

Master's Thesis

Determinants of external assurance on sustainability reports



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Abstract

Companies are one of the most important causes of environmental pollution and social injustice. Stakeholders demand that companies become more accountable. For this reason, companies increasingly issue sustainability reports. But, there is an agency problem inherent to the situation, leading to credibility issues. It is in the interest of the managers to create a positive reputation of sustainable development. While it is in the interests of capital providers and other stakeholders to gain credible and truthful information. External assurance can enhance the credibility of sustainability reports. But, there is an agency problem inherent to the adoption of external assurance. Due to a lack of regulation, managers can choose the assurance provider and monitor the auditing process themselves, on behalf of themselves. Furthermore, there is a large variety of external assurance on sustainability reports, regarding the adoption, provider, scope and level of assurance. This thesis aims to explain this variation by looking at company-level, industry-level and country-level determinants. Furthermore, the relationship between environmental and social performance and the choice for provider, level and scope of assurance is examined. The question is whether external assurance is used as a signal and reduces the agency problem, or if it is used as a mean to gain organisational legitimacy. A total sample of 4,686 companies from 21 countries was comprised covering a six year period. The results show that companies with relatively good environmental and social performance are more likely to adopt external assurance. Thereby supporting signalling theory and indicating that external assurance reduces the agency problem. Companies with good environmental and social performance are also more likely to choose a more comprehensive assurance scope, further supporting signalling theory. There was however no association found between environmental and social performance and the choice for assurance provider or level. Furthermore, bigger companies, companies active in sensitive industries, companies domiciled in stakeholder oriented countries and companies domiciled in countries with weak legal enforcement, are more likely to adopt external assurance. The results suggest that the adoption of external assurance does reduce the agency problem. It implies that more regulation with mandated external assurance will help to make companies more accountable for their environmental and social impact.

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1. Introduction

The world is in an ecological crisis, with 2015 as the warmest year ever recorded (NOAA, 2016). Society is becoming more occupied with the environment and environmental pollution by companies. In addition, society is becoming more interested in the well-being of child workers and other employees in developing countries, as well as developed countries. This can be illustrated by the discussion that resulted after a clothing factory in Bangladesh collapsed in April 2013. Companies are seen as one of the most important causes of climate change (Walker & Wan, 2012) and social injustice. Shareholders and other stakeholders demand that companies become more accountable regarding their environmental and social impact. As a result, companies experience pressure to act more sustainable. Companies can react to this pressure by voluntarily issuing sustainability reports. But, there is an agency problem (Ross, 1973) inherent to the issuance of sustainability reports, between the managers of the companies, and the capital providers and other stakeholders. It is in the interest of the managers to create a positive reputation regarding sustainable development, while it is in the interest of the capital providers to gain truthful and credible information. Therefore stakeholders question the credibility of the sustainability reports. To enhance the credibility, companies can voluntarily adopt expensive external assurance on their sustainability reports. But there is another agency problem, inherent to the voluntary adoption of external assurance. Due to a lack of regulation, managers are able to choose an external auditor and monitor the auditing process themselves, on behalf of themselves. The market for external assurance on sustainability reports has been emerging (Simnett et al., 2009). Because the adoption of external assurance is a relatively new phenomenon, it is not yet understood if it reduces the agency problem. Due to the lack of regulation, there is a large variety of external assurance. There is a variety in the adoption of external assurance, being 42% of the sustainability reports issued in 2015. There is a difference regarding the adoption of external assurance among countries, industries and companies. Also, there is a variety of assurance providers, ranging from auditing firms, to engineering firms and small consultancy firms. Furthermore there are different scopes of assurance, ranging from the entire sustainability report to specified section(s), and different levels of assurance, ranging from negative to positive assurance (KPMG, 2015).

The aim of this study is to explain the variety in external assurance on sustainability reports. It does so by focussing on the company's environmental and social performance, as well as other company-level, industry-level and country-level determinants. Whether the adoption of external assurance reduces the agency problem can be concluded by examining which companies voluntarily adopt external assurance on their sustainability reports. Companies may use the adoption of external assurance to signal that they are relatively good environmental and social performers. In contrast,

the adoption of external assurance may also be used by companies with relatively poor environmental and social performance, as a tool to gain organizational legitimacy. In this situation, the adoption of external assurance will be used to change public perception, rather than provide information and act accountable. Whether the adoption of external assurance on sustainability reports is used as a signal or as a legitimizing tool depends on a cost-benefit trade off. Next to the adoption of external assurance, also the choice for assurance provider, scope of assurance and level of assurance are examined in relation with environmental and social performance. By advancing knowledge regarding which companies assure their sustainability reports, the market can properly value the adoption of external assurance, enhancing the efficiency of the market.

Most studies that examine external assurance on sustainability reports focus on the effects of external assurance on the quality of the reports (Moroney et al., 2012, Perego & Kolk 2012 and Pflugrath et al., 2011). The determinants of external assurance is an area which is under researched (Cohen & Simnett, 2015 and Hahn & Kühnen, 2013), while it is an important aspect for understanding whether the adoption of external assurance reduces the agency problem. There are papers which examine the determinants of external assurance of sustainability reports (Casey & Grenier, 2015, Fernandez-Feijoo et al., 2015, Kolk & Perego, 2010, Peters & Romi, 2015, Sierra et al., 2013 and Simnett et al., 2009). Most of these studies focus on determinants which can be seen as isolated from the sustainability performance. Being country-specific and industry-specific factors (Kolk & Perego, 2010 and Simnett et al., 2009), broad company characteristics such as size, leverage and profitability (Sierra et al., 2013), or both (Fernandez-Feijoo et al., (2015)). These studies can only partly explain the variation in external assurance on sustainability reports.

This study contributes in several ways. Simnett et al. (2009) examine assurance on sustainability reports through an international comparison. They focus on country specific and industry specific factors as determinants for the adoption of external assurance and choice for assurance provider. However, their study does not take the underlying sustainability performance of the companies into account. This study adds to Simnett et al. (2009), by examining the relationship between both environmental and social performance and the adoption of external assurance. Furthermore it contributes by also making a distinction between scope of assurance and level of assurance, oppose to only distinguishing between type of assurance provider. Secondly it adds to Casey and Grenier (2015). They focus on the differences between the American assurance practices and international assurance practices by examining US companies. Focussing on industry specific and company specific factors, including corporate social performance. However, their study does not examine country specific determinants. This study adds to Casey and Grenier (2015), by looking at 21 different countries, including the US, and examining country-level determinants.

The remainder of this thesis is structured as follows. In the next section a theoretical

framework is constructed based on a literature review regarding agency theory, signalling theory and legitimacy theory. Subsequently the hypotheses are developed, followed by a description of the data and empirical models used. Then the results will be presented, followed by the conclusion and discussion.

2. Theoretical framework & development of hypotheses

2.1 Theoretical background

Agency problem

There is an agency problem (Ross, 1973) inherent to the issuance of sustainability reports. An agency problem arises when there are two parties, with one, the agent, acting on behalf of the other, the principal. Agency theory assumes that both the agent and the principal act out of self-interest. When these interests are not congruent, a conflict of interests arises, resulting in the agency problem. The agency problem can have two negative outcomes, being adverse selection and moral hazard (Scott, 2015). Regarding the issuance of sustainability reports, adverse selection is the focal problem. The managers of the firm have information about the company's sustainable development that the capital providers and other stakeholders do not have. But regarding sharing this information, there are competing interest between the managers and the capital providers and other stakeholders. It is in the interest of the managers, the agent, to create a positive reputation regarding sustainable development among its capital providers and other stakeholders. Because a positive reputation will give them competitive advantage. Furthermore, managers can be evaluated partly based on the company's sustainable development. While it is in the interests of the capital providers, the principal, and other stakeholders that the companies provide truthful and credible information about their environmental and social performance. Because if they receive truthful and credible information, they are able to make better (investment) decisions.

Due to the lack of regulation regarding sustainability reporting, companies can choose what information they disclose in what way, enhancing the agency problem. The Global Reporting Initiative (GRI) developed standards for sustainability reporting, but these standards are voluntary to adopt. As a result of the lack of regulation, the sustainability reports issued by different companies, differ in a substantial way, both in level and nature (Hahn & Kühnen, 2013). Descriptive statistics in several studies (Braam et al., 2016, Clarkson et al., 2008 and Clarkson et al., 2011) indicate that the information contained in sustainability reports is far from complete, relative to the GRI standards guidelines.

A result of this agency problem is that the stakeholders question the credibility of the sustainability reports. Companies can react to this credibility issue, by voluntarily adopting external assurance. Assurance can serve as a control mechanism, resulting in more credible information. Information with higher credibility will result in higher user confidence, and this will lead to better resource allocation decisions. Both for stakeholders inside the firm (managers) as outside the firm (shareholders).

But there is a second agency problem, inherent to the adoption of external assurance on sustainability reports. The decision to adopt external assurance on sustainability reports is voluntary and unregulated. As a result, managers have the discretion to choose the assurance provider, inside and outside the auditing profession, the scope of assurance and the level of assurance they acquire. This is in contrast to the regulated and mandated external assurance of financial reports in most developed economies. The conflict of interest between the managers of the company and the capital providers regarding the annual financial statements, is reduced by mandating external assurance and by mandating an audit committee. One of the responsibilities of the audit committee is to hire an external auditor and to monitor the auditing process, on behalf of the capital providers (Scott, 2015). Regarding the adoption of external assurance on sustainability reports, a similar auditing committee is absent. As a result, managers are able to choose the external auditor and monitor the auditing process themselves, on behalf of themselves.

As a result, managers are able to choose between different qualities of assurance providers, assurance scopes and assurance levels. They can use this discretion to fit their self-interests. Regarding assurance providers, most studies make a distinction between assurance providers from the auditing profession and other assurance providers (for example, Casey & Grenier, 2015, Clarkson et al., 2015, Moroney et al., 2012, Pflugrath et al., 2011 and Simnett et al., 2009). Assurance providers from the auditing profession are argued to be of higher quality than other assurance providers. The auditing profession has developed auditing standards, a body of ethics, independence requirements and quality control mechanisms to provide assurance at a consistently high level. Furthermore, assurance providers in the auditing profession have a reputation which they rely on for the continuing of their business. Therefore they are less likely to behave opportunistically, which contributes to the quality (Casey & Grenier, 2015 and Simnett et al., 2009). Also, price can be an indicator of quality, with a higher price suggesting a higher quality. Following this reasoning, assurance providers from the auditing profession are of higher quality than other assurance providers. Because their fees can be up to five times the fees charged by other assurance providers (Simnett et al., 2009). Based on the abovementioned arguments, providers from the auditing profession are of higher quality than other assurance providers¹.

Empirical evidence on which assurance provider is of a higher quality is not conclusive. Moroney et al. (2012) find no difference in the quality of sustainability reports when they are assured

¹ A counter argument can be that assuring sustainability reports requires very specific knowledge, something assurance providers from the auditing profession might lack. In contrast to, for example, an environmental consultancy firm. But, there are specific standards in place in the auditing profession. When an engagement team does not have the required expertise, the engagement is not accepted (Simnett et al., 2009). Furthermore assurance providers from the auditing profession can hire this expertise. So they have both the benefits of an assurance provider from the auditing profession, as the expertise needed.

by assurers from the auditing profession or not. But there are some studies which do find that the type of assessor matters. Casey & Grenier (2015) find that the reductions in cost of capital and forecast dispersion are significantly higher when an audit firm provided the assurance. Also, Pflugrath et al. (2011) find that the credibility of the sustainability reports enhanced more when the assurance provider is a member of the auditing profession.

The scope of assurance can range from assurance provided over the entire report, to specified section(s). The level of assurance can range from limited assurance to positive assurance. A more comprehensive assurance scope and a higher level of assurance are the higher quality assurance choices, because they will result in more scrutiny.

Despite that the purchase of assurance is an expensive service and the adoption is voluntary, there are still companies that choose to adopt external assurance. This indicates that the perceived benefits outweigh the costs. Because the most important goal of for-profit organisations is to maximize the value of the organization, e.g. make profit (Merchant & Van der Stede, 2012). Research has mainly focused on the context of mandated external assurance. Therefore there is only a limited amount of empirical studies which examine the context of voluntary adoption of external assurance² (Simnett et al., 2009). Assurance can lead to more credible information and therefore more user confidence. Enhancing the credibility of the sustainability reports is the primary goal of the adoption of voluntary external assurance. This is in line with Simnett et al. (2009), who argue that companies with a greater need to enhance credibility are more likely to assure their sustainability reports.

Pflugrath et al. (2011) examine whether financial analysts perceive sustainability reports with external assurance as more credible than sustainability reports without external assurance. Their results show that financial analysts perceive sustainability reports with external assurance as more credible. A similar conclusion is drawn by Clarkson et al. (2015). Their results show that companies which assure their sustainability reports, are more likely to be included in the Dow Jones

² One of the first studies that examined the voluntary adoption of external assurance was conducted by Chow (1982). Chow (1982) used agency theory and argued that a major reason to voluntarily assure the financial reports is to control the conflict of interests between managers, shareholders and bondholders. He concludes that leverage, firm size and the number of accounting-based debt covenants will increase the likelihood of voluntary external assurance.

