The positive result of *SIZE* is also in line with earlier studies (Simnett et al. 2009, Kolk, Perego 2010, De Beelde, Tuybens 2015, Ruhnke, Gabriel 2013, Sethi et al. 2015). *INTEG* is strongly insignificant and its coefficient is very low. The expectation that being a leader in SR would lead to a higher level of SRA is consequently not confirmed.

5.3 Results of Regression 2

In order to further investigate the relationship between the level of institutional ownership and the choice of SRA the regression is, as explained, adapted to separate the total institutional ownership into quartiles. The results are presented in table 7.

Pseudo R ²	0.362		
Chi ² (Sign.)	26.620 (0.005)		
Classification rates (overall %)	76.62%		
Variables	Coefficient	Std. Err.	p value
Constant	-15.940 ***	3.561	0.000
<i>INSOWN_Q2</i>	0.021	1.188	0.986
<i>INSOWN_Q3</i>	1.302	0.950	0.170
<i>INSOWN_Q4</i>	1.762 *	1.040	0.090
<i>NBR_INSOWN</i>	-0.191	0.139	0.170
<i>MAJOWN</i>	1.192	0.964	0.216
<i>INTEG</i>	-0.091	0.759	0.904
<i>INDUSTRY</i>	-0.815	0.954	0.393
<i>ROA</i>	11.667 **	5.575	0.036
<i>SIZE</i>	1.331 ***	0.391	0.001
<i>BSIZE</i>	0.298	0.213	0.161
<i>LEVERAGE</i>	1.703	2.650	0.520
* Significant on the 10% level (two-tailed)			
** Significant on the 5% level (two-tailed)			
*** Significant on the 1% level (two-tailed)			

In regression 2, the first quartile represents the base for the institutional ownership and the results of the other quartiles are presented in relation to this base case. *INSOWN_Q4*, the fourth and thus highest quartile of institutional ownership, is significant on the 10% level, which further indicates that there exists a relationship between institutional ownership and the probability of using SRA also in this test. The second and third quartiles are insignificant, which may be explained by the fact that these quartiles are closer to the base case in terms of ownership size, and hence may possibly not deviate as much. As the fourth quartile has the largest difference in ownership level in relation to the base case, the level of significance is favored.

ROA and *SIZE* remains significant while *BSIZE* becomes insignificant. The significance of *ROA* increases to the 5% level while *SIZE* remains at the 1% level. For *BSIZE*, the coefficient,

standard error and significance level have changed marginally compared to the obtained levels in regression 1.

5.4 Summary of Main Results

We have above presented the results from the two regressions that test our hypotheses. Our findings suggest that there is a positive relationship between institutional ownership and the probability of using SRA. The relationship is identified both in regression 1, when measuring ownership as total institutional ownership as percentages of votes, and in regression 2, when dividing the ownership into quartiles. In the case of dividing into quartiles, action is identified in the fourth, and thus highest, quartile of institutional ownership. This finding supports the argument that a higher level of ownership provides greater possibility to influence, and thus a higher probability that the owner impacts the choice to apply SRA. A higher number of *NBR_INSOWN* implies, as mentioned, that each owner holds an, in relation, smaller part of the total institutional ownership and therefore has a lower individual influence. *NBR_INSOWN*, though slightly outside the significance level in both regressions, hints of a negative relation to SRA, which suggest that a higher impact from fewer and more influential investors increases the probability that the firm use SRA. This finding is in line with the conclusion of De Beelde and Tuybens (2015), that a higher concentration of ownership is positively associated with an increased probability of applying SRA. The result for *MAJOWN* could hint of a positive, yet not statistically significant, relationship with SRA.

INTEG is strongly insignificant and its coefficient is very low. This result is opposite to the empirical argument that the usage of this more recent method of presenting SR would positively impact the choice of SRA. On the contrary to expected, the non-result of *INTEG* suggests that using integrated reporting has no impact on the probability that the firm applies SRA. Furthermore, the results of the control variables *ROA*, *SIZE* and *BFSIZE* show a positive relationship with the choice of SRA. These findings are in accordance with earlier research's results that firms that are more profitable and larger are also abler to absorb the additional cost of the assurance and therefore is positively associated with SRA (Simnett et al. 2009, De Beelde, Tuybens 2015, Ruhnke, Gabriel 2013, Kolk, Perego 2010, Sethi et al. 2015). Our findings also confirm that a larger board of directors has an increased influence on management (Peters, Romi

2014, Gillet, Martinez 2011). For the remaining control variables, no supporting evidence is obtained.

