Determinants for assurance – a country-level corporate governance system analysis.

Radboud University

Master's Thesis in Economics

Dr. D. Reimsbach

Nijmegen, 2 August 2020

Luc Hartjes | s4434889

Master: Accounting and Control

Abstract

An increasing amount of organisations acquire voluntary third-party assurance on their sustainability reports, which resulted in an increasing amount of research towards the determinants for assurance on sustainability reports. The analysis in this research has been done with 17.036 firm-year observations over the time-period 2002-2017 (17 years) and across 25 countries. The research confirms the positive relationship between corporate sustainability performance, the existence of an audit board committee or the environmental sensitivity of the industry an organisation operates in and third-party assurance on sustainability reports. Further, this research adds the effect of the country-level corporate governance system to these relationships. The study finds that organisations with a better performance on sustainability are more likely to acquire third-party sustainability assurance when they are located in an Anglo-Saxon country. Moreover, there is no evidence that the country-level corporate governance system has an effect on the relationship between the existence of an audit board committee or the environmental sensitivity of the industry the organisations operates in and the determinants for an organisation to acquire third-party assurance on their sustainability reports.

Content

1. Introduction page 4
2. Theoretical background and development of hypotheses page 7
   - 2.1 Determinants for assurance page 7
   - 2.2 Effect of corporate governance systems on the determinants for assurance page 9
3. Research method page 11
   - 3.1 Sample page 11
   - 3.2 Variables page 14
     - 3.2.1 Dependent variable – SRA page 14
     - 3.2.2 Independent variables – CSP, ABC & SENIND page 14
     - 3.2.3 Moderating variable – A country's corporate governance system page 15
     - 3.2.4 Control variables page 15
   - 3.3 Model page 16
4. Results page 18
   - 4.1 Descriptive statistics and correlation page 18
   - 4.2 Test of hypotheses page 19
5. Discussion page 21
   - 5.1 Interpretation page 21
   - 5.2 Limitations page 22
6. Conclusion page 23
7. References page 24

1. Introduction

The recent development and attention to environmental issues encouraged many companies to acquire voluntary third-party assurance on sustainability reports (SRA) (Junior, Best, & Cotter, 2014). This development led to more academic research on sustainability reports. More specifically, the academic world tries to identify the determinants for an organisation to acquire assurance on its sustainability reporting, but the existing literature identifies various determinants to assure sustainability reports (Bollas-Araya, Polo-Garrido, & Seguí-Mas, 2019; Reimsbach, Hahn, & Gürtürk, 2018; Wong & Millington, 2014). These findings raise the question if the determinants for voluntary third-party assurance on sustainability reports are not influenced by an omitted variable. Therefore, this research focuses on country-level corporate governance systems in explaining firm's determinants for SRA.

Existing literature implemented a lot of contextual variables, but still ambiguity exists about the influence of contextual factors on the determinants for SRA. Examples of contextual variables that were implemented in extant literature are media pressure (Gillet-Monjarret, 2015), industry (Martínez-Ferrero & García-Sánchez, 2017; Simnett, Vanstraelen, & Chua, 2009), country (Simnett et al., 2009; Martínez-Ferrero & García-Sánchez, 2017) and the existing of a sustainability department within a company (Ruhnke & Gabriel, 2013). Moreover, Garcia-Sánchez, Cuadrado-Ballesteros and Frias-Aceituno (2016) conclude that the quality and relevance of published sustainability information depends on the institutional environment and the cultural context an organisation operates in. Further, the authors (Garcia-Sánchez et al., 2016) indicate that future research should be done towards the effects of corporate governance on sustainability reporting. Existing literature also examined the effect of a corporate governance system at company-level on the decision to acquire SRA (Bae, Masud, Kaium, & Kim, 2018; Martínez-Ferrero & García-Sánchez, 2017; Peters & Romi, 2015; Manning, Braam, & Reimsbach, 2019). Therefore, this research will explore the determinants for SRA and additionally add the moderating effect of the country-level corporate governance system.

Weimer and Pape (1999) developed a taxonomy of corporate governance systems. The taxonomy consists out of four different country-level corporate governance systems: Anglo-Saxon, Germanic, Latin and Japanese. The Anglo-Saxon corporate governance system is a market-oriented system, while the Germanic, Latin and Japanese ones are network-oriented. In the Germanic system the companies usually have a two-tier board, while the other systems have a one-tier board. In the Anglo-Saxon countries the time horizon of economic relationships is short, while the others ones are focused on long-term economic relationships (Weimer & Pape, 1999).

Mueller (2006) used Anglo-Saxon, Continental European and Japanese systems to examine the effect of corporate governance on economic performance, where the conclusion is that a country

should create corporate governance institutions that create large equity markets. The Anglo-Saxon system had a better economic performance than the Germanic or Japanese system. The Continental European system is associated with more severe agency and asymmetric-information problems compared to Anglo-Saxon systems (Gugler, Mueller, & Yurtoglu, 2007).

Kolk (2008) studied the relationship between sustainability and corporate governance and found significant differences between companies from the United States, Japan and Europe. More specifically, European companies (45,2%) use far more external verification on sustainability reports than the companies based in the US (2,9%), while the Japanese companies (24,3%) were approximately in the middle. A possible explanation for these differences can be found in the fact that the demand for control is higher when a country's institutions are weak (Kolk & Perego, 2010). Moreover, these studies show that 'institutions matter' and the corporate governance system, at country-level, can have implications for the decision to acquire SRA. This research will give a deeper insight in how a country's corporate governance system affects what determines an organisations assurance decisions on sustainability reports.

In previous literature (Braam & Peeters, 2018; Kolk & Perego, 2010; Martínez-Ferrero & García-Sánchez, 2017; Simnett et al., 2009) multiple determinants for SRA are identified. Identified determinants are corporate sustainability performance, stakeholder orientation, legal system, cultural development, enforcement mechanisms and institutional factors. The authors also identified the size of the company, the industry were the organisation operates in and the leverage of the company as significant control variables for SRA. In this research three determinants will be taken into account to see the influence of a country's corporate governance system on the determinants for an organisation to acquire SRA.

