Essays on Earnings Quality and Corporate Social Responsibility Reporting

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Eidesstattliche Versicherung:

Ich, Daniela SENKL, versichere [1] an Eides statt, dass ich die Dissertation mit dem Titel „Essays on Earnings Quality and Corporate Social Responsibility Reporting" selbst und bei einer Zusammenarbeit mit anderen Wissenschaftlerinnen oder Wissenschaftlern gemäß den beigefügten Darlegungen nach § 6 Abs. 3 der Promotionsordnung der Fakultät Wirtschafts- und Sozialwissenschaften vom 24. August 2010 verfasst habe. [2] Andere als die angegebenen Hilfsmittel habe ich nicht benutzt. [3]

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Preface

This thesis is based on three separate papers. Chapters 1 and 5 contain a general introduction and conclusion, respectively that apply to all three papers. Apart from that, the papers in Chapters 2, 3 and 4 are largely self-contained. The third paper (chapter 4) is co-authored with my second supervisor, Frank Schiemann. The paper was my brainchild; the conception and the main empirical work of the paper is done by myself. So far, none of the articles is published. Two of them have been presented at international conferences and I hope to submit all of them soon. I made minor changes in the individual papers such as renaming equations, tables and figures. The papers are independent in terms of notation.

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Chapter 1

Introduction

1.1 Motivation

Information disclosure is one of the main purposes of financial accounting; besides the general information function, corporate reports serve as a basis of decision-making for its audience. Throughout the accounting literature, Corporate Social Responsibility (CSR) reporting is therefore seen as relevant as long as it is informative about the firm value. Furthermore, the possibility to enhance a company's stock price is a necessary precondition to convince the top management to consider the implementation of proactive CSR strategies and provide transparent CSR reports (Clarkson *et al.*, 2013, 411). This is in fact important to understand the role of CSR reporting as a strategic tool of information dissemination and to clarify the perspective that is taken by the present thesis.

Many articles claim that companies report on CSR issues because they feel responsible for their impact on the environment and society (Prado-Lorenzo and Garcia-Sanchez, 2010) while others interpret CSR reporting as a tool of strategic disclosure (Cormier and Magnan, 1999). At this point, it is important to clarify two different viewpoints on the aim of CSR reporting, the system perspective and the company perspective. The system perspective means that CSR activities are an attempt to contribute to a sustainable world. This impression is created by the fact that companies name their CSR reports "sustainability reports"; underpinned by the synonym use of CSR and sustainability in the academic research (Hahn and Kühnen, 2013; see also chapter 2). Note, however, that the concept of sustainability is rooted in environmental responsiveness (considering ecological limits) as well as fairness, equity and social justice in a sense that everyone has the same right to access natural resources (McElroy and Van Engelen, 2012, 15). The concept of sustainability is barely understandable on a corporate level (Gray, 2006),

i.e. from within the current system a single company is not able to change the system itself towards a sustainable world, and thus this cannot be the aim of a CSR strategy and/or CSR reporting. In our current system of economic and financial organisation, companies are set up to make profits, not to serve the natural environment. To care about the natural environment might be the desire of certain individuals, but acting in a competitive market means that resource-saving production of one party leads to surplus capacity of resources for the competitor. In this sense, being environmental friendly involves to miss the opportunity to maximise profits. Note that theories on CSR reporting state that a firm needs to be in a financially healthy position before it can start to think about investing in a CSR strategy. The business case of CSR is another example to demonstrate that CSR strategies need to be justified by financial success.

Note that governments are trapped in the same vicious cycle. As long as the power and success of a country is determined by its productive power, governments cannot act freely to benefit society. If governments try to formulate restrictions for companies the latter are likely to transfer their production to other locations (for example Bayer AG and BASF relocated their biotechnology sector due to the Seed Genetic Engineering Ordinance in 2010 and 2011, see www.biotechnolgie.de (2012)) and harm the reputation of the current government. Thus, a single country is in the same situation as a single company, caught by the system itself, as Jillian Evans, member of the European Parliament, expresses in the debate on economic and financial guidelines in preparation to the Spring Summit of the European Parliament in 2004, "*the big Member States still wanted to dictate the agenda. Their focus is on economic reform and flexibility, to the detriment of quality employment, better pay and conditions, greater attention to caring needs, the sustainable use of resources and creating an inclusive society.*" (European Parliament Debates, 2004). Therefore it is important to notice that neither CSR activities nor CSR reporting are not tools to create sustainability on a global level. The term "sustainability reporting" might therefore be misleading, but it is important to clarify the understanding of CSR reporting.

