

Assurance on Sustainability Reports: A Study of Factors Influencing the Selection of an Assurance Framework

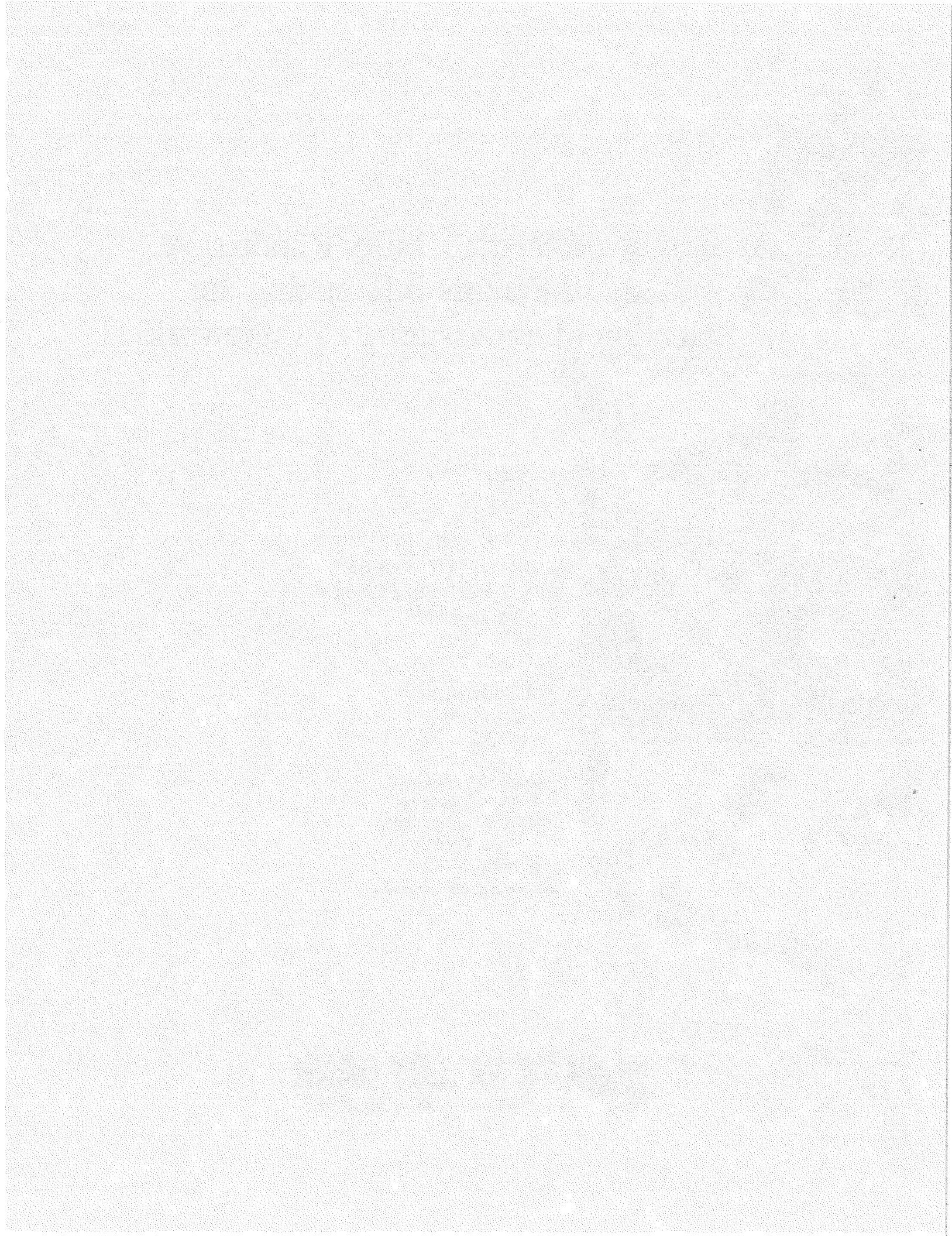
By
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ABSTRACT

One of the important ways of adding credibility to sustainability reports published by companies is obtaining assurance on them (Simnett, Vanstraelen and Chua 2009). This study examines the factors that influence the selection of an assurance framework for the purpose of assuring sustainability reports where the choice is between international assurance frameworks and other assurance frameworks. Audit-firm specific, client-company specific, industry-level, country level factors are considered as explanatory variables.

The type of assurance framework used (International versus others) may indicate assurance provider preferences. Further, use of international frameworks (ISAE3000 and AA1000AS) may indicate a trend towards standardization of assurance frameworks and ease of comparison. On the other hand, use of national assurance frameworks may indicate a possible country-of-origin effect.

Keywords: assurance on sustainability reports, assurance frameworks.

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1. INTRODUCTION

In this study, I examine the factors influencing the selection of an assurance framework related to assurance on sustainability reporting, where the choice is between international frameworks (Kolk and Perego 2010, p. 184). Similar to Generally Accepted Auditing Standards (GAAS), an assurance framework is a set of systematic guidelines used by assurance provider when conducting audits on companies' sustainability reports.

The selection of an assurance framework is made by the client company. This is because client companies decide on level of assurance they desire on their sustainability report. They then seek an assurance provider to provide that level of assurance. Usually, the companies seek a lower level of assurance on sustainability reports, because of two reasons: (1) there is no authority mandating assurance, and, (2) it is less expensive. According to GRI 2013, "Sustainability assurance standards vary in approach and are not widely used in all regions. Only in a few countries and for a few sectors, sustainability reporting and assurance are either required or common practice."

Selection of assurance frameworks is of interest to academics, practitioners and to investors. For academics, assurance frameworks are similar to auditing standards, since they have an important economic role to play in improving both sustainability assurance effectiveness and efficiency (Knechel 2013). Understanding why certain assurance frameworks are selected will help auditors understand the reasons behind seeking a lower level of assurance on sustainability reports, shed light on the sustainability assurance process and provide a benchmark for making improvements. For practitioners, it is important to understand the why a certain assurance

framework was selected because it directly impacts the kind and amount of work that they will do. For investors, the assurance framework selected will capture, prima facie, audit quality in the sustainability area. This perception will, in turn, affect investor interest in the companies (Eccles, Serafeim and Krzus 2011).