This research wants to examine how the determinants to acquire assurance on sustainability is affected by a country's corporate governance system. Therefore, the research question is:

How does country-level corporate governance affect what determines an organisation's decision to acquire sustainability assurance?

By getting an understanding how the determinants for SRA are influenced by a country's corporate governance system, more insight into the reasons for a firm to acquire SRA is gathered. The influence of corporate governance systems at a country-level is underexplored and this research argues that corporate governance systems are fundamental to understand the differences in the determinants for SRA on a country level. Therefore, the results for the research are relevant for governments that want to steer towards a more sustainable society. Also, this research is relevant for companies in determining if they will acquire SRA. Further, stake- and shareholders will be able to get a better

understanding of the reasoning behind a company's choice to implement SRA. Last, the research provides the society with knowledge about the determinants for SRA.

To test the research question a sample is gathered of 17.036 firm observations in the time period 2002-2018. The sample consists of large companies from 25 countries, the United States, Mexico, South Africa, Australia, Japan and 20 European countries. These countries are divided based on the classification of corporate governance systems from Weimer and Pape (1999), to get an understanding of the moderating effect of a country's corporate governance system on the relationship between the determinants for assurance and the adoption of SRA. The determinants for assurance that are implemented in the model are: Corporate Sustainability Performance (CSP), the existence of an Audit Board Committee (ABC) and the environmental sensitivity of the industry the organisation operates in (SENIND). The model that will be used is a logistic regression model, because the dependent variable (SRA) is a dummy variable. In the model there will be multiple interaction terms to investigate the moderating effect of corporate governance systems on the determinants for SRA.

This research finds evidence of the positive relationship between CSP and SRA and concludes that this relationship becomes stronger for organisations located in non-Anglo-Saxon countries. Further, the results show that organisations operating in environmental sensitive industries are more likely to acquire SRA. The research finds a negative relationship between ABC and SRA, contrary to the developed hypothesis. The research does not find any prove that the relation of ABC and SENIND on SRA is moderated by the country-level corporate governance system. The results add insights in the determinants for assurance and how the determinants dependent on the country the organisation operates in. Also, the results test the signaling theory and legitimacy theory.

The remainder of the research is structured as follows. First, the literature is reviewed and the hypotheses are developed. Next, the research method is described and next the results are presented. Finally, the research is discussed and the limitations are presented and the final chapter concludes on the findings.

2. Theoretical background and development of hypotheses

2.1 Determinants for assurance

The focus of most academic literature is on legitimacy theory and signaling theory to explain the determinants for SRA (Braam & Peeters, 2018; Connelly, Certo, Ireland, & Reutzel, 2011; Hahn & Lülfs, 2014; Lys, Naughton, & Wang, 2015; O'Donovan, 2002; Odriozola & Baraibar-Diez, 2017). Legitimacy theory indicates that companies acquire SRA to legitimate their business. Based on the legitimacy theory companies with inferior sustainability performance will acquire SRA to legitimate their inferior performance (Braam & Peeters, 2018). Contrary to the legitimacy theory, the signaling theory explains the adoption of SRA according to the reasoning that companies with superior sustainability performance want to reveal that performance to the world (Simnett et al., 2009; Hahn & Kühnen, 2013). The theories give different explanations why companies acquire SRA, but neglect the effect of a country's corporate governance system.

Multiple determinants for SRA are identified in prior literature. The research of Braam and Peeters (2018) examines the relationship between Corporate Sustainability Performance (CSP) and SRA. The results show a significant positive relationship, which can be explained based on the signaling theory. Further, a significant association between the GRI application levels and the adoption of SRA is described inside organisations (Ruhnke & Gabriel, 2013). In the same research, Ruhnke and Gabriel (2013) found a significant relationship between the existing of a sustainability department and the adoption of SRA. According to Simnett et al. (2009) organisations in greater need of creditability are more likely to acquire SRA. Also, Kolk and Perego (2010) concluded that country-specific factors are important for the likelihood to acquire SRA. For instance, companies located in stakeholder-oriented countries acquire more SRA and the legal environment has a significant influence on the decision to acquire SRA. Simnett et al. (2009) support the effects of the country-specific factors identified by Kolk and Perego (2010) and additionally find that companies operating in industrial industries and companies with a large social footprint are more likely to acquire SRA. Additionally, Martínez-Ferrero and García-Sánchez (2017) explain the adoption of SRA with country-specific and industry-specific factors. The results indicate that companies make the decision to acquire SRA according "the legal system and enforcement of the country in which they operate – the stakeholder orientation – and according to the degree of cultural development of such a context." (Martínez-Ferrero & García-Sánchez, 2017, p. 116).

In this research the effects of the above mentioned corporate governance systems on the determinants for assurance are measured. To limit the research a selection has been made for the determinants of assurance. CSP, ABC and SENIND are the determinants this research focuses on. The

selection has been made because of the differences between these three determinants. CSP focuses on the sustainability performance of the company, while ABC focuses on the internal presence of an audit committee expertise in the company's structure and SENIND shows the nature of the sector the organisation operates in. The three determinants show three different aspects of an organisation and therefore these determinants will be used to show the effects of the corporate governance system on the decision for an organisation to acquire SRA. Moreover, from the large number of determinants identified in previous literature, these three determinants are chosen to cover as much different aspects that influence an organisation choice to acquire SRA, but to keep the research feasible.

