Assurance of non-financial information and the Cost of Debt

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Abstract

There is a growing demand for voluntary external assurance of corporate social responsibility reporting. This paper tries to understand the effect of assurance on the cost of debt. Evidence is gathered regarding corporate social responsibility assurance and the cost of debt over the years 2013-2015. It investigates this relationship by selecting companies that are publicly listed in the Netherlands, Germany and the UK. The aim of this paper is to examine the effect of assurance on the cost of debt, by making use of a sample of 426 publicly-listed companies. The main conclusion is that assurance has a negative effect on the cost of debt. The results are controlled for both economic as firm-specific factors. Firms and their stakeholders can take advantage of the outcomes of this research to gain better terms regarding their cost of debt.

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1. Introduction

There is an increasing call for assurance of corporate social responsibility reports. KPMG International (2013) states that "*CR reporting is now undeniably a mainstream business practice worldwide, undertaken by almost three quarters (71 percent) of the 4,100 firms surveyed in 2013*". Different authors are addressing their concerns about the credibility of information that is provided in corporate social responsibility reports (Bouten, Everaert, Van Liedekerke, De Moor, & Christiaens, 2011; Merkl-Davies & Brennan, 2007; Birkey, Michelon, Patten, & Sankara, 2016). This explains there is a growing trend at firms to assure their corporate social responsibility reports to increase the credibility of the information that is provided (Simnett, Vanstraelen, & Chua, 2009). In 2009, KLM and Rabobank were already addressing the additional value of assurance of their social reports. According to KLM and Rabobank, assurance could beneficially impact external trust of stakeholders, but also have advantages for the firm itself (De accountant, 12 may 2009). In line with the aforementioned, the Global Reporting Initiative (2013) said that both external stakeholders and management would benefit from assurance of corporate sustainability reports. According to the Global Reporting Initiative this will have a positive influence on the trustworthiness about corporate sustainability information (Global Reporting Initiative, 2013).

Several studies have been conducted on the assurance of corporate social responsibility reports. Peters and Romi (2015) found that the assurance of corporate social responsibility reports enhances the credibility of information that is disclosed. Other authors found evidence on quality determinants of assurance statements (Seguí-Mas, Bollas-Araya, & Polo-Garrido, 2015). Martínez-Ferro and García-Sánchez (2015) examined the decision to assure sustainability reports in combination with country- and industry-specific effects. Kolk and Perego (2010) suggest that stakeholder-oriented firms and countries that have a weaker governance regime are more willing to adopt assurance of their sustainability statements. Furthermore, they suggest that firms that are more shareholder-oriented show a lower litigation risk, and therefore are more likely to choose a large audit firm (Kolk & Perego, 2010; Mock, Rao, & Srivastava, 2013). Moreover, prior research examined a variety of relationships between assurance of corporate social responsibility reports and financial aspects like stock market prices, cost of equity capital, institutional investors and market value (Solomon & Solomon, 2006; Murray, Sinclair, Power, & Gray, 2006; Dhaliwal, Li, Tsang, & Yang, 2011; Cho et al., 2012; Casey & Grenier, 2015). This thesis will focus on the cost of debt. The cost of debt is another financial aspect of assurance of corporate social

responsibility reports that is not examined yet. Hoepner et al. (2016) and Oikonomou et al. (2014) did examine the relation between corporate social performance and corporate social responsibility and the cost of debt, but not in combination with assurance. They address several characteristics that influence the cost of debt (Hoepner, Oikonomou, Scholtens, & Schröder, 2016 and Oikonomou, Brooks, & Pavelin, 2014). What they and other researchers, did not examine is the role of corporate social responsibility assurance on the cost of debt.

This study focuses on the decision taken by firms to disclose assured corporate social responsibility reports and the possible relationship with the cost of debt of these firms. Evidence from prior research shows that firms with better social and environmental practices have better financial performance and a lower cost of capital (Friede, Busch, & Bassen, 2015). Former research is focused on the different aspects of environmental, social and governance reports (ESG) and their influence including the cost of capital (Friede et al., 2015). Friede et al. (2015) mentioned that good ESG practices lead to a lower cost of capital. This is also examined by Dhaliwal et al. (2011), who found that issuing sustainability reports would lead to a reduction in the cost of equity. Similar research mentioned this too. For example Chava (2014) addresses that environmental performance and reporting of firms can influence the cost of equity and the cost of capital. This study will fill the gap in assurance literature and add cost of debt to the literature of corporate social responsibility assurance. Firms and stakeholders can use these results to assure their corporate social responsibilities reports to gain better terms regarding their cost of debt.

Based on the aforementioned, the following research question is formulated: *What is the effect of assurance of corporate social responsibility reporting on a firm's cost of debt?*

To examine this relationship several regression analyses will be conducted. This research will use a sample that consists of three European countries that represent Western Europe. Former research mainly conducted in the US and Western Europe is most comparable to the US. The stock markets selected are: AEX, DAX and the FTSE 100. The period over which data is collected is 2013, 2014 and 2015.

The remainder of this study is structured as follows. Section 2 discusses three fundamental theories that underlay corporate social responsibility assurance, and the relation between corporate social responsibility assurance and the cost of debt. The assurance literature consists different theories and former research. Section 3 illustrates the research method. Section 4 illustrates the analysis. In accordance with the analysis, the results of this research are outlined. The final section illustrates a discussion and conclusion.

2. Literature Review and hypothesis development.

2.1. Fundamental theories

Corporate social responsibility and assurance have their origins in different theories. According to many authors, the agency theory, stakeholder theory and the legitimacy theory are the first theories underlying corporate social responsibility and assurance. These theories offer different insights and explanations why firms assure their corporate social responsibility reports.

The origins of corporate social responsibility and assurance on corporate social responsibility can be explained from an agency theory perspective. The agency theory is concerned with the relationship between the principal and the agent. Jensen and Meckling (1976, p. 308) define the principal agent relationship as: "A contract under which one or more persons engage another person to perform some service on their behalf". The agent will not always act in the interest of the principal. Friedman (1970) alleged that corporate social responsibility is a symptom of a conflict of interests between managers and shareholders. Managers were using corporate social responsibility to foster their own social, political and career agenda's at expense of shareholders (McWilliams and Siegel, 2001). Barnea and Rubin (2010) mentioned for example that managers are willing to over-invest in corporate social responsibility. They try to obtain private benefits from building a reputation as good social citizens, possibly at cost of capital (Li et al., 2016). Jo and Harjoto (2011) were providing evidence that managers make use of corporate social responsibility reporting to resolve the conflicts among various stakeholders. Assurance can reduce these conflicts and the lean distribution of information. The assurance literature suggests a reduction of the information asymmetry by enhancing the reliability of the reported information (Casey and Grenier, 2015, Dhaliwal et al., 2011). Lopatta et al. (2016) argued that CSR activities improve a firm's trustworthiness because of the lower information asymmetry. The higher trustworthiness and

lower hidden information can result in lower cost of capital and can induce higher firm value, since principals are lowering their effort to monitor the firm (Lopatta et al., 2016). Also Hoepner et al. (2016) mentioned that monitoring, policing and agency costs decrease when they extend the information and the quality of information. This will lower the cost of financing (Akerlof, 1970; Grossman and Stiglitz, 1980).

Enhancing the volume and credibility of information will lead to lower information asymmetry. This reasoning is in accordance with Hodge, Subramaniam and Stewart (2009) and Plugrath, Roebuck and Simnett (2011), who mentioned the relationship between assurance and corporate social reporting and increased credibility. One important side note is that they mentioned that the effect could change if it is not assured by a top-tier firm or an accountant. However, it also depends on the industry, because there are industries where assurance is more common in contrast with industries where it is not that common (Hodge, Subramaniam and Stewart, 2009; Plugrath, Roebuck and Simnett, 2011). Assurance can contribute to reducing hidden information and can increase the trustworthiness, which can result in lower cost of debt, because the reliability, and the completeness increases. Dennis and Mullineaux (2000) demonstrate that increased transparency leads to easier attraction of capital.