This study contributes as follows: (1) it examines the factors influencing a critical aspect of assurance on sustainability reports, (2) it discusses reasons behind the selection, (3) this study is the first attempt at capturing audit quality in the sustainability area, (4) this study is the first to examine a setting where there is more than one assurance framework available, (5) this study is the first study to examine a setting where the client company decides on the level of assurance and (6) this is the first study to examine a setting where the assurance framework is selected by the client company.

3. BACKGROUND

Scholars agree that assurance on sustainability reports is beneficial (O'Dwyer 2011, Manetti and Becatti 2009, Simnett, Nugent and Huggins 2009, Simnett, Vanstraelen and Chua 2009, Fonseca 2010, Kolk 2008). The International Auditing and Assurance Standards Board (IAASB 2012, p. 22) defines an assurance engagement as follows:

“An assurance engagement is an engagement 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. The outcome of the evaluation or measurement of a subject matter is the information that results from applying the criteria (the IAASB definition of Criteria is in the section titled 1. Introduction). Under the International Framework for Assurance Engagements there are two types of assurance engagement a practitioner is permitted to perform: a reasonable assurance engagement and a limited assurance engagement.

Reasonable assurance engagement—The objective of a reasonable assurance engagement is a reduction in assurance engagement risk to an acceptably low level in the circumstances of the engagement as the basis for a positive form of expression of the practitioner's conclusion.

Limited assurance engagement—The objective of a limited assurance engagement is a reduction in assurance engagement risk to a level that is acceptable in the circumstances of the engagement,

but where that risk is greater than for a reasonable assurance engagement, as the basis for a negative form of expression of the practitioner's conclusion.”

The AICPA defines an attest engagement as follows: “This section applies to engagements in which a certified public accountant in the practice of public accounting (hereinafter referred to as a *practitioner*) is engaged to issue or does issue an examination, a review, or an agreed-upon procedures report on subject matter, or an assertion about the subject matter (hereafter referred to as *the assertion*), that is the responsibility of another party.”

Assurance providers on sustainability reports can be classified into two main categories: auditing firms and specialist assurance providers/technical experts (O'Dwyer 2011). GRI 2013 notes that external assurance on sustainability reporting is provided by accountancy firms, engineering firms and sustainability services firms (p. 10). While the auditing firms can count audit and assurance expertise among their strengths, the specialist assurance providers/technical experts usually offer services related to dealing with management of sustainability issues along with assurance on sustainability reports. Auditing firms are increasingly being asked to provide assurance on non-financial information (Admiraal, NIVRA and Turksema 2009) by companies which publish such information. The KPMG (2008) report states that the majority of Global Fortune 250 companies who sought assurance on their sustainability reports selected major auditing organizations. The reasons given are as follows (KPMG 2008, p. 63):

“This could be due to the trend toward a more comprehensive approach to assurance that covers the full report and the process behind it, rather than just isolated sections such as environmental indicators. With investors starting to show interest in corporate responsibility data, and with regulation on the horizon in many countries, there is an increased focus on information systems and controls, which may lead companies seeking an assurance provider to opt for a major accounting organization.”

Subramaniam, Hodge and Ratnatunga (2006) point out that the words 'audit', 'verification', 'validation' or 'assurance' have been generally used to denote similar activities. They note that 'verification' suggests a process whereby information provided by management has been compared against agreed criteria, while 'validation' examines whether reported information meets a particular need. The term 'audit', on the other hand, more closely relates to its traditional usage in external financial reporting and the provision of a high level of assurance whereby the procedures used are in line with a standardized set of guidelines. Verification and validation can be construed as denoting a more limited level of assurance. In this study, the term, 'sustainability report assurance', consistent with IAASB standard ISAE 3000 will mean evaluation of information in sustainability reports against established frameworks. The term 'assurance provider (ap)' will be used to refer to people or person who provide(s) assurance on sustainability reports.

The KPMG (2008) report shows that among the global Fortune 250 companies, the use of ISAE 3000 has increased from 24% in 2005 to 62% in 2008, and, the use of AA1000AS increased from 18% to 33% in the same period. Further, it shows that among the 100 largest companies by revenue, the use of ISAE 3000 increased from 14% in 2005 to 54% in 2008 and the use of AA1000AS increased from 10% to 36% during the same period. The KPMG (2011, p. 28) report emphasizes that companies without external assurance on their sustainability reports run a higher risk of restatements in the future. Further, the report suggests that such companies may send the message that corporate responsibility information is not held in as high regard as financial information, which is frequently assured in most businesses.

4. MODEL SPECIFICATION, HYPOTHESES DEVELOPMENT, DEPENDENT AND EXPLANATORY VARIABLES

As mentioned earlier, the research question (RQ) for this study is as follows: What are the factors influencing the choice of assurance frameworks, when the choice is between AA1000AS used alone, ISAE3000 or when they are used together? To explore the above research question, I examine a sample of international companies who publish sustainability reports and get them assured. I use a logistic model. The outcome variable is categorized as a 0 (for AA1000) or a 1 (for ISAE 3000) or 2 (for AA1000AS and ISAE3000 used together).

To address the above RQ, I estimate the following logistic model where the dependent variable is the choice of assurance framework(s) and the explanatory variables are audit-firm specific, client-firm specific, industry-level, and, country level factors. The model, dependent and independent variables in this model are discussed below.

$AssuranceFramework_i$ (International frameworks vs other frameworks including systematic evidence-based processes) = $b_0 + b_1SustAssuProviderType_i + b_2NoOfCountryListings_i + b_3ROA_i + b_4ROE_i + b_5LongTermDebtEquity_i + b_6EnvironmentallyOrSociallySensitiveIndustry_i + b_7DisclosureIndex_i + b_8GDP_i + b_9CO2Emissions_i + b_{10}MarketCap_i + b_{11}Regulation_i + e_i$

where

Assurance Framework Type = a categorical variable that is coded 0 when AA1000AS is used, is coded 1 when ISAE3000 is used and coded 2 when ISAE3000 and AA1000AS are used together.

Audit firm specific variable

Sustainability Assurance Provider Type = a categorical variable that is coded 1 if the assurance provider is an audit firm (Big 4 or other audit firms), 0 if the assurance provider is a specialist assurance providers/technical expert i.e. a non-audit firm.

Client firm specific variables

No. of Country Listings = Number of countries in which the client is listed – proxy for complexity of the client company.

Carbon Dioxide Emissions (CO₂ Emissions) = Provided by companies in their sustainability reports. Specifically, this is metric tons per capita of carbon dioxide emissions for a country for the years 2007-2011.