Existing literature (Braam & Peeters, 2018; Hahn & Kühnen, 2013; Manning et al, 2019; Simnett et al., 2009) finds that organisations with a 'good' CSP are more likely to have SRA by a third party. These findings are reasoned with the signaling theory. The signaling theory explains that organisations with a high CSP are issuing SRA to show their good performance to the world. The signaling theory explains why information asymmetry is reduced by sending relevant information (Bae et al., 2018). Manning et al. (2019) find that organisations are trying to get a competitive advantage by disclosing their CSP. Therefore,

Hypothesis 1: *There is a positive relationship between an organisation's CSP and the likelihood that an organisation acquires SRA by a third party.*

Ruhnke and Gabriel (2013) conclude that the existence of a sustainability department shows the interest of an organisation in sustainability. Further, (Simnett et al., 2009; Zorio, García-Benau, & Sierra, 2013) find that companies disclose sustainability reports to show their interest in sustainability. Al-Shaer & Zaman (2018) find that the independence and experience of an ABC is positively related with SRA. More general, the authors conclude that the existence of an ABC adds creditability to a sustainability report. Therefore, organisations that have an ABC are more likely to acquire SRA.

Hypothesis 2: *Organisations with an ABC are more likely to acquire SRA by a third party than organisations without an ABC.*

Following the reasoning of Simnett et al. (2009), we expect organisations operating in industries with a greater social footprint will have a higher demand for SRA.

Hypothesis 3: *Organisations operating in an environmental sensitive industry are more likely to acquire SRA by a third party than organisations operating in a non-environmental sensitive industry.*

2.2 Effect of corporate governance systems on the determinants for assurance

Previous literature (De Jong, 1989; Scott, 1985; Weimer & Pape, 1999) makes a distinction between four groups of prosperous countries with different corporate governance systems: The Anglo-Saxon system, the Germanic system, the Latin system and the Japanese system. There are different definitions of corporate governance systems on country-level. For instance, the Germanic system is sometimes called the European system, the Latin system can be called the French system and sometimes the Scandinavian corporate governance system is included and distinguished from the Germanic system (Gugler, Mueller & Yurtoglu, 2004).

The Anglo-Saxon corporate governance system is associated with more finance-friendly institutions and more aggressive management (Siepel & Nightingale, 2014). Best known Anglo-Saxon countries are the United States of America and the United Kingdom, but more old colonies of the United Kingdom are using the Anglo-Saxon corporate governance system. The system is known for its shareholder orientation and its common law system. Previous literature concluded that the Anglo-Saxon corporate governance system align managements' and shareholders' interests and therefore, gives high returns on investments (Gugler et al., 2004), but it should be noted that the Germanic corporate governance system can have the same return on investment as the Anglo-Saxon system when the companies have widely distributed shareholders (Gugler et al., 2004). The system is market-orientated, while the other systems are more network orientated (Weimer & Pape, 1999).

The Germanic corporate governance is a network-orientated system where ownership is concentrated, in general, in an oligarchic group (Weimer & Pape, 1999). Best known Germanic countries are Germany and the Netherlands, but almost all countries in northern Europe have a Germanic corporate governance system. The system is focused on the long-term and is orientated on their stakeholders. The institutional environment is not that finance friendly and the capital markets are seen as relatively illiquid (Kaplan, 1997).

The Latin corporate governance system is a network-orientated system where ownership is concentrated, in general, in an oligarchic group (Weimer & Pape, 1999). The system has a lot of similarities with the Germanic corporate governance system, but still there are some differences. The Germanic system is more financed by banks, while the Latin system is more financed by financial holdings and the government. The board is mostly one-tier, while the Germanic system has mostly a two-tier board. The system is focused on the long-term, but has moderate performance compensation (Weimer & Pape, 1999).

The Japanese corporate governance system is a network-orientated system where ownership is hold by banks, financial institutions and employees. Japan is seen as an isolated system. The Japanese system has low ownership concentration compared to the Latin or Germanic system and is focused on

the long-term (Weimer & Pape, 1999). The Japanese capital market is less liquid then the Anglo-Saxon system, but more liquid then the Germanic system (Kaplan, 1997).

In the existing literature the most remarkable differences in corporate governance systems are between the Anglo-Saxon corporate governance system on one hand and the other three (Germanic, Latin and Japanese) on the other hand. Therefore, the focus of this research is on the difference between the Anglo-Saxon corporate governance system and the other systems. From now on, the three other systems are grouped in the term non-Anglo-Saxon countries, similar to previous literature from accounting and psychology (Carmona, 2004; Carrà, Sciarini, Segagni-Lusignani, Clerici, Montomoli, & Kessler, 2011).

More specifically, previous literature finds that organisations in stakeholder-orientated countries are more likely to implement SRA of an independent third party than organisations in shareholder-orientated countries (Braam & Peeters, 2018; Kolk & Perego, 2010; Simnett et al., 2009) and that organisations in stakeholder-orientated countries with a superior CSP choose for a broader SRA (Braam & Peeters, 2018). Thus,

Hypothesis 4: *The relationship between CSP and SRA is stronger for organisations located in countries that have a non-Anglo-Saxon corporate governance system than for organisations located in countries that have an Anglo-Saxon corporate governance system.*

Considering that the existence of a ABC is part of the long-term vision of an organisation and the countries with a non-Anglo-Saxon corporate governance system are more focused on the long-term, the organisations in non-Anglo-Saxon countries are more likely to set up a ABC. Thus,

Hypothesis 5: *The effect of an ABC existence on the demand for SRA is stronger for organisations located in countries that have a non-Anglo-Saxon corporate governance system than for organisations located in countries that have an Anglo-Saxon corporate governance system.*

Previous literature (Choi & Wong, 2007; Simnett et al., 2009) found a lower demand for SRA in countries with stronger legal systems. Therefore, we expect the industrial effect to be more positive in countries with weaker legal systems. Anglo-Saxon countries use the common law system, while the non-Anglo-Saxon countries use the civil law system. The common law system is known for its legal claims when organisations are misleading shareholders. Thus,

Hypothesis 6: *The effect of organisations operating in an environmental sensitive industry on the demand for SRA is stronger at organisations located in countries that have a non-Anglo-Saxon corporate governance system than for organisations located in countries that have an Anglo-Saxon corporate governance system.*

3. Research method

3.1 Sample

The sample consists of 17.424 firm-year observations out of 25 countries during the years 2002-2018 (17 years). The included countries are European countries (twenty of the twenty-five countries are from Europe), the United States of America, Australia, Japan, Mexico and South-Africa. The countries included in the sample are chosen in order to have all four corporate governance systems included. Further the countries are chosen so that there is an equal distribution between organisations located in Anglo-Saxon and non-Anglo-Saxon countries to test the hypotheses. All firms in the sample are publicly traded and the sample data is gathered out of Thomson Reuters' Eikon and its ESG database. The missing observations are omitted from the sample, what results in the 17.424 (8.377 Anglo-Saxon and 9.047 non Anglo-Saxon) firm-year observations. All organisations with the required information are included in the sample. Further, to decrease the effect of outliers on the results all data is winsorized, the points below the 1 percent or above the 99 percent threshold are replace by the mean of the variable.