In order to assess the usefulness of our regressions, we have used a classification rate that presents how many of the firms that would, based on the suggested models, be correctly classified as applying SRA or not⁷. The classification test shows high levels of correctly classified firms in both regressions, with an accuracy of 77.92% in the first regression and 76.62% in the second. The first regression, where ownership is measured as total percentage of votes, show the highest level of correctly classified firms, and is therefore identified to be the most accurate model from our main tests.

⁷ The classification rate shows the effectiveness of the model. More precisely, it shows the percentage of firms that are correctly identified or rejected against the firms that are incorrectly identified or rejected.

6. ADDITIONAL TESTS

In our main tests, ownership structure is addressed from the aspect of agency theory, where the theory provides guidance that SRA can be applied to decrease information asymmetry between a firms' management and its owners. From this aspect, our results indicate a positive association between institutional ownership and the probability that the firm adopts SRA. Another manner to address ownership structure is through an empirically motivated approach that instead assumes the owners' identity as point of analysis. Tagesson et al. (2009) and Secchi (2006) argue that there is a difference between the two identities of being state owned or privately owned. Therefore, we suggest an extended, empirically motivated, analysis of the identity of the institutional owners to complement our earlier theoretical approach. The variable of ownership identity is in general not often considered in research regarding SR as most studies are conducted in an Anglo-American context, where state ownership is not common (Tagesson et al. 2009). In Sweden, though, the state has played an important role within the context of SR, and may therefore also have an impact on the choice of SRA (Government Offices of Sweden 2015, Park, Brorson 2005). According to earlier studies within the field, there is a difference in disclosure practices regarding CSR between state and privately owned firms (Tagesson et al. 2009, Secchi 2006). The studies have shown opposing relationships between the ownership identity and the usage of SR (Castelo Branco et al. 2014, Tagesson et al. 2009, Secchi 2006). From the aspect of institutional ownership in a Swedish setting, we therefore find that the issue of ownership identity can be further investigated in the context of SRA.

We categorize the identities of institutional investors in our sample by dividing the investors into public institutional investors (*PUBIIs*) and private institutional investors (*PRIVIIs*). The classification details for the two types are presented in appendix 2. We will discuss two manners in which these identities differ from one another in the context of SRA, however recognizing that further differences may exist. The first identified difference is their marketing positions. *PRIVIIs* need to market themselves towards their clients, the people that choose whether or not to invest in the fund, while *PUBIIs* to some extent are protected from this exposure. The *PUBIIs* in our study constitutes of four of the Swedish national pension funds. These funds have been given the assignment to manage the buffer system for the capital of the national pension system from the Swedish parliament. Therefore, these institutional investors are mandatory for the final client, in

this case the pension savers, in the sense that the clients cannot withdraw their savings or decrease the capital in the fund due to unsatisfactory of the funds sustainability assessments⁸. Consequently, the *PUBIIs* are released from the burden to provide direct evidence of their socially responsible activity to the end client, and could therefore potentially present a lower demand for SRA. Accordingly, *PRIVIIs*' marketing requirement can, relative to *PUBIIs*' position, increase this type of investor's demand of SRA.

The second identified difference between the two types of investors lies in the purpose of the funds. *PUBIIs* can be argued to carry a larger responsibility to provide evidence of socially responsible investments, as the core purpose of the *PUBIIs* is to provide for a better long-term future, and as in the case of Sweden present a good example for other firms (Tagesson et al. 2009). *PRIVIIs* do not naturally carry this core purpose and therefore, providing strong evidence of social responsibility can be considered a voluntary value-adding activity instead of a requirement. Therefore, *PUBIIs* can be argued to have a larger incentive than *PRIVIIs* to influence their holding companies to verify the CSR reports. These empirically motivated opposing arguments create a tension that calls for further examination, in order to investigate whether the two different identities within the institutional investors have different impacts on the firm's adoption of SRA.

6.1 Regression 3

We propose the following model in order to investigate the tension further:

$$\begin{aligned}
 SRA_{i,t} = & \alpha + \beta_1 \cdot PRIVII_{i,t-1} + \beta_2 \cdot PUBII_{i,t-1} + \beta_3 \cdot NBR_INSOWN_{i,t-1} + \beta_4 \\
 & \cdot MAJOWN_{i,t-1} + \beta_5 \cdot INTEG_{i,t} + \beta_6 \cdot INDUSTRY_{i,t-1} + \beta_7 \cdot ROA_{i,t-1} + \beta_8 \\
 & \cdot SIZE_{i,t-1} + \beta_9 \cdot BSIZE_{i,t-1} + \beta_{10} \cdot LEVERAGE_{i,t-1} + \varepsilon_{i,t}
 \end{aligned}$$

⁸ Each year an amount equal to 18.5% of the yearly salary is set-aside for the individual's retirement pension, whereof 16% is reserved for the income pension. The current savings, from the income pension system, for future pensions are used to pay the retirement pensions of today, and any differences are collected or paid out by a buffer system, managed by the *PUBIIs*. The payouts of each individual pension are based on an earnings trend and not on the actual returns of the pension funds. Therefore, positive returns of the funds further increase the capital in the buffer funds. The remaining 2.5% represent the premium pension, which the individual can choose to invest in any of the *PRIVIIs*. Additional information regarding the Swedish retirement pension system can be found at AP2 (2016) and The Swedish Pensions Agency (2016).