Another theory which is a dominant paradigm in corporate social responsibility reporting and therefore assurance, is the stakeholder theory. Freeman (1984) was one of the first to address that firms have a relationship with different groups and that these groups get influenced reciprocally. Jones (1995) argued that firms who behave ethical are able to maintain persisting relationships with stakeholders, which can be of value. Schrader and Schmitz (2015) recognized the importance of corporate social responsibility for different stakeholder groups. One stakeholder group in particular is mentioned: investors. Schrader and Schmitz (2015) recognize the social and environmental aware investor that is more willing to invest in firms who carry out corporate social responsibility activities.

Stakeholders are interested in the activities and outcomes of firms and consist of groups and individuals. These stakeholders are depending on the activities and outcomes in order to achieve their own objectives (Freeman, 1984; Harrison and van der Laan Smith, 2015). Thorne, Mahoni and Manetti (2014) argue that firms only issue corporate social responsibility reports in response to the external scrutiny by stakeholders. According to Harrison and van der Laan Smith (2015) a company should take the interests of their stakeholders in

consideration, because it is an appropriate thing to do and a company can create additional value with this approach. The stakeholder approach to create additional value is strengthened by different studies that found better performance of firms that were adopting a stakeholder perspective. The stakeholder perspective has led to more information disclosure to build a better relationship with relevant stakeholders, which therefore result in lower cost of capital (Harrison and van der Laan Smith, 2015; Dhaliwal et al. 2012)

From a legitimacy theory perspective there are different explanations for the disclosure and assurance of non-financial information. Legitimacy is defined by Suchman (1995) as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions". This theory suggests that firms which are performing poor on specific performance indicators are more willing to disclose non-financial information as a legitimation strategy (Hummel and Schlick, 2016; Deegan, 2002; O'Donovan, 2002). On the other hand, firms which are superior sustainability performers are more willing to voluntarily disclose their non-financial information. The disclosure of non-financial information will reveal their real performance and can increase their market value (Clarkson et al., 2008). Firms that initiate a sustainability report and have superior sustainability performance will attract more dedicated investors (Hummel and Schlick, 2016). Dhaliwal et al. (2011) found that firms with superior sustainability performance that issuing the first time a standalone sustainability report significantly lowers their cost of equity. Another effect of disclosure of non-financial information is the raise of stock prices (De Villiers and Marques, 2016). An important condition for voluntary disclosure is the truthfulness of disclosure, which is justified by the litigation and reputation risk a firm faces (Hummel and Schlick, 2016). External assurance of non-financial information and in particular CSR reports can reduce the risk of untruthful disclosure. KPMG (2011) argued this and mentioned that the growing number of external assurance reports limits the possibilities for misrepresentation. Thus, assurance can be used to lower the chance of misrepresentation and attract more dedicated investors. On the other hand, assurance is used as a legitimacy mechanism to explain their poor performance.

These three theories point into the same direction regarding corporate social responsibility assurance and the cost of debt relationship. The agency theory argues that the credibility of information improves by assurance and therefore the cost of debt decreases. The

stakeholder theory argues that the quality of information will improve what will result in a better relationship with stakeholders, which finally results in a lower cost of debt. The legitimacy points out that companies will assure their corporate social responsibility reports to legitimate their performance. A better legitimation of poor or good performance can also reduce the cost of debt.

2.2. Corporate social responsibility assurance

There is a growing interest in corporate social responsibility reporting. KPMG International (2013) reported that corporate social responsibility reporting can not be ignored and becomes a mainstream business practice worldwide, almost three quarters of the firms surveyed were using corporate social responsibility reporting. McWilliams and Siegel (2001) were mentioning two different sources of demand for corporate social responsibility reporting. They identified the consumer demand and the demand of other stakeholders to address the importance of corporate social responsibility reporting. Consumer oriented corporate social responsibility entails the belief that using firm specific products will indirectly support a cause and firms who are involved get rewarded by using corporate social responsibility. Another part of consumer-oriented corporate social responsibility is concerned with the reputation and the quality of reliability. There is not one definition of corporate social responsibility. In general, corporate social responsibility is concerned with actions that advance social good beyond the interests of the firm (McWilliams and Siegel, 2001). It consists of clearly articulated and communicated practices that were reflecting business responsibility for the societal good (Matten and Moon, 2008).

Assurance of corporate social responsibility reports is more recent and goes back to the mid-1990s. In 2000 the IAPC first issued the International Standard on Assurance Engagements 100 (ISAE). This standard contains the evaluation or measurement of a subject matter that is the responsibility of another party against identified suitable criteria, to express a conclusion that provides the user with a level of assurance (Hasan et al., 2005) KPMG (2013) identified that 59% of the G250 firms are assuring their sustainability information. Former literature identified how firms adopt assurance practices and also evaluated the quality of assurance. Assurance is adding value to reports in different ways. As already mentioned in the introduction, it increases the quality by finding material errors and omissions (Hodge et al., 2009). Another point mentioned by Hodge et al. (2009) is that the credibility of information would be enhanced when an independent party conducts the assurance function.

In the literature there are mixed findings about the usefulness of assurance on sustainability reports, such as corporate social responsibility reports. Hodge et al. (2009) and Deegan et al. (2006) mentioned two main key problems regarding the usefulness of assurance. They mentioned that there are no generally accepted reporting criteria and that there is a lack of specific guidance regarding assurance of sustainability reporting (Hodge et al., 2009; Deegan et al., 2006). Hodge et al. (2009) mentioned that, while specific guidance is lacking, there are standards that are providing guidance. The standards that are providing guidance nowadays are: The International Standard of Assurance (ISAE 3000) and the Assurance Standard (AA1000AS). In contradiction to the usefulness of assurance of sustainability reports, several studies have mentioned the additional value of independent assurance.

Authors are examining the assurance practices and the audit quality in different ways. O'Dwyer and Owen (2005) for example were using aspects of Accountability, FEE and GRI guidelines to provide a framework to evaluate assurance statements. Other authors were using the level of assurance provided and the type of assurance provider to indicate different characteristics of assurance and quality (Mock et al., 2007; Perego and Kolk, 2012). Former research also identified different presentation formats and contents between the different assurance providers (Deegan et al., 2006). Recent literature mentioned that assurance of sustainability reports by firms will differ and depends on several variables. Sierra et al. (2009) and Simnett et al. (2009) identified for example that firms with a lower leverage are more willing to assure their sustainability reports. Simnett et al. (2009) also identified that firms that are larger in size are more willing to assure their sustainability reports. According to Bebbington et al. (2007) assurance is also used to guarantee materiality and the relevance of information which is disclosed in reports and assurance statements.

Furthermore, assurance is not just granted by accountants and financial auditors, but is also provided by specialist consultants that have expertise in that specific area of reports. Mock et al. (2007) and Wallage (2000) already found that non-Big 4 firms mainly conduct the assurance of sustainability reports. The third party assurance is mainly invoked because there is an increasing demand for credible environmental and sustainability performance data (Park and Brorson, 2005). Pfugrath (2011) mentioned that corporate social responsibility reports are more reliable when assured by an accounting professional. The assured corporate social responsibility data is perceived as more trustworthy because of the experience in the field of auditing. Third party sustainability consultants have specific knowledge, but cannot benefit

from standards of professional conduct, procedures and the independence of the audit profession (Huggins et al., 2011). External stakeholders do not only demand this data but also internal stakeholders (Perego and Kolk, 2010). Also, management is aware of this trend. Jones and Solomon (2010) and Edgley, Jones and Solomon (2010) mentioned this and recognized that assurance can help with managing reputation risk.