Abdel-Khalik (1993) uses a different perspective and argues that the adoption of voluntary external assurance is seen as a compensatory control system. This is necessary due to the loss of control that is inherent to the organizational design in hierarchical organizations. This loss of control might lead to moral hazard problems and bad communication. The results show that bigger companies are more likely to adopt external assurance, consistent with his reasoning.

Francis, Khurana, Martin, & Pereira (2011) examine both firm specific factors, as well as country specific factors as determinants for the voluntary adoption of external assurance. They conclude that both factors can influence this adoption and that companies in countries with weaker governance structures are more likely to voluntarily assure their financial reports. They explain this by stating that the adoption of external assurance functions as a substitute for the weak country governance.

Sustainability Index. They argue that sophisticated corporate social responsibility information users, perceive external assurance to be credibility enhancing. Moroney et al. (2012) find evidence that assurance enhances the quality of voluntary environmental disclosures by reducing information asymmetry. They use an index based upon the GRI to measure quality, so it does not explicitly look at credibility, but an increase in quality will enhance the credibility.

Based on these papers, it can be concluded that external assurance enhances the credibility of sustainability reports. This enhanced credibility can have several benefits. Firstly, assurance on sustainability reports is associated with lower cost of equity capital and lower analyst forecast errors and dispersion (Casey & Grenier, 2015). Furthermore, higher quality sustainability reports result in both a lower cost of equity and higher expected future cash flows (Plumlee et al., 2015). Assuming that external assurance enhances the quality of sustainability reports (Moroney et al., 2012), these are both potential benefits from adopting external assurance on sustainability reports.

Whether the adoption of external assurance on sustainability reports reduces the agency problem inherent to the issuance of sustainability reports, can be concluded from which companies adopt external assurance. When companies with relatively good environmental and social performance adopt external assurance, it is an indication that it reduces the agency problem. Both managers of companies with good and poor environmental and social performance, provide information in their sustainability reports which is in their own best interests. Being information that creates a positive reputation regarding sustainable development. But only the information in the sustainability reports of companies with good environmental and social performance is both credible and able to create a positive reputation. Companies with poor environmental and social performance can only provide information that is either credible or able to create a positive. When they provide information which is credible, it is no longer in their own interests because it will create a negative reputation regarding sustainable development. When they provide information that will create a positive reputation, the external assurance provider will no longer provide external assurance because the information is not credible.

When companies with relatively poor environmental and social performance adopt external assurance, it is an indication that it does not reduce the agency problem. The information in these sustainability reports is meant to create a positive reputation regarding sustainable development, rather than provide truthful and credible information about the environmental and social performance. If these sustainability reports can adopt external assurance, even though the information is not credible, the agency problem is not reduced.

Whether companies with relatively good or poor performance will adopt external assurance can be predicted by two competing theories. On the one hand, signalling theory, predicting a positive

relationship. On the other hand, legitimacy theory, predicting a negative relationship between environmental and social performance and the adoption of external assurance.

Signalling theory

Spence (1973)³ was the first to formally model signalling equilibria. Whenever there is information asymmetry between two parties, one of the parties can choose to decrease this information asymmetry by using a signal. Signalling theory can also be applied to situations where firms differ in quality. The managers of these firms try to reveal the type of their firm by using a signal. Scott (2015) defines a signal as: “an action taken by a high-type manager that would not be rational if that manager was a low-type” (p. 503).

Most signalling models use quality as the distinguishing characteristic that companies want to signal (Connely et al., 2011). This quality can be interpreted in many relevant ways. Connely et al. (2011) refer to quality as “the underlying, unobservable ability of the signaller to fulfil the needs or demands of an outsider observing the signal” (p. 43). Externally assuring sustainability reports can be interpreted as a signal that managers use to reveal that their company is of a high quality. In this context, a high quality means good environmental and social performance.

The primary elements of signalling theory are the signaller, the signal and the receiver (Connely et al., 2011). In the context of external assurance on sustainability reporting, the signaller is an insider (manager or executive), with information regarding the organization (the environmental and social performance), which is not easily available to outsiders (shareholders and other stakeholders). Due to this private information, the insiders have a privileged perspective regarding the quality of their organization. These insiders have both positive and negative private information, and they have to choose if they want to communicate this to outsiders. The focus of signalling theory

³ Spence (1973) explained signalling by means of an example in the job market. With a job applicant who provided a signal. His argument is that there is information asymmetry about the underlying quality of the job applicant, between the job applicant himself and the hirer. In order to reduce this information asymmetry, a job applicant can signal his underlying quality through a higher quality education. So it has a better chance of getting the job. The rationale behind this is that a lower quality job applicant is not capable to provide a similar signal. Because it will take him too much time and effort to gain the same quality rigorous education. It could even be impossible for a lower quality job applicant to gain the same quality education.

There are many studies which examine possible signals and their effectiveness. For example Titman and Trueman (1986), they examine companies prior to an IPO. There is information asymmetry between the managers of the firm and potential investors regarding the underlying quality of the firm. To signal their underlying quality, managers of high quality firms will choose a higher quality auditor or investment banker. Because the choice for a higher quality auditor or investment banker is more costly for a low quality firm, companies with a higher quality auditor or investment banker have a higher value for their IPO. Datar, Feltham, & Hughes (1991) draw a similar conclusion, stating that the choice for a certain quality auditor provides partial information about the manager's private information. Furthermore they find that retained ownership is another signal managers use to reveal if their company is of high quality.

is on positive information, because positive information is seen as less credible than negative information. In this context, good environmental and social performance, and the actions taken to communicate this information. The action taken is the adoption of external assurance. The receivers are outsiders who lack information about the environmental and social performance, but would like this information to make better decisions. In order for a signaller to signal their quality to the receivers, the signaller needs to benefit from an action that the receiver will undertake, purely as a result of the signal. Usually this is choosing the signaller at the expense of alternative organizations (Connely et al., 2011). So, in order for signalling to take place, the receivers need to benefit from the information provided in the signal, namely making better decisions. As well as the signaller needs to benefit from the actions undertaken by the receiver as a result of the signal.

In order to signal effectively, a signal needs to have two primary characteristics, observability and signal costs (Connely et al., 2011). The reason for using a signal is that the underlying quality of the organization is not easily observable for the receivers. As an effort to communicate this underlying quality, they use a signal. This signal has to be observable, otherwise it would defeat the whole purpose and the receivers will still not be able to distinguish between a high quality and low quality organization. Regarding the external assurance on sustainability reporting, this signal is observable to receivers if the organization chooses to publicly reveal the external assurance. But, observability is not enough for effective signalling. Signal cost is the second primary characteristic (Bird & Smith, 2005, Connely et al., 2011 and Johnstone & Grafen, 1993). It is not enough that the signal costs money for the signaller. The signal has to be more costly for some signallers (low quality organizations), than it is for others (high quality organizations). If the costs for the signal are high enough for low quality organizations, relative to high quality organizations, effective signalling can take place⁴.

Regarding external assurance on sustainability reports, signal costs exist of the direct costs of buying external assurance. But there are also indirect costs. Due to the increased scrutiny of the external assessor, organizations which adopt external assurance have less room to decouple the information in the sustainability reports with their true performance. So if an organization wants to present good environmental and social performance in their externally assured sustainability reports, their true environmental and social performance must be good. Otherwise it would present an unfair view and the external assessor will not provide external assurance. If an organization with poor

⁴ There can also be situations in which a low quality organization does not have the underlying qualities associated with a signal, but still believes that the benefits of signalling are greater than the costs of producing the signal. If this is the case, organizations can engage in false signalling. Organizations are expected to keep using false signals until receivers learn to value these signals as false. Then the benefits of this false signalling will no longer outweigh the costs. It is therefore important for effective signalling that the signal costs ensure that false signalling does not pay (Connely et al., 2011).

environmental and social performance does adopt external assurance, the sustainability reports have to present a fair view. But because they perform poorly, this will not result in the sought benefits.

There are four conditions that need to be met for honest signalling. Firstly, members of a social group have to differ in some underlying quality which is not easily observable, but could be reliably signalled. Secondly the receivers benefit when receiving accurate information by which they can distinguish between the qualities. Thirdly the signallers and receivers have competing interest, which means that successful deceit will benefit the signaller at the expense of the receiver. Finally the signal costs or benefits are dependent on the underlying quality of the signaller (Bird & Smith, 2005).

The adoption of external assurance on sustainability reports meets all four conditions for honest signalling. There is a difference in underlying quality, being good environmental and social performers, or poor environmental and social performers. The receivers, shareholders and other stakeholders, are able to make better decisions if they accurately know if an organization is a good or poor environmental and social performer. The organizations with poor environmental and social performance will benefit if they successfully deceive the receivers in letting them think they are good environmental and social performers. The costs of adopting external assurance are higher for organizations with poor environmental and social performance. This regards to the indirect costs due to the increased scrutiny of the external assessor, and there with the decreased room for presenting an unfair view in the sustainability reports.

Signalling theory predicts that the adoption of external assurance on sustainability reports is used as a signal. Relatively good environmental and social performers adopt external assurance to signal that their environmental and social performance is superior. By using this signal, companies can gain competitive advantage. Relatively poor environmental and social performers are expected not to adopt external assurance, because they would incur too much costs.

Regarding choice for assurance provider, scope of assurance and level of assurance, companies which adopt external assurance as a signal will more likely choose the higher quality options. Choosing the higher quality options will enhance the credibility of the signal because it will improve the cost structure. The rationale behind this is that the higher quality options will result in more scrutiny. Making it harder for poor performing companies to decouple the information in the sustainability reports with their true environmental and social performance.

Legitimacy theory

Legitimacy theory states that organizations try to establish congruence between their activities and the norms of acceptable behaviour in the larger social system they are part of, e.g. society. If the

activities are congruent to the norms of acceptable behaviour, an organization has organizational legitimacy. When there is an actual or potential difference, a threat to organizational legitimacy will exist. These threats can take the form of sanctions, either economic, legal or social⁵ (Dowling & Pfeffer, 1975).

Only companies which are deemed legitimate have the right to use human capital and natural resources (Ali & Rizwan, 2013). Therefore it is crucial for their survival that organizations obtain legitimacy. There are three ways an organization can gain legitimacy (Dowling & Pfeffer, 1975). Firstly they can adapt their output, goals and activities to conform to the social norms of what is deemed legitimate. Secondly they can attempt to change the social norms through communication. Thirdly they can use communication to show that their current activities are in line with the social norms, through the use of symbols, values or institutions which have a strong base of social legitimacy. So, companies can use communication to influence the perception of the larger social system regarding their activities.

The norms and values of the larger social system can change over time. This can be a motivator for organizational change in search for gaining legitimacy (Dowling & Pfeffer, 1975). This is also applicable regarding sustainable development. Society is becoming more and more aware of the environmental pollution and social injustice caused by companies. Therefore the norms and values have been changing towards a situation where sustainable development is the new norm. This means that companies that fail to act sustainable, encounter legitimacy threats, resulting in difficulties attaining critical resources like money or human resources.

One way companies try to gain legitimacy is reporting on their corporate sustainability. This can be interpreted as using communication to show that their current activities are in line with the social norms of what is deemed legitimate. But, due to the agency problem inherent to the issuance of sustainability reports, the audience is sceptical towards the credibility. Companies can cope with this challenge by voluntarily adopting external assurance.

Not all companies issue sustainability reports. Also not all companies adopt external assurance on these sustainability reports. Legitimacy theory predicts that organizations which encounter more legitimacy threats are more likely to react in one of the three possible ways companies can gain legitimacy. By adopting external assurance on their sustainability reports, companies are not conforming to the norm, rather, these companies want to influence society's perception. Regarding

⁵ Putting it differently, organizations use resources, both human capital and natural resources. These resources could also be used in a different way. Furthermore, organizations are part of a larger social system. If a company uses the resources in a way that the larger social system finds legitimate, the organization is legitimate. If not, it faces legitimacy concerns. So, organizations can gain legitimacy if their activities, and there with their use of resources, are congruent with the goals of the larger social system (Parsons, 1960).

environmental and social performance, poor performing firms will encounter more legitimacy concerns relative to good performing firms. Poor performing firms do not comply with the norm of sustainable development, whereas good performing firms do. Therefore legitimacy theory predicts a negative association between environmental and social performance and the adoption of external assurance on sustainability reports. Put differently, poor performing firms are more likely to adopt external assurance on their sustainability reports.

Legitimacy theory predicts that the adoption of external assurance is a mean to gain legitimacy. Companies which use the adoption of external assurance as a legitimizing tool, are more likely to choose a lower quality assurance provider, assurance scope and level of assurance. Lower quality choices will provide more room to decouple the information in the sustainability reports with the true environmental and social performance. There with companies are able to change the perception of the larger social system, resulting in a positive reputation regarding sustainable development. Oppose to the higher quality choices which are expected to result in more scrutiny, and therefore less room to decouple the information in the sustainability reports with the true environmental and social performance.

2.2 Determinants of external assurance and development of hypotheses

Company-level

The variety regarding external assurance on sustainability reports is a result of determinants at the company-, industry- and country-level. Starting at the company level, there are two determinants that influence the likelihood that a company adopts external assurance on their sustainability report. The first determinant being environmental and social performance.