TABLE 8
Variable Descriptions,
Regression 3

Variable	Definitions
<i>PRIVII</i>	Percentage of total private institutional ownership
<i>PUBII</i>	Percentage of total public institutional ownership

TABLE 9
Descriptive information,
Regression 3

Explanatory variables	SRA	Obs.	Mean	Std. Dev.	Min.	Max.
<i>PRIVII</i>	1	27	0.137	0.078	0.019	0.355
	0	50	0.124	0.090	0.006	0.451
<i>PUBII</i>	1	27	0.022	0.016	0.000	0.066
	0	50	0.014	0.012	0.000	0.045

SRA equals 1 for the companies that have an assured CSR report, 0 otherwise

The ownership holdings by the two types of institutional investors are presented in table 9. As can be seen, *PRIVII*s have holdings in every firm in the sample and their interest varies from 0.6% to 45.1% of the votes. *PUBII*s have no ownership in 7 of the firms and the largest holding, and thus influence, is on 6.6% of the votes.

The results from regression 3 are presented in table 10 below. The variables *NBR_INSOWN*, *SIZE* and *BFSIZE* are found significant. The earlier achieved significance of institutional ownership is not confirmed when separating the two different types of institutional investors, as both *PRIVII* and *PUBII* are found insignificant. *NBR_INSOWN* is found significant on the 10% level and has a negative sign on the coefficient. This finding is in line with the argument presented in regression 1 and 2, that an increased number of institutional owners representing the total institutional ownership imply that each owner has an, in relation, smaller holding and thus also a smaller possibility to influence management.

TABLE 10
Results,
Regression 3

Pseudo R ²	0.353		
Chi ² (Sign.)	24.310	(0.007)	
Classification rates (overall %)	76.62%		
Variables	Coefficient	Std. Err.	p value
Constant	-15.399 ***	3.253	0.000
<i>PRIVII</i>	3.479	4.877	0.476
<i>PUBII</i>	32.390	33.537	0.334
<i>NBR_INSOWN</i>	-0.258 *	0.156	0.100
<i>MAJOWN</i>	0.826	0.863	0.338
<i>INTEG</i>	-0.029	0.739	0.969
<i>INDUSTRY</i>	-0.688	0.861	0.424
<i>ROA</i>	9.661	6.065	0.111
<i>SIZE</i>	1.308 ***	0.361	0.000
<i>BSIZE</i>	0.367 *	0.214	0.086
<i>LEVERAGE</i>	1.147	2.451	0.640
* Significant on the 10% level (two-tailed)			
** Significant on the 5% level (two-tailed)			
*** Significant on the 1% level (two-tailed)			

6.2 Regression 4

Similar to the main test, we divide the ownership into quartiles in order to open up for potential non-linear relationships that the different sizes of private and public institutional ownerships can have with the log odds of applying SRA. The fourth test that we examine is therefore:

$$\begin{aligned}
 SRA_{i,t} = & \alpha + \beta_1 \cdot PRIVII_Q2_{i,t-1} + \beta_2 \cdot PRIVII_Q3_{i,t-1} + \beta_3 \cdot PRIVII_Q4_{i,t-1} + \beta_4 \\
 & \cdot PUBII_Q2_{i,t-1} + \beta_5 \cdot PUBII_Q3_{i,t-1} + \beta_6 \cdot PUBII_Q4_{i,t-1} + \beta_7 \\
 & \cdot NBR_INSOWN_{i,t-1} + \beta_8 \cdot MAJOWN_{i,t-1} + \beta_9 \cdot INTEG_{i,t} + \beta_{10} \\
 & \cdot INDUSTRY_{i,t-1} + \beta_{11} \cdot ROA_{i,t-1} + \beta_{12} \cdot SIZE_{i,t-1} + \beta_{13} \cdot BSIZE_{i,t-1} + \beta_{14} \\
 & \cdot LEVERAGE_{i,t-1} + \varepsilon_{i,t}
 \end{aligned}$$

A more detailed explanation of the quartile variables, together with information regarding the ownership holdings of the different quartiles of *PRIVII* and *PUBII*, are presented in appendix 4 and 5. The results for regression 4 are shown in table 11.