Return on Assets = Net Income divided by Total assets of a client – proxy for Financial Condition of the client

Long Term Debt Equity Ratio = This ratio provides a way to determine a company's leverage and, in turn, its risk. This ratio is calculated as follows: Long term debt/Shareholders equity. The greater a company's leverage the higher the ratio. Generally, companies with higher ratios are thought to be more risky because they have more liabilities and less equity – proxy for risk associated with the client company.

Industry level variables

All companies were classified into the Fama and French 49-industry classification, and then classified as economically and/or socially sensitive. The industries that were so classified are given below along the Fama & French 49-industry classification name, the related industry code and the number of companies in this sample that fall into each category. Altogether, a total of 326 companies out of total of 600 (54.33%) are classified as economically and/or socially sensitive. The companies that were classified as economically and/or socially sensitive have been marked as 1, otherwise 0.

Country level variables

Disclosure Index = Provided by the World Bank on its website²; measures the extent to which investors are protected through disclosure of ownership and financial information. The index ranges from 0 to 10, with higher values indicating more disclosure.

Gross Domestic Product (GDP) = provided by the Central Intelligence Agency (CIA) on its website³; specifically, this is Gross Domestic Product per capita in a country in USD based on 2011 prices.

Market Capitalization (MarketCap) = provided by the World Bank on its website⁴; specifically, this is market capitalization of listed clients as a percentage of GDP; calculated for the year 2009 as the share price times the number of shares outstanding.

Regulation = The KPMG 2013 (p. 24-25) report specifies 16 countries that have some sort of regulation and/or stock exchange reporting requirements: Brazil, China, Denmark, France, Hong, Kong, India, Indonesia, Japan, Malaysia, Nigeria, Norway, Singapore, South Africa, Taiwan, UK and USA. These countries have been marked as 1, other countries have been marked as 0.

e_i = residuals

As mentioned earlier, I examine the factors influencing the selection of assurance frameworks by the assurance provider related to sustainability reporting, where the choice is

between international assurance frameworks. In this study, the dependent variable is the assurance framework as indicated in the client company's assurance report. As independent variables, I consider audit-firm-specific, client-firm-specific, industry-level factor, and, country-level factors that may influence the selection of assurance framework(s).

The sustainability assurance market cannot be assumed to be the same throughout the world because assurance on sustainability reports is sought with much more enthusiasm in some countries than in others and countries provide different regulatory requirements (e.g. 16 countries that have some sort of regulation and/or stock exchange reporting requirements, as mentioned in Section 1.2 titled "Assurance on Sustainability Reports"). In addition, different industries may provide different motivations for assuring sustainability reports, which might influence the selection of one or more assurance framework(s). Further, some assurance providers use two international frameworks together for the purpose of assuring sustainability reports. For example, Pricewaterhouse Coopers provides assurance on the sustainability report of Novo Nordisk AS (2011). For this purpose, Pricewaterhouse Coopers uses both international standards, namely ISAE 3000 and AA1000AS (p. b111).

4.1 Hypothesis Development

I. Sustainability Assurance Provider Type: Assurance providers have the major role to play in the selection of assurance frameworks due to the fact that they provide a third party opinion on a company's sustainability performance and use the assurance framework to do so. Sustainability assurance provider type has been chosen as an explanatory variable because the choice of an assurance framework may depend on whether the assurance provider is in the audit industry or not. The choice of an assurance framework can be expected to be different between audit firms and specialist assurance providers/technical experts because of the differences in their focus and

experience. For example, an audit firm may be more likely to choose ISAE 3000 probably because it is provided by International Auditing and Assurance Standards Board (IAASB), which, in turn, is the international assurance arm of the International Federation of Accountants (IFAC).

I argue that assurance frameworks can be viewed as products that are chosen by the assurance provider because they have properties that satisfy their purpose in the context of assurance on sustainability reports. One such property is the guidance on planning and performing the sustainability assurance engagement. The purpose of an assurance framework is to provide guidance to assurance providers on various matters concerning the assurance of sustainability reports. An assurance framework also has guidelines regarding professional behavior, professional competence, acceptance of an assurance engagement, collecting evidence, and, preparing an assurance report, among other things.

Hence, I hypothesize as follows:

H₁: There is expected to be no significant difference in the likelihood of an assurance provider's selection of an international versus a national framework, given that the assurance provider is an audit firm or a specialist assurance provider/technical expert.

The number of countries in which a client firm is listed is expected to influence the assurance provider's choice of an assurance framework by bringing into focus the international nature of the client firm. Prior literature (Ettredge, Kwon and Lim 2009) suggests that a client company's growth and financial condition of a company are client firm characteristics that influence assurance provider's decisions. In this study, a client company's growth is proxied by Return on Equity (ROE) and financial condition is proxied by net income/total assets (labeled Financial Condition). Long term debt equity ratio (a measure of risk) has been included as a control

variable, as a client company's growth and financial condition should be viewed in conjunction with its risk measure.

II. Number of Country Listings: If a client firm is listed on multiple stock exchanges in different countries, it may influence the assurance provider's selection of assurance frameworks because such client firms will have to observe the rules of all the stock exchanges that it is listed on. As pointed out earlier, from 2002, listed French companies have been required to report on their environmental and social performance (KPMG 2002, p. 5) and Japanese companies began to adopt environmental reporting guidelines issued by the Japanese government in 2001 (KPMG 2002, p. 15). Even though there may be limited requirements regarding assurance, assurance frameworks or even reporting frameworks, it might be more likely that client companies listed on these stock exchanges seek assurance.

Further, it seems more likely that assurance providers of client firms with stock exchange listings in multiple countries are more likely to use international assurance frameworks because the latter appear to be more compatible with their international listing status. However, the regulatory ambiance, especially the rules of a stock exchange in a certain country might encourage client firms operating in that country to use national assurance frameworks. Hence,

H₂: There is expected to be no significant difference in the likelihood of an assurance provider's selection of an international versus a national framework for clients who have stock exchange listings in multiple countries.

III. Financial condition of the client company: This variable is a control variable (Ettredge, Kwon and Lim 2009), and, hence there are no hypothesis related to it.