Whether companies with relatively good environmental and social performance use the adoption of external assurance on sustainability reporting as a signal. Or if companies with relatively poor environmental and social performance use it as a legitimizing tool, depends on a cost-benefit trade off. This cost-benefit trade off can be modelled as follows: the payoff of a firm with good environmental and social performance is A if they adopt external assurance, and B if they do not. The payoff of a firm with poor environmental and social performance is C if they adopt external assurance, and D if they do not. When $A > B$ and $D > C$ it would be a rational decision for a firm with good environmental and social performance to signal their quality by adopting external assurance. In this situation the adoption of external assurance is used as a signal. But other situations can also occur. When $A > B$ and $C > D$, both the high quality firms and the low quality firms can benefit from adopting external assurance. Then, the receivers cannot distinguish between firms with good or poor environmental and social performance, based on the adoption of external assurance. In this

situation, the adoption of external assurance can neither be explained by signalling theory, nor legitimacy theory. A third situation could be that $B > A$ and $C > D$, this means that firms with poor environmental and social performance will adopt external assurance, while firms with good performance will not. In this situation, the adoption of external assurance is used as a legitimizing tool.

Here it is expected that the adoption of external assurance is used as a legitimizing tool. Due to the unregulated setting, managers have the discretion to determine which information they include in the sustainability reports, who will externally assure the sustainability reports, the scope of assurance and the type of assurance provided. These managers have an incentive to provide sustainability reports with information that creates a positive reputation regarding sustainable development. Therefore, it is expected that managers of companies with poor environmental and social performance, will use this discretion to adopt external assurance as a legitimizing tool⁶.

Recently, some studies were conducted which also examine the relationship between environmental and/or social performance and the adoption of external assurance on sustainability reports. Casey and Grenier (2015) find in their study, which is focussed on American organizations, that organizations with good corporate social responsibility performance are more likely to externally assure their reports. They interpret this result as that positive news is commonly seen as less credible. Therefore these organizations need to enhance the credibility by adopting external assurance. But, they also find that some organizations with weak corporate social responsibility performance externally assure their reports. They interpret this result as a possibility that organizations use the adoption of external assurance as impression management. They examine the possibility of organizations using the adoption of external assurance for impression management further, and conclude that this does happen. Especially by large, highly leveraged firms in an industry

⁶ This can be illustrated by an example regarding an employee and his messy office. The employee is criticized by his boss for having a messy office and he determines to change his perception. He does so by issuing a report regarding his cleaning up activities. In his report he states that he keeps his office tidy by vacuuming once a week, emptying the garbage can every day and so on. Because there is no regulation regarding his report, he can choose what information the report will contain. Therefore, he can keep out of his report that he does not use a plate while eating at his desk. To enhance the credibility of his report, he decides to adopt external assurance. Because there is no regulation regarding the external assurance of his report, he has the discretion to choose who will conduct the external assurance. He decides to go with the intern, who happens to be his little brother. Furthermore he has the discretion to choose the assurance scope. He decides to only assure the part where it says that he empties his garbage can every day. Finally he has the discretion to choose the type of assurance. He decides to choose limited assurance, meaning that his little brother only sporadically checks whether the garbage can is emptied at the end of the day. Resulting in an external assurance statement, written by his little brother, which states that there is no reason to believe that the employee does not empty his garbage can every day. In this situation, the employee can issue an externally assured report to his boss, which states that he keeps his office tidy. This will possibly change the perception of the boss, changing from a messy office to a tidy office. While in reality, the employee only has to make sure that he cleans up the garbage can at the end of the day his little brother conducts his check.

with low litigation risk.

Another study, conducted by Peters and Romi (2015), takes environmental performance into account as a control variable. They find that firms with poorer environmental performance, relative to firms in the same industry, are more likely to assure their sustainability reports. They explain this by stating that these firms with poor environmental performance, experience more pressure to improve the credibility and reporting quality. This is contradictory to the explanation of Casey and Grenier (2015).

The results of these studies do not contradict the expectation that the adoption of external assurance is used as a legitimizing tool by firms with poor environmental and social performance.

Therefore the following hypotheses are formulated:

Hypothesis 1A: Companies with poor environmental performance are more likely to have their sustainability reports externally assured than companies with good environmental performance.

Hypothesis 1B: Companies with poor social performance are more likely to have their sustainability reports externally assured than companies with good social performance.

The expectation that companies with poor environmental and social performance use the adoption of external assurance as a legitimizing tool, has implications for the relationship between environmental and social performance, and the choice for assurance provider, assurance scope and type of assurance. These companies are expected to choose the lower quality assurance provider, a less comprehensive assurance scope and a lower level of assurance. This expectation is consistent with Casey and Grenier (2015), who find that companies which use external assurance as impression management, choose an assurer outside the auditing profession. Companies have more opportunity to decouple the information in the sustainability report with their true performance, if they choose the lower quality options, because they result in less scrutiny. Therefore it can be more easily used as a legitimizing tool to change the perception of society.

This expectation is formalized in the following hypotheses:

Hypothesis 2A: Companies with poor environmental performance are more likely to have their sustainability reports externally assured by a low quality assurance provider than companies with good environmental performance .

Hypothesis 2B: Companies with poor social performance are more likely to have their sustainability reports externally assured by a low quality assurance provider than companies with good social performance .

Hypothesis 3A: Companies with poor environmental are more likely to choose a less comprehensive assurance scope than companies with good environmental performance.

Hypothesis 3B: Companies with poor social performance are more likely to choose a less comprehensive assurance scope than companies with good social performance.

Hypothesis 4A: Companies with poor environmental performance are more likely to choose a lower level of assurance than companies with good environmental performance.

Hypothesis 4B: Companies with poor social performance are more likely to choose a lower level of assurance than companies with good social performance.

The second company level determinant is company size. Reasoning from legitimacy theory, it can be argued that bigger companies are more likely to have their sustainability reports externally assured. Larger companies are more visible and have a bigger impact, therefore the audience will more likely conclude that the activities of these companies are in conflict with the norms of the larger social system. Therefore bigger companies face more legitimacy threats. As a result, bigger companies have more need to enhance the credibility of their sustainability reports. In order to enhance the credibility of their sustainability reports, bigger companies are more likely to adopt external assurance.

Dowling and Pfeffer (1975) state that legitimacy works as a constraint on all organizations. But they also mention that it is likely that it effects some organizations more than others. More specifically, they state that some firms are more visible, therefore they are more prone to audience perception and there with legitimacy threats. They hypothesize that larger firms tend to engage more heavily in legitimating behaviour. In their review on determinants for sustainability reporting, Hahn & Kühnen (2013) find that size is consistently related to more sustainability reporting. They explain this relationship in a similar manner, they assume that larger companies have a greater impact and are more visible, as a result they face greater scrutiny and pressure.

Other studies explicitly examined the relationship between size and the adoption of external

assurance on sustainability reports (Casey & Grenier, 2015, Fernandez-Feijoo et al., 2015, Hahn & Kühnen, 2013 and Kolk & Perego, 2010). All but Kolk & Perego (2010) find a significant relationship between size and the adoption of external assurance on sustainability reporting. The lack of a significant relationship in the study of Kolk & Perego (2010) can be explained by the fact that they used 212 Fortune Global 250 companies. So, all companies they examined are large enough to have more stakeholders and be deemed more visible and more impactful.

The abovementioned is reflected in the following hypothesis.

Hypothesis 5: Bigger companies are more likely to have their sustainability reports externally assured than smaller companies.

Industry-level

The industry a company operates in can be a reason for differences in the adoption of external assurance on sustainability reports. Some industries will make it more or less likely that a company will externally assure their sustainability reports.

Certain industries have a bigger impact on the environment or social injustice than other industries. Companies active in the mining industry will leave a bigger environmental footprint than companies in the educational sector. Linking this to legitimacy theory, companies in industries with a bigger environmental or social footprint, e.g. sensitive industries, experience more legitimacy threats. Because the activities of companies in these industries are perceived by the audience to be more likely in conflict with the new norms of the larger social system. Therefore, companies in these industries are more likely to face legitimacy threats. As a result, companies in these industries have more need to enhance the credibility of their sustainability reports. Therefore, companies in sensitive industries are more likely to externally assure their sustainability reports.

Previous research has concluded that companies in sensitive industries are more likely to issue sustainability reports (Patten, 2002a). More recent research has also concluded that companies in sensitive industries are more likely to adopt external assurance on their sustainability reports (Casey & Grenier, 2015, Fernandez-Feijoo et al., 2015 and Simnett et al., 2009).

This is reflected in the following hypothesis.

Hypothesis 6: Companies which are active in sensitive industries are more likely to have their sustainability reports externally assured than companies which are active in other industries.

Country-level

A third reason for differences between companies regarding their choice for adopting external assurance on their sustainability report, can be the country of origin. There are two country level determinants which might influence the likelihood that a company will externally assure their sustainability reports.

The first country level determinant regards the distinction literature makes, between shareholder oriented countries and stakeholder oriented countries. In other words, the business culture of a country. Linking this to legitimacy theory, it can be argued that companies in stakeholder oriented countries experience more legitimacy threats. The norms of the larger social system in stakeholder oriented countries are more likely to emphasize sustainable development. Whereas the norms in shareholder oriented countries are more likely less focused on sustainable development, and more on shareholder wealth creation. Due to the new norm of sustainable development in stakeholder oriented countries, the companies in these countries are more likely to face legitimacy threats. As a result, companies in stakeholder countries have more need to enhance the credibility of their sustainability reports. Therefore, companies in stakeholder oriented countries are more likely to externally assure their sustainability reports. Empirical support for this expectation is provided by Kolk & Perego (2010).

According to stakeholder theory (Freeman, 2001 & 2002), companies have other stakeholders, next to shareholders. These are groups of individuals that benefit or are harmed by the company's actions. These stakeholders are suppliers, customers, employees, shareholders and the local community. Based on two arguments, stakeholder theory states that these stakeholders have a right to make claims regarding the company⁷. Regarding the societal and environmental impact, the claim of stakeholders is that companies become more accountable. Countries which are more

⁷ The first argument is a legal argument. Since the 20th century, the law has evolved in such a way that it constrains the pursuit of shareholder interests at the expense of other stakeholders of the firm. The law requires companies to take the interests of stakeholders like employees into account. Even though these interests are subservient to the interests of shareholders. The second argument is an economic argument. Purely maximizing the interests of shareholders will lead to externalities, moral hazards and monopolies. Due to this being outcomes of acting solely in the interests of shareholders, companies must take into consideration the interest of other stakeholders.

shareholder oriented see shareholder maximization as the primary purpose of a company (Kolk & Perego, 2010, Simnett et al., 2009 and Smith et al., 2005). The role of other stakeholders is less prominent in these countries. Research has shown that companies in shareholder oriented countries deal with investors at arm's length. Here, there is an increased demand for information, mainly regarding the company's financial performance (Kolk & Perego, 2010). In contrast, countries which are more stakeholder oriented see companies as more socially and environmentally responsible. Companies need not only to ensure economic efficiency, but also fulfil certain social and environmental responsibilities (Kolk & Perego, 2010). In these countries, there are other stakeholders, besides shareholders, with a legitimate interest in the companies. Therefore these other stakeholders have more influence (Simnett et al., 2009). There is an increased demand for information in stakeholder oriented countries, not only regarding financial performance, but also non-financial performance, e.g. sustainability information.

The expectation is formulated in the following hypothesis.

Hypothesis 7A: Companies domiciled in stakeholder oriented countries are more likely to have their sustainability reports externally assured than companies in shareholder oriented countries.

The second country level determinant regards the legal enforcement mechanisms of a country. Companies in countries with weak legal enforcement will less likely experience consequences if they issue unfair reports. Therefore, the agency problem inherent to the issuance of sustainability reports will become bigger. The audience is thus more sceptical. Therefore these companies have a greater need to enhance the credibility of their sustainability reports. These companies will react to this need by voluntarily adopting external assurance. Empirical support for this expectation is provided by Kolk & Perego (2010).

Research studying the relationship between the legal enforcement and the voluntary adoption of external assurance on financial reports in private firms, indicates that external assurance can function as a substitute for weak country level legal enforcement mechanisms (Francis et al., (2011) & Choi & Wong (2007)). The same reasoning can be used for external assurance on sustainability reports. Similar to Kolk & Perego (2010) and Simnett et al. (2009), it is expected that companies which are domiciled in countries with weak legal enforcement, are more likely to have their sustainability reports externally assured.

This is reflected in the following hypothesis:

Hypothesis 7B: Companies domiciled in countries with weak legal enforcement mechanisms are more likely to have their sustainability reports externally assured than companies in countries with strong legal enforcement mechanisms.

3. Methods

3.1 Sample

In order to test the hypotheses, a sample of 4,686 observations was compiled covering the period 2009 – 2014. The sample covers a total of 21 countries, 19 European and 2 North American. The European countries were selected based on the KPMG survey in 2015 (KPMG, 2015). By choosing these countries, the percentage of sustainability reports with external assurance can be compared with the survey. The percentage of sustainability reports externally assured for the European companies is 54%. This is higher than the outcome of the 2015 KPMG survey (42%). A possible explanation for the deviation could be a bias towards external assurance in the sample. This could be the result of selecting companies with ESG data available. In total there are 3,644 observations of European companies, with 2,541 sustainability reports. Both stand-alone sustainability reports and integrated sustainability reports were taken into account. This means that 70% of the European companies in the sample issued a sustainability report. Compared to the 73% in the 2015 KPMG survey, this indicates that few sustainability reports have been left out of the sample. Furthermore the USA and Canada were added for comparison as the two most prominent countries of North America.