TABLE 11
Results,
Regression 4

Pseudo R ²	0.433			
Chi ² (Sign.)	26.940 (0.020)			
Classification rates (overall %)	87.01%			
Variables	Coefficient	Std. Err.	p value	
Constant	-19.721	***	4.555	0.000
<i>PRIVII_Q2</i>	3.002	**	1.207	0.013
<i>PRIVII_Q3</i>	4.528	**	1.778	0.011
<i>PRIVII_Q4</i>	4.944	***	1.793	0.006
<i>PUBII_Q2</i>	-3.445	**	1.662	0.038
<i>PUBII_Q3</i>	-2.238		1.425	0.116
<i>PUBII_Q4</i>	-2.248		1.471	0.127
<i>NBR_INSOWN</i>	-0.233		0.156	0.136
<i>MAJOWN</i>	2.319	*	1.375	0.092
<i>INTEG</i>	-0.493		1.031	0.633
<i>INDUSTRY</i>	-1.279		1.070	0.232
<i>ROA</i>	14.871	***	5.112	0.004
<i>SIZE</i>	1.843	***	0.506	0.000
<i>BSIZE</i>	0.167		0.230	0.467
<i>LEVERAGE</i>	0.172		2.916	0.953
* Significant on the 10% level (two-tailed)				
** Significant on the 5% level (two-tailed)				
*** Significant on the 1% level (two-tailed)				

All three quartiles of *PRIVII*, together with the second quartile of *PUBII*, are found significant. *PRIVII* is significant on the 5% level for the second and third quartile and significant on the 1% level for the fourth quartile. The level of significance and the coefficients increase with the quartiles of *PRIVII*, showing evidence of a clear increasing probability that the firm applies SRA with an increased level of private institutional ownership. The increase in coefficients is decrementing and therefore the relationship may not be captured in regression 3, which statistically assume a linear relationship between the log odds of applying SRA and institutional ownership.

The result of *PUBII* is highly interesting as it is opposite to the findings in our earlier regressions. The quartiles for *PUBII* show negative coefficients, suggesting that a higher level of ownership by public institutional investors decreases the probability that the firm applies SRA. The results are significant only at the second quartile level, yet found significance levels for quartile 3 (0.12) and quartile 4 (0.13) are just slightly outside the threshold of 10%. *MAJOWN* present a positive coefficient and is found significant on the 10% level, while *NBR_INSOWN* is slightly outside the

significance level with a p value of 0.14. Furthermore, the control variables *ROA* and *SIZE* are also statistically significant.

6.3 Summary of Additional Results

When dividing the total institutional ownership into the two identity types public and private, the findings from our main tests are affected. In regression 3, when addressing the different ownerships in terms of percentage of total votes, no statistical significant results are found regarding the ownership's effects. Yet in regression 4, when dividing the ownership further into quartiles, a positive relationship between *PRIVII*s and SRA appears. The found association between *PUBII* and SRA in this regression is however surprising as it indicates a negative relationship.

The span of the ownership holdings of *PUBII*s in the examined sample is very narrow, as earlier mentioned between 0% and 6.6% of total votes. This means that the maximum level of *PUBII*s ownership is of similar level as the first quartile, and thus base case, of the *PRIVII*s. This difference in ownership holdings can be seen in appendix 5. The low ownership level illustrates that the *PUBII*s' influence can be considered very low in relation to the influence of *PRIVII*s. It can therefore be questionable whether, regardless of the size of the investors, having a total holding of maximum 6.6% of the total votes in a firm opens up for considerable opportunity for the *PUBII*s to influence management. Due to the great difference between the holding sizes in the quartiles of *PUBII* and *PRIVII*, there can also be potential spilling effects of the *PRIVII*s' ownership onto the *PUBII*s, biasing the results. Therefore, it is highly difficult to draw conclusions with the same strength in both cases, and from this context we recognize that we can only speculate about the underlying reason to the different outcomes for the two identities.

Our findings, especially from regression 4, still allows us to consider the possibility that there might be differences in the institutional investors' motivation to promote SRA. As argued, *PRIVII*s are considered to be positioned to market their services and sustainability in their investments, while *PUBII*s are protected from this direct exposure. Earlier research that questions the improved credibility through SRA argues that a firm applies SRA in order to obtain legitimacy for their operations and not to improve the reliability of disclosed information (Perego, Kolk 2012, Deegan et al. 2006). In line with these arguments, the position of the owners

may also be considerable from a legitimacy aspect. Consequently, through this line of reasoning, the positive slope of the coefficients for *PRIVIs* is aligned with the argument that *PRIVIs*, due to legitimation reasons, are more prone to influence management to adopt the SRA. The negative coefficient for *PUBIs* correspondingly suggests that these investors do not demand the same assessment and therefore do not motivate the SRA decision. Assuming this potential explanation for the choice of SRA proposes that the influence over the decision can be used as a technique for the investors to legitimize their investments and that the private institutional owners are the ones driving the development of SRA. As mentioned however, this speculation requires further investigation and research in order to provide a stronger representation of the relationship. Thus, our additional findings present a basis for further curiousness and research of this association between the owners' identities and their influence on the decision to adopt SRA.