IV. Return on Equity (ROE): High growth companies show a higher ROE and, therefore, this ratio functions as a proxy for higher growth rates. If the client firm is growing at a rapid rate, it seems more likely that its assurance provider may select international assurance frameworks in order to build credibility (Simnett, Vanstraelen and Chua 2009). Further, it seems more likely that assurance providers of client firms with growth opportunities are more likely to use international assurance frameworks because these client firms might want to expand overseas. However, if a company's aim is to focus on one or more specific countries, its assurance provider might select regional assurance frameworks since they are more suitable for the client firm's goals. Hence,

H₃: There is expected to be no significant difference in the likelihood of an assurance provider's selection of an international versus a national framework for clients who have a rapid growth rate versus those who do not.

V. Long Term Debt Equity Ratio: Generally, companies with higher ratios are thought to be more risky because they have more liabilities and less equity. This variable has been included as a control variable because Financial Condition (Net Income/Total Assets) and ROE (net income returned as a percentage of shareholders equity) should be viewed in conjunction with a firm's risk in order to get a comprehensive picture. Hence, there are no hypothesis related to it.

VI. Industry Level Factors: Prior literature suggests that industry level factors may influence assurance provider decisions (Simnett, Vanstraelen and Chua 2009). All companies in this study were first classified into the Fama and French 49-industry classification and then classified as economically and/or socially sensitive. The industries that were so classified are given in Table I above and it provides the Fama & French 49-industry classification name, the related industry code and the number of companies in this sample that fall into each category. Altogether, a total of 326 companies out of 600 (54.33%) are classified as economically and/or socially sensitive. If the

client firm is in an economically and/or socially sensitive industry, it seems more likely that its assurance provider may select international assurance frameworks in order to build credibility (Simnett, Vanstraelen and Chua 2009). However, the regulatory ambiance, especially the rules of a stock exchange in a certain country might encourage client firms operating in that country to use national assurance frameworks. Hence,

H₄: There is expected to be no significant difference in the likelihood of an assurance provider's selection of an international versus a national framework for clients who are from an environmentally or socially sensitive industry versus those client companies who are not from an environmentally or socially sensitive industry.

VII. Extent of Disclosure in a Country: I use the disclosure index provided by The World Bank on its website¹ as a proxy for the disclosure ambiance in a particular country. This index is called 'Business extent of disclosure index' and it measures the extent to which investors are protected through disclosure of ownership and financial information. The index ranges from 0 to 10, with higher values indicating more disclosure. Sustainability information and assurance on it is increasingly being revealed by companies in order to assess how external risks affect their business (Mock, Strohm and Swartz 2007), and, are viewed as value relevant (KPMG 2011, p. 28). Hence, this index arguably provides an overall view of the weight that is placed on disclosure environment in a country.

¹ Business Extent of Disclosure Index (accessed on June 19, 2014):
<http://data.worldbank.org/indicator/IC.BUS.DISC.XQ>

It seems likely that assurance providers in high disclosure environments may view international frameworks as contributing towards a higher perception of credibility and representing a move towards standardization and hence, providing a basis for comparison. Hence, H₅: The likelihood of an assurance providers' selection of an international framework is expected to be significantly greater for client firms who are located in countries having a high disclosure environment.

VIII. National Economic Development: Ettredge, Kwon and Lim (2009) argue that higher levels of economic development increase the demand for credible information. This demand may translate into selection of sustainability assurance frameworks which are viewed as increasing the credibility of assurance statements and, in turn, the information in the corresponding sustainability reports.

I employ two variables that reflect national economic development. The first is the level of annual gross domestic product (GDP) per capita in each country. GDP per capita has been collected from the CIA Factbook² and is in US Dollars based on 2011 prices. Since higher national economic development is reflected in a higher GDP per capita and is associated with an increased demand for credible information, companies and/or assurance providers based in countries with higher GDP per capita can be expected to choose international frameworks, as they may be perceived to provide higher credibility.

My second proxy for national economic development is the extent of development of national stock markets. According to Demirgüç-Kunt and Levine (1996), poorer countries have

² Gross Domestic Product per capita in each country (accessed on June 19, 2014): <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html>

lower stock market development than richer countries on average. Thus, stock market development indicates the level of national economic development. Further, they point out that countries with more developed stock markets are associated with strong information disclosure laws. Healy and Palepu (2001) emphasize the role of disclosure of information in the working of stock markets. That is, more information is preferred by investors in more developed stock markets. Further, they suggest that assurance enhances the credibility of information revealed by companies. Assurance providers play a central role in the selection of frameworks for assuring sustainability reports. I expect assurance providers in more developed markets to use international frameworks since they may be perceived as lending credibility and as a move towards standardization and ease of comparison. Stock market development is measured by market capitalization of listed companies as a percentage of GDP and is calculated for the year 2009 as the share price times the number of shares outstanding. For this calculation of market capitalization, listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies do not include investment companies, mutual funds, or other collective investment vehicles. This data is provided by the World Bank on its website³. Therefore,

H₆: The likelihood of an assurance provider's selection of an international framework is expected to be significantly greater for client firms that are located in countries with high values of proxies for national economic development (GDP and MarketCap).

³ Market Capitalization of each country as percentage of GDP (accessed on June 19, 2014): <http://data.worldbank.org/indicator/CM.MKT.LCAP.GD.ZS/countries/1W?display=default>

IX. Greenhouse Gas Emissions by Country: The US Environmental Protection Agency (EPA) notes on its website⁴ that gases that trap heat in the atmosphere are called greenhouse gases. Currently, carbon dioxide is one of most ubiquitous greenhouse gas. According to a World Bank report (Akbar, Kleiman, Menon, and Segafredo 2014) emissions of carbon dioxide and other greenhouse gases must be substantially reduced to keep the world from exceeding the 2°Celsius threshold of global warming. As early as 1994, Fankhauser stated that greenhouse gases are stock pollutants. That means that global warming damage is not caused by the flow of emissions as such, but by their accumulation in the atmosphere. Consequently a ton of emissions has its impact not only in the period of emission, but over several time periods--as long as the gas or fractions of it remain in the atmosphere.