The total of 25 countries are divided in subsamples according to their corporate governance system. The distribution is shown in table 1. These subsamples are used to compare the effects in different corporate governance systems. Table 2 and 3 show a tabulated overview of all observations across the countries and years. Australia, Ireland, United Kingdom, United States and South-Africa are considered as Anglo-Saxon countries, while the other countries are considered as non Anglo-Saxon.

Corporate governance system	Countries	Total countries
Japanese	Japan	1
Latin	Belgium, France, Greece, Italy, Mexico, Portugal, Spain, Turkey	8
Germanic	Austria, Czech Republic, Denmark, Finland, Germany, Hungary, the Netherlands, Norway, Poland, Sweden, Switzerland	11
Anglo-Saxon	Australia, Ireland, United Kingdom, United States, South-Africa	5

Table 1: The distinction in countries according to their corporate governance systems.

Country	Year								
	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	6	7	9	12	12	4	5	6	6
Belgium	12	12	14	18	18	12	11	12	12
Switzerland	27	27	30	32	33	27	26	25	24
Czech republic	0	0	0	0	0	0	1	2	2
Germany	31	31	45	54	55	36	45	49	47
Denmark	11	12	15	17	17	10	9	12	14
Spain	17	17	29	32	33	23	31	33	32
Finland	13	13	15	19	20	12	13	13	16
France	36	36	51	62	64	44	53	59	69
Greece	11	11	13	16	16	7	11	10	8
Hungary	0	0	0	0	0	0	2	3	3
Italy	18	21	28	32	32	21	25	29	28
Japan	26	28	197	336	341	288	261	206	186
Mexico	1	1	1	1	1	2	8	7	11
the Netherlands	15	15	19	22	22	20	22	22	20
Norway	10	10	13	16	17	9	9	10	11
Poland	0	0	0	0	0	1	0	4	9
Portugal	2	2	2	5	7	5	5	6	4
Sweden	23	23	31	35	36	15	21	22	28
Turkey	0	0	0	0	0	0	2	5	11
Total non Anglo-Saxon countries	**259**	**266**	**512**	**709**	**724**	**536**	**560**	**535**	**541**
Australia	7	7	50	59	59	39	43	42	56
Ireland	3	3	3	6	6	5	4	2	5
United Kingdom	63	66	159	191	196	142	141	143	143
United States	293	296	422	480	487	303	295	236	267
South Africa	1	1	1	1	1	1	12	18	43
Total Anglo-Saxon countries	**367**	**373**	**635**	**737**	**749**	**490**	**495**	**441**	**514**
Total	**626**	**639**	**1147**	**1446**	**1473**	**1026**	**1055**	**976**	**1055**

Table 2: Firm-observations across countries and years over the years 2002-2010.

Country	Year								
	2011	2012	2013	2014	2015	2016	2017	2018	Total
Austria	5	6	6	7	7	7	9	11	**125**
Belgium	8	6	7	8	8	7	9	11	**185**
Switzerland	24	18	20	21	23	24	28	28	**437**
Czech republic	1	1	1	0	0	0	0	1	**9**
Germany	41	38	38	41	46	51	76	81	**805**
Denmark	12	10	9	10	13	14	12	14	**211**
Spain	30	31	29	31	32	36	39	39	**514**
Finland	17	17	16	19	20	20	22	23	**288**
France	66	66	78	82	88	92	100	95	**1141**
Greece	9	10	8	10	10	9	9	7	**175**
Hungary	3	3	3	3	3	3	3	3	**32**
Italy	24	24	25	26	26	28	40	46	**473**
Japan	194	157	158	159	157	161	173	180	**3208**
Mexico	12	13	12	14	14	18	23	24	**163**
the Netherlands	20	17	20	20	22	25	27	28	**356**
Norway	12	9	8	8	8	8	9	10	**177**
Poland	4	6	5	8	8	6	13	10	**74**
Portugal	6	5	4	4	3	3	7	7	**77**
Sweden	29	24	26	26	27	31	44	50	**491**
Turkey	7	7	6	9	11	13	18	17	**106**
Total non Anglo-Saxon countries	**524**	**468**	**479**	**506**	**526**	**556**	**661**	**685**	**9047**
Australia	52	36	40	44	46	53	64	69	**766**
Ireland	4	3	2	2	2	3	3	2	**58**
United Kingdom	128	96	104	102	112	116	117	116	**2135**
United States	190	154	169	170	195	228	252	278	**4715**
South Africa	58	85	82	78	81	80	80	80	**703**
Total Anglo-Saxon countries	**432**	**374**	**397**	**396**	**436**	**480**	**516**	**545**	**8377**
Total	**956**	**842**	**876**	**902**	**962**	**1036**	**1177**	**1230**	**17424**

Table 3: Firm-observations across countries and years over the years 2011-2018.

3.2 Variables

3.2.1 Dependent variable – SRA

Assurance on sustainability reports (SRA)

The dependent variable SRA reveals if an organisation engages a third party to assure its sustainability reporting. It is a dummy variable that equals one if a third party is assuring the sustainability information and zero otherwise. The variable is consistent with previous literature (Braam, & Peeters, 2018; Ruhnke, & Gabriel, 2013).