7. ROBUSTNESS ANALYSIS

Our main findings provide evidence of a positive relationship between the level of institutional ownership and the choice of SRA. We conduct sensitivity and robustness tests in order to both examine whether our findings hold and to see if the conclusions can be stronger than initially suggested. As presented in the summary of the main results, we will in this section focus on regression 1, which is the model within our main tests that obtained the highest level of correctly classified firms.

7.1 Sensitivity Test

In our sample, ownership is defined in terms of percentage of total votes, which is based on how IFRS 10 identifies the level of control in a company (IFRS Foundation 2014b). Ownership can, however, also be identified as a percentage of total capital in the companies, which may differ from measuring ownership as a percentage of total votes, as shares may possess different voting powers. This difference can make our models sensitive to the definition of institutional ownership and thus our measurement of influence. In order to capture this potential difference from the definitions of control, we assess our findings by redefining the institutional ownership to be measured as percentage of total capital by the following model:

$$\begin{aligned} SRA_{i,t} = & \alpha + \beta_1 \cdot C_INSOWN_{i,t-1} + \beta_2 \cdot NBR_INSOWN_{i,t-1} + \beta_3 \cdot MAJOWN_{i,t-1} + \beta_4 \\ & \cdot INTEG_{i,t} + \beta_5 \cdot INDUSTRY_{i,t-1} + \beta_6 \cdot ROA_{i,t-1} + \beta_7 \cdot SIZE_{i,t-1} + \beta_8 \\ & \cdot BSIZE_{i,t-1} + \beta_9 \cdot LEVERAGE_{i,t-1} + \varepsilon_{i,t} \end{aligned}$$

The definition of the redefined variable for capital is presented in appendix 6 and information regarding the redefined ownership holdings is presented in appendix 7. Otherwise, the remaining variables have the same interpretations as presented in table 2. The results for the sensitivity analysis are presented in table 12 below.

TABLE 12
Results,
Sensitivity Analysis

Pseudo R ²	0.324		
Chi ² (Sign.)	19.870	(0.019)	
Classification rates (overall %)	76.62%		
Variables	Coefficient	Std. Err.	p value
Constant	-15,696 ***	3,658	0,000
<i>C_INSOWN</i>	4,615	3,805	0,225
<i>NBR_INSOWN</i>	-0,250	0,154	0,106
<i>MAJOWN</i>	0,691	0,863	0,423
<i>INTEG</i>	0,062	0,690	0,928
<i>INDUSTRY</i>	-0,634	0,878	0,471
<i>ROA</i>	10,620 *	6,137	0,084
<i>SIZE</i>	1,360 ***	0,404	0,001
<i>BFSIZE</i>	0,308	0,197	0,117
<i>LEVERAGE</i>	2,086	2,368	0,378
* Significant on the 10% level (two-tailed)			
** Significant on the 5% level (two-tailed)			
*** Significant on the 1% level (two-tailed)			

The levels of significance and the coefficients are affected by the redefinition of the variable. All explanatory variables show coefficients with the same sign as in the main results while the *p* values increase to above the 10% threshold. The statistical significance for institutional ownership is consequently not confirmed, as the *p* value for *C_INSOWN* is 0.23. For *NBR_INSOWN*, the significance (0.11) is slightly outside the threshold and the corresponding value for *MAJOWN* (0.42) provides indecisive result. Consequently, we recognize that the results of our tests, and thus also the conclusions of this study, are sensitive to the choice of defining control in terms of percentage of total votes or as percentage of total capital. Nonetheless, since both IFRS and the Swedish Companies Act (IFRS Foundation 2014a, Munck 2016) express control using votes, we believe this definition to be the most proper measurement for how control and influence are exercised in reality, and hence the most accurate definition for our study.