The sample collection started by selecting the top 100 public firms in each of the selected countries based on their sales in 2014. When there were less than 100 public firms in a country, all firms were selected. The final list consisted of 1,863 companies and was retrieved by Thomson One (www.thomsonone.com). The second step was to check whether there was Environmental, Social and Governance (ESG) data available for these companies regarding the years 2009 through 2014. This data was retrieved from Datastream (www.thomsonone.com). In total there were 871 companies with ESG data for at least one year during the examined period. The company specific and financial data were retrieved from the Compustat Global and Compustat North America database (www.compustat.com). After dismissing the companies with less than complete data, the final sample contained 835 companies and 4,686 unique observations. Descriptive statistics per country, industry and year can be found in table 1, 2 and 3, 4 and 5 respectively.

Table 1

Descriptive statistics per country

COUNTRY	# FIRM OBSERVATIONS	# SUSTAINABILITY REPORTS ISSUED	% SUSTAINABILITY REPORTS ISSUED	# EXTERNAL ASSURANCE	% EXTERNAL ASSURANCE	STAKEHOLDER / SHAREHOLDER	RULE OF LAW (AVERAGE)*
BELGIUM	150	94	62.26%	34	36.17%	Stakeholder	1.41
CZECH REPUBLIC	18	17	94.44%	0	0%	Stakeholder	1.00
GERMANY	344	222	64.53%	124	55.86%	Stakeholder	1.66
DENMARK	148	128	86.49%	41	32.03%	Stakeholder	1.93
SPAIN	233	185	79.40%	145	78.38%	Stakeholder	1.07
FINLAND	144	123	85.42%	68	55.28%	Stakeholder	1.98
FRANCE	422	317	75.11%	210	66.25%	Stakeholder	1.45
UK	551	448	81.31%	211	47.10%	Shareholder	1.73
GREECE	98	68	69.39%	40	58.82%	Stakeholder	0.49
HUNGARY	23	23	100%	18	78.26%	Stakeholder	0.65
IRELAND	76	11	14.47%	3	27.27%	Shareholder	1.75
ITALY	257	175	68.09%	130	74.29%	Stakeholder	0.37
NETHERLANDS	184	127	69.02%	91	71.65%	Stakeholder	1.84
NORWAY	108	61	56.48%	34	55.74%	Stakeholder	1.94
POLAND	131	47	35.88%	20	42.56%	Stakeholder	0.73
PORTUGAL	64	33	51.56%	23	69.70%	Stakeholder	1.05
RUSSIA	144	97	37.36%	36	37.11%	Stakeholder	-0.76
SWEDEN	237	183	77.21%	78	42.62%	Stakeholder	1.96
SWITZERLAND	312	182	58.33%	59	32.42%	Stakeholder	1.81
EUROPE	3,644	2,541	69.73%	1,365	53.72%	-	-
CANADA	530	276	52.08%	72	26.09%	Shareholder	1.79
USA	512	337	65.82%	77	22.85%	Shareholder	1.59
NORTH AMERICA	1,042	613	58.83%	149	24.31%	-	-
STAKEHOLDER	3017	2082	69.00%	1151	55.28%	-	-
SHAREHOLDER	1669	1072	64.23%	363	33.86%	-	-
TOTAL	4686	3154	67.31%	1514	48.00%	-	-

*For the analysis each year has a unique Rule of Law measure. To give an indication, the average during the period 2009 – 2014 is presented in this table.

Table 2

Descriptive statistics per industry

INDUSTRY*	# FIRM OBSERVATIONS	# SUSTAINABILITY REPORTS	% SUSTAINABILITY REPORTS ISSUED	# EXTERNAL ASSURANCE	% EXTERNAL ASSURANCE
AGRICULTURE, FORESTRY, FISHING	0	0	-	0	-
MINING	250	142	56.80%	79	55.63%
CONSTRUCTION	171	125	73.10%	70	56.00%
MANUFACTURING	1765	1273	72.12%	622	48.86%
TRANSPORTATION & PUBLIC UTILITIES	773	550	71.15%	318	57,82%
WHOLESALE TRADE	150	76	50.67%	29	38.16%
RETAIL TRADE	328	206	62.80%	58	28.16%
FINANCE, INSURANCE, REAL ESTATE	899	558	62.07%	254	45.52%
SERVICES	294	186	63.27%	66	35.48%
PUBLIC ADMINISTRATION	0	0	-	0	-
NON CLASSIFIABLE	56	38	67.86%	18	47.67%
SENSITIVE INDUSTRIES*	1429	987	69.07%	494	50.05%
OTHER INDUSTRIES	3257	2167	66.53%	1020	47.07%

* The sample contains 240 unique sic codes, for presentation purposes the industries are divided in ten main industry groups (siccode.com).

* Whether an industry is classified as sensitive is elaborated in section 3.2.2

Table 3

Descriptive statistics per year

YEAR	# FIRM OBSERVATIONS	# SUSTAINABILITY REPORTS ISSUED	% SUSTAINABILITY REPORTS ISSUED	# EXTERNAL ASSURANCE	% EXTERNAL ASSURANCE
2009	706	384	54.39%	162	42.19%
2010	763	466	61.07%	195	41.85%
2011	783	519	66.28%	241	46.44%
2012	796	550	69.10%	269	48.91%
2013	815	599	73.50%	312	52.09%
2014	823	636	77.28%	335	52.67%

Table 4

Descriptive statistics, firm observations per country per year

COUNTRY	# FIRM OBSERVATIONS 2009	# FIRM OBSERVATIONS 2010	# FIRM OBSERVATIONS 2011	# FIRM OBSERVATIONS 2012	# FIRM OBSERVATIONS 2013	# FIRM OBSERVATIONS 2014
BELGIUM	24	25	25	25	25	26
CZECH REPUBLIC	3	3	3	3	3	3
GERMANY	53	55	57	58	60	61
DENMARK	22	25	25	25	25	26
SPAIN	33	36	39	41	42	42
FINLAND	23	24	24	24	25	24
FRANCE	68	70	70	71	71	72
UK	90	89	92	91	95	94
GREECE	16	16	16	16	17	17
HUNGARY	3	4	4	4	4	4
IRELAND	10	11	11	14	15	15
ITALY	41	42	43	43	44	44
NETHERLANDS	26	28	30	31	33	36
NORWAY	17	18	18	18	18	19
POLAND	10	21	23	24	25	28
PORTUGAL	11	11	11	11	11	9
RUSSIA	2	25	28	30	30	29
SWEDEN	38	39	38	39	41	42
SWITZERLAND	48	50	52	53	54	55
EUROPE	538	592	609	621	638	646
CANADA	85	87	89	90	90	89
USA	83	84	85	85	87	88
NORTH AMERICA	168	171	174	175	177	177
TOTAL	706	763	783	796	815	823

Table 5

Descriptive statistics, firm observations per industry per year

INDUSTRY*	# FIRM OBSERVATIONS 2009	# FIRM OBSERVATIONS 2010	# FIRM OBSERVATIONS 2011	# FIRM OBSERVATIONS 2012	# FIRM OBSERVATIONS 2013	# FIRM OBSERVATIONS 2014
AGRICULTURE, FORESTRY, FISHING	0	0	0	0	0	0
MINING	35	41	44	43	43	44
CONSTRUCTION	26	29	29	29	29	29
MANUFACTURING	265	287	294	301	307	311
TRANSPORTATION & PUBLIC UTILITIES	114	126	129	132	135	137
WHOLESALE TRADE	21	23	25	26	27	28
RETAIL TRADE	50	54	56	56	57	55
FINANCE, INSURANCE, REAL ESTATE	140	146	149	150	156	158
SERVICES	46	48	48	50	51	51
PUBLIC ADMINISTRATION	0	0	0	0	0	0
NON CLASSIFIABLE	9	9	9	9	10	10
SENSITIVE INDUSTRIES*	214	233	238	241	250	253
OTHER INDUSTRIES	492	530	545	555	565	570

* The sample contains 240 unique sic codes, for presentation purposes the industries are divided in ten main industry groups (siccode.com).

* Whether an industry is classified as sensitive is elaborated in section 3.2.2

3.2 Variables

3.2.1 Dependent variables

To test the seven hypotheses, four dependent variables are needed. Starting with whether or not the sustainability reports were externally assured or not. If the sustainability report was externally assured, a dummy variable is added equal to 1, and 0 otherwise. Secondly, if the sustainability reports were externally assured, what type of assurance provider conducted the assurance. A dummy variable is added, equal to 1 if the assurance provider is active in the auditing profession, and 0 otherwise. The third dependent variable is the scope of assurance provided. A dummy variable is added, equal to 1 if the scope is the entire sustainability report, and 0 otherwise. The final dependent variable is the level of assurance provided. A dummy variable is added, equal to 1 if positive assurance is provided, and 0 otherwise.

To find these dependent variables, the first step was to search for sustainability reports issued by each of the companies during the time period. If a sustainability report was issued, the dependent variables could be retrieved. This was done by first searching for the individual companies in the GRI database (<http://database.globalreporting.org/search>). If the company was found and all the information was present at the database, this information was retrieved. If part of the information, or the company at whole was missing from the database, another search strategy was

applied. By conducting general searches on the internet and by going to the company's websites, the missing information was retrieved. If no sustainability reports were found in the GRI database or the company websites, it was assumed there were no sustainability reports. At first, the time period was set from 2002 – 2014. But it was found that many websites had an archive regarding their sustainability reports which did not went that far in the past. The year 2009 was chosen because both the GRI database and the company's website seemed reliable. The year 2014 was chosen because the data collection took place during 2016. Therefore sustainability reports regarding 2015 could possibly be issued after the collection of data. Summary statistics regarding the dependent variables per country, industry and year can be found in table 6, 7 and 8 respectively.

Table 6

Summary statistics dependent variables per country

COUNTRY	# EXTERNAL ASSURANCE	# AUDITING PROFESSION (PERCENTAGE)	# POSITIVE ASSURANCE (PERCENTAGE)	# ENTIRE SUSTAINABILITY REPORT (PERCENTAGE)
BELGIUM	34	28 (82.35%)	0 (0.00%)	4 (11.76%)
SWITZERLAND	59	30 (50.85%)	5 (8.47%)	19 (32.20%)
CZECH REPUBLIC	0	0 (-)	0 (-)	0 (-)
GERMANY	124	107 (86.29%)	0 (0.00%)	19 (15.32%)
DENMARK	41	34 (82.93%)	1 (2.44%)	4 (9.76%)
SPAIN	145	116 (80.00%)	15 (10.34%)	57 (39.31%)
FINLAND	68	51 (75.00%)	0 (0.00%)	52 (76.47%)
FRANCE	210	205 (97.62%)	14 (6.67%)	14 (6.67%)
UK	211	131 (62.09%)	5 (2.37%)	45 (21.33%)
GREECE	40	31 (77.50%)	0 (0.00%)	6 (15.00%)
HUNGARY	18	13 (72.22%)	0 (0.00%)	8 (44.44%)
IRELAND	3	3 (100%)	0 (0.00%)	3 (100.00%)
ITALY	130	112 (86.15%)	0 (0.00%)	71 (54.62%)
NETHERLANDS	91	32 (35.16%)	2 (2.20%)	21 (23.08%)
NORWAY	34	16 (47.06%)	0 (0.00%)	4 (11.76%)
POLAND	20	16 (80.00%)	0 (0.00%)	7 (35.00%)
PORTUGAL	23	22 (95.65%)	2 (8.70%)	7 (30.43%)
RUSSIA	36	15 (41.67%)	5 (13.89%)	15 (41.67%)
SWEDEN	78	71 (91.03%)	5 (6.41%)	46 (58.98%)
EUROPE	1,365	1100 (80.59%)	77 (5.64%)	402 (29.45%)
CANADA	72	59 (81.94%)	0 (0.00%)	5 (6.94%)
USA	77	35 (45.45%)	16 (20.78%)	11 (14.29%)
NORTH AMERICA	149	94 (63.09%)	16 (10.74%)	16 (10.74%)
STAKEHOLDER	1151	966 (83.93%)	72 (6.26%)	354 (30.76%)
SHAREHOLDER	363	228 (62.81%)	21 (5.86%)	64 (17.63%)
TOTAL	1514	1194 (78.86%)	93 (6.14%)	418 (27.61%)

Table 7

Summary statistics dependent variables per industry

INDUSTRY	# EXTERNAL ASSURANCE	# AUDITING PROFESSION (PERCENTAGE)	# POSITIVE ASSURANCE (PERCENTAGE)	# ENTIRE SUSTAINABILITY REPORT (PERCENTAGE)
AGRICULTURE, FORESTRY, FISHING MINING	0	0 (-)	0 (-)	0 (-)
CONSTRUCTION	79	62 (78.48%)	2 (2.53%)	20 (25.32%)
MANUFACTURING	70	53 (75.71%)	5 (7.14%)	18 (25.71%)
TRANSPORTATION & PUBLIC UTILITIES	622	469 (75.40%)	41 (6.59%)	163 (26.21%)
WHOLESALE TRADE	318	254 (79.87%)	16 (5.03%)	110 (34.59%)
RETAIL TRADE	29	26 (89.66%)	0 (0.00%)	10 (34.48%)
FINANCE, INSURANCE, REAL ESTATE	58	40 (68.97%)	3 (5.17%)	8 (13.79%)
SERVICES	254	224 (88.19%)	17 (6.69%)	63 (24.80%)
PUBLIC ADMINISTRATION	66	48 (72.72%)	5 (7.58%)	19 (28.79%)
NON CLASSIFIABLE	0	0 (-)	0 (-)	0 (-)
SENSITIVE INDUSTRIES*	18	18 (100.00%)	4 (22.22%)	7 (38.89%)
OTHER INDUSTRIES	494	406 (82.19%)	44 (8.91%)	131 (26.52%)
	1020	788 (77.25%)	49 (4.80%)	287 (28.14%)

* Whether an industry is classified as sensitive is elaborated in section 3.2.2

The sample contains 240 unique sic codes, for presentation purposes the industries are divided in ten main industry groups (siccode.com).