Since human activities cause greenhouse gas emissions in every country in the world, the amount of emissions in a country may influence a company's reporting on such issues (Maclean and Gottfrid 2000) and seeking assurance on such information. The World Bank provides data on its website⁵ on the carbon dioxide emissions (metric tons per capita) by country for the years 2007-2011. Companies located in countries with high levels of carbon dioxide emissions may seek assurance on their individual carbon dioxide emissions so as to appear transparent on this issue. In order to make such information more credible, an assurance provider may use international frameworks because they may be perceived to lend credibility and because they represent a move towards standardization and ease of comparison. I hypothesize as follows:

⁴ Overview of greenhouse gases (accessed on June 19, 2014):

<http://www.epa.gov/climatechange/emissions/index.html>

⁵ Greenhouse gas emissions – Carbon Dioxide Emissions (metric tons per capita for each country) (accessed on June 19, 2014): <http://data.worldbank.org/indicator/EN.ATM.CO2E.PC/countries/1W?display=default>

H7: The likelihood of an assurance provider's selection of an international framework is expected to be significantly greater for client firms located in countries associated with high values of carbon dioxide emissions (metric tons per capita).

4.5.4 Regulation by Country

The KPMG 2013 (p. 24-25) report specifies 16 countries that have some sort of legal regulation and/or stock exchange reporting requirements: Brazil, China, Denmark, France, Hong Kong, India, Indonesia, Japan, Malaysia, Nigeria, Norway, Singapore, South Africa, Taiwan, UK and USA. For example, in India, the top 100 listed companies in India are required by the securities and exchange Board to report on corporate responsibility in their annual reporting from the financial year 2012-2013. However, it is not known whether there are requirements related to the selection of reporting frameworks or assurance frameworks. For further details on the legal and/or stock exchange requirements in other countries, please refer to KPMG 2013, p. 24-25. However, the regulations and/or stock exchange requirements might make it more likely that companies in these countries seek assurance. In addition, assurance providers in these countries may be more likely to choose national frameworks, since they may be viewed as more favorable. I hypothesize as follows:

H8: The likelihood of an assurance provider's selection of a national framework is expected to be significantly greater for client firms located in countries that have regulation and/or stock exchange reporting requirements.

5. DATA COLLECTION

The window of 2009-2011 has been chosen in order to identify recent trends. Data related to sustainability assurance variables have been gathered from sustainability reports collected from

CorporateRegister.com, the world's largest database for sustainability reports. These include the observations for the dependent variable (type of assurance frameworks – international vs national or systematic evidence based processes) and the independent variable labeled Sustainability Assurance Provider Type (audit firm or a non-audit firm), date, place (i.e. city and country). Data for No of Country Listings (a count of countries that a company's stock is listed in), Financial Condition (financial condition of a company, proxied by Net income/Total Assets), ROE (Return on Equity - net income returned as a percentage of shareholders equity), and, LongTermDebtEquity (Long Term Debt/Equity) was collected from the mid-continent public library website⁶, which provides financial statements for many international companies. Legal regulation and/or stock exchange reporting requirements were identified from the KPMG 2013 report, p 24 – 25.

Each company was then classified according to the 49-industry portfolio classification provided by the Kenneth R. French data library⁷ (specifically, the industry definitions link). Data on Business extent of disclosure index (Disclosure Index), market capitalization in each country (Market Capitalization or Market Cap), and, carbon dioxide emissions (CO2 Emissions) by country was obtained from the World Bank website. Data on annual gross domestic product (GDP) per capita in each country is in US dollars and is provided by the Central Intelligence Agency World Factbook website.

6. SAMPLE SELECTION

⁶ Mid-Continent Public Library (accessed on June 19, 2014): <http://www.mymcpl.org/>

⁷ Fama and French 49-industry classification (accessed on June 19, 2014): http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/changes_ind.html

To begin with, all the international client companies who had published sustainability reports in English and obtained assurance on them in the years 2009, 2010 and 2011 were selected. These client firms were 1100 in number and listed under the category 'Assured Sustainability Reports' on CorporateRegister.com. 94 client companies were eliminated because it was difficult to read the assurance report because of poor image quality or because their assurance reports were not in English. 406 international client firms were eliminated from the sample because of restricted access to data on total assets, net income, Return on Equity (ROE) and Long Term Debt/Equity ratio. The number of client firms remaining at this point was 600 and has been used for this study.

7. BIVARIATE CORRELATIONS

Table 10 shows the bivariate correlations for variables in the Model. Table 1 shows that the highest correlation is between *Regulation* and *Disclosure Index* (0.554, p-value 0.000). According to Goldsmith (2009), correlation is considered to be of a high degree when it is 0.82 or above. Only when then the correlation between two or more independent variables is high, the standard errors are large (Blalock 1963). Since the significant correlations in this study do not exceed 0.554, it is not high enough to inflate standard errors. The independent variables in this study were also tested for multi-collinearity. According to O'Brien (2007), the variance inflation factor (VIF) is a widely used measure of the degree of multi-collinearity and a VIF of 10 or above is considered a sign of severe multi-collinearity by many practitioners, scholarly researchers and by authors of advanced statistical textbooks. In this study, the highest VIF is 2.242, which leads to the conclusion that multi-collinearity is not a concern.

8. EMPIRICAL RESULTS

Table 2 presents the results related to the logistic regression model. The dependent variable (DV) in this model is called *Assurance Framework Type (international vs national)*. It is marked 1 if an international assurance framework has been used (ISAE 3000 and/or AA1000AS), and, marked 0 if a national assurance framework or systematic evidence based processes have been used. In this connection, the assurance providers of 403 companies out of a total of 600 have used international frameworks (ISAE 3000 and/or AA1000AAS) and have been marked as 1. Since this is an exploratory study, I interpret only the sign of the coefficient of a variable at $\alpha = 0.1$. The significant variables have been highlighted in Table 2.

Analysis for the logistic model suggests that only one factor related to assurance provider (whether the assurance provider is an audit firm or not), two client company specific factors (Number of Company Listings, Financial Condition), one industry level variable (whether the company is member of an environmentally or socially sensitive industry or not), two country specific factors (Disclosure Index, and, Gross Domestic Product) are significant. Two goodness-of-fit (gof) tests were also performed – the Pearson gof and the Hosmer-Lemeshow gof. The null hypothesis in both cases is that the logistic model can be rejected. Both the Pearson goodness-of-fit test (Pearson $\chi^2 = 599.79$; p-value = 0.3591) and the Hosmer-Lemeshow goodness-of-fit-test (Hosmer-Lemeshow $\chi^2 = 12.11$; p-value = 0.1464) indicate that the logistic model below cannot be rejected. Since both tests are not significant, it can be concluded that the logistic model fits reasonably well. As a broad guideline for this logistic model, variables have been interpreted as follows: positive significant associations are associated with the use of an international assurance framework, and, negative significant associations are associated with the use of a national framework/systematic evidence based processes. If a variable is not significant, then it is

interpreted as being statistically unrelated with the choice between an international framework and a national framework.