7.2 Multicollinearity Analysis

When using a logistic regression, an analysis of the relationship between the independent variables is required in order to secure the coefficients' independence and to make sure the standard errors are not inflated. In line with Kolk and Perego (2010), the extent of correlation

between the independent variables is first analyzed as an initial indicator of potential multicollinearity through a correlation matrix. The correlations are calculated using the Spearman's rank correlation, and the achieved matrix is presented in table 13. A few high positive correlations exist between the independent variables, for example between *SIZE* and *NBR_INSOWN* (0.69), between *SIZE* and *BSIZE* (0.54) and between *BSIZE* and *NBR_INSOWN* (0.56). The high correlations indicate that larger companies tend to have a higher number of institutional investors and also larger board of directors, which is intuitively reasonable. Despite mentioned high correlations, no distinct correlation exceeds the threshold of 0.8, which Gujarati (2009) argue can be used as a rule of thumb for when there could exist issues with multicollinearity. Further, investigating the variables using the variance inflation factors (Ender 2016), which are presented in table 14, all variables are substantially below the commonly used threshold values of either 5 or 10 (Hair et al. 2006, Menard 1995, UCLA: Statistical Consulting Group 2016). Therefore, no incident of multicollinearity is detected in the data sets.

TABLE 13
Correlation Matrix

	<i>INSOWN</i>	<i>NBR_INSOWN</i>	<i>MAJOWN</i>	<i>INTEG</i>	<i>INDUSTRY</i>	<i>ROA</i>	<i>SIZE</i>	<i>BSIZE</i>	<i>LEVERAGE</i>
<i>INSOWN</i>	1.000*								
<i>NBR_INSOWN</i>	0.287*	1.000*							
<i>MAJOWN</i>	-0.314*	-0.058	1.000*						
<i>INTEG</i>	-0.026	0.087	0.259*	1.000*					
<i>INDUSTRY</i>	0.298*	0.438*	-0.217*	-0.108	1.000*				
<i>ROA</i>	0.104	-0.067	0.019	-0.253*	-0.071	1.000*			
<i>SIZE</i>	0.032	0.691*	-0.071	0.075	0.400*	-0.410*	1.000*		
<i>BSIZE</i>	0.117	0.561*	0.018	0.177	0.244*	-0.250*	0.542*	1.000*	
<i>LEVERAGE</i>	0.141	0.192*	-0.306*	-0.013	0.026	-0.210*	0.244*	0.232*	1.000*

* Significant on the 10% level

TABLE 14
Variance Inflation Factors

Variables	Regression 1	Regression 2	Regression 3	Regression 4
<i>INSOWN</i>	1.24			
<i>INSOWN_Q2</i>		2.25		
<i>INSOWN_Q3</i>		2.07		
<i>INSOWN_Q4</i>		1.98		
<i>PRIVII</i>			2.32	
<i>PUBII</i>			2.55	
<i>PRIVII_Q2</i>				2.25
<i>PRIVII_Q3</i>				3.60
<i>PRIVII_Q4</i>				3.79
<i>PUBII_Q2</i>				3.20
<i>PUBII_Q3</i>				3.54
<i>PUBII_Q4</i>				4.73
<i>NBR_INSOWN</i>	2.81	3.32	2.90	3.84
<i>MAJOWN</i>	1.38	1.46	1.39	1.62
<i>INTEG</i>	1.30	1.33	1.31	1.34
<i>INDUSTRY</i>	1.40	1.50	1.41	1.52
<i>ROA</i>	1.61	1.63	1.62	1.65
<i>SIZE</i>	2.94	3.14	2.99	3.40
<i>BSIZE</i>	1.69	1.87	1.69	2.20
<i>LEVERAGE</i>	1.26	1.39	1.38	1.57

7.3 Misspecification of Model

As mentioned in our delimitations, some control variables have not been incorporated in our models since these, due to shortage of resources, cannot be reliably measured. Our largest shortage of resource is time, as the data collection for these variables would require further manual assessments. See appendix 1 for a complete list of included and excluded variables. The omission of control variables from previous research can potentially lead to misspecification problems of the regressions. By using a specification link test for single-equation models, however, we can determine that *hat* is statistical significant with a *p* value less than 0.1% and that the *hat square* value is not significant for any commonly used significance levels in our regression. These results imply that, despite the exclusion of certain control variables, there are no large misspecification problems identified for the dataset and the logistic regression used in this study. Therefore, the results that we receive in the regression are robust in terms of the specification of model, yet we recognize that certain relevant control variables potentially would have been favorable to our findings.

8. CONCLUSION

Companies are disclosing an increasing amount of corporate social responsibility (CSR) information in either separate reports or as an integrated part of the annual reports. The issue of the trustworthiness and reliability of the disclosed information has grown together with the number of reporting firms. A higher level of confidence in the voluntary information can be of importance for the firm's shareholders as it is a method to decrease information asymmetry. From this context, our study questions whether the ownership structure of the firm impacts the choice to apply sustainability reporting assurance (SRA). More specifically, we test the hypotheses that institutional ownership and having a majority owner have an impact on the firm's adoption of SRA. We use a sample of the firms listed on NASDAQ Stockholm (small, mid and large cap) at year-end 2013.