The EU Commission (2011, 3) refers to CSR at company level as a strategic approach that is "*important to the competitiveness of enterprises. It can bring benefits in terms of risk management, cost savings, access to capital, customer relationships, human resource management, and innovation capacity*." Studies which investigate the relation between CSR reporting, CSR performance and financial performance fall under this

perspective. CSR reporting, at best, informs stakeholders on a company's risk and opportunities concerning future firm value. Under this perspective CSR reporting is a tool to report about the company CSR strategy, thus it is related to financial performance and expected to be related to the financial reporting strategy. To this end, the present thesis focuses on the corporate level reporting decision of both, financial reporting and CSR reporting.

1.2 Research objectives and contribution

This thesis takes a company perspective on CSR reporting to evaluate the strategic decision to report on CSR issues. Throughout the academic literature, CSR reporting is analysed according to its quantity and type; with a focus on the determinants of the adoption, extent or quality of CSR reporting. Quality of CSR reporting is often an evaluation of the type of information, indicating whether the reported information is quantitative or qualitative in nature or whether a CSR topic is only mentioned without any further description (Al-Tuwaijri *et al.*, 2004, Clarkson *et al.*, 2008). In this thesis I refer to this evaluation process as the creation of a weighted disclosure index. The understanding of the quality of CSR reporting is adopted from the accounting literature, in particular from the earnings quality literature. Earnings quality is a complex construct that describes, for example, the time-series property of earnings (e.g. persistence) or the relevance to map into stock price changes (value relevance). A comprehensive overview on earnings quality measures is provided by Dechow *et al.*, (2010).

Even though CSR reporting is discussed within the accounting literature, little research has been provided on the relation between earnings quality and CSR reporting. The present thesis attempts to fill this gap; the main objectives are therefore the connection of earnings quality literature with CSR reporting literature and the transformation of earnings quality measures to the purpose of CSR reporting. This thesis contributes to the literature as it offers a new way to evaluate the quality of CSR reporting that can be useful to develop and evaluate reporting standards.

1.3 General outline

This thesis consists of three main chapters which take a closer look at the publication of CSR reports, and deals with the question whether this kind of additional information can be seen as a complement to or as a substitute of financial information. The aim of this work is, to provide a deeper understanding of the relation between CSR reporting and earnings quality. The chapters 2, 3 and 4 of my thesis deal with the following questions: (i) What determines CSR reporting? (ii) Does earnings quality influence the decision to initiate CSR reporting, and (iii) Are certain attributes of CSR reporting related to earnings attributes?

With the growing awareness of society on topics like global warming or cases of violence of human rights, the public pressure on companies is growing. As companies are likewise held responsible for these problems, they are often required to provide information on CSR issues. It has become a widespread business practice to deliver some kind of sustainability report. But still not all companies provide these reports. Therefore the question arises what determines the decision to report on CSR issues.

The appearance of CSR reporting finds different explanations within the literature. Different determinants are analysed based on distinctive theoretical explanations. Among these articles, legitimacy theory and stakeholder theory are the most popular ones (Gray *et al.*, 2010). Chapter 2, entitled "Theoretical Foundations of Corporate Sustainability Reporting: A Systematic Review of Accounting and Management Literature" reviews the announced theories and the analysed determinants of 90 empirical quantitative articles. I demonstrate which explanatory variables are most widely used in the literature, and which directional relation will be suggested, considering the underlying theory. The procedure follows other systematic reviews, e.g. Seuring and Müller (2008), Stechemesser and Guenther (2012), Hahn and Kühnen (2013). This study contributes to the literature as it exhibits which determinants develop from certain theoretical viewpoints and show how they influence the CSR reporting decision. It differs from other literature reviews as it does not focus on the empirical results, but rather on the theoretical concept behind the reporting practice.

The review of literature on CSR reporting does not only show which theoretical arguments are commonly used to explain the reporting decision, but also demonstrates

that financial reporting aspects are not strongly represented in the empirical literature. Work of Francis *et al.* (2008) shows that earnings quality relates to voluntary financial disclosure, but they also exclude non-financial aspects. The third chapter of my thesis, entitled “The Role of Earnings Quality in the CSR Reporting Decision of Listed European Companies” addresses this issue. On the basis of 350 listed companies from 17 European countries I examine whether earnings quality drives the decision to provide a CSR report. Results show that the national engagement in CSR regulation is an important factor for the CSR reporting decision. Furthermore, my results provide weak evidence that earnings quality is negatively related to the CSR reporting decision. This is in line with the evidence provided by Yip *et al.* (2011) after which the political context mainly influences the impact of CSR reporting on earnings management. During the completion of the thesis a study appeared similar to the present thesis. The study of Martínez-Ferrero *et al.* (2015) analyse the relationship between earnings quality and the level of CSR reporting. They find positive evidence for this relation, but from the way their study is set up they cannot draw any conclusions on the strategic decision to initiate CSR reporting. The initiation of CSR reporting is highly important as it determines the future decisions to provide a report. Stanny and Ely (2008) show in their study on carbon reporting that the reporting choice of the past year significantly influences the decision making of the current year. Corporate managers therefore decide thoughtfully whether to provide a report in the first place.