The past two decades included a growing amount of research on corporate social responsibility reporting and assurance. Prior research was focused on a wide range of topics regarding corporate social responsibility reporting and assurance. Thorne, Mahoney and Manetti (2014) found that larger firms are issuing corporate social responsibility reports earlier than smaller firms. This is the result of larger political visibility and the fact that they are subject to greater external scrutiny by stakeholders. By pursuing corporate social responsibility, firms get the advantage for their commitment. Kolk and Perego (2010) found that stakeholder-oriented firms that have a weaker governance regime are more willing to issue assured sustainability reports. There is also research conducted to first time issuing of a standalone sustainability report, which found no significant changes in reputational scores (Brown et al., 2010). Solomon and Solomon (2006) found that information disclosures relating with social, ethical and environmental issues are not meeting the expectations of institutional investors. Murray et al. (2006) found no evidence about the relationship between stock prices and the disclosure of social and environmental information. Former research also mentioned that the first time issuing of sustainability reports would not lead to a significant market reaction regarding firm value.

Corporate social responsibility assurance literature has addressed several financial and non-financial factors that are influenced by assurance. The cost of debt is one of the factors that is not examined completely. Jensen and Meckling (1976) already mentioned the conflict of interest between shareholders and bondholders. This conflict is concerned with owner-manager who takes investment and financing decisions that benefit them in expense of the bondholders (Shuto and Kitagawa, 2011). Myers (1977) argues that the conflict of interest between shareholders and bondholders involves financing decisions. Owner-managers are more concerned with cash fund themselves than taking bondholders into account (Myers, 1977). Watts & Zimmerman (1986) mentioned that the issuance of additional debt transfers wealth from the original bondholders to the managers. As a result, the value of existing debt dilutes. The disclosure of corporate information can be used to reduce the share of private

information in the capital markets and reduces the incentives for investors to search for exclusive information. This will result in less information asymmetry (Diamond and Verrecchia, 1991; Jeon and Kim, 2015). The decrease of information asymmetry has the result that the cost of capital decreases as well and will reflect the corporate strategic choices to reduce information asymmetry (Jeon and Kim, 2015).

Assurance can further reduce this information asymmetry. This is according to Hodge et al. (2009), who mentioned that assurance is improving the credibility of information and therefore reducing the information asymmetry. Healy and Palepu (2001) also mentioned that firms reduce their capital procurement cost by providing more complete and credible information, which lowers information asymmetry. Assurance can be seen as a contribution to secure the credibility of information provided. Lee et al. (2008) examined the effect of disclosure quality and in particular unfaithful disclosure. Firms who disclosed unfaithful information were facing a higher cost of debt (Lee et al., 2008). So, when firms assure their corporate social responsibility reports the disclosure of unfaithful information will be reduced, this will result in a lower cost of debt.

Orlitzky et al. (2003) provides a meta-study of 52 corporate social responsibility and performance studies. None of these studies link corporate social responsibility to cost of debt. Renneboog et al. (2008) also provides a review and also none of these studies examines the cost of debt. A few papers examined the cost of debt in relation with corporate social responsibility but none in combination with assurance. Menz (2010) found a weak positive relationship between corporate social responsibility and European bond spreads. Sharfman and Fernando (2008) found that firms, who are good environmental performers, have higher bond yields and a higher leverage. Goss and Robberts (2009) examine the relationship between corporate social responsibility and bank debt. They found that low quality borrowers that engage in discretionary corporate social responsibility spending face higher loan spreads and shorter maturities (Goss and Robberts, 2009). Alniacik et al. (2011) conclude that positive information about corporate social responsibility can have a positive effect on purchase and investment intentions. El Ghoul et al. (2011) found that firms with higher corporate social responsibility scores have lower cost of equity capital. Bauer and Hann (2014) used environmental information to examine the association between environmental practices and the cost of debt. Firms that are engaged in environmental concerns have higher cost of debt financing and lower credit ratings. Moreover, they found that firms who are associated with

more proactive environmental practices face a lower cost of debt (Bauer and Hann, 2014). Schneider (2010) found that firms who have weak corporate social responsibility practices face a higher cost of debt.

According to the literature on corporate social responsibility, assurance should have a negative effect on the cost of debt. In response to this literature the following hypotheses is formulated:

Hypothesis 1*: The assurance of corporate social responsibility reporting has a negative effect on the cost of debt of corporate social responsibility reporting firms.*

3. Research method

3.1. Sample

The sample of this research contains three European countries for the years 2013, 2014 and 2015. The sample consists of three European countries, as former research about assurance on corporate social responsibility is mainly conducted in the US. The European countries that are selected are mainly strong stock markets and will represent Western Europe in this time period. These stock markets are selected because Western Europe as a sample is most comparable with the US. These three countries represent Western Europe and are comparable with other countries is Western Europe. The three stock markets that are selected are: AEX, DAX and the FTSE 100. These stock markets are prominent and stable stock markets and therefore selected. Former research of Cushman (1986) about exchange risks and Windrum and Tomlinson (1999) about a four country comparison of Knowledge-intensive Services were also using these countries as representation of Western Europe. These results can be compared with former research form the US. The data that will be collected will contain 2013, 2014 and 2015 to investigate if there are differences in time period, because assurance on corporate social responsibility is increasing.

In order to investigate this relationship, this research uses several database sources and conducts an multilevel panel-data regression analysis. The collection of company-specific information will be collected from Compustat worldwide, Thompson one database, annual reports, fillings and sustainability reports.

Table 1: Sample selection

Listed Firms AEX, DAX 30 and FTSE 100 per 31-12-2012	465
Less: no data available	-39
Total	**426**

3.2 Operationalization of measurement

3.2.1. Dependent variable and independent variables

The dependent variable, the cost of debt, will be measured as the ratio of a firm's interest expenses to the average interest-bearing debt outstanding. The independent variable in this research is assurance on corporate social responsibility reports. The control variables will contain size, ROA, industry, leverage, assurance provider, Tobins Q and Big 4 auditor. The definitions of all variables and studies which are also using these variables are summarized in Table 2.

Recent studies were using *Big-4/non-Big 4* as a control variable, because the assurance market is an unregulated market where assurance services are provided by audit firm but also third parties like consultants (Simnett et al., 2009). Therefore, another control variable is added: *Third party (non-big4)*. Third party will control for the different parties that are involved in the assurance process. *Tobins Q* is used because this control variable will measure financial performance in a more reliable way than other variables (Moroney et al., 2012). *ROA* is used because it is an accounting measure of performance (Moroney et al., 2012). Several studies found a positive relation between corporate social responsibility and ROA and therefore ROA is included as a control variable (Moroney et al., 2012; Clarkson et al., 2008; Van der Laan et al., 2008). The *natural logarithm of size* is included because former research has showed that larger firms are more willing to disclose information because they feel more pressure from external stakeholders (Ding et al., 2016; Goss and Roberts, 2011; Kuzey and Uyar, 2017). The willingness to disclose more information leads to a positive effect on the cost of debt (Ding et al., 2016; Goss and Roberts, 2011; Kuzey and Uyar, 2017). *Leverage* is used because former research suggests that this will reduce the information asymmetry for

stakeholders (Chen and King, 2014; Ding et al., 2016; Kuzey and Uyar, 2017). *Industry* is measured by industry code. Former literature confirms that there are differences between industries (Ding et al., 2016; Goss and Roberts, 2011; Kuzey and Uyar, 2017). Casey and Grenier (2015) are also mentioning that firms with corporate social responsibility concerns are more disposed to assure their corporate social responsibility reports.