To test our hypotheses, we propose logistic regressions explaining the probability of using SRA. Our explanatory variables are the level of institutional ownership, number of institutional owners and existence of a majority owner. Furthermore, an empirically motivated control variable regarding integrated reporting is tested in order to control for the firm's position within sustainability reporting (SR). We include further control variables in order to control for earlier identified factors influencing the choice of SRA. These control variables include the firm's profitability, size and leverage, together with variables controlling for if the firm operates within a sensitive industry and the size of the board of directors.

Our results indicate a statistically significant positive relationship between institutional ownership and the adoption of SRA. This finding is confirmed both when measuring institutional ownership as percentage of total votes and when the ownership is divided into quartiles. In the latter case, action of the decision is shown to lie in the higher quartiles of ownership, indicating that the higher the influence of institutional investors is within the firm, the higher the probability is that the firm applies SRA. These positive findings can be interpreted in line with agency theory, which suggest that the owners of a firm require reliability in received information in order to decrease information asymmetry. When investigating the influence of institutional ownership, we also consider the number of institutional investors present in the firm and find a negative relationship to the probability of applying SRA. This negative coefficient can indicate that each

individual institutional investor has a relatively lower influence and therefore smaller possibility to impact the decision. The finding supports the result from De Beelde and Tuybens (2015), that a higher concentration of ownership is positively associated with the adoption of SRA. Overall, we can consequently conclude that in a Swedish setting, the institutional investors' influence on their holding companies has a positive impact on the probability of the firm applying SRA. The results of the variable of having a majority owner are outside the significance threshold of 10%. Therefore, we do not find statistically significant conclusions that indicate that the variable has an impact on the choice of SRA. We furthermore find significant positive relationships between the choice of SRA and the control variables for profitability, the size of the firm and the size of the board of directors. These results are thus consistent with earlier studies (Simnett et al. 2009, De Beelde, Tuybens 2015, Ruhnke, Gabriel 2013, Kolk, Perego 2010, Sethi et al. 2015, Peters, Romi 2014, Gillet, Martinez 2011).

As an extended analysis of the institutional ownership, we examine the impact of the investors' identity in additional tests. The findings from the additional tests allow us to merely speculate that there may be a difference in the relationship between private institutional investors (*PRIVIIs*) and public institutional investors (*PUBIIs*) and the choice of SRA. The findings indicate a positive relationship between *PRIVIIs* and SRA, and a negative relationship between *PUBIIs* and SRA, yet demand further support in order to be confirmed.

Our study is exposed to certain limitations. The lack of available databases in the field of SRA presents a practical constraint to our data collection. We acknowledge that our model is sensitive to choices of definitions, such as *control* and *institutional investor*, yet consider nevertheless our choices of classification and results to be sufficiently robust to provide exploratory contributions to the field and to merit future examinations.

8.1 Further Research

First, we encourage future research to extend our findings regarding the association between institutional investors and the impact on SRA. By increasing the sample of firms to include countries with similar contexts, the robustness of the findings can be further strengthened. From our quantitative study, evidence of a positive association between institutional investors and the choice of SRA is found. However, we do not provide answers to why the identified relationship

arises, and therefore qualitative studies that investigate the underlying reasons from the investors' perspective are desirable.

Second, this kind of qualitative investigation is also encouraged for a further elaboration regarding the investor's identity's impact on the decision. Since our extended analysis merely provides ground for speculative findings, we consider these preliminary results to call for further understanding of the seemingly appeared tension between private and public institutional investors, and their different impacts on the choice of SRA.

Third, the current legal proposal regarding mandatory SR in Sweden will potentially impact the situation of reporting companies. This may also affect the situation for the adoption of SRA, opening up for research on how this change in legislation affects the firms' choice whether or not to apply SRA.

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10. APPENDIX

APPENDIX 1 Variables Affecting the Adoption of SRA

Variable	Author(s)	Variable	Author(s)
Country Specific		Industry Specific	
Common/Code law regime	Simnett et al. (2009) Kolk and Perego (2010) De Beelde and Tuybens (2015)	Operating in a sensitive industry*	Simnett et al. (2009)
Governance enforcement	Kolk and Perego (2010)		Kolk and Perego (2010)
National sustainability awareness	Kolk and Perego (2010)		Sierra et al. (2013)
Stakeholder orientation	Kolk and Perego (2010)		Ruhnke and Gabriel (2013)
Company Specific		Our Contributions	
Bid-ask spread	Peters and Romi (2014)	<i>Explanatory variables</i>	
Big 4 as financial auditor*	Kolk and Perego (2010)	Institutional ownership*	
Board size*	Gillet and Martinez (2011) Peters and Romi (2014)	Number of institutional owners*	
Chief sustainability officer on board of directors	Peters and Romi (2014)	Majority ownership*	
Leverage*	Sierra et al. (2013) Simnett et al. (2009) Peters and Romi (2014) Ferreira Gomes et al. (2015)	<i>Empirically motivated control variable</i>	
Largest shareholder *	Beelde and Tuybens (2015)	Integrated reporting*	
Majority institutional ownership*	Peters and Romi (2014)		
Media visibility	De Beelde and Tuybens (2015)		
Privately or state owned	Castelo Branco et al. (2014)		
Profitability*	Simnett et al. (2009) Kolk and Perego (2010) Ruhnke and Gabriel (2013) Peters and Romi (2014) Castelo Branco et al. (2014)		
Size*	Simnett et al. (2009) Kolk and Perego (2010) Ruhnke and Gabriel (2013) De Beelde and Tuybens (2015) Sethi et al. (2015)		
Sustainability committee in board of directors	Peters and Romi (2014)		