Table 8

Summary statistics dependent variables per year

YEAR	# EXTERNAL ASSURANCE	# AUDITING PROFESSION (PERCENTAGE)	# POSITIVE ASSURANCE (PERCENTAGE)	# ENTIRE SUSTAINABILITY REPORT (PERCENTAGE)
2009	162	121 (74.69%)	2 (1.23%)	21 (12.96%)
2010	195	141 (72.08%)	10 (5.13%)	32 (16.41%)
2011	241	184 (76.35%)	17 (7.05%)	72 (29.88%)
2012	269	216 (72.97%)	14 (5.20%)	97 (36.06%)
2013	312	256 (82.05%)	16 (5.13%)	104 (33.33%)
2014	335	276 (82.39%)	18 (5.37%)	92 (27.46%)

3.2.2 Independent variables

To measure environmental and social performance, data was retrieved from the ESG database from Thomson Reuters ASSET 4 (www.thomsonone.com). ASSET 4 is specialized in providing objective and auditable ESG data with a global coverage (Clarkson et al., 2015). Per category they calculated a pillar score by equally weighing and z-scoring all underlying data points and by comparing them against all companies with ESG data. These scores are therefore a relative measure of performance, resulting in a score between 0 and 100%.

As a proxy for environmental performance, the environmental pillar “ENVSCORE” was selected. This measures a company’s impact on living and non-living natural systems. It reflects how well a company uses best management practices to avoid environmental risks and capitalize on environmental opportunities, so it can generate long term shareholder value. The underlying categories consist of an emission reduction category, a resource reduction category and a product innovation category. The ENVSCORE ranged from 95.06 through 8.55 with a mean of 69.10, with a higher score indicating a better environmental performance.

As a proxy for social performance, the social pillar “SOCSCORE” was selected. This measures a company’s capacity to generate trust and loyalty with its workforce, customers and society, through

best management practices. It reflects the company's reputation and its license to operate, both key factors in determining the ability to generate long term shareholder value. The underlying categories are customer/product responsibility, society/community, society/human rights, workforce/diversity, workforce/employment quality, workforce/health & safety and workforce/training. The SOCScore ranged from 97.87 through 3.66 with a mean of 69.66, with a higher score indicating a better social performance.

The proxy for company size is the natural logarithm of the company's year-end total assets in euros. Whether or not a company was active in a sensitive industry was accounted for by a dummy variable which equals 1 in the case of a sensitive industry and 0 otherwise. Following Patten (2002b), companies in the chemical industry, sic code 28xx, excluding pharmaceutical companies, sic code 283x, metals industry, sic code 33xx, paper industry, sic code 26xx and petroleum industry, sic code 2911, have a large environmental footprint. Following Simnett et al. (2009), companies in the finance industry, sic code 6xxx – 67xx, have a large social footprint. Therefore these industries are considered as sensitive industries.

Regarding the business culture of a country, the proxy for whether a country is stakeholder or shareholder oriented, is based on the difference between common law and code law legal systems. Common law countries are seen as shareholder oriented, while code law countries are seen as stakeholder oriented (La Porta et al., 1997). A dummy variable is added for shareholder countries, which equals 1 if the country the company is listed in is a common law country and 0 in a code law country.

Similar to Simnett et al. (2009), the "rule of law" measure, developed by the world bank is taken as a proxy for the quality of the legal environment (Kaufmann & Kraay, 2007). The rule of law reflects perceptions of the extent to which agents have confidence in and abide by the rules of society. In particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence. For each country, the estimate rule of law was retrieved for each of the years 2009 – 2014. The rule of law in the sample ranged from -0.82 till 2.12 with a mean of 0.59.

3.2.3 Control variables

Profitability and leverage are added as control variables. Starting with profitability, return on assets (ROA) is taken as proxy. Even though empirical results do not show a consistently significant relationship (for example Simnett et al., 2009), it is added as a control variable because companies that are profitable have more flexibility and means to buy external assurance. While companies in financial distress will most likely use their limited recourses elsewhere.

Furthermore leverage is added because of the possibility that companies with more equity

holders or bond holders might benefit more from the adoption of external assurance, due to different preferences of equity holders and debt holders. The debt/total assets ratio is taken as a proxy for leverage.

In addition, year dummies are added to control for omitted variables that vary over time, but are constant between the firms. Definitions of all variables used can be found in table 9.

Table 9
Definitions of the variables used in the analysis

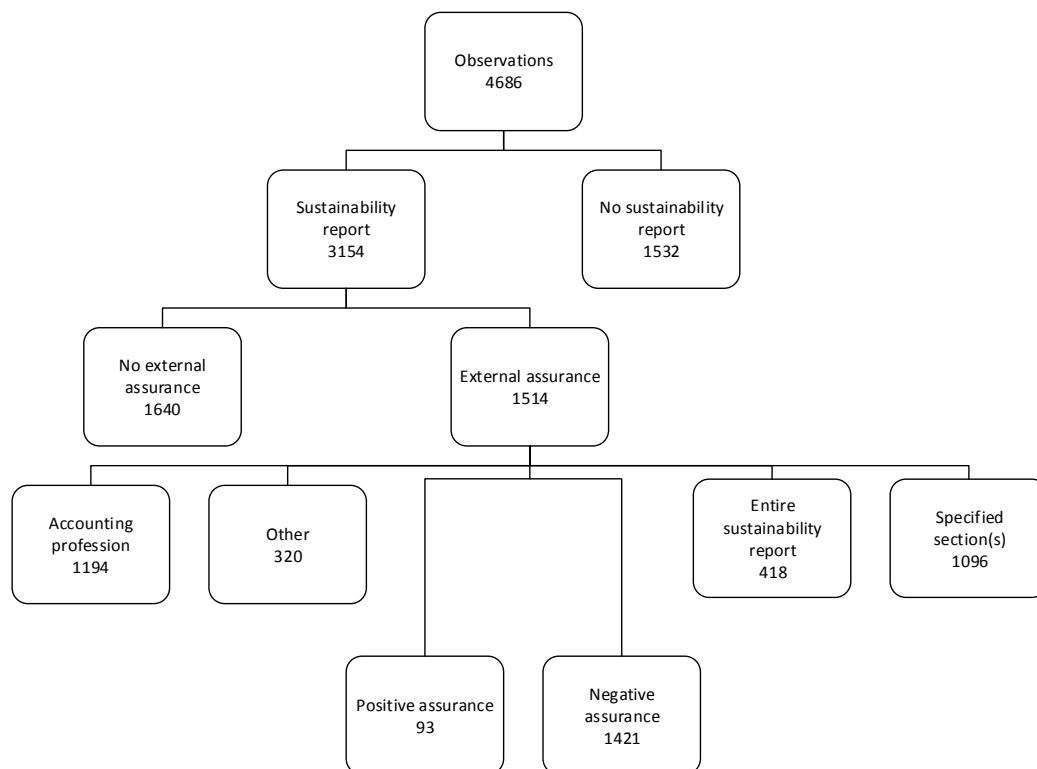
VARIABLE	DEFINITION
SUSTAINABILITY REPORT	Indicator if the company issued a sustainability report. Valuing "0" if there is no sustainability report, and "1" if the company issued a stand-alone, or integrated sustainability report with information in at least one of the six categories from the GRI standards.
EXTERNAL ASSURANCE	Indicator if the company adopted external assurance on the issued sustainability report. Valuing "0" if there is no external assurance, and "1" if there is external assurance
AUDITING	Variable that indicates what type of assesor provided the external assurance. A distinction is made between assessors outside the auditing profession and assurance providers inside the auditing profession. The indicator values "1" if the assurance provider is active in the auditing profession, and "0" otherwise.
SCOPE OF ASSURANCE	Variable that indicates the scope of assurance, varying from the entire sustainability report to specified section(s). The indicator values "1" if the entire sustainability report is externally assured, and "0" otherwise.
LEVEL OF ASSURANCE	Variable that indicates the type of assurance, varying from positive to negative assurance. The indicator values "1" in the case of positive assurance and "0" otherwise.
ENVSCORE	The environmental pillar is a percentage score which measures a company's impact on living and non-living natural systems, including the air, land and water, as well as complete ecosystems. It reflects how well a company uses best management practices to avoid environmental risks and capitalizes on environmental opportunities in order to generate long term shareholder value.
SOCSCORE	The social pillar is a percentage score which measures a company's capacity to generate trust and loyalty with its workforce, customers and society, through its use of best management practices. It is a reflection of the company's reputation and the health of its license to operate, which are key factors in determining its ability to generate long term shareholder value.
SIZE	This item represents the natural logarithm of the total assets/liabilities of a company at the end of the fiscal year.
SENSITIVE INDUSTRY	An indicator if the company is active in one of the sensitive industries being "1" if so, and "0" if not. The following industries are considered as sensitive industries: 28xx (excluding 283x), 33xx, 26xx, 2911, 6xxx – 67xx.
SHAREHOLDER	An indicator that states whether a country is shareholder or stakeholder oriented, based on their origin of law. A common law country is depicted as shareholder oriented, a code law country is depicted as stakeholder oriented. The indicator values "1" in case of a shareholder oriented country and "0" otherwise.
RULE OF LAW INDEX	Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence. Retrieved from the worldbank
ROA	Measures the return on assets, calculated by dividing net income (loss) by total assets
DEBT RATIO	Measures the debt ratio calculated by dividing total liabilities by total assets
YEAR DUMMY	A dummy variable for each year except 2009. Valuing "1" when the observation regards the specific year and "0" otherwise.

3.3 Regression model

The hypotheses are tested by using mixed effect sequential logit models. The decisions taken by a company regarding the adoption of external assurance on sustainability reports, can be modelled as a sequence of independent binary logit models. Starting with the choice to issue a sustainability report or not. Followed by choosing whether or not to externally assure the sustainability report.

After a company has made the decision to externally assure the sustainability reports, there are three remaining choices. The choice for assurance provider, inside or outside the auditing profession. The scope of assurance, being the entire sustainability report or specified section(s), and the level of assurance, being positive or negative. These three choices can be made simultaneously or in any sequence. But they come after the decision for adopting external assurance. The decisions and numbers of observations are illustrated in the decision tree in figure 1.

Figure 1
Decision tree with number of observations for sequential logit analysis



The model is as follows:

$$\text{Assurance/Provider/Scope/Level} = f(\text{ENVSCORE, SOCSCORE, Size, Industry, Stakeholder, Rule of Law, Year dummies, Control variables}).$$

A mixed effects model is adopted because the sample contains panel data. To correct for possible clustered errors at the country level, both fixed effects and random effects were generated for each of the country codes. Except for the models used to test hypotheses 7a and 7b, to test these hypotheses, variables at the country level are needed. Therefore a sequential logit regression with panel data is conducted.

The independent variables were tested for multicollinearity, based on the Pearson correlations. The results can be found in table 10.

Table 10

Pearson correlations

	ENVSCORE	SOCSCORE	SIZE	SENSITIVE INDUSTRY	SHAREHOLDER	RULE OF LAW	PROFITABILITY	LEVERAGE
ENVSCORE	1.0000							
SOCSCORE	0.8085*	1.000						
	0.0000							
SIZE	0.3279*	0.3154*	1.000					
	0.0000	0.0000						
SENSITIVE INDUSTRY	-0.0115	-0.0626*	0.4177*	1.000				
	0.4333	0.0000	0.0000					
SHAREHOLDER	0.0053	-0.0422*	0.1277*	-0.0677*	1.0000			
	0.7145	0.0038	0.0000	0.0000				
RULE OF LAW	0.1777*	0.0722*	-0.0997*	-0.1099*	-0.3057*	1.0000		
	0.0000	0.0000	0.0000	0.0000	0.0000			
PROFITABILITY	0.0105	0.0234	-0.0452*	-0.0307*	-0.0009	-0.0118	1.0000	
	0.4720	0.1098	0.0020	0.0356	0.9510	0.4180		
LEVERAGE	0.0906*	0.0982*	0.4372*	0.2929*	0.0379*	-0.0206	-0.0919*	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0094	0.1582	0.0000	

** indicates statistical significance at the 5 percent level (two tailed) (probability beneath the regression coefficients in parentheses).*

See table 9 for definitions of the variables.

The results show that the independent variables ENVSCORE and SOCSCORE have a score of 0.8085, indicating multicollinearity. Therefore they cannot be used simultaneously. To test each of the hypotheses, two separate regressions were conducted, one using ENVSCORE and one using SOCSCORE.

4. Results

4.1 Descriptive statistics

The focus of this thesis is on the adoption of external assurance on sustainability reports. But to provide some background information, an analysis regarding the choice to issue a sustainability report is also conducted (not tabulated). The results show that large companies, with good environmental and social performance, active in non-sensitive industries, domiciled in countries with weak legal enforcement and a stakeholder oriented business culture are most likely to issue a sustainability report.