Table 2: Definitions of all variables

Variable Name	Definition	Expected Effect
Dependent variable		
Cost of Debt	Ratio of a firm's interest expenses to the average interest-bearing debt outstanding (Klock et al., 2005; Cremers et al., 2007; Chen and King, 2014)	
Independent variable		
Assurance of CSR	Assurance on CSR is measured as one if the company disclosed a sustainability report (CSR) which is assured and otherwise zero (Martínez-Ferrero and García-Sánchez, 2015; Dhaliwal et al.,2012; Weber, 2014; Chen et al., 2016; Kuzey and Uyar, 2017).	-
Control variables		
Size	Natural logarithm of assets (Ding et al., 2016; Goss and Roberts, 2011; Kuzey and Uyar, 2017)	+
ROA	Return on assets (Chen et al., 2016; Ding et al, 2016; Kuzuy and Uyar, 2017)	+
Industry	Industry measured by industry code (Ding et al., 2016; Goss and Roberts, 2011; Kuzey and Uyar, 2017)	+
Leverage	Total debt divided by total market value of assets (Chen and King, 2014; Ding et al., 2016; Kuzuy and Uyar, 2017; Casey and Grenier, 2015)	+ / -
Assurance provider	Different parties like third-party consultant, external auditors, internal auditors or other professionals could assure the sustainability report (Martínez-Ferrero and García-Sánchez, 2015; Dhaliwal et al., 2012; Weber, 2014; Hodge et al., 2009).	-
Tobins Q	Market capitalization plus total debt divided by total assets (Ding et al., 2016, Kuzey and Uyar, 2017; Moroney et al., 2012)	+
Big 4	Audited by Big 4: 1 otherwise 0 (Chen et al., 2016; Simnett et al., 2009; Sierra et al., 2013)	+

3.2.2. Econometric model

Regarding the regression analyses the following econometric model is developed. The model refers to the effect of assurance on the cost of debt. The βi is the Beta coefficient and εi is the error term of the formula.

$$Cost\ of\ Debt = \beta 0 + \beta 1\ Assurance + \beta 2\ Size + \beta 3\ ROA + \beta 4\ Industry$$
$$+ \beta 5\ Leverage + Assurance\ provider + \beta 6\ Tobins\ Q + \beta 7\ Big4$$
$$+ \beta 8\ Country + \varepsilon i$$

4. Results

4.1. Descriptive analysis of variables

Table 1 shows the descriptive statistics of the dependent, independent and the control variables. This table represents the total sample of this research. The sample of the independent variable consists of 426 observations where the dependent variable consists of 424 observations. From the descriptive statistics we can conclude that half (50.24%) of the corporate social responsibility reports is assured by a big4 auditor. The other half is not assured or assured by a non-big4 firm. Another conclusion that can be drawn from the descriptive statistics is that almost one fifth of the firms are using third party (non-big4) assurance providers. In other words, providers of assurance that are not firms in accounting practices.

Table 2. Descriptives

Variable	Obs	Mean	Std. Dev.	Min	Max
Costofdebt	424	.1349818	.4460741	-.0657746	5.810532
assurance	426	.6807512	.4667337	0	1
year	426	2013.944	.8038845	2013	2015
Country	426	173.7676	32.82804	104	194
industry	426	4731.531	2149.656	1000	9997
big4	424	.5023585	.5005851	0	1
ThirdParty	424	.1910377	.3935891	0	1
ROA	405	6.367481	6.895142	-33.3	51.02
Leverage	416	41.56099	23.68804	0	119.31
Logsize	396	7.308957	.7977375	5.431644	9.230918
TobinsQ	388	1.376351	1.296597	.0205954	11.23101

Table 3. Country Breakdown

Country	Companies
The Netherlands	72
Germany	93
UK	261
Total	**426**

Table 4. Industry Breakdown

Division	
Agriculture, Forestry and Fishing	0
Mining	24
Construction	12
not used	0
Manufacturing	146
Transportation, Communication, Electric, Gas and Sanitary service	59
Wholesale Trade	6
Retail Trade	20
Finance, Insurance and Real Estate	101
Services	47
Public Administration	0
Nonclassifiable	11
Total	**426**

Table 5 shows the pearson correlations between assurance as independent variable and the other control variables year, country, industry, big4, third party (non-big4) assurance, ROA, Leverage, Size (log) and Tobin's Q. There is a single case where there is high correlation between two variables. This can induce multicollinearity issues. Table 5 shows that the independent variable assurance correlates moderate to high with big4.

Table 5. Correlations

Variable	Costofdebt	Assurance	Year	Region	Industry	Big4	ThirdParty	ROA	Leverage	Logsize	TobinsQ
Costofdebt	1.0000										
Assurance	0.0227	1.0000									
Year	-0.0446	0.0031	1.0000								
Country	-0.0465	0.0137	0.0783	1.0000							
Industry	0.0404	-0.2467	-0.0341	-0.0601	1.0000						
Big4	0.0635	0.6639	0.0328	0.2003	-0.1204	1.0000					
ThirdParty	0.1011	0.3402	-0.0519	-0.2599	-0.1098	-0.4383	1.0000				
ROA	-0.0637	-0.0685	-0.0741	-0.1635	0.0209	-0.0571	-0.0181	1.0000			
Leverage	0.1575	0.1832	0.0588	0.0288	0.1194	-0.0450	-0.1776	-1776	1.0000		
Logsize	-0.0279	-0.0471	-0.0090	-0.2084	0.0166	-0.1575	0.1175	0.0249	-0.0469	1.0000	
TobinsQ	0.0707	-0.1367	-0.0100	0.1055	0.1073	-0.0611	-0.0668	-0.0426	-0.0805	-0.5953	1.0000

This moderate to high correlation can be explained because all the firms are listed to stock exchanges and these firms are mainly audited by big4 firms. For example, if a firm issues a corporate social responsibility report and assures these reports, it is most of the time done by a big 4 auditor. The fact that listed firms are mainly assured by big 4 firms is also recognized by other studies, which indicate that this variable is not to be omitted. In the correlation table, there were no variables which show a significant degree of correlation that is above 0.7 and therefore needs to be omitted. The VIF analyses (Table 7) shows some multicollinearity issues, but these can also be explained. Assurance, big4 and assurance by non-big4 are almost collected in the same way. Big 4 and assurance by a non-big4 are collected by creating a dummy variable which has the value zero or one. If there was no assurance by a big 4 party than a non-big4 firm is providing assurance. The other VIF scores are below 10 and none additional treatment is necessary. In the other VIF table (Table 6) big4 is deleted because the collinearity with assurance and third party (non-big4). This results in better VIF scores and no additional treatment is necessary. In the remaining analyses this research used both models, one with big4 as control variable and one without big4 as control variable.

Table 6. VIF[1]

Variable	VIF	1/VIF
assurance	1.54	0.649862
country		
2	1.35	0.740566
3	1.26	0.794129
industry		
3	1.64	0.611261
5	5.25	0.190322
6	3.41	0.292980
7	1.17	0.856666
8	4.19	0.238674
9	3.22	0.310610
10	1.96	0.509829
12	1.57	0.637494
ThirdParty	1.47	0.681122
ROA	1.20	0.836385
Leverage	1.32	0.755271
LogSize	1.76	0.569391
TobinsQ	1.74	0.576303
year		
2014	1.31	0.760934
2015	1.34	0.747285

Table 7. VIF (including Big4)

Variable	VIF	1/VIF
assurance	16.42	0.060911
country		
2	1.35	0.740253
3	1.26	0.794033
industry		
3	1.64	0.609788
5	5.26	0.190291
6	3.43	0.291607
7	1.17	0.856535
8	4.22	0.237184
9	3.22	0.310564
10	1.96	0.509545
12	1.57	0.637308
Big4	17.86	0.056001
ThirdParty	11.38	0.087907
ROA	1.20	0.836133
Leverage	1.33	0.749287
LogSize	1.78	0.561749
TobinsQ	1.74	0.575229
year		
2014	1.31	0.760902
2015	1.34	0.745849

Moreover, all variables are controlled for outliners that will influence the data. The control variable size, which is measured by total assets, was not normally distributed and therefore transformed before running the different regression analyses. Therefore in the regression analysis size is transformed by a logarithmic transformation.