The variable *Sustainability Assurance Provider Type* has a positive significant relationship with the dependent variable *DV Assurance Framework Type* (0.89, p-value = 0.000), and, hence does not provide support for hypothesis 1, H₁ (H₁ states that there is expected to be no significant difference in the likelihood of an assurance provider's selection of an international versus a national framework, given that the assurance provider is an audit firm or a specialist assurance provider/technical expert). This suggests that if the assurance provider is an audit firm, it is more likely that an international assurance framework will be used. This may be because audit firm assurance providers may view the use of international frameworks as being advantageous to them by enhancing credibility and providing a basis for their actions, especially in the event of litigation. Since most of the audit firms (except for 5 audit firms listed in Table 9, which are regional) have international operations, they may want to use international frameworks to signal their international nature. In addition, international frameworks may be viewed as facilitating standardization all over the world and easing comparison.

The variable, *No of Country Listings*, has a positive significant relationship with the dependent variable *DV Assurance Framework Type* (0.312, p-value 0.016), and, hence does not provide support for H₂ (H₂ states that there is expected to be no significant difference in the likelihood of an assurance provider's selection of an international versus a national framework for clients who have stock exchange listings in multiple countries). This suggests that as the number of countries in which a company is listed increases, there is a greater likelihood that an international framework will be used. This may be because assurance providers of client firms who have stock exchange listings in multiple countries may view the use of international frameworks

as being advantageous to them by enhancing credibility and providing a basis for their actions, especially because it is in line with the international nature of the client companies. In addition, international frameworks may be viewed as facilitating standardization all over the world and easing comparison.

As mentioned earlier, the variable *Financial Condition* has been included as control variable. Due to this reason, there are no hypotheses associated with this variable.

The variable *Return on Equity* (ROE) does not have a significant relationship with the dependent variable *DV Assurance Framework Type* (0.092, p-value 0.469), and, hence, provides support for H₃ (H₃ states that There is expected to be no significant difference in the likelihood of an assurance provider's selection of an international versus a national framework for clients who have a rapid growth rate versus those who do not). This suggests that a client company's growth rate is not statistically related to the choice between international assurance frameworks and national frameworks. This may be because the assurance provider might view both types of assurance framework as enhancing credibility.

As mentioned earlier, the variable *Long Term Debt Equity Ratio* has been included as control variable. Due to this reason, there are no hypotheses associated with this variable

Next, the variable *Environmentally or Socially Sensitive Industry* has a marginally positive significant relationship with the dependent variable *DV Assurance Framework Type* (0.336, p-value 0.070). As mentioned earlier, I interpret only the sign of the coefficient of a variable at $\alpha = 0.1$. This suggests that if the company is member of an industry that is considered environmentally or socially sensitive, then there is a greater likelihood that an international framework will be used. Hence, H₄ is not supported (H₄ states that there is expected to be no significant difference in the

likelihood of an assurance provider's selection of an international versus a national framework for clients who are from an environmentally or socially sensitive industry versus those client companies who are not from an environmentally or socially sensitive industry). This may be because assurance providers perceive such companies as susceptible to litigation and may view the use of international frameworks as being advantageous to them by enhancing credibility and providing a basis for their actions, especially in the event of litigation.

Coming to country level variables, Table 2 reveals that the variable *Disclosure Index* has a positive significant relationship with the dependent variable *DV Assurance Framework Type* (0.190, p-value = 0.000). This suggests that as the disclosure index increases, it is more likely that an international framework will be used. This supports H₅ (H₅ states that the likelihood of an assurance providers' selection of an international framework is expected to be significantly greater for client firms who are located in countries having a high disclosure environment). As mentioned earlier, assurance providers in high disclosure environments may view international frameworks as contributing towards a higher perception of credibility and representing a move towards standardization and hence, providing a basis for comparison.

The variables *Gross Domestic Product (GDP)* (-8.99e-08, p-value 0.014) has a positive significant relationship with the dependent variable *DV Assurance Framework Type*. However, the variable *Market Capitalization* is not significantly associated with the dependent variable *DV Assurance Framework Type* (-0.002, p-value = 0.123). Hence, H₆ is not supported (H₆ states that the likelihood of an assurance provider's selection of an international framework is expected to be significantly greater for client firms that are located in countries with high values of proxies for national economic development (GDP and MarketCap)). This suggests that as gross domestic product increases, it is likely that a national assurance framework will be chosen. This may be due

to the country-of-origin effect (Dichter 1962; Verlegh and Steenkamp 1999), which may lead assurance providers to select a framework that is identified as developed in one's own country. However, the variable *Market Capitalization* is not significantly associated with the dependent variable *DV Assurance Framework Type* (-0.002, p-value = 0.123). As mentioned earlier, higher levels of market capitalization indicate developed capital markets. This may mean that development of markets is not statistically related to the choice between international or national framework, possibly because either framework is viewed as enhancing credibility. In addition, the decision to use either framework is made by the assurance provider, possibly without any significant regard to the development of markets. The assurance provider may choose an assurance framework depending upon its own strategic goals, which may include a move towards standardization or following rules in a particular country.

The variable *CO2Emissions (Carbon Dioxide Emissions)* is not significantly associated with the dependent variable *DV Assurance Provider Type* (0.024, p-value = 0.377). As mentioned earlier, H₇ states that the likelihood of an assurance provider's selection of an international framework is expected to be significantly greater for client firms located in countries associated with high values of carbon dioxide emissions (metric tons per capita)). Hence, H₇ is not supported. This may mean that carbon dioxide emissions are not statistically related to the choice between international frameworks, possibly because either framework is viewed as enhancing credibility. In addition, the decision to use either framework is made by the assurance provider, possibly without any significant regard to the quantity of carbon dioxide emissions. The assurance provider may choose an assurance framework depending upon its own strategic goals, which may include a move towards standardization or following rules in a particular country.

The variable *Regulation* is not significantly associated with the dependent variable *DV Assurance Provider Type* (0.032, p-value = 0.907). As mentioned earlier, H_8 states that the likelihood of an assurance provider's selection of a national framework is expected to be significantly greater for client firms located in countries that have regulation and/or stock exchange reporting requirements. Hence, H_8 is not supported. This may mean that the existence of regulation and/or stock exchange requirement related to sustainability reporting is not statistically related to the choice between international or national framework, possibly because either framework is viewed as enhancing credibility. In addition, the decision to use either assurance framework is made by the assurance provider, possibly without any significant regard to the reporting requirements. The assurance provider may choose an assurance framework depending upon its own strategic goals, which may include a move towards standardization or following a professional code of conduct in a particular country.