3.2.2 Independent variables – CSP, ABC & SENIND

Corporate Sustainability Performance (CSP)

To measure CSP the environment score is used, which shows a weighted relative rating based on the organisations revealed environmental information. The environmental score is the total of the resources the organisation uses, the emissions of the organisation and the sum of innovation in the organisation to reduce the environmental costs. Further, the social score is added to this value to include the organisations relative rating on revealed social information. The social score is the total of the efforts of an organisation to satisfy their workforce, the protection of human rights, being good for the community and taking responsibility with their products. Both scores are extracted from Thomson Reuters' ESG database (previously ASSET4). The average of these scores is used as an indication of an organisations CSP. This variable is consistent with previous literature (Braam & Peeters, 2018; Cheng, Ioannou, & Serafeim, 2014).

Audit board committee (ABC)

The existence of an ABC is measured with a dummy variable out of Thomson Reuters ESG database. The dummy variable equals one if the organisation has an ABC and zero otherwise. Previous literature (Al-Shaer & Zaman, 2018) found that ABC's have an positive and significant relationship with SRA. Trotman and Trotman (2015) found that ABC are concerned with the quality of sustainability reports and therefore an organisation with an ABC can be more likely to acquire SRA.

Environmentally sensitivity of the industry

Consistent with previous literature (Braam & Peeters, 2018; Patten, 2002; Simnett et al., 2009) a dummy variable is added that makes a distinction between non-environmental sensitive industries and industries that are sensitive for environmental issues. The companies operating in the oil, paper, chemical, metal or utility industry are seen as environmental sensitive, while companies in all other industries are seen as environmental neutral. The environmentally sensitive companies carry a bigger risk and therefore will more likely implement SRA to ensure confidence of their stakeholders.

3.2.3 Moderating variable – A country's corporate governance system

The moderating variable used in the research is the classification of corporate governance system that is applicable to a country. Based on De Jong (1989), Scott (1985) and Weimer and Pape (1999) the countries in the sample are classified to have an Anglo-Saxon, German, Latin or Japanese corporate governance system. To test the hypotheses a distinction in these systems is made between the Anglo-Saxon corporate governance system and the non-Anglo-Saxon corporate governance systems. Included is a dummy variable, where the Japanese, Latin and Germanic corporate governance systems have a value of zero, while the Anglo-Saxon corporate governance systems have a value of one. In total the sample exists of 17.036 (8.178 Anglo-Saxon and 8.858 non-Anglo-Saxon) firm-year observations. The variable is used to measure the effects of the difference in corporate governance systems to the determinants for SRA.

3.2.4 Control variables

Consistent with previous literature (Braam & Peeters, 2018; Manning et al., 2019; Ruhnke & Gabriel, 2013; Simnett et al., 2009) the control variables are return on assets (ROA), leverage (LEV), size (lnSIZE) and year. Additionally, the variable media is added to control for the media exposure that is given to the company's sustainability performance (Manning et al., 2019). See table 4 for a definition of all variables.

Variable	Definition	Data source
SRA	Dummy that indicates if the sustainability report is assured by a third party (Manning et al., 2019).	Thomson Reuters ESG database
CSP	Company's score on self-reported sustainability information, measured by the average of the environmental and social score (Braam & Peeters, 2018; Cheng et al., 2014).	Thomson Reuters ESG database
SENIND	Dummy that indicates if a company operates in an environmental sensitive industry (Patten, 2002).	Thomson Reuters' Eikon database
SD	Dummy that indicates if a company has a SD (Ruhnke & Gabriel. 2013).	Thomson Reuters' ESG database
ABC	Dummy that indicates if a company has an ABC	Thomson Reuters' ESG database
CGS	Dummy variable that equals 1 if the organisation is based in a country with an Anglo-Saxon corporate governance system, based on the classification of Weimer and Pape (1999) and zero if not.	
MEDIA	Variable that indicates if a company's negative controversies on sustainability are reflected in the global media.	Thomson Reuters' ESG database
ROA	Income divided by total assets (Braam & Peeters, 2018; Ruhnke & Gabriel, 2013; Simnett et al., 2009).	Thomson Reuters' Eikon database
LEV	Total debt divided by year-end total assets (Braam & Peeters, 2018; Ruhnke & Gabriel, 2013; Simnett et al., 2009).	Thomson Reuters' Eikon database
SIZE	Logarithm of the total assets a company owns at year end (Braam & Peeters, 2018; Ruhnke & Gabriel, 2013; Simnett et al., 2009).	Thomson Reuters' Eikon database
Year	Dummy variable included to control for variables that are constant over time.	Thomson Reuters' Eikon database

Table 4: Definition of all variables.

3.3 Model

To test the sample a logistic regression is performed, due to the fact that the dependent variable is a dummy. Further interaction terms are included to test the difference in effects between countries where an Anglo-Saxon corporate governance system is applicable and countries that have a non-Anglo-Saxon corporate governance system. The following logistic regression model is used to test the hypotheses:

$$SRA = \beta_0 + \beta_1 CSP + \beta_2 ABC + \beta_3 SENIND + \beta_4 CSP*CGS + \beta_5 ABC*CGS + \beta_6 SENIND*CGS + \beta_7 Media_{CONTROL} + \beta_8 ROA_{CONTROL} + \beta_9 Leverage_{CONTROL} + \beta_{10} Size_{CONTROL} + \beta_{11} Year_{CONTROL} + \varepsilon$$

Table 5 shows the conceptual model followed by the research. In the model the determinants are CSP, ABC and SENIND, whereby we expect a moderating effect of a country's corporate governance system on the effect of the determinants on SRA.