Descriptive statistics in table 1 show a difference between European countries and North American countries regarding the issuance of sustainability reports. 70% of the European companies issued a sustainability report, oppose to 59% of the North American companies. European companies are also more likely to adopt external assurance on their sustainability reports, 54% relative to 24%. The low adoption rate in North America is consistent with Casey and Grenier (2015). Regarding the total sample, 36% is considered shareholder oriented, while 64% is stakeholder oriented. Companies in stakeholder oriented countries are more likely to issue a sustainability report (69%) and to adopt external assurance (55%), oppose to shareholder oriented countries (64% and 34%, respectively).

The total sample comprised companies in 240 different industries based on their SIC code. Most companies in the sample are active in the manufacturing industry (SIC Code 20xx – 39xx), being 1,765. While the sample had 0 companies active in the agriculture, forestry and fishing industry, and public administration industry. The sample contains 1,429 companies which are active in sensitive industries, and 3,257 companies in other industries. Regarding sensitive industries, 69% issued a sustainability report, relative to 67% in other industries. Regarding external assurance, 50% of the companies in sensitive industries, and 47% of the companies in other industries adopted the service, as seen in table 2.

The amount of firm observations increased each year during the sample period with 706 observations in 2009 and 823 in 2014. Also both the percentage of companies issuing a sustainability reports (54% in 2009 and 77% in 2014), as the percentage of sustainability reports externally assured (42% in 2009 and 53% in 2014), rose during the sample period, as seen in table 3.

Summary statistics for all variables used can be found in table 11.

Table 11

Summary statistics for the variables used in the analysis

VARIABLE	N	MEAN	STD. DEVIATION	MIN	MAX
SUSTAINABILITY REPORTING	4686	0.67	0.47	0	1
EXTERNAL ASSURANCE	4686	0.32	0.47	0	1
ASSURANCE PROVIDER	4686	0.25	0.44	0	1
LEVEL OF ASSURANCE	4686	0.02	0.14	0	1
SCOPE OF ASSURANCE	4686	0.09	0.29	0	1
ENVSCORE	4686	69.10	28.01	8.55	95.06
SOCSCORE	4686	69.66	26.92	3.66	97.87
SIZE	4686	9.44	1.75	5.12	14.77
SENSITIVE INDUSTRY	4686	0.30	0.46	0	1
SHAREHOLDER ORIENTED	4686	0.35	0.48	0	1
RULE OF LAW	4686	1.47	0.59	-0.82	2.12
ROA	4686	0.05	0.33	-0.83	20.20
DEBT RATIO	4686	0.64	0.21	0.00	1.69

4.2 Test of hypothesis

Table 12 shows the results of the regression analysis that examines the relationship between factors at company- and industry level and the adoption of external.⁸ The results show that both companies with good environmental performance and companies with good social performance are more likely to adopt external assurance on their sustainability report. The results are significant at the 1% level for all (sub) samples. The results reject hypothesis 1A, that companies with poor environmental performance are more likely to adopt external assurance. The results also reject hypothesis 1B, that companies with poor social performance are more likely to adopt external assurance. The results are therefore inconsistent with the expectation based on legitimacy theory. Legitimacy theory predicts a negative relationship, meaning that companies with poor environmental and social performance are more likely to adopt external assurance, while the results show a positive association. These results are consistent with the expectation based on signalling theory. Suggesting that signalling theory is better in predicting the situation regarding the adoption of external assurance on sustainability reports.

⁸ A separate analysis was conducted using a normal logit analysis. The results did not vary significantly from the sequential logit analysis.

Table 12

Regression results mixed effect sequential logit analysis with adoption of external assurance as dependent variable

VARIABLE	SIGN	TOTAL SAMPLE		EUROPEAN SAMPLE		NORTH – AMERICA SAMPLE	
		1	2	3	4	5	6
INTERCEPT	-	-6.335*** (0.430)	-6.771*** (.436)	-6.408*** (.436)	-6.776*** (.447)	-6.206*** (1.091)	-6.907*** (1.126)
ENVSCORE	+	.034 *** (0.003)	-	.035*** (.003)	-	.024*** (.008)	-
SOCSCORE	+	-	.037*** (.003)	-	.040*** (.003)	-	.028*** (.007)
SIZE	+	.485*** (.036)	.484*** (.037)	.502*** (.040)	.491*** (.040)	.381*** (.097)	.407*** (.097)
SENSITIVE INDUSTRY	-	-.374*** (.107)	-.281*** (.108)	-.382*** (.118)	-.292** (.120)	-.250 (.248)	-.162 (.248)
PROFITABILITY	+/-	.204 (.288)	.091 (1.774)	.318 (.395)	.121 (.209)	-1.750 (1.501)	-1.810 (1.496)
LEVERAGE	-	-2.029*** (.273)	-1.972*** (.272)	-1.952*** (.304)	-1.939*** (0.302)	-2.349*** (.648)	-2.174*** .653
YEAR DUMMY							
2010	+/-	.049 (.162)	.052 (.162)	.081 (.176)	.060 (.176)	-.042 (.465)	.055 (.469)
2011	+	.358** (.158)	.384** (.159)	.367** (.173)	.375** (.173)	.441 (.431)	.535 (.435)
2012	+	.513*** (.157)	.538*** (.157)	.472*** (.171)	.476*** (.171)	.800* (.416)	.904** (.420)
2013	+	.741*** (.155)	.772*** (.155)	.687*** (.169)	.700*** (.170)	1.066*** (.408)	1.157*** (.413)
2014	+	.815*** (.154)	.866*** (.154)	.751*** (.168)	.783*** (.169)	1.192*** (.405)	1.303*** (.410)
N		3,154	3154	2,541	2,541	613	613
WALD CH2(10)		403.62***	422.23***	363.89***	374.70***	48.34***	53.17***
LR TEST		477.91***	346.74***	142.25***	112.50***	6.03***	2.48*

***, ** and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels respectively (two tailed) (standard errors beneath the regression coefficients in parentheses).

See table 9 for definitions of the variables.

Table 13 shows the results of the regression analysis that examines the relationship between environmental and social performance and the choice for an assurance provider from the auditing profession. The results for the complete sample show no significant association between companies with better environmental or social performance and the choice for an assurance provider from the auditing profession. Regarding the European sample, the analysis shows that companies with worse environmental performance are more likely to choose an assurance provider from the auditing profession (significant at the 5% level). There is no significant association between social performance and the choice for assurance provider. The results of the North American sample show no significant relationship between environmental performance and the choice for assurance provider. Regarding social performance, the results show that companies with better social performance are more likely to choose an assurance provider from the auditing profession (significant at the 5% level). The results show no consistent and significant association between environmental or social performance and the choice for assurance provider. The results therefore do not support hypothesis 2A that companies with poor environmental performance are more likely to choose a lower quality assurance provider. The results do also not support hypothesis 2B, that

companies with poor social performance are more likely to choose a lower quality assurance provider. These results do not support legitimacy theory, nor signalling theory. Companies with poor environmental or social performance do not choose an external outside the auditing profession in order to have more room to decouple the information in the sustainability report with their true performance. On the other hand, companies with good environmental and social performance do not choose an external assurer inside the auditing profession to enhance the cost structure of the signal. This indicates that an assurance provider from the auditing profession is not per se the higher quality option.

The analyses for the complete and European sample do show that bigger companies are more likely to choose an assurance provider from the auditing profession (significant at the 1% level). Regarding the North American sample, there is no significant association between size and the choice for assurance provider. Regarding the other factors accounted for in the analysis, no significant associations were found.

In a separate model (not tabulated) the association between choice of assurance provider and factors at the country level were analysed. The results for the complete and European sample show that companies domiciled in countries with a higher rule of law are more likely to choose an assurance provider from the auditing profession (significant at the 1% level). Furthermore, the results for both the complete sample and European sample, show that stakeholder oriented countries are more likely to choose an assurance provider from the auditing profession (significant at the 1% level). The analysis was not conducted for the North American sample because this sample contains only two countries.

Table 13

Regression results mixed effect sequential logit analysis with assurance provider as dependent variable

VARIABLE	SIGN	TOTAL SAMPLE		EUROPEAN SAMPLE		NORTH – AMERICA SAMPLE	
		1	2	3	4	5	6
INTERCEPT	-	.804 (.751)	-1.984*** (.744)	-.801 (.804)	-1.793** (.793)	-1.075 (2.379)	-2.385 (2.512)
ENVSCORE	+/-	-.010* (.006)	-	-.015** (.007)	-	.029 (.017)	-
SOCSCORE	+/-	-	.005 (.005)	-	-.001 (.006)	-	.031** (.014)
SIZE	+/-	.315*** (.058)	.294*** (.057)	.356*** (.062)	.333*** (.061)	-.038 (.196)	.053 (.194)
SENSITIVE INDUSTRY	+	.107 (.174)	.114 (.174)	.091 (.191)	.079 (.191)	.325 (.472)	.294 (.475)
PROFITABILITY	+/-	-.139 (.136)	-.140 (1.35)	-.142 (.140)	-.138 (.136)	.522 (2.420)	.355 (2.341)
LEVERAGE	-	-.407 (.441)	-.360 (.439)	-.231 (.482)	-.221 (.479)	-1.208 (1.177)	-1.035 (1.205)
YEAR DUMMY							
2010	-	-.136 (.271)	-.113 (.271)	-.109 (.701)	-.093 (.283)	-.205 (.951)	-.098 (.948)
2011	+/-	.218 (.264)	.248 (.264)	.263 (.279)	.287 (.278)	-.139 (.865)	-.042 (.866)
2012	+	.476* (.265)	.515* (.265)	.469* (.281)	.504* (.281)	.569 (.836)	.733 (.843)
2013	+	.598** (.262)	.639** (.262)	.623** (.279)	.653** (.278)	.611 (.810)	.786 (.818)
2014	+	.639** (.260)	.695*** (.260)	.714*** (.278)	.756*** (.278)	.523 (.812)	.647 (.817)
N		1,514	1,514	1,365	1,365	149	149
WALD CHI2(10)		54.44***	53.29***	58.23***	54.93***	5.62	7.95
LR TEST		185.77***	179.12***	131.53	126.29***	11.13***	8.85***

***, ** and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels respectively (two tailed) (standard errors beneath the regression coefficients in parentheses).

See table 9 for definitions of the variables.

Regarding the relationship between environmental and social performance and the choice for assurance scope, table 14 shows the results of the regression analysis. The results for the complete sample show that companies with better environmental and companies with better social performance are more likely to externally assure the entire sustainability report (significant at the 5% level). Regarding the European sample the analysis shows that companies with better environmental performance are more likely to externally assure the entire sustainability report (significant at the 5% level). While the results show only an indicative association between social performance and the entire sustainability report as scope of assurance (significant at the 10% level). The results of the North American sample show no significant associations between environmental or social performance and externally assuring the entire sustainability report. The results for the complete and European sample support hypothesis 3A, that companies with poor environmental performance are more likely to choose a less comprehensive assurance scope. While companies with good environmental performance are more likely to choose a more comprehensive assurance scope, e.g. the entire sustainability report. The results for the complete and European sample furthermore

provide (indicative) support for hypothesis 3B. Companies with poor (good) social performance are more likely to choose a less (more) comprehensive assurance scope. These results are consistent with both legitimacy theory and signalling theory. Due to the positive association between environmental and social performance and the adoption of external assurance, the results must be interpreted as support for signalling theory. Companies with good environmental and social performance choose a more comprehensive assurance scope to improve the cost structure of the signal. The results from the North American sample provide no support for the hypotheses. The analysis furthermore shows no significant associations between the other factors and the choice for assurance scope.

In a separate model (not tabulated) the association between choice of assurance scope and factors at the country level were analysed. The results for the complete and European sample show that companies domiciled in countries with weak legal enforcement, are more likely to choose the entire sustainability report as the assurance scope (significant at the 1% level). Furthermore, the results for the complete sample show that stakeholder oriented countries are more likely to choose the entire sustainability report as the assurance scope (significant at the 1% level). While the results show no significant association for the European sample.