9. SUMMARY, LIMITATIONS AND CONCLUSION

This study examines factors influencing the selection of assurance frameworks related to sustainability reporting, when the choice is between international assurance frameworks and national assurance frameworks. Assurance frameworks provide guidelines to assurance providers to enable them to form an opinion about a client company's sustainability report. Similar to Generally Accepted Assurance Standards (GAAS), an assurance framework is a set of systematic guidelines used by assurance provider when providing assurance on companies' sustainability reports, ensuring the accuracy, consistency and verifiability of assurance providers' actions and reports.

This makes assurance frameworks a critical aspect of assurance on sustainability reporting. Assurance on sustainability reports has now become important and the KPMG 2011 report (p. 28) suggests that companies without an external assurance program not only run the risk of restatements in the future, but may also send the message that information related to a company's activities in the sustainability area is not held in as high regard as financial information.

Assurance frameworks can be classified into two categories: international frameworks (ISAE 3000 issued by the IAASB and AA1000AS issued by AccountAbility), and, national frameworks (issued by the respective countries' audit and assurance bodies; for example NIVRA 3410N issued by the Dutch audit and assurance body NIVRA). Using data from 600 companies that are classified into 49 industries and 48 countries, I examine audit firm specific factors, client firm specific factors and country level factors that could influence the selection of assurance frameworks.

The research question in this study is: What are the factors influencing the choice of assurance frameworks, when the choice is between international frameworks and other frameworks? Logistic regression are performed to examine the factors influencing the assurance provider's choice of either an international and national assurance framework. The dependent variable in this model is called *Assurance Framework Type (international vs national)*. Both the Pearson goodness-of-fit test (Pearson $\chi^2 = 599.79$; p-value = 0.3591) and the Hosmer-Lemeshow goodness-of-fit-test (Hosmer-Lemeshow $\chi^2 = 12.11$; p-value = 0.1464) indicate that the logistic model below cannot be rejected. Since both tests are not significant, it can be concluded that the model fits reasonably well.

Only hypotheses H₃ and H₅ are supported. H₃ suggests that a client company's growth rate is not statistically related to the choice between international assurance frameworks and national frameworks. This may be because the assurance provider might view both types of assurance framework as enhancing credibility. H₅ suggests that as the disclosure index increases, it is more likely that an international framework will be used. This may be because assurance providers in high disclosure environments may view international frameworks as contributing towards a higher perception of credibility and representing a move towards standardization and hence, providing a basis for comparison.

This study contributes by investigating the factors that could influence the selection of assurance frameworks in the area of sustainability reporting, where the choice is between international assurance frameworks and national assurance frameworks. Since assurance frameworks provide guidelines to assurance providers to perform various tasks such as engagement acceptance, using the work of an expert, and, obtaining evidence among other things, assurance frameworks form a crucial aspect of providing assurance on and credibility to sustainability reports. Examining the selection of assurance frameworks could provide an indication of the trend in the usage of assurance frameworks. For example, if it is known that assurance providers may select international frameworks in certain parts of the world, it may indicate a trend towards standardization and comparability of assurance reports related to sustainability reporting. This could serve a backdrop for academics to examine whether the procedures used for assurance are same or different when international frameworks are used and when local/regional frameworks are used. Such a fact could also provide audit or assurance bodies in different countries to develop assurance frameworks so that the assurance reports that use a

national assurance framework are comparable with assurance reports that use international assurance frameworks.

This study augments prior research by using a sample of 600 companies from 48 countries and 49 industries. The results of this study suggest that only one factor related to assurance provider (whether the assurance provider is an audit firm or not), two client company specific factors (Number of Company Listings, Financial Condition), one industry level variable (whether the company is member of an environmentally or socially sensitive industry or not), two country specific factors (Disclosure Index, and, Gross Domestic Product) may have significant impact on the choice of assurance frameworks, which may, in turn, indicate assurance provider preferences. For example, it is possible that in high disclosure environments, assurance may be sought from audit firms because of their deep roots in the assurance business due to which they may be viewed as providing greater credibility. Use of international frameworks (ISAE3000 and AA1000AS) may indicate a trend towards standardization of assurance frameworks and ease of comparison. On the other hand, use of national assurance frameworks may indicate a possible country-of-origin effect. Factors that influence the selection of assurance frameworks and the type of assurance framework selected are important because it offers insights into trends and opportunities that shape the growing assurance market in the sustainability area. This could aid companies, assurance providers, standard setting bodies and investors respond to a changing environment in a meaningful way. For example, if it found that the auditing firms do not prefer one kind of framework over the other, it may affect the client companies' choice of an assurance provider. It is possible that the client company may choose a specialist assurance provider/technical expert in order to save costs and have the added benefit of seeking advice on management of sustainability issues.

9.1 Limitations and Future Research

The results of this study are based on a sample of 600 international companies' sustainability assurance reports that have assured sustainability reports for the years 2009, 2010 and 2011. Out of this total of 600 companies, 403 companies have assurance reports have used international assurance frameworks and 197 companies have used national assurance frameworks or systematic evidence based processes. The use of international frameworks by the assurance providers of 403 companies or 67.17% of the sample may indicate a bias in the selection of an assurance framework. Further, the use of systematic evidence based processes may not mean that a national assurance framework has been employed. These 600 companies are from 48 countries and 49 industries, with the latter classified into environmentally or socially sensitive industries or otherwise. In addition, this study follows the GRI 2013 definition of formal assurance, and hence, includes 2 assurance reports that involve commentary by a panel of individuals, if they have used a systematic evidence-based process. These 2 companies are Abbott Laboratories and Royal Dutch Shell plc. Future research should incorporate the name of assurance framework used for the whole sample and have a broader industry classification system.

In the sample used in this study, there are only 5 smaller audit firms. Future research can also explore other audit firm level variables. For example, a future study should explore the differences in the selection of assurance frameworks between Big 4 audit firms, mid-tier audit firms and specialist assurance providers/technical experts. Future research should also explore the differences in assurance when international assurance frameworks are used alone and when they are used together or when international frameworks are used together with national frameworks. Further, there are 10 companies that have used 2 assurance providers. Future research should

explore the use of 2 assurance providers, especially if they have provided assurance jointly or if they have assured different parts of the sustainability report.