4.2. Pooled, fixed and random regression analyses

To analyze the cost of debt, a fixed and a random effect regression analyses is conducted. Prior to that, a Hausman test is conducted to examine if the random or fixed effect regression analysis should be used. In the first regression analyses with the variable Big4 included, a fixed regression analyses, which is performed because the Hausman test is significant (Table 8). The Hausman test is significant with p-value .0035 (p<.05). Table 10 presents the results of the fixed effects regression analysis. The fixed effect regression analysis just shows the effects of variables that are company specific and is automatically controlling all other variables that are not company specific.

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[1] Appendix 1 shows a VIF table with assurance by big4 and assurance by non-big4 as independent variables.

| | ── Coefficients ── | | | |
	(b) cdffe	(B) cdfre	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
assurance	-.0383641	-1.493206	1.454842	.365595
big4	.1078675	1.498451	-1.390584	.4090514
ThirdParty	.0545667	1.45519	-1.400623	.4243384
ROA	.0061622	-.0000325	.0061947	.0038971
Leverage	.0057722	.0035898	.0021824	.0031845
Sizelogtot~s	.0614691	.0615974	-.0001284	.0421215
TobinsQ	.0596104	.050001	.0096094	.0189269

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(7) = (b-B)'[(V\_b-V\_B)^{(-1)}](b-B)$$
$$= 21.22$$
$$\text{Prob>chi2} = 0.0035$$

2

Table 8. Hausman test (incl. Big4)

| | ── Coefficients ── | | | |
	(b) cdffe	(B) cdfre	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
assurance	.053538	-.0220923	.0756303	.1429898
ThirdParty	-.0441103	.0597378	-.1038481	.1955659
ROA	.0061125	.0011613	.0049511	.0035603
Leverage	.0057917	.0044512	.0013404	.0030859
Sizelogtot~s	.0609621	.0345007	.0264614	.0389997
TobinsQ	.0588154	.0440194	.014796	.0169375

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(6) = (b-B)'[(V\_b-V\_B)^{(-1)}](b-B)$$
$$= 3.69$$
$$\text{Prob>chi2} = 0.7182$$

Table 9. Hausman test

The second Hausman test (Table 9) without the variable Big4 is non-significant and therefore the random regression analysis is performed.

The pooled regression model (model 1, table 10) shows that assurance has a significant negative effect on the cost of debt (p. <.001). This means that the cost of debt is negatively influenced if a corporate social responsibility report is assured. Moreover, the results show that assurance by a big 4 firm or a non-big4 firm is positive significant (p. > .001). The assurance of corporate social responsibility reports by big 4 firms or non-big4 firms will therefore not influence the cost of debt significantly. Furthermore, leverage is positive significant (p.<.01) and in model 2 without big 4 with p-value <.001. The last variable which is positive significant is Tobins Q in model 1 with p-value <.05. This is the model where big4 is included. The other variables industry, size, country, year and ROA are all non-significant and do not have a significant effect on the cost of debt. From the pooled regression analyses the results show that there is a causal relationship between assurance and the cost of debt. The cost of debt decreases when corporate social responsibility reports are assured, where leverage and Tobins Q (model 1) increases the cost of debt.

The fixed regression models (model 3 and 4, table 10) automatically control for all non-company specific variables and is therefore a encompassed model. The results show that

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2 Appendix 2 shows a Hausman test for assurance by big4 and assurance by non-big4 as independent variable.

Tobins Q is positive significant in both models with p. <.05. This means that Tobins Q has a significant influence on the cost of debt. The cost of debt increases when Tobins Q increases. In the fixed regression analyses there are no other significant relationships, but there are differences between model 3 and model 4 about positive and negative effects of variables. Model 3, where big4 is included, shows that assurance is negatively related with the cost of debt where model 4 shows a positive relation. Furthermore this can also be addressed for the variable "Provider non-big4".

The random effect (model 5 and 6, table 10) model shows the same results as the pooled regression (model 1 and model 2, table 10) about significance of variables. In model 5, assurance is negatively significant with p-value <.001 and big4 and Provider non-big4 are positively significant with both p-value <.001. Furthermore leverage is positive significant. In both models (5 and 6) with p-value <.01 and is Tobins Q positive significant with p-value<.05. So, both Tobins Q as Leverage will increase the cost of debt.

In both the pooled and random regression analyses year is negative and increases. This means the cost of debt is decreasing compared to 2013. Furthermore, pooled and random regression analyses show that the Netherlands influences the cost of debt positive and Germany the cost of debt negative in comparison with the UK. Moreover, industry is also influencing the cost of debt. These results were not significant but the pooled and random effect analyses shows that construction and non-classifiable have a positive effect on the cost of debt, compared with mining and that the remaining industries influence the cost of debt negatively compared with mining. The control variable size has a positive effect. The larger the size of the company, the higher the cost of debt is.

In table 11, the same analyses are performed, but assurance is included as lagged variable. The lagged variable is included to check if assurance has a delayed effect on the cost of debt. Assurance is still negative significant (model 1 and model 5, table 11) with p-value<.01, but not that significant compared to when it is not lagged. In model 1 and model 5 (table 11) big4 and provider non-big4 are significant with p-value<.001. Furthermore, leverage is significant in model 1,2 5 and model 6 with respectively p-value<.05 for all models. All industries, except industries that are categorized as non-classifiable in model 2 and 6, have a negative effect on the cost of debt compared to mining for the pooled and

random effect analyses. Year 2014 and 2015 are also negatively related with the cost of debt compared to 2013. Furthermore, the analyses show that Germany is negatively related with the cost of debt and the Netherlands positively related with the cost of debt compared to the UK. In all models, the variables leverage, Tobins Q and size are positively related with the cost of debt but are not significant. The higher these variables are the higher the cost of debt is. ROA has in model 1 and model 5 (table 11) a negative effect on the cost of debt, thus it will lower the cost of debt.

Table 10. Pooled, Fixed and random effect regression analyses[3]