Table 14

Regression results mixed effect sequential logit analysis with scope of assurance as dependent variable

VARIABLE	SIGN	TOTAL SAMPLE		EUROPEAN SAMPLE		NORTH – AMERICA SAMPLE	
		1	2	3	4	5	6
INTERCEPT	+/-	-3.090*** (.713)	-3.237*** (.761)	-3.500*** (.737)	-3.376*** (.780)	5.895 (4.284)	.513 (4.639)
ENVSCORE	+/-	.013** (.006)	-	.014** (.006)	-	-.025 (.029)	-
SOCSCORE	+	-	.013** (.006)	-	.011* (.006)	-	.033 (.032)
SIZE	+/-	-.018 (.053)	-.010 (.053)	.009 (.055)	.021 (.055)	-.485 (.328)	-.493 (.335)
SENSITIVE INDUSTRY	-	-.203 (.167)	-.206 (.167)	-.212 (.174)	-.220 (.174)	-.324 (.735)	-.322 (.737)
PROFITABILITY	+/-	.139 (.113)	.134 (.111)	.156 (.117)	.151 (.114)	-2.540 (2.489)	-2.271 (2.420)
LEVERAGE	+/-	-.057 (.427)	-.038 (.427)	-.140 (.448)	-.154 (.446)	.979 (1.919)	1.734 (1.934)
YEAR DUMMY							
2010	+/-	.411 (.333)	.413 (.333)	.587* (.350)	.584* (.350)	-1.444 (1.319)	-1.353 (1.311)
2011	+/-	1.359*** (.304)	1.359*** (.304)	1.514*** (.323)	1.508*** (.322)	-.468 (.956)	-.388 (.945)
2012	+/-	1.787*** (.299)	1.789*** (.299)	2.028*** (.318)	2.017*** (.318)	-1.326 (.986)	-1.233 (.982)
2013	+/-	1.649*** (.295)	1.649*** (.295)	1.898*** (.314)	1.886*** (.314)	-1.818* (.996)	-1.580 (.987)
2014	+/-	1.360*** (.296)	1.363*** (.295)	1.621*** (.314)	1.610*** (.314)	-2.340** (1.098)	-2.169 (1.081)
N		1,514	1,514	1,365	1,365	149	149
WALD CHI2(10)		64.19***	64.12***	70.69***	68.35***	10.22	10.18
LR TEST		230.08***	223.13***	214.12***	209.17***	2.71*	1.99*

***, ** and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels respectively (two tailed) (standard errors beneath the regression coefficients in parentheses).

See table 9 for definitions of the variables.

Table 15 shows the results of the regression analysis that examines the relationship between environmental and social performance and the choice for assurance level. The results for all (sub) samples show no significant association between environmental or social performance and the level of assurance. The results therefore provide no support for hypotheses 4A and 4B, that companies with poor environmental and social performance are more likely to choose a lower level of assurance, while companies with good environmental and social performance are more likely to choose a higher level of assurance, e.g. positive assurance. These results do not support legitimacy theory, nor signalling theory. Companies with poor environmental and social performance do not choose a lower level of assurance in order to have more room to decouple the information in the sustainability report with their true performance. On the other hand, companies with good environmental and social performance do not choose a higher level of assurance to enhance the cost structure of the signal. The absence of a significant relationship indicates that choosing a positive assurance scope does not improve the cost structure of the signal in such a way that the perceived benefits outweigh the costs.

The analyses from the complete and European sample furthermore show no significant associations between the factors in the model and the level of assurance. The North American sample shows that bigger companies are more likely to adopt positive assurance (significant at the 1% level). Furthermore, the results from the North American sample show that companies with lower leverage are more likely to choose positive assurance (significant at the 1% level). Regarding the other factors, the North American sample shows no significant associations.

In a separate model (not tabulated) the association between choice of assurance provider and factors at the country level were analysed. The results for the complete and European sample show that companies domiciled in countries with weak legal enforcement, are more likely to choose positive assurance (significant at the 1% and 5% level). Furthermore, the results for the complete and European sample, show no significant association between the business culture of a country and the choice for level of assurance.

Table 15

Regression results mixed effect sequential logit analysis with level of external assurance as dependent variable

VARIABLE	SIGN	TOTAL SAMPLE		EUROPEAN SAMPLE		NORTH – AMERICA SAMPLE	
		1	2	3	4	5	6
INTERCEPT	-	-6.460*** (1.448)	-7.167*** (1.537)	-6.120*** (1.502)	-7.385*** (1.709)	-56.656 (864.504)	-40.798 (1311.679)
ENVSCORE	+	.003 (.011)	-	.004 (.011)	-	.246 (.160)	-
SOCSCORE	+	-	.011 (.011)	-	.018 (.013)	-	.026 (.029)
SIZE	+/-	.110 (.095)	.111 (.095)	-.006 (.101)	-.017 (.101)	2.395*** (.731)	2.634*** (.807)
SENSITIVE INDUSTRY	+/-	.473* (.277)	.462* (.278)	.405 (.315)	.394 (.317)	-.529 (1.114)	-.616 (1.087)
PROFITABILITY	+/-	.034 (.584)	-.004 (.770)	.049 (.504)	.002 (.709)	-7.765* (4.577)	-2.182 (8.335)
LEVERAGE	+/-	-.677 (.710)	-.626 (.715)	.749 (.785)	.854 (.789)	-17.743*** (4.753)	-16.106*** (4.928)
YEAR DUMMY							
2010	+/-	1.384* (.799)	1.402* (.799)	1.333* (.807)	1.350* (.806)	14.294 (864.371)	14.624 (1311.657)
2011	+	1.790** (.770)	1.805** (.769)	1.697** (.776)	1.712** (.775)	14.772 (864.367)	14.982 (1311.657)
2012	+	1.896** (.763)	1.918** (.762)	1.738** (.771)	1.765** (.771)	15.944 (864.366)	15.993 (1311.657)
2013	+	1.710** (.763)	1.734** (.763)	1.640** (.770)	1.668** (.769)	15.086 (864.367)	15.306 (1311.657)
2014	+	1.793** (.759)	1.827** (.759)	1.526** (.771)	1.578** (.770)	15.931 (864.367)	16.197 (1311.657)
N		1,514	1,514	1,365	1,365	149	149
WALD CHI2(10)		14.93	15.72	10.34	11.92	16.87*	17.43*
LR TEST		65.92***	67.58***	56.94***	60.53***	0.00	0.00

***, ** and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels respectively (two tailed) (standard errors beneath the regression coefficients in parentheses).

See table 9 for definitions of the variables.

The results in table 12 furthermore show that larger companies are more likely to adopt external assurance than smaller companies. This is significant at the 1% level for all (sub) samples. The results support hypothesis 5, that bigger companies are more likely to have their sustainability reports externally assured than smaller companies.

Regarding sensitive industries, the results in table 12 for the complete sample show that companies which are active in sensitive industries are less likely to adopt external assurance (significant at the 1% level). Looking at the European sample, the results show the same association (significant at the 1% and 5% level). Regarding the North American sample, there is no significant association between being active in a sensitive industry and the adoption of external assurance. Regarding the complete sample and the European companies, the results reject hypothesis 6, that companies which are active in sensitive industries are more likely to adopt external assurance. Regarding the North American sample, the results neither reject nor support the hypothesis. The results therefore do not support legitimacy theory. In section 4.3 an additional analysis is conducted regarding the relation between sensitive industries and the adoption of external assurance.

Finally, the results show that companies with higher leverage are less likely to externally assure their sustainability reports. This is significant at the 1% level for all (sub) samples. Regarding profitability the results show no significant association.

Regarding factors at country level that are associated with the adoption of external assurance, the results of the regression analysis are outlined in table 16. The results for the entire sample show that companies domiciled in stakeholder oriented countries are more likely to adopt external assurance on their sustainability reports. For the complete and European sample the results are significant at the 1% level. The analysis could not be conducted for the North American sample because both the USA and Canada are stakeholder oriented countries. The results support hypothesis 7A that companies domiciled in stakeholder oriented countries are more likely to adopt external assurance on their sustainability reports.

Regarding legal enforcement, when correcting for environmental performance, the complete sample shows that companies which are active in countries with a lower rule of law are more likely to adopt external assurance (significant at the 1% level). When the model corrects for social performance, the results show no significant association. The results of the European sample show a significant and negative association between the rule of law and the adoption of external assurance (significant at the 1% level) when correcting for environmental performance. When correcting for social performance, the results show an indicative negative association (significant at the 10% level). Regarding the North American sample the results show that companies with a lower rule of law are more likely to adopt external assurance, both when correcting for environmental performance and

social performance (significant at the 1% and 5% level). This discrepancy can be explained by the fact that the North American sample only contains two countries. The results from the North American sample regarding rule of law are therefore not of added value. The results provide support for hypothesis 7B. Companies domiciled in countries with weak legal enforcement are more likely to externally assure their sustainability reports. But, this association is only significant when correcting for environmental performance.

Table 16

Regression results panel data sequential logit analysis with adoption of external assurance as dependent variable

VARIABLE	SIG N	TOTAL SAMPLE		EUROPEAN SAMPLE		NORTH – AMERICA SAMPLE	
		1	2	3	4	5	6
INTERCEPT	-	-4.976*** (.334)	-6.174*** (.373)	-6.014*** (.383)	-6.723*** (.407)	- 12.880*** (2.693)	-12.069*** (2.594)
ENVSCORE	+	.035*** (.003)	-	.037*** (.003)	-	.025*** (.008)	-
SOCSCORE	+	-	.044*** (.003)	-	.043*** (.003)	-	.027*** (.007)
RULE OF LAW	-	-.309*** (.077)	-.121 (.074)	-.341*** (.080)	-.125* (.075)	3.885*** (1.202)	2.974** (1.189)
SHAREHOLDER	-	-1.163*** (.094)	-1.070*** (.095)	-.380*** (.119)	-.404*** (.119)	-	-
SIZE	+	.333*** (.031)	.336*** (.032)	.439*** (.036)	.415*** (.037)	.390*** (.094)	.427*** (.093)
SENSITIVE INDUSTRY	+	-.355*** (.096)	-.253*** (.098)	-.434*** (.110)	-.319*** (.112)	-.265 (.245)	-.192 (.244)
PROFITABILITY	+/-	.157 (.184)	.101 (.139)	.263 (.277)	.138 (.171)	-1.667 (1.480)	-1.630 (1.460)
LEVERAGE	+/-	-.870*** (.238)	-.846*** (.239)	-1.027*** (.271)	-.970*** (.267)	-2.358*** (.648)	-2.206*** (.652)
YEAR DUMMY							
2010	+/ -	-.003 (.154)	.014 (.155)	.045 (.170)	.029 (.170)	-.165 (.467)	-.044 (.471)
2011	+	.248* (.150)	.302** (.152)	.286* (.167)	.307* (.167)	.487 (.432)	.566 (.436)
2012	+	.383*** (.148)	.444*** (.150)	.371** (.165)	.395** (.166)	.834** (.416)	.926** (.420)
2013	+	.576*** (.147)	.651*** (.148)	.575*** (.164)	.607*** (.164)	1.267*** (.415)	1.310*** (.419)
2014	+	.678*** (.145)	.756*** (.148)	.682*** (.162)	.702*** (.163)	.956** (.410)	1.122*** (.416)
N		3,154	3,154	2,541	2,541	613	613
WALD CH12(10)		480.42***	520.18***	405.43***	416.23***	51.25***	55.79***
LR TEST		0.00	0.00	0.00	0.00	0.00	0.00

***, ** and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels respectively (two tailed) (standard errors beneath the regression coefficients in parentheses).

See table 9 for definitions of the variables.

4.3 Additional analysis

An additional analysis is conducted to examine the relationship between sensitive industries and the adoption of external assurance further. This additional analysis incorporates dummy variables for the 10 main industry groups. These dummy variables control for omitted variables that vary per industry group, but are constant between the firms of an industry. In this analysis, the only industry factor that influences the likelihood of a company adopting external assurance is whether or not it is classified as a sensitive industry. The results of the additional analysis can be found in table 17⁹. The results for the complete sample show that companies active in sensitive industries are more likely to adopt external assurance (significant at the 5% level). The results for the European sample show a positive, indicative association between sensitive industries and the adoption of external assurance. In contrast to the main analysis, these results provide (indicative) support for hypothesis 6, that companies active in sensitive industries are more likely to adopt external assurance.

⁹ An analysis for the North American sample could not be conducted due to STATA difficulties.

Table 17

Regression results panel data sequential logit analysis with adoption of external assurance as dependent variable and industry dummies (Based on the 10 main industry groups (siccode.com) with agriculture, forestry, fishing industry as basis).

VARIABLE	SIGN	TOTAL SAMPLE		EUROPEAN SAMPLE	
		1	2	3	4
INTERCEPT		-7.193*** (.531)	-7.594*** (.537)	-7.483*** (.554)	-7.883*** (.566)
ENVSCORE		.030*** (.003)	-	.032*** (.003)	-
SOCSCORE		-	.032*** (.003)	-	.035*** (.003)
SIZE		.626*** (.044)	.626*** (.044)	.632*** (.047)	.621*** (.047)
SENSITIVE INDUSTRY		.355** (.145)	.348** (.145)	.304* (.162)	.315* (.162)
PROFITABILITY		.364 (.430)	.153 (.273)	.569 (.564)	.209 (.339)
LEVERAGE		-1.088*** (.310)	-1.134*** (.307)	-1.251*** (.344)	-1.316*** (.340)
YEAR DUMMY					
2010		.059 (.166)	.064 (.166)	.084 (.179)	.068 (.179)
2011		.361** (.163)	.385** (.163)	.371** (.176)	.382** (.176)
2012		.527*** (.161)	.549*** (.161)	.485*** (.174)	.490*** (.175)
2013		.785*** (.159)	.807*** (.159)	.726*** (.172)	.738*** (.173)
2014		.858*** (.158)	.897*** (.158)	.794*** (.171)	.823*** (.172)
INDUSTRY DUMMY					
MINING		-.869*** (.304)	-.445 (.304)	-.354 (.335)	.063 (.336)
CONSTRUCTION		-.851*** (.227)	-.609*** (.224)	-.391 (.273)	-.160 (.271)
MANUFACTURING		-.380 (.233)	-.231 (.232)	.115 (.283)	.256 (.282)
TRANSPORTATION & PUBLIC UTILITIES		-.207 (.355)	-.213 (.348)	.379 (.3930)	.433 (.390)
WHOLESALE TRADE		-1.553*** (.274)	-1.359*** (.272)	-.932*** (.319)	-.787** (.316)
RETAIL TRADE		-2.615*** (.317)	-2.319*** (.319)	-1.969*** (.362)	-1.714*** (.366)
FINANCE, INSURANCE, REAL ESTATE		-.859*** (.272)	-.836*** (.272)	-.206 (.315)	-.234 (.314)
NON CLASSIFIABLE		-1.691*** (.441)	-1.440*** (.434)	-1.070** (.501)	-.765 (.499)
N		3,154	3,154	2,541	2,541
WALD CHI2(10)		475.94***	483.09***	406.64***	412.15***
LR TEST		497.93***	379.01***	142.64***	121.68***

***, ** and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels respectively (two tailed) (standard errors beneath the regression coefficients in parentheses).