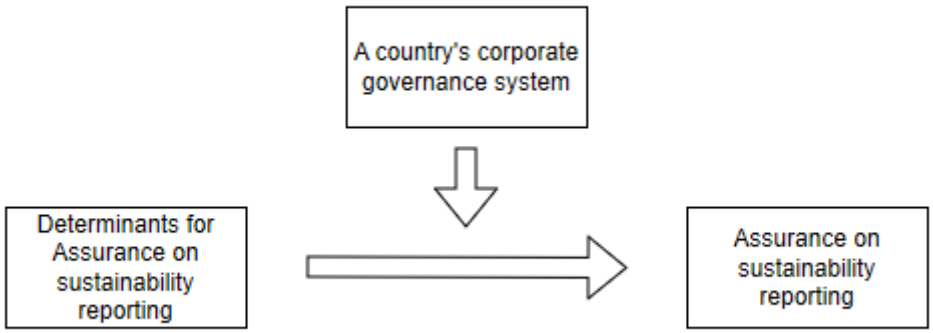

Table 5: The conceptual model

4. Results

4.1 Descriptive statistics and correlation

Table 6 shows the descriptive statistics of all variables used in the analysis. Also, in table 6 observations from organisations located in Anglo-Saxon and Non-Anglo-Saxon countries are split up to give more insight in the analysis. In total 17.036 firm-year observations are in the sample, whereby 48,5% (8.269 firm-year observations) did acquire SRA. Further, Table 6 shows the overview of ABC in the sample. In total 92,83% (15.815 firm-year observations) did have an audit board committee. Also, Table 6 shows the overview of industrial sensitivity in the sample. In total 21,34% (3.635 firm-year observations) where from an environmental sensitive industry. The last independent variable, CSP, has 17.036 firm-year observations with a mean of 49,169.

Variable	Complete sample			Subsamples					
				Anglo-Saxon			Non-Anglo-Saxon		
	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.
SA	17.036	0,485	0,5	8.178	0,383	0,486	8.858	0,58	0,494
CSP	17.036	49,161	25,082	8.178	46,125	25,274	8.858	51,964	24,574
ABC	17.036	0,928	0,258	8.178	0,985	0,121	8.858	0,876	0,33
SENIND	17.036	0,213	0,41	8.178	0,213	0,409	8.858	0,214	0,41
MEDIA	17.036	86,298	26,977	8.178	83,064	29,755	8.858	89,285	23,744
ROA	17.036	5,916	6,346	8.178	7,024	7,04	8.858	4,893	5,434
LEV	17.036	40,26	23,815	8.178	39,88	23,951	8.858	40,611	23,685
lnSIZE	17.036	16,247	1,671	8.178	16,08	1,702	8.858	16,401	1,626

Table 6: Descriptive statistics of variables used in analysis.
See table 4 for the definition of the variables.

To test the model for multicollinearity the Pearson-correlation test is executed and the results can be found in table 7. The results indicate some significant correlations between the independent variables in the model. According to Cohen (1988) correlations above 0,5 indicate problematic multicollinearity, but these problems are not present in the model.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) CSP	1.000						
(2) ABC	0.063*	1.000					
(3) SENIND	0.078*	0.010	1.000				
(4) MEDIA	-0.258*	-0.064*	-0.020*	1.000			
(5) ROA	-0.055*	0.011	-0.033*	0.041*	1.000		
(6) LEV	0.117*	0.043*	-0.015	-0.094*	-0.277*	1.000	
(7) lnSIZE	0.403*	0.057*	-0.027*	-0.342*	-0.287*	0.381*	1.000

Table 7: Pairwise correlations
* shows significance at the .05 level
See table 4 for the definition of the variables.

4.2 Test of hypotheses

	Model 1		Model 2		Model 3		Model 4	
CSP	0,066***	(61,58)	0,074***	(47,85)	0,041***	(32,55)	0,047***	(27,21)
ABC	-0,988***	(-12,43)	-0,811***	(-9,34)	-0,925***	(-9,39)	-0,594***	(-5,54)
SENIND	0,415***	(8,91)	0,372***	(5,48)	0,496***	(9,74)	0,553***	(7,37)
MEDIA	0,005***	(7,13)	0,003***	(4,00)	0,004***	(5,20)	0,001	(1,27)
ROA	-0,034***	(-10,20)	-0,025***	(-7,39)	-0,019***	(-5,20)	-0,007*	(-1,89)
LEV	-0,004***	(-4,43)	-0,003***	(-3,60)	-0,004***	(-3,76)	-0,003***	(-2,95)
lnSIZE	0,061***	(4,28)	0,046***	(3,19)	0,231***	(14,14)	0,213***	(12,86)
CSP*CGS			-0,016***	(-7,82)			-0,014***	(-6,65)
ABC*CGS			0,182	(1,58)			-0,070	(-0,55)
SENIND*CGS			0,103	(1,10)			-0,076	(-0,73)
Year	No		No		Yes		Yes	
Constant	-3,689***	(-15,26)	-3,574***	(-13,39)	-7,157***	(-21,30)	-6,899***	(-19,95)
Observations	17.036		17.036		17.036		17.036	
Pseudo r^2	0,310		0,322		0,405		0,422	

Table 8: Multilevel logistic regression results.
*** indicates a significance at the .01 level.
See table 4 for the definition of the variables.

Table 8 shows the results of the four different logistic regressions performed. The logistic regressions examine the relationship of CSP, ABC and SENIND on SRA. In the model 1 the dependent, independent and control variables are included, in model 2 interaction terms for CGS are added to the regression, in model 3 year dummies are included instead of the interaction terms in model 2 and in model 4 both interactions terms and year dummies are included in the model. Model 1 is the basic regression to test hypothesis 1, 2 and 3, while model 2 and model 4 test hypothesis 4, 5 and 6. All four models show significant positive results between SRA and CSP. Whereby the interaction terms make the positive effect stronger, while year dummies weaken the positive effect. The results support H1, organisations

with a higher CSP will be more likely to acquire SRA. Moreover, CSP*CGS is negative and significant in model 2 and 4, which indicates that the effect of CSP on SRA is smaller when the organisation is located in an Anglo-Saxon country. Companies in Anglo-Saxon countries are less likely to acquire SRA when their CSP is better compared to organisations in non-Anglo-Saxon countries, which supports H4. In all models the relation between ABC and SRA is significant and negative, which indicates that the existence of an ABC decrease the likelihood an organisation acquires SRA. The results do not support H2, because the results show that companies with an ABC are less likely to acquire SRA. In all models the relation between SENIND and SRA is significant and positive, which indicates that companies operating in an environmental sensitive industry are more likely to acquire SRA. The results support H3, that companies from an environmental sensitive industry are more likely to acquire SRA. The results on the other interaction terms (ABC*CGS and SENIND*CGS) are not significant and therefore there is no support for H5 and H6. Further, the pseudo r-squared increases over the models, from 0,308 to 0,421, which shows a better explanation of SRA when both interaction terms and year dummies are included in the model.