	Pooled regression analyses		Fixed regression analyses		Random effect regression analyses	
	Includes Big4 (1)	Excludes Big4 (2)	Includes Big4 (3)	Excludes Big4 (4)	Includes Big4 (5)	Excludes Big4 (6)
	Cost of Debt	Cost of Debt	Cost of Debt	Cost of Debt	Cost of Debt	Cost of Debt
Assurance	-1.854***	-0.0455	-0.0384	0.0535	-1.486***	-0.0268
	(-10.02)	(-0.71)	(-0.09)	(0.33)	(-6.79)	(-0.35)
Year=2013	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
Year=2014	-0.0391	-0.0357			-0.394	-0.0367
	(-0.77)	(-0.62)			(-0.90)	(-0.85)
Year=2015	-0.0344	-0.0584			-0.0447	0.0616
	(-0.64)	(-0.96)			(-0.96)	(-1.34)
UK	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
Germany	-0.0845	-0.0969			-0.0843	-0.0966
	(-1.43)	(-1.44)			(-1.14)	(-1.08)
Netherlands	0.00611	-0.00118			0.00781	0.00272
	(0.09)	(-0.02)			(0.10)	(0.03)
Big4	1.832***		0.108		1.488***	
	(10.26)		(0.24)		(7.17)	
Provider is non-big4	1.799***	0.110	0.0546	-0.441	1.447***	0.0618
	(10.20)	(1.53)	(0.12)	(-0.21)	(7.04)	(0.70)
ROA	-0.00182	-0.00123	0.00616	0.00611	0.000179	0.00140
	(-0.55)	(-0.33)	(1.17)	(1.16)	(0.05)	(0.36)
Leverage	0.00324**	0.00426**	0.00577	0.00579	0.00363**	0.00450**
	(2.91)	(3.38)	(1.68)	(1.69)	(2.75)	(2.96)
LogSize	0.0548	0.0128	0.0615	0.0610	0.0601	0.0329
	(1.55)	(0.32)	(1.08)	(1.08)	(1.57)	(0.80)
Tobins Q	0.0430*	0.0336	0.0596*	0.0588*	0.0503*	0.0443
	(2.03)	(1.39)	(2.06)	(2.05)	(2.29)	(1.91)
Mining	0	0			0	0
	(.)	(.)			(.)	(.)
Construction	0.0957	0.0112			0172	0.147
	(0.57)	(0.06)			(0.82)	(0.59)
Manufacturing	-0.0593	-0.0744			-0.0619	-0.0763
	(-0.59)	(-0.65)			(-0.49)	(-0.50)
Transportation, Co~	0.000578	-0.0817			-0.0267	-0.100
	(0.00)	(-0.61)			(-0.18)	(-0.58)
Wholesale Trade	-0.236	-0.204			-0.259	-0.244
	(-0.92)	(-0.70)			(-0.79)	(-0.62)
Retail Trade	-0.0784	0.00669			-0.0645	0.00114
	(-0.75)	(0.06)			(-0.49)	(0.01)
Finance, Insurance~a	-0.0756	-0.0906			-0.0835	-0.112
	(-0.63)	(-0.66)			(-0.56)	(-0.63)
Services	-0.0915	-0.123			-0.0995	-0.130
	(-0.70)	(-0.82)			(-0.62)	(-0.68)
Nonclassifiable	0.0122	0.0396			0.00130	0.0134
	(0.08)	(0.22)			(0.01)	(0.06)
Constant	-0.346	-0.0516	-0.703	-0.689	-0.431	-0.238
	(-1.13)	(-0.15)	(-1.50)	(-1.49)	(-1.28)	(-0.65)
Observations	375	375	375	375	375	375

t statistics in parentheses: * p<0.05, **p<0.01, ***p<0.001

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[3] Appendix 3, model 1 and model 2, shows a pooled and random effect regression for assurance by big4 and assurance by non-big4 as indepedent variable

Table 11. Pooled, Fixed and random effect regression analyses with lagged variable Assurance[4]

	Pooled regression analyses		Fixed regression analyses		Random effect regression analyses	
	Includes Big4 (1)	Excludes Big4 (2)	Includes Big4 (3)	Excludes Big4 (4)	Includes Big4 (5)	Excludes Big4 (6)
	Cost of Debt	Cost of Debt	Cost of Debt	Cost of Debt	Cost of Debt	Cost of Debt
L.Assurance	-0.408**	-0.0195	0.0114	0.0101	-0.408**	-0.0195
	(-3.19)	(-0.28)	(0.04)	(0.03)	(-3.19)	(-0.28)
Year=2014	0	0			0	0
	(.)	(.)			(.)	(.)
Year=2015	-0.0213	-0.0179			-0.0213	-0.0179
	(-0.40)	(-0.36)			(-0.40)	(-0.36)
UK	0	0			0	0
	(.)	(.)			(.)	(.)
Germany	-0.123	-0.0800			-0.123	-0.0800
	(-1.68)	(1.08)			(-1.68)	(1.08)
Netherlands	-0.00874	0.0143			-0.00874	0.0143
	(-0.11)	(0.18)			(-0.11)	(0.18)
Big4	0.449***				0.449***	
	(3.57)				(3.57)	
Provider is non-big4	0.483***	0.112	-0.00946	-0.0923	0.483***	0.112
	(3.70)	(1.38)	(-0.02)	(-0.22)	(3.70)	(1.38)
ROA	-0.000976	0.000000724	0.00410	0.00417	-0.000976	0.000000724
	(-0.25)	(0.00)	(0.43)	(0.44)	(-0.25)	(0.00)
Leverage	0.00321*	0.00356*	0.00676	0.00667	0.00321*	0.00356*
	(2.28)	(2.48)	(1.06)	(1.05)	(2.28)	(2.48)
LogSize	0.0465	0.0283	0.115	0.114	0.0465	0.0283
	(1.05)	(0.63)	(1.16)	(1.16)	(1.05)	(0.63)
Tobins Q	0.0504	0.0453	0.0917	0.0839	0.0504	0.0453
	(1.90)	(1.67)	(1.70)	(1.63)	(1.90)	(1.67)
Mining	0	0			0	0
	(.)	(.)			(.)	(.)
Construction	-0.113	-0.141			-0.113	-0.141
	(-0.53)	(-0.64)			(-0.53)	(-0.64)
Manufacturing	-0.0785	-0.0638			-0.0785	-0.0638
	(-0.63)	(-0.50)			(-0.63)	(-0.50)
Transportation, Co~	-0.0264	-0.0337			-0.0264	-0.0337
	(-0.18)	(-0.22)			(-0.18)	(-0.22)
Wholesale Trade	-0.247	-0.191			-0.247	-0.191
	(-0.79)	(-0.60)			(-0.79)	(-0.60)
Retail Trade	-0.0442	-0.179			-0.0442	-0.179
	(-0.34)	(-0.13)			(-0.34)	(-0.13)
Finance, Insurance~a	-0.0731	-0.0929			-0.0731	-0.0929
	(-0.49)	(-0.60)			(-0.49)	(-0.60)
Services	-0.160	-0.151			-0.160	-0.151
	(-0.06)	(0.02)			(-0.06)	(0.02)
Nonclassifiable	-0.0117	0.00462			-0.0117	0.00462
	(-0.06)	(0.02)			(-0.06)	(0.02)
Constant	-0.355	-0.222	-1.234	-1.114	-0.355	-0.222
	(-0.94)	(-0.57)	(-1.46)	(-1.38)	(-0.94)	(-0.57)
Observations	245	245	245	245	245	245

t statistics in parentheses:
* p<0.05, **p<0.01,***p<0.001

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[4] Appendix 3, model 3 and model 4, shows the lagged effect of assurance by big4 and assurance by non-big4.

4.3 Multilevel-panel data analyses

In table 12, a multilevel-panel data analyses is performed where model 1 and model 2 shows the differences in groups for country and in model 3 and model 4 for industry. The multilevel-panel data analyses shows that assurance has a negative significant effect in model 1 and 3 with p-value <.001. Thus, assurance is significant for both industry and country as group variable when big4 is included as variable. In model 1 and 3, big4, provider is non-big4 and leverage are positive significant. In model 1, Tobins Q is positive significant with p-value<.05. In model 2, where big4 is excluded, provider is non-big4 and leverage are positive significant with respectively p-value<.05 and p-value<.001. In model 4, with group variable industry and where big4 is excluded, leverage is positive significant with p-value<.001. In model 1, all industries are negatively related with cost of debt except construction compared to mining. Model 2 shows that all industries are negatively related with the cost of debt compared to mining. Furthermore model 3 shows that the Netherlands is positively related with the cost of debt and Germany negatively compared to the UK in model 3. Model 4 shows that both the Netherlands as Germany are negatively related with the cost of debt compared with the UK. The ROA is negatively and size positively associated with the cost of debt in all models.