Chapter 4, entitled “Attributes of Carbon Reporting and the Relation to Financial Reporting Quality” takes a more narrow perspective and focuses on a single aspect of CSR reporting, namely carbon emissions reporting. The lack of standardization leads to different reporting practices among companies. The different ways to measure and report carbon information make the considerable discretion for firms obvious. Even though the claim for quality characteristics is apparent in the environmental reporting literature, reporting quality is not yet in their focus – different from accounting research, where earnings quality is a central issue in terms of transparent reporting behaviour. Assuming that financial reporting as well as non-financial reporting is part of the firm’s overall reporting strategy, I analyse whether earnings quality is related to certain carbon reporting attributes, e.g. carbon emissions persistence, carbon emissions predictability. To avoid problems of different national accounting principles, I decided to base this study on U.S. data. I consider the years 2002 to 2012. My results show a positive relation between earnings quality measures and carbon reporting attributes.

To sum up, the main objective of my thesis is to connect CSR reporting with earnings quality. It differs from former studies as it does not focus on performance relations, but rather establishes a direct link on the basis of reporting behaviour. Results from my analysis indicate that under certain circumstances earnings quality seems to be a driver of the initial CSR reporting decision. Once a company decides to report on carbon emissions, my results provide evidence that the reporting characteristics, i.e. persistence and predictability, are positively related to financial reporting. I contribute to the literature by making clear that, so far, research on the link between CSR reporting and financial reporting (e.g. earnings quality) is underrepresented. I expand the literature at exactly this point by providing a first attempt to include earnings quality aspects. Finally, I address the need for quality criteria by analysing carbon reporting attributes.

Chapter 2

Theoretical Foundations of Corporate Sustainability Reporting: A Systematic Review of Accounting and Management Literature

2.1 Introduction

Over the last decades a number of empirical studies came up to explain the determinants of corporate social responsibility (CSR) disclosure, including for example social disclosure, environmental disclosure, sustainability disclosure (Cormier *et al.*, 2005, Clarkson *et al.*, 2008, Kansal *et al.*, 2014). Among other variables, size, leverage, financial performance, ownership structure and CSR performance are the most frequently analysed determinants (see for example Hahn and Kühnen, 2013). The prediction of their directional relation, i.e. whether these factors lead to an increase or decrease in the probability, the level or the quality of CSR reporting, varies across these studies. Reasons are either rooted in the different theories themselves, or differences in previous empirical findings. Even though a strong theoretical foundation is important for the quality of empirical quantitative research, there are numerous studies that do not explain the theoretical considerations behind their research model at all (Hahn and Kühnen, 2013). Additionally, these theories are mainly not mutually exclusive and show a large overlap in the choice and prediction of the directional relation of certain determinants. The uncertainty about how explanatory factors should be related to CSR reporting according to a certain theory increases the likelihood of impurely built hypotheses. It is therefore necessary to take a closer look at the determinants that derive from the various theories explaining CSR reporting.

The voluntary disclosure of information has always been a core interest of the accounting research area. The incentives and determinants of voluntary disclosure have been analysed for decades (Watts and Zimmerman, 1978, Verrecchia, 1983, Dye, 1985)

using for example voluntary disclosure theory or positive accounting theory to explain financial disclosure, but also to better understand CSR disclosure decisions. Parallel other explanations for CSR disclosure have also been developed from the general organisation-society relation (see Gray *et al.*, 1995 for an overview). Social-political theories are predominantly used to explain CSR disclosure (Hahn and Kühnen, 2013).

Previous literature reviews are particularly helpful in identifying commonly analysed determinants (Kolk, 2004, Fifka, 2013), pointing out shortages (Adams, 2002) and showing current trends (Gray *et al.*, 1995, Hahn and Kühnen, 2013). However, except for the current review by Hahn and Kühnen (2013), reviews of CSR disclosure literature do not provide a transparent documentation of their screening process. This seriously affects the review transparency, thus the main advantage of systematic reviews is that results are then reproducible (Klewitz and Hansen, 2014). As it stands today, only a few systematic literature reviews have been published related to CSR disclosure. Examples include Hahn *et al.* (2015) and their review of carbon disclosure literature and Stechemesser and Guenther (2012) who focused on carbon accounting literature. Therefore, they represent a very narrow part of CSR reporting.