5. Discussion

5.1 Interpretation

The results support previous literature (Braam & Peeters, 2018; Hahn & Kühnen, 2013; Manning et al., 2019; Simnett et al., 2009) that organisations with a better corporate sustainability performance (CSP) are more likely to acquire SRA. Moreover, these results support the signaling theory, that indicates that SRA is profitable for companies with a CSP that is better than the CSP of the competitors. The findings support hypothesis 1, what can be explained by the conclusion of Bae et al. (2018) that signaling theory is based on the assumption that SRA reduces information asymmetry, which is more profitable for the firm when they have a good CSP. Further, the effect of an Anglo-Saxon corporate governance system reduces the effect of CSP on SRA and therefore support hypothesis 4. Organisations in countries with another corporate governance system are more likely to acquire SRA when they have a CSP that is better than the CSP of their competitors. The most likely reason for this is the short-term focus of organisations in Anglo-Saxon countries. The signaling of the superior CSP is expensive in the short term (i.e. audit costs) and therefore companies in Anglo-Saxon countries will less likely to acquire SRA to signal their CSP. On the other hand companies in non-Anglo-Saxon countries will be more likely to acquire SRA, when the benefits will be higher than the costs in the long term.

The finding that the existence of an audit board committee (ABC) has a negative significant relationship is contrary to hypothesis 2, where the prediction was that organisations with an ABC are more likely to acquire SRA. A possible explanation of these contrary findings can be that organisations with an ABC will not use the SRA to legitimize their bad CSP. To legitimize bad CSP with SRA the published sustainability reports will be of low quality (Braam & Peeters, 2018). There is no significant result on the interaction variable of ABC in Anglo-Saxon countries, therefore the country-level corporate governance system has no influence on the effect of ABC on SRA. To summarize, both hypothesis 2 as hypothesis 5 are rejected.

The results confirm hypothesis 3 that the environmental sensitivity of the industry (SENIND) an organisation operates in has a positive effect to SRA. Companies operating in an environmental sensitive industry are under greater public pressure to acquire SRA (Simnett et al., 2009). These industries harm the environment with their main business (oil, paper, chemical, metal or utility), most due their use of natural resources. These industries are publicly known for harming the society and want to show that they do something in return. There is no significant result on the interaction variable of SENIND in Anglo-Saxon countries, therefore the country-level corporate governance system has no influence on the effect of SENIND on SRA. Hypothesis 6 is rejected by the results.

5.2 Limitations

This study has several limitations. First, the SRA variable is a dummy that only indicates if a company acquired third party assurance on a published sustainability report. SRA does not give information about the quality or scope of the sustainability report. Second, all data is based on availability in Thomson Reuters ESG database, which only includes public listed firms and therefore smaller organisations are not taken into account. Third, this research focuses on three determinants (CSP, ABC and SENIND), while there are a lot more determinants that influence an organisation's decision to acquire SRA. Therefore, future research should implement more different determinants to get a broader view. Fourth, due to the voluntary setting of sustainability reports, a problem of self-selection bias is in the sample. The organisations can chose whether they want to report the information in the ESG database and therefore the information available is self-selected by the organisations. Last, the research limited to an amount of 25 countries, which can affect the results. Future research can include more countries or smaller organisations if the data will be available. Also, future research can do the study over when SRA is mandatory and then focus on the quality of sustainability reports.

6. Conclusion

This research examines the relation between three determinants for assurance (CSP, ABC and SENIND) and SRA. These determinants have been identified by previous literature, but this research provides additional empirical evidence of the relationship between these determinants and SRA. Further, this research adds the moderating effect of the country-level corporate governance system on this relationship. Previous literature identified the institutions of the country that an organisation is located in as an important moderating variable, but research that really looked into this relationship was not available. The results show that CSP and SENIND have a positive relationship towards SRA, but ABC does have a negative effect on SRA. Moreover, only the relationship between CSP and SRA is really affected by the corporate governance system of the country the organisation is located in. CSP has a stronger effect on SRA in non-Anglo-Saxon countries, which can be explained by the fact that organisations in non-Anglo-Saxon countries are more focused on the short term. Therefore, this research supports the signaling theory and provides more insight into the institutional effects that moderate the relationship between CSP and SRA. It is also interesting to see that ABC has a negative relationship towards SRA. A possible reason for this relationship can be that an organisation that has more knowledge of assurance, will be less likely to use low quality assurance to legitimate their low CSP.

First, the findings provide the world with additional knowledge to understand the decision of organisations to acquire SRA. Second, Stakeholders can better understand the reasoning behind the decision and shareholders can understand the benefits on the long term. Third, institutions will have better insights on their influence towards organisations in their decision to acquire SRA and regulators can steer towards a more sustainable world, due to the additional knowledge this study provides. Fourth, strict rules can be legitimated by the benefits for society in the long term. Concluding, additional research on the effects of country-level corporate governance system on determinants for SRA is required. Moreover, more determinants should be included in the research to see which determinants are influenced by country-level corporate governance systems.

7. References

Al-Shaer, H., & Zaman, M. (2018). Credibility of sustainability reports: The contribution of audit committees. *Business strategy and the environment*, *27*(7), 973-986.

Bae, S. M., Masud, M., Kaium, A., & Kim, J. D. (2018). A cross-country investigation of corporate governance and corporate sustainability disclosure: A signaling theory perspective. *Sustainability*, *10*(8), 2611.