See table 9 for definitions of the variables.

4.4 Robustness check

To test the robustness of the analyses, separate analyses were conducted with a different proxy for environmental and social performance (not tabulated). These analyses regarded the association between environmental and social performance and, the adoption of external assurance, choice for assurance provider, choice for assurance scope and choice for assurance level. The alternative proxy for environmental performance is the ENER score from the ESG database. The ENER score is a subcategory from the ENVSCORE that is used as the original proxy for environmental performance. The ENER score regards the emission reduction category, which measures the commitment and effectiveness of a company towards reducing environmental emission. It looks at air emissions, waste, hazardous waste, water discharges and spills.

The alternative proxy for social performance is the SOCO score from the ESG database. This is a subcategory from the SOCSCORE that is used as the original proxy for environmental performance. The SOCO score regards the society/community category. It measures the commitment and effectiveness towards maintaining the company's reputation within the community. It reflects the ability from the company to maintain its licence to operate by being a good citizen and by respecting business ethics.

The results in all the analyses regarding the association between environmental and social performance and the choices regarding adoption of assurance, assurance provider, level of assurance and assurance scope, show no significant differences from the original analysis. Suggesting that the results are robust for different proxies of environmental and social performance.

5. Conclusion and discussion

5.1 Conclusion

This study examined the variation in external assurance on sustainability reports. It focussed on determinants at company level, industry level and country level. By focussing on the company's environmental and social performance, it could be determined whether the agency problem inherent to the issuance of sustainability reports is reduced by the adoption of external assurance. The results show that companies with good environmental and social performance are more likely to adopt external assurance. These results are inconsistent with legitimacy theory and provide support for signalling theory. Furthermore, the results show that companies with good environmental and social performance are more likely to choose the higher quality option regarding scope of assurance. While there is no association between environmental or social performance and the choice for assurance provider and level of assurance. These results indicate that the adoption of external assurance reduces the agency problem. Companies with good environmental and social performance are more likely to adopt external assurance. Because only the information in the sustainability reports of good performing companies is both credible and able to create a positive reputation regarding sustainable development.

The implication is that regulating the issuance of sustainability reports and mandating the adoption of external assurance will make companies more accountable for their environmental and social impact. When companies have to issue an externally assured sustainability report, they have to provide credible information, otherwise the external assessor will not provide assurance. As a result, shareholders and other stakeholders are better able to distinguish between companies with good and poor environmental performance and hold them accountable for their performance.

The results regarding the other determinants are consistent with legitimacy theory. Starting with company size, the results show that bigger companies are more likely to adopt external assurance. This is consistent with the prediction made by legitimacy theory. Regarding sensitive industries, the results of the additional analysis show that companies in sensitive industries are more likely to adopt external assurance, consistent with the prediction made by legitimacy theory. The results furthermore show that companies domiciled in stakeholder oriented countries are more likely to adopt external assurance. This is consistent with the prediction made by legitimacy theory.

The final country level determinant regards the legal enforcement mechanisms in a country. The results show that companies in countries with weak legal enforcement mechanisms are more likely to adopt external assurance. Due to the weak legal enforcement the companies are less likely to encounter consequences if they provide dishonest information in their sustainability reports. Therefore the agency problem in these countries is bigger. The negative association between legal

enforcement and the adoption of external assurance therefore provides more support for the conclusion that the adoption of external assurance reduces the agency problem.

Altogether, the results indicate that signalling theory provides a good explanation regarding the emerging market of external assurance, but this explanation is not sufficient. Next to environmental and social performance, as determinants for the adoption of external assurance and choices for assurance provider, scope and level, there are several other determinants. These determinants cannot be predicted by signalling theory, but legitimacy theory does provide an explanation. To understand the variety in external assurance on sustainability reports, both signalling theory and legitimacy theory are needed.

This thesis shows that environmental and social performance are important determinants for the adoption of external assurance. It shows that the adoption of external assurance is used by good environmentally and socially performing firms as a signal. Furthermore the companies with good environmental and social performance use the discretion regarding the choice for scope of assurance to enhance the credibility of their signal by choosing the higher quality option. While the discretion regarding accounting provider and level of assurance is not used for this purpose. Finally it shows that country level determinants play an important role in explaining the variation in external assurance on sustainability reports. This does not only regard the adoption of external assurance, but also the choice for assurance provider, scope of assurance and level of assurance. This is not only shown by the relationship between the legal enforcement or business culture of a country and the choice for adoption of assurance, assurance provider, scope of assurance and level of assurance. The differences between the North American sample and the European sample strengthen this conclusion.

5.2 Discussion

Limitations

The first limitation of this thesis regards the availability of ESG data from the datastream database. The ESG data is only available for several thousand companies leading to a possible bias in the sample. The availability of ESG data makes the environmental and social performance of companies more easily visible which may influence the likelihood that companies issue a sustainability report and/or adopt external assurance. Furthermore, the main analysis incorporated only one proxy for environmental, and one for social performance, while in reality environmental and social performance are both not uniformly defined. Even though both ENVSOCE and SOCSCORE are comprised out of several underlying categories, a different measure for environmental and social performance might result in different outcomes. As a robustness check, an analysis with two of the

underlying categories was conducted. But because these categories are underlying of the original proxies, they are not perfect to test the robustness of the results.

Another limitation is the regression model used to test the hypotheses, being a mixed effect sequential logit model. This model is suited for a sample that contains panel data. The model corrected for clustered errors at the country level and a dummy variable was added for each of the years. An even more suited model would be a model that would fit multilevel panel data. Because the data in the sample can be characterised as multilevel panel data, with companies nested within countries. Due to problems with STATA, the preferred analysis could not take place. Therefore the second best option was chosen to test the hypotheses.

Future research

Future research could incorporate several new ideas to improve the knowledge about the emerging external assurance market on sustainability reports. Starting with using other and/or more proxies for environmental and social performance to enhance the external validity of the results of this thesis. Furthermore future research could make a more detailed distinction regarding level and scope of assurance. Choosing three or more categories might provide more insights in the signalling role of external assurance.

Finally, future research could examine what information is being issued in the sustainability reports and compare this to the proxy of environmental and social performance. By doing so it can be tested whether information in sustainability reports with external assurance has a better match with the proxy for environmental and social performance, than information in sustainability reports without external assurance. If this is so, this would support the conclusion that external assurance reduces the agency problem and that is used as a signal by companies with good environmental and social performance.

References

- Abdel-Khalik, A. R. (1993). Why do private companies demand auditing? A case for organizational loss of control. *Journal of accounting, auditing & finance*, 31-52.
- Ali, W., & Rizwan, M. (2013). Factors influencing corporate social and environmental disclosure (CSED) practices in the developing countries: An institutional theoretical perspective. *International journal of Asian social science*, 590-609.
- Bird, R. B., & Smith, E. A. (2005). Signaling theory, strategic interaction and symbolic capital. *Current anthropology*, 221-248.
- Braam, G. J., Weerd, L. U., Hauck, M., & Huijbregts, M. A. (2016). Determinants of corporate environmental reporting: the importance of environmental performance and assurance. *Journal of cleaner production*, 1-11.
- Casey, R. J., & Grenier, J. H. (2015). Understanding and contributing to the enigma of corporate social responsibility (CSR) assurance in the United States. *Auditing: A journal of practice & theory*, 97-130.
- Choi, J.-H., & Wong, T. J. (2007). Auditor's governance functions and legal environments: An international investigation. *Contemporary accounting research*, 13-46.
- Chow, C. W. (1982). The demand for external auditing: Size, debt and ownership influences. *The accounting review*, 272-291.
- Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, organizations and society*, 303-327.
- Clarkson, P. M., Li, Y., Richardson, G., & Tsang, A. (2015). Voluntary external assurance of corporate social responsibility reports and the Dow Jones sustainability index membership: international evidence.
- Clarkson, P. M., Overell, M. B., & Chapple, L. (2011). Environmental reporting and its relation to corporate environmental performance. *A journal of accounting, finance and business studies*, 27-60.
- Cohen, J., & Simnett, R. (2015). CSR and assurance services: A research Agenda. *Auditing journal of practice & theory*, 1-25.
- Connely, B. L., Certo, T., Duane Ireland, R., & Reutzel, C. R. (2011). Signaling theory: A review and assesment. *Journal of management*, 39-67.
- Datar, S. M., Feltham, G. A., & Hughes, J. S. (1991). The role of audits and audit quality in valuing new issues. *Journal of accounting and economics*, 3-49.
- Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *The pacific sociological review*, 122-136.
- Fernandez-Feijoo, B., Romero, S., & Ruiz, S. (2015). Multilevel approach to sustainability report assurance decisions. *Australien accounting review*, 346-358.

- Francis, J. R., Khurana, I. K., Martin, X., & Pereira, R. (2011). The relative importance of firm incentives versus country factors in the demand for assurance services by private entities. *Contemporary accounting research*, 487-516.
- Freeman, R. E. (2001). A stakeholder theory of the modern corporation. *Perspectives in business ethics*, 38-49.
- Freeman, R. E. (2002). Stakeholder theory of the modern corporation. *Ethical issues in business: A philosophical approach*, 38-48.
- 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*, 5-21.
- Johnstone, R. A., & Grafen, A. (1993). Dishonesty and the handicap principle. *Animal behaviour*, 759-764.
- Kaufmann, D., & Kraay, A. (2007). Aggregate and individual governance indicators 1996 - 2006. *Governance matters, VI: The world Bank*.
- Kolk, A., & Perego, P. (2010). Determinants of the adoption of sustainability assurance statements: An international investigation. *Business strategy and the environment*, 182-198.
- KPMG. (2015). *The KPMG survey of corporate responsibility reporting 2015*. KPMG.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal determinants of external finance. *Journal of finance*, 1131-1150.
- Merchant, K. A., & Van der Stede, W. A. (2012). *Management control systems: Performance measurement, evaluation and incentives*. Edinburgh: Pearson Education.
- Moroney, R., Windsor, C., & Aw, Y. T. (2012). Evidence of assurance enhancing the quality of voluntary environmental disclosures: an empirical analysis. *Accounting and finance*, 903-939.
- NOAA. (2016, 3 2). *Climate monitoring, summary information*. Retrieved from NOAA: <http://www.ncdc.noaa.gov/sotc/summary-info/global/201512>
- Parsons, T. (1960). *Structure and process in modern societies*. New York: Free Press.
- Patten, D. M. (2002). Media exposure, public policy pressure, and environmental disclosure: an examination of the impact of tri data availability. *Accounting forum*, 152-171.
- Patten, D. M. (2002). The relation between environmental performance and environmental disclosure: a research note. *Accounting, organizations and society*, 763-773.
- Perego, P., & Kolk, A. (2012). Multinationals' accountability on sustainability: the evolution of third-party assurance of sustainability reports. *Journal of business ethics*, 173-190.
- Peters, G. F., & Romi, A. M. (2015). The association between sustainability governance characteristics and the assurance of corporate sustainability reports. *Auditing: A journal of practice & theory*, 163-198.
- Pflugrath, G., Roebuck, P., & Simnett, R. (2011). Impact of assurance and assurer's professional affiliation on financial analysts' assesment of credibility of corporate social responsibility information. *Auditing: A journal of practice & theory*, 239-254.

- Plumlee, M., Brown, D., Hayes, R. M., & Marshall, R. S. (2015). Voluntary environmental disclosure quality and firm value: Further evidence. *J. Account. Public Policy*, 336-361.
- Ross, S. A. (1973). The economic theory of agency: the principal's problem. *American economic association*, 134-139.
- Scott, W. R. (2015). *Financial accounting theory*. Toronto: Pearson.
- SIC. (2016, 05 15). *what is a siccode?* Retrieved from siccode.com: www.siccode.com
- Sierra, L., Zorio, A., Garcia-Benau, & Maria, A. (2013). Sustainable development and assurance of corporate social responsibility reports published by ibex-35 companies. *Corporate social responsibility and environmental management*, 359-370.
- Simnett, R., Vanstraelen, A., & Chua, W. F. (2009). Assurance on sustainability reports: An international comparison. *The accounting review*, 937-967.
- Smith, v. d., Adhikari, A., & Tondkar, R. H. (2005). Exploring differences in social disclosures internationally: A stakeholder perspective. *Journal of accounting and public policy*, 123-151.
- Spence, M. (1973). Job market signaling. *Quarterly journal of economics*, 355-374.
- Titman, S., & Trueman, B. (1986). Information quality and the valuation of new issues. *Journal of accounting and economics*, 159-172.
- Walker, K., & Wan, F. (2012). The harm of symbolic actions and green-washing: corporate actions and communications on environmental performance and their financial implications. *Emerald Management reviews*, 227-239.