The present review takes a more comprehensive view on CSR literature. The systematic literature review by Hahn and Kühnen (2013) is close to the one at hand, as they are also interested in determinants influencing the adoption, extent and quality of CSR reporting. Hahn and Kühnen (2013) identify four main internal and four main external determinants for CSR reporting. The internal determinants are firm size, financial performance, social and environmental performance, and ownership structure; the external determinants being visibility, sector affiliation, country-of-origin and legal requirements. They demonstrate empirical evidence of these factors influencing the CSR reporting decision and they provide a basic understanding of different theoretical concepts. However, there are some important differences to the present study: The study of Hahn and Kühnen (2013) includes a variety of different kinds of CSR research, i.e. qualitative and quantitative, conceptual and empirical. Nevertheless, they do identify common influence factors based on the reviewed empirical quantitative studies which contain about a fifth of their total sample of 178 studies, and in this part of their review, they concentrate on the proven effects of the determinants on CSR disclosure.

On the contrary to the study by Hahn and Kühnen (2013) which gives a broad impression of commonly used theories and determinants, the study at hand has its focus

on empirical quantitative research and includes not only CSR reporting but also CSR disclosure studies. Furthermore, my study presents the expected relationship between certain determinants and provides the line of argumentation of how they are connected to CSR disclosure. This article aims to provide support to researchers in the field of CSR disclosure by providing a systematic overview of the theories, and their similarities and differences. It further contributes to the CSR disclosure literature by clearing out common shortcomings in the development of hypotheses in order to improve the quality of future quantitative research.

The remainder of the paper is organized as follows: The research method section will inform about relevant data sources, search terms and the screening procedure. Next, a bibliographical description is presented. Afterwards, I show and discuss the results of the article comparison based on different theories and explanatory variables. It is followed by a conclusion.

2.2 Research method

A main characteristic of a systematic literature review compared to other literature reviews is the disclosure of the preceding steps, i.e. the provision of transparency and clarity on why, where and how to select the relevant material that leads to the overall syntheses (Klewitz and Hansen, 2014). I follow the procedure in Fink (2010), which can be summarised in three main steps: (i) the definition of the research question, relevant sources and search terms, (ii) the screening and review of the relevant literature, and (iii) the synthesis of the literature and interpretation of findings.

Research question, sources and search terms

The main objective of this article is to provide an overview of different theoretical approaches used in the literature and link the analysed determinants to the particular theoretical approach. The review focuses on empirical quantitative research for the following reason: Ideally, hypotheses in empirical quantitative studies are based on theories. Previous reviews show that this is not always the case (Hahn and Kühnen, 2013). Theories to explain CSR reporting are not exclusively distinguishable and, as such, can be easily confused. Obviously there is a need to clarify differences and

similarities of theories to avoid further confusion for future researchers. This review aims to close this gap by asking the following questions: Which determinants are commonly related to certain theories, and which relations can be expected following the argumentation of these theories? The main focus is on the theoretical viewpoints that are taken to develop hypotheses in the empirical literature so far.

To answer these questions I selected published academic articles from the following three databases, *Web of Science* (Thomson Reuters), *Ebsco* and *Science Direct*. I restricted the search to peer-reviewed articles in English. In the *Web of Science* database I included articles which are included in the social sciences citation index from the following four areas: (i) business, (ii) business and finance, (iii) management, and (iv) environmental studies; the *Ebsco* search was restricted to Business Source Complete; in *Science Direct* I included articles from the following two areas: business, management, and accounting; and environmental science. As this study is about theories to explain CSR reporting in general, I did not restrict the time period in the search.