* Variables included in our regressions.

Country specific variables are excluded since we have a single-nation sample, making these variables inapplicable. The variables not included in the regressions are analyzed in our robustness test.

APPENDIX 2
Actors Identified as
Institutional Investors

Public Institutional Investors (PUBIIs)

Andra AP-fonden
Fjärde AP-fonden
Första AP-fonden
Tredje AP-fonden

Private Institutional Investors (PRIVIIs)

AFA Försäkring
Alecta Pensionsförsäkring
AMF Försäkring & Fonder
Folksam
Handelsbanken Fonder
Lannebo Fonder
Livförsäkringsbolaget Skandia
Länsförsäkringar
Länsförsäkringar Fonder
Nordea Fonder
SEB Fonder
Skandia Fonder
Swedbank Robur Fonder

APPENDIX 3
Descriptive Information,
Regression 2

Explanatory variables	Obs.	Mean	Std. Dev.	Min.	Max.
<i>INSOWN_Q1</i>	20	0.041	0.025	0.006	0.077
<i>INSOWN_Q2</i>	19	0.111	0.017	0.084	0.138
<i>INSOWN_Q3</i>	19	0.160	0.016	0.138	0.195
<i>INSOWN_Q4</i>	19	0.274	0.081	0.197	0.496

APPENDIX 4
Variable Description,
Regression 4

Variables	Definition
<i>PRIVII_Q1</i>	1 if the company belongs to the first quartile based on the total percentage of votes owned by private institutional investors, 0 otherwise
<i>PRIVII_Q2</i>	1 if the company belongs to the second quartile based on the total percentage of votes owned by private institutional investors, 0 otherwise
<i>PRIVII_Q3</i>	1 if the company belongs to the third quartile based on the total percentage of votes owned by private institutional investors, 0 otherwise
<i>PRIVII_Q4</i>	1 if the company belongs to the fourth quartile based on the total percentage of votes owned by private institutional investors, 0 otherwise
<i>PUBII_Q1</i>	1 if the company belongs to the first quartile based on the total percentage of votes owned by public institutional investors, 0 otherwise
<i>PUBII_Q2</i>	1 if the company belongs to the second quartile based on the total percentage of votes owned by public institutional investors, 0 otherwise
<i>PUBII_Q3</i>	1 if the company belongs to the third quartile based on the total percentage of votes owned by public institutional investors, 0 otherwise
<i>PUBII_Q4</i>	1 if the company belongs to the fourth quartile based on the total percentage of votes owned by public institutional investors, 0 otherwise

APPENDIX 5
Descriptive Information,
Regression 4

Explanatory variables	Obs.	Mean	Std. Dev.	Min.	Max.
<i>PRIVII_Q1</i>	20	0.038	0.023	0.006	0.071
<i>PRIVII_Q2</i>	19	0.097	0.015	0.071	0.115
<i>PRIVII_Q3</i>	19	0.140	0.015	0.121	0.165
<i>PRIVII_Q4</i>	19	0.244	0.075	0.166	0.451
<i>PUBII_Q1</i>	20	0.003	0.001	0.000	0.004
<i>PUBII_Q2</i>	19	0.010	0.004	0.004	0.015
<i>PUBII_Q3</i>	19	0.020	0.003	0.015	0.026
<i>PUBII_Q4</i>	19	0.036	0.009	0.026	0.066

APPENDIX 6
Variable Description,
Sensitivity Test

Variable	Definition
<i>C_INSOWN</i>	Total institutional ownership as percentage of capital

APPENDIX 7
Descriptive Information,
Sensitivity Test

Explanatory variables	SRA	Obs.	Mean	Std. Dev.	Min.	Max.
<i>C_INSOWN</i>	1	27	0.172	0.094	0.012	0.421
	0	50	0.177	0.104	0.006	0.496

SRA equals 1 for the companies that have an assured CSR report, 0 otherwise