Table 12. Multilevel panel-data analyses[5]

	Group variable Country		Group variable Industry	
	Includes Big4 (1)	Excludes Big4 (2)	Includes Big4 (3)	Excludes Big4 (4)
	Cost of Debt	Cost of Debt	Cost of Debt	Cost of Debt
Cost of Debt				
Assurance	-1.857***	-0.0442	-1.809***	-0.0395
	(-10.28)	(-0.70)	(-10.32)	(-0.69)
Year=2013	0	0	0	0
	(.)	(.)	(.)	(.)
Year=2014	-0.0393	-0.0360	-0.0389	-0.0352
	(-0.79)	(-0.64)	(-0.79)	(-0.62)
Year=2015	-0.0335	-0.0579	-0.0355	-0.0572
	(-0.64)	(-0.98)	(-0.68)	(-0.97)
Big4	1.837***		1.791***	
	(10.54)		(10.53)	
Provider non Big4	1.823***	0.134*	1.780***	0.116
	(10.68)	(2.00)	(10.57)	(1.75)
ROA	-0.00115	-0.000417	-0.00181	-0.00291
	(-0.37)	(-0.12)	(-0.59)	(-0.83)
Leverage	0.00318**	0.00420***	0.00311**	0.00389***
	(2.93)	(93.41)	(3.13)	(3.46)
LogSize	0.0513	0.00936	0.0484	0.0169
	(1.50)	(0.24)	(1.43)	(0.44)
Tobins Q	0.0420*	0.0324	0.0370	0.0362
	(2.03)	(1.37)	(1.83)	(1.57)
Mining	0	0		
	(.)	(.)		
Construction	0.0778	-0.0121		
	(0.48)	(-0.07)		
Manufacturing	-0.0872	-0.107		
	(-0.91)	(-0.99)		
Transportation, Co~	-0.0323	-0.120		
	(-0.29)	(-0.95)		
Wholesale Trade	-0.234	-0.200		
	(-0.94)	(-0.70)		
Retail Trade	-0.0920	-0.00870		
	(-0.90)	(-0.08)		
Finance, Insurance~a	-0.0923	-0.110		
	(-0.79)	(-0.83)		
Services	-0.0960	-0.129		
	(-0.75)	(-0.88)		
Nonclassifiable	-0.0287	-0.00847		
	(-0.19)	(-0.05)		
UK			0	0
			(.)	(.)
Germany			-0.0698	-0.104
			(-1.29)	(-1.69)
Netherlands			0.0207	-0.00503
			(0.34)	(-0.07)
Constant	-0.322	-0.0305	-0.349	-0.117
	(-1.09)	(-0.09)	(-1.23)	(-0.36)
lns1_1_1				
Constant	-19.09	-20.22	-21.03**	-26.49***
	(-1.49)	(-1.70)	(-2.82)	(-3.39)
lnsig_e				
Constant	-0.918***	-0.788***	-0.917***	-0.787***
	(-25.15)	(-21.59)	(-25.10)	(-21.55)
Observations	375	375	375	375

t statistics in parentheses: * $p<0.05$, **$p<0.01$, ***$p<0.001$

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[5] Appendix 4 shows a multi panel-data regression analyses for assurance by big4 and assurance by non-big4 as independent variable

5. Discussion and Conclusion

This research focused on the cost of debt in relation to corporate social responsibility assurance. The main problem addressed the effect of corporate social responsibility assurance on the cost of debt. Especially the credibility of information is a key issue for capital providers. This thesis showed from an agency, stakeholder and legitimacy perspective the effect of assurance as a legitimacy, credibility and stakeholder mechanism on the cost of debt. Therefore, assurance is an important mechanism to augment investors' faith in corporate social responsibility reporting. The augmented investors' faith has as result that the agency problem decreases and the legitimacy and stakeholder mechanism increases.

Former research showed that corporate social responsibility positively influences firm performance and negatively influences the cost of capital, which is often divided in the cost of equity and the cost of debt. Therefore, this research hypothesized a negative relation between assurance and the cost of debt. Corporate social responsibility assurance is measured if corporate social responsibility is assured. The cost of debt is measured as the ratio of a firm's interest expenses to the average interest-bearing debt outstanding.

The evidence from this research is supporting the hypothesis that assurance has a negative influence on the cost of debt. In the analyses, assurance is negatively related with the cost of debt, except the pooled regression when assurance was lagged and the pooled regression without assurance by a big4 firm as control variable. In most of the models, assurance is negatively significant related with the cost of debt. When assurance is provided by a big4 firm is included, then assurance is not always significant and negative. Since, assurance by a big4 firm is correlated with assurance and almost the same variable as assurance, therefore the models without assurance provided by a big4 firm are more representative for this research. The significant and negative effects of assurance on the cost of debt in the different models can be the result of the reduced information asymmetry as adopted from an agency perspective. Assurance will result in a reduction of the information asymmetry and it will enhance the reliability of information (Casey and Grenier). These results are in line with Lopatta et al. (2016), Akerlof (1970) and Grossmann and Stiglitz (1980) who argue that a decrease in information asymmetry and an increase in trustworthiness will result in a lower cost of capital and cost of financing. Moreover, the increase in the reliability of information will strengthen the relationship with stakeholders, which also can

explain this effect (Harrison and van der Laan Smith, 2015; Dhaliwal et al. 2012). The results are in line with the expectations that leverage has a positive and a significant relation with the cost of debt in most models (Chen and King, 2014; Ding et al., 2016; Kuzuy and Uyar, 2017; Casey and Grenier, 2015). Moreover, Tobins Q and size are, as expected, positively related with the cost of debt, but are not significant related. The positive and significant effect of assurance by a big4 firm on assurance can be explained from a legitimacy perspective. Firms that are included in well-known stock markets have incentives to legitimate their performance and therefor hire a big4 firm. This reasoning could explain the remarkable positive significant effect of big4 as control variable. The positive and significant effects of provider is a non-big4 firm is as expected positive. ROA was expected to be positive but from the multilevel panel-data analyses the ROA has a negative effect on the cost of debt. As expected, there are differences between the industries compared to mining as reference category. Furthermore, the return on assets was fluctuating between positive and negative within the different analyses. The results indicate that the years 2014 and 2015 had a negative effect on the cost of debt, which means the cost of debt of firms decreases.

This thesis provided insight in the application of assurance. Although recent studies are suggesting that there is a large increase in the assurance of corporate social responsibility reports, this research is rejecting this opinion. Firms that apply assurance did continue with that, but almost all firms that did not assure their corporate social responsibility reports were very slowly applying assurance. Although there is not a large increase in corporate social responsibility assurance, this research shows that firms and stakeholders can benefit from assurance of their corporate social responsibility reports. The results show that firms, which were assuring their corporate social responsibility reports, gain better terms regarding their cost of debt.

Finally, this research has several limitations, which directly addresses possibilities for future research. First of all, the most important shortcoming of this research is the measurement of the proxy for cost of debt. The cost of debt is measured by the ratio of a firm's interest expenses to the average interest-bearing debt outstanding. This proxy is a strong approximation but not accurate with regards to measuring the cost of debt. An alternative proxy to use is the WACC cost of debt or the weighted cost of debt. Unfortunately, there was no access to databases, which provide these data and the databases that were used were not providing these data for the entire period. These alternative proxies would be more

useful because they are more accurate in measuring the cost of debt than the proxy used in this research. Thus, future research should focus on different measurements of the cost of debt and provide a more accurate proxy.

Secondly, this study only considered data from the years 2013, 2014 and 2015. In these years there was little deviation in firms that assure their corporate social responsibility reports. The few differences between years and firms that assure their corporate social responsibility reports lead to the fact that the results are based on a couple of switches of firms that assure their corporate social responsibility reports. Future research should focus to extend the years of research and consider extending the period of research over 10 years. Extending the period of research to 10 years would result in more switches in firms that assure their corporate social responsibility reports and would therefore be better generalizable.