Stebbins (2001), in his book titled *Exploratory Research in the Social Sciences* states that “sometimes, exploration in different areas is needed because the world has changed and the old formulas no longer fit sufficiently.” He also adds that “to understand well any phenomenon, it is necessary to start looking at it in broad non-specialized terms. In other words, first observe the woods, and then study its individual trees. (p. viii)” This study is intended to explore the broad subject of assured sustainability reporting, which is increasing in importance in academics (Kolk and Perego 2010, Simnett, Vanstraelen and Chua 2009) and in the capital markets (KPMG 2011, p. 28). The focus on factors influencing the choice of assurance frameworks offers a glimpse into an aspect of assurance that provides a core schema for assurance providers to form an opinion and provide conclusions. Examining the choice of assurance frameworks offers us clues about the issues that are considered relevant by assurance providers. For example, in this exploratory study there is evidence that the assurance provider is more likely to use an international framework when it has operations in a country that encourages disclosure. This study also suggests that the assurance provider is more likely to use an international framework if it an audit firm. One of the questions that may be posed may be the following: if the assurance provider is an audit firm in a country that has a high disclosure index (i.e. in a country that encourages disclosure), is it twice as likely to choose an international framework?

However, as with most exploratory research, this study may not have considered all the factors that go into the selection of assurance frameworks. For example, past and current litigation, especially in the environmental or social arena, may cause the assurance provider to prefer a certain kind of assurance framework over others. Also, administrations and powerful organizations like

stock exchanges and federal agencies may steer companies towards a certain assurance framework. Future research should consider these elements in the examination of the assurance provider's choice of assurance frameworks.

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TABLE 1: PEARSON CORRELATIONS FOR VARIABLES IN MODEL [N=600; Significant Correlations Highlighted]

PC = Pearson Correlation

		1	2	3	4	5	6	7	8	9	10	11
1. DV: Assurance Framework Type (international vs national)	PC	1										
	Sig. (2-tail)											
	N	600										
2. Sustainability Assurance Provider Type (audit-firm vs non-audit firm)	PC	.181*	1									
	Sig. (2-tail)	.000										
	N	600	600									
3. Number of Country Listings	PC	.104*	.029	1								
	Sig. (2-tail)	.011	.475									
	N	600	600	600								
4. Financial Condition	PC	.045	-.044	-.105**	1							
	Sig. (2-tail)	.271	.279	.010								
	N	600	600	600	600							
5. Return on Equity	PC	.054	-.043	-.006	.109**	1						
	Sig. (2-tail)	.189	.290	.876	.008							
	N	600	600	600	600	600						
6. Long Term Debt Equity Ratio	PC	-.085*	-.049	-.087*	-.005	-.130**	1					
	Sig. (2-tail)	.037	.235	.034	.895	.001						
	N	600	600	600	600	600	600					
7. Environmentally or Socially Sensitive Industry	PC	.071	-.034	.066	-.047	.071	-.038	1				
	Sig. (2-tail)	.082	.408	.105	.247	.081	.349					
	N	600	600	600	600	600	600	600				
8. Disclosure Index	PC	.118**	-.188**	.089*	-.108**	.046	-.074	-.018	1			
	Sig. (2-tail)	.004	.000	.029	.008	.263	.069	.662				
	N	600	600	600	600	600	600	600	600			
9. Grpss Domestic Product	PC	-.112**	-.136**	.015	-.019	-.060	.031	-.014	.163**	1		
	Sig. (2-tail)	.006	.001	.713	.651	.144	.445	.725	.000			
	N	600	600	600	600	600	600	600	600	600		
10. Carbon Dioxide Emissions	PC	-.018	-.057	-.076	-.042	-.052	-.002	.027	.037	.342**	1	
	Sig. (2-tail)	.665	.186	.062	.310	.201	.959	.512	.369	.000		
	N	600	600	600	600	600	600	600	600	600	600	
11. Market Capitalization	PC	-.041	-.204**	.086*	.073	.010	-.047	-.011	.231**	-.067	.032	1
	Sig. (2-tail)	.321	.000	.035	.073	.801	.248	.779	.000	.099	.436	
	N	600	600	600	600	600	600	600	600	600	600	600
12. Regulation and/or stock exchange requirement	PC	.008	-.156**	.154**	-.012	.027	-.058	-.010	.554**	.376**	-.199**	.277**
	Sig. (2-tail)	.838	.000	.000	.771	.516	.157	.812	.000	.000	.000	.000
	N	600	600	600	600	600	600	600	600	600	600	600

Correlations in **Yellow are significant at the 0.01 level;

Correlations in *Green are significant at the 0.05 level;

Correlations in Orange are significant at the 0.1 level

TABLE 2: RESULTS - LOGISTIC MODEL [significant variables highlighted]

LR $\chi^2(11) = 60.69$

Prob > $\chi^2 = 0.0000$

Pseudo $R^2 = 0.0802$

Log likelihood = -348.00232

DV: Assurance Framework Type (international vs national)	Coefficient	Std. Error	z	P > z
Sustainability Assurance Provider Type (Audit firm vs specialist assurance provider/technical expert)	0.895	0.196	4.580	0.000
Number of Country Listings	0.313	0.130	2.400	0.016
Financial Condition	1.537	0.785	1.960	0.050
Return on Equity (ROE)	0.093	0.128	0.720	0.469
Long Term Debt Equity Ratio	-0.040	0.035	-1.140	0.254
Environmentally or Socially Sensitive Industry	0.336	0.186	1.810	0.070
Disclosure Index	0.191	0.051	3.770	0.000
Gross Domestic Product (GDP)	0.000	0.000	-2.460	0.014
Carbon Dioxide Emissions (CO2Emissions)	0.024	0.027	0.880	0.377
Market Capitalization (MarketCap)	-0.002	0.002	-1.540	0.123
Regulation (existence of regulation and/or stock exchange requirement related to sustainability reporting)	-0.033	0.280	-0.120	0.907
Constant	-1.440	0.458	-3.150	0.002

No. of observations = 600

No. of observations of the dependent variable marked as 1 = 403

Significant Variables highlighted:

Variables highlighted in yellow are significant at alpha = 0.05 level

Variables highlighted in green are significant at alpha = 0.10 level