Bollas-Araya, H., Polo-Garrido, F., & Seguí-Mas, E. (2019). Determinants of csr reporting and assurance: An analysis of top cooperative and mutual organisations. *Australian Accounting Review, 29*(4), 692-707.

Braam, G., & Peeters, R. (2018). Corporate sustainability performance and assurance on sustainability reports: Diffusion of accounting practices in the realm ochoif sustainable development. *Corporate Social Responsibility and Environmental Management, 25*(2), 164-181.

Carmona, S. (2004). Accounting history research and its diffusion in an international context. *Accounting history*, *9*(3), 7-23.

Carrà, G., Sciarini, P., Segagni-Lusignani, G., Clerici, M., Montomoli, C., & Kessler, R. C. (2011). Do they actually work across borders? Evaluation of two measures of psychological distress as screening instruments in a non Anglo-Saxon country. *European Psychiatry*, *26*(2), 122-127.

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic management journal*, *35*(1), 1-23.

Choi, J. H., & Wong, T. J. (2007). Auditors' governance functions and legal environments: An international investigation. *Contemporary accounting research*, *24*(1), 13-46.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrenc e Earlbaum Associates.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of management, 37*(1), 39-67.

De Jong, H.W., "The takeover market in Europe: control structures and the performance of large companies compared", Review of Industrial Organization, 6, pp.I-18, 1989.

Junior, R. M., Best, P. J., & Cotter, J. (2014). Sustainability reporting and assurance: a historical analysis on a world-wide phenomenon. *Journal of Business Ethics, 120*(1), 1-11.

Garcia-Sanchez, I. M., Cuadrado-Ballesteros, B., & Frias-Aceituno, J. V. (2016). Impact of the institution al macro context on the voluntary disclosure of CSR information. *Long Range Planning*, *49*(1), 1 5-35.

Gillet-Monjarret, C. (2015). Assurance of sustainability information: A study of media pressure. *Accoun ting in Europe*, *12*(1), 87-105.

Gugler, K., Mueller, D. C., & Yurtoglu, B. B. (2004). Corporate governance and the returns on investment. *The Journal of Law and Economics*, *47*(2), 589-633.

Gugler, K., Mueller, D., & Yurtoglu, B. (2007). Corporate governance and the determinants of investment. *Journal of Institutional and Theoretical Economics (jite) / Zeitschrift Für Die Gesamte Staatswissenschaft, 163*(4), 598-626.

Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production, 59*, 5-21.

Hahn, R., & Lülfs, R. (2014). Legitimizing negative aspects in GRI-oriented sustainability reporting: A qualitative analysis of corporate disclosure strategies. *Journal of business ethics, 123*(3), 401-420.

Kaplan, S. N. (1997). Corporate governance and corporate performance: A comparison of Germany, Japan, and the US. *Journal of Applied Corporate Finance*, *9*(4), 86-93.

Kolk, A. (2008). Sustainability, accountability and corporate governance: exploring multinationals' reporting practices. *Business strategy and the environment*, *17*(1), 1-15.

Kolk, A., & Perego, P. (2010). Determinants of the adoption of sustainability assurance statements: An international investigation. *Business strategy and the environment*, *19*(3), 182-198.

Lys, T., Naughton, J. P., & Wang, C. (2015). Signaling through corporate accountability reporting. *Journal of Accounting and Economics, 60*(1), 56-72.

Manning, B., Braam, G., & Reimsbach, D. (2019). Corporate governance and sustainable business conduct—Effects of board monitoring effectiveness and stakeholder engagement on corporate sustainability performance and disclosure choices. *Corporate Social Responsibility and Environmental Management, 26*(2), 351-366.

Martínez-Ferrero, J., & García-Sánchez, I. M. (2017). Coercive, normative and mimetic isomorphism as determinants of the voluntary assurance of sustainability reports. *International Business Review*, *26*(1), 102-118.

Mueller, D. C. (2006). Corporate governance and economic performance. *International Review of Applied Economics*, *20*(5), 623-643.

O'Donovan, G. (2002). Environmental disclosures in the annual report. *Accounting, Auditing & Accountability Journal*.

Odriozola, M. D., & Baraibar-Diez, E. (2017). Is corporate reputation associated with quality of CSR reporting? Evidence from Spain. *Corporate Social Responsibility and Environmental Management, 24*(2), 121-132.

Peters, G., & Romi, A. (2015). The association between sustainability governance characteristics and th e assurance of corporate sustainability reports. *Auditing, 34*(1), 163-198.

Reimsbach, D., Hahn, R., & Gürtürk, A. (2018). Integrated reporting and assurance of sustainability information: An experimental study on professional investors' information processing. *European Accounting Review, 27*(3), 559-581.

Ruhnke, K., & Gabriel, A. (2013). Determinants of voluntary assurance on sustainability reports: An empirical analysis. *Journal of Business Economics, 83*(9), 1063-1091.

Scott, J., Corporations, classes and capitalism, London: Hutchinson, 1985.

Siepel, J., & Nightingale, P. (2014). Anglo-saxon governance: similarities, difference and outcomes in a financialised world. *Critical Perspectives on Accounting*, *25*(1), 27–35.

Simnett, R., Vanstraelen, A., & Chua, W. F. (2009). Assurance on sustainability reports: An international comparison. *The accounting review*, *84*(3), 937-967.

Trotman, A. J., & Trotman, K. T. (2015). Internal audit's role in GHG emissions and energy reporting: Evidence from audit committees, senior accountants, and internal auditors. *Auditing: A Journal of Practice & Theory*, *34*(1), 199-230.

Weimer, J., & Pape, J. (1999). A taxonomy of systems of corporate governance. *Corporate governance: An international review*, *7*(2), 152-166.

Wong, R., & Millington, A. (2014). Corporate social disclosures: a user perspective on assurance. *Accounting, Auditing & Accountability Journal , 27*(5), 863-887.

Zorio, A., García-Benau, M. A., & Sierra, L. (2013). Sustainability development and the quality of assurance reports: Empirical evidence. *Business strategy and the environment*, *22*(7), 484-500.