Thirdly, this study uses three prominent stock markets in Western Europe, which has as consequence that almost all firms were assured by a big4 audit firm. This resulted in a variable that is almost the same as assurance. As a result there was correlation between these variables. Future research should consider including smaller stock markets, where smaller firms are operating. The prominent stock markets were dominated by big4 assurers where firms in less prominent stock market are probably more often assured by non-big4 assurers. This has as a result that the influence of big4 and non-big4 assurers could be measured better.

The fourth remark is that the cost of debt is often characterized by a lot of firm specific factors. In future research there should be considered to take more factors into account that influence the cost of debt. There should be looked into the debt structure of firms and takes into account that this will probably have a stronger effect on the cost of debt than assurance has. Another factor that should be investigated in combination with assurance and the cost of debt is the influence of one specific industry. In this research industry is included but some industry categories are badly represented or not represented at all.

Lastly the effect of assurance on credibility, legitimacy and the stakeholder relationship should be measured. This research takes these assumptions from former literature but lacks the quantitative measurement of these factors. The quality of assurance is therefore important

to measure and if corporate social responsibility reports are limited in providing extended information. These factors can influence on the cost of debt.

Taken together, this study gave insight into the use of assurance as a mechanism to influence the cost of debt for the years 2013, 2014 and 2015 in Western Europe. The results show implications for different variables because a lack of deviation in this period. Assurance specifically shows a decrease in the cost of debt and is generalizable for Western Europe. This can stimulate to assure their corporate social responsibility reports, which resulted in demonstrable better debt conditions.

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7. Appendix

Appendix 1. VIF scores		
Variable	VIF	1/VIF
ThirdParty	1.57	0.636485
Big4	1.67	0.597471
Region		
2	1.35	0.740627
3	1.26	0.794796
Industry		
3	1.64	0.610033
5	5.25	0.190394
6	3.43	0.291609
7	1.17	0.856553
8	4.14	0.241695
9	3.19	0.313385
10	1.96	0.509600
12	1.57	0.637813
ROA	1.20	0.836168
Leverage	1.33	0.749314
Sizelog	1.77	0.563638
TobinsQ	1.74	0.575302
Year		
2014	1.31	0.760912
2015	1.34	0.747367
Mean VIF	2.05	

Appendix 2. Hausman test

	(b) cdffe	(B) cdfre	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
big4	.0694038	.1089917	-.0395879	.1574931
ThirdParty	.0161489	.1063726	-.0902237	.1859157
ROA	.0061362	.0010534	.0050828	.0035384
Leverage	.005778	.0038952	.0018828	.0030788
Sizelogtot~s	.0613922	.0462029	.0151893	.0387053
TobinsQ	.0595273	.0523735	.0071537	.0171325

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 3.13
Prob>chi2 = 0.7928

Appendix 3. Pooled, Random and Lagged regression analyses

	Pooled regression (1) Cost of Debt	Random regression (2) Cost of Debt	Pooled lagged regression (3) Cost of Debt	Random lagged regression (4) Cost of Debt
Assurance by big4	0.130*	0.109		
	(2.10)	(1.45)		
Assurance by non-big4	0.159*	0.106		
	(2.15)	(1.17)		
Year= 2013	0	0		
	(.)	(.)		
Year= 2014	-0.0372	-0.0383	0	0
	(-0.65)	(-0.89)	(.)	(.)
Year= 2015	=0.0585	-0.0639	-0.0173	-0.0173
	(-0.97)	(-1.39)	(-0.32)	(-0.32)
UK	0	0	0	0
	(.)	(.)	(.)	(.)
Germany	-0.0978	-0.0980	-0.0781	-0.0781
	(-1.46)	(-1.11)	(-1.06)	(-1.06)
Netherlands	-0.0139	-0.00873	0.00442	0.00442
	(-0.19)	(-0.09)	(0.06)	(0.06)
ROA	-0.00161	0.00105	-0.000342	-0.000342
	(-0.43)	(0.27)	(-0.09)	(-0.09)
Leverage	0.00331**	0.00390*	0.00277	0.00277
	(2.63)	(2.56)	(1.92)	(1.92)
SizeLog	0.0343	0.0462	0.0392	0.0392
	(0.86)	(1.12)	(0.88)	(0.88)
Tobins Q	0.0454	0.0524*	0.0523	0.0523
	(1.89)	(2.25)	(1.94)	(1.94)
Mining	0	0	0	0
	(.)	(.)	(.)	(.)
Construction	0.0620	0.198	-0.101	-0.101
	(0.33)	(0.80)	(-0.46)	(-0.46)
Manufacturing	-0.0359	-0.0450	-0.0305	-0.0305
	(-.032)	(-0.30)	(-0.24)	(-0.24)
Tansportation, Co~	-0.00220	-0.0415	0.0351	0.0351
	(-0.02)	(-0.24)	(0.23)	(0.23)
Wholesale Trade	-0.225	-0.259	-0.124	-0.124
	(-0.78)	(-0.65)	(-0.46)	(-0.46)
Retail Trade	0.0652	0.0447	0.0271	0.0271
	(0.55)	(0.29)	(0.20)	(0.20)
Finance, Insurance~a	0.0366	-0.0128	0.00501	0.00501
	(0.27)	(-0.07)	(0.03)	(0.03)
Services	-0.0778	-0.0964	-0.112	-0.112
	(-0.52)	(-0.51)	(-0.64)	(-0.64)
Nonclassifiable	0.0563	0.0339	0.0151	0.0151
	(0.32)	(0.14)	(0.08)	(0.08)
L.Assurance by big4			0.105	0.105
			(1.55)	(1.55)
L. Assurance by non-big4			0.149	0.149
			(1.81)	(1.81)
Constant	-0.344	-0.442	-0.395	-0.395
	(-0.99)	(-1.20)	(-1.03)	(-1.03)
Observations	375	375	246	246

T statistics in parentheses: * p<0.05, ** p<0.01, *** p<0.001

Appendix 4. Multi panel-data analyses

	(1) Cost of Debt	(2) Cost of Debt
Assurance by big4	0.131*	0.109*
	(2.17)	(1.99)
Assurance by non-big4	0.186**	0.155*
	(2.67)	(2.30)
Year= 2013	0	0
	(.)	(.)
Year= 2014	-0.0378	-0.0361
	(-0.68)	(-0.64)
Year= 2015	-0.0585	-0.0565
	(-0.99)	(-0.96)
ROA	-0.000714	-0.00259
	(-0.20)	(-0.74)
Leverage	0.0325**	0.00332**
	(2.65)	(2.96)
LogSize	0.0321	0.0358
	(0.83)	(0.93)
TobinsQ	0.0442	0.0481*
	(1.88)	(2.10)
Mining	0	
	(.)	
Construction	0.0350	
	(0.19)	
Manufacturing	-0.0700	
	(-0.65)	
Transportation, Co~	-0.0413	
	(-0.33)	
Wholesale Trade	0.220	
	(-0.78)	
Retail Trade	0.0497	
	(0.43)	
Finance, Insurance~a	0.0171	
	(0.13)	
Services	-0.0840	
	(-0.58)	
Nonclassifiable	0.00596	
	(0.04)	
UK		0
		(.)
Germany		-0.105
		(-1.72)
Netherlands		-0.0207
		(-0.30)
Constant	-0.333	0.337
	(-1.00)	(-1.05)
lns1_1_1	-21.60	-29.61***
Constant	(-1.94)	(-3.74)
lnsig_e	-0.794***	-0.792***
Constant	(-1.94)	(-3.74)
Observations	375	375

T statistics in parentheses
*p<0.05, ** p<0.01, *** p<0.001