There is no unique wording for the reporting on corporates' engagement in social and environmental activities (Skouloudis *et al.*, 2014). Even though the concept of CSR is widely spread in the literature and even though it includes social as well as environmental responsibility of firms[1], some studies prefer to use a terminology that highlights the environmental aspect in the name (Gao *et al.*, 2005, Joshi and Gao, 2009, Mallin *et al.*, 2013). Other studies refer to the triple bottom line concept (Kent and Monem, 2008) or more broadly, to (corporate) sustainability (Faisal *et al.*, 2012). For the sake of this study, I do not distinguish between these concepts.[2] Studies which analyse only one aspect of CSR disclosure, e.g. environmental or social disclosure, are also

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[1] The World Business Council for Sustainability Development (WBCSD) defined CSR in their 1999s report as *"the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large"*. Even if not stated explicitly in the definition (but implicitly addressed by the aim to improve the quality of life) the WBCSD mentions environmental protection as one of the CSR priority issues in their report. More explicitly, the European Commission (2001, 6) defined CSR as *"a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis"*. In 2011 the European Commission promoted a new definition as *"the responsibility of enterprises for their impacts on society" and mention the integration of "social, environmental, ethical, human rights and consumer concerns into [the] business operations and core strategy in close collaboration with [the] stakeholders"* (European Commission, 2011, 6)

[2] A comprehensive overview on corporate sustainability and the triple bottom line can be found in (McElroy and Van Engelen, 2012). Gray *et al.* (1995) provide a summary on the historical development of corporate social responsibility.

summarised under the umbrella term of CSR disclosure. The reason is that this study concentrates on the general theoretical arguments of CSR-related disclosure with the aim to compare between theories. Furthermore, I do not distinguish between separate reports or CSR information in annual reports as long as the main objective of the reviewed studies is to identify the determinants of CSR reporting. Studies which only focus on the location of disclosure in a certain report are not included in the review.

Only articles containing one or more of the following terms were included: *corporate social responsibility / sustainability / triple bottom line / social* or *environmental report** or *disclos**. In order to be able to catch empirical studies I also included the following search terms, where articles had to include at least one word out of the two groups that are shown in bs in their title, abstract or keywords: *[empirical*, significan*, deteremin*, influenc*], [analys*, model*, sampl*, determin*]*. These words are based on the preceding review of twenty articles and discussed with other researchers.

Screening and review

The search in all three databases leads to a total of 731 articles. After deletion of duplicates, the raw sample includes 576 studies. To conduct the abstract screening I provided a detailed instruction to a second researcher who reviewed 58 articles (10%) separately. The results were discussed and the instructions were specified in more detail where necessary. Following the instructions, all studies were checked by a researcher and a student assistant separately. This procedure led to a total of 129 articles from which the full text was read and evaluated in the next step. To be included in the final sample the articles had to be empirical quantitative studies that analysed the determinants of CSR disclosure (i.e. CSR disclosure had to be the dependent variable). If the studies were set up in a way that they informed about determinants of CSR disclosure, I have also included group comparisons or correlation analysis in the review. In the detailed review process, an additional 39 articles dropped out because they did not fit into the framework of the literature review. The final sample contains 90 articles.

Descriptive summary and interpretation

The literature review contains 90 articles from 50 different journals. The most represented journal in this review is the Journal of Business Ethics (12 articles),

followed by Corporate Social Responsibility & Environmental Management (6 articles). A full list is included in the appendix (table 1).

CSR disclosure is a core topic in accounting research (Gray *et al.*, 1995), but CSR has also been a topic of interest in organisation studies (Carroll, 1979). Management journals also show an interest in the question of determinants of CSR disclosure, even though the proportion is smaller compared to accounting journals. The present sample includes 58 articles coming from accounting journals, 30 articles from management journals and two articles from other journals (Energy Policy and Journal of Corporate Citizenship). The classification was drawn by the name of the journal. In journals where the journal name-based classification was not possible (e.g. Accounting, Organization and Society; Journal of Business Ethics), the subject area of the author was considered.

Out of 90 studies in my sample 76 studies analyse a single country. A total of 23 different countries were addressed by these studies. Eight studies use country-groups (e.g. Northern America, Emerging Countries, Euronext Countries) and eleven studies use a worldwide sample. Table 2 in the appendix provides a list of the sample countries. Most of the studies are cross-sectional studies of a single time period (49). 39 studies refer to more than one year. Two studies do not specify the analysed time period. The sample years range from 1982 to 2011. Almost half of the analysed articles focus on environmental reporting aspects (44), 41 articles cover CSR aspects (CSR, sustainability, triple bottom line) and five articles focus on social reporting aspects.

I categorised the dependent variables along four groups: adoption, extent, equally weighted disclosure index and other weighted disclosure index (see figure 1). Articles that fell into the adoption category have a dichotomous dependent variable. I do not distinguish between articles which analyse the probability of the initiation and from those which analyse just the occurrence of any CSR report in a certain year. 22 articles (24 %) in the sample analyse the adoption of CSR reports. 14 articles investigate determinants of disclosure level, i.e. the amounts of words, sentences or lines. The majority of the analysed articles use a disclosure index. 28 of them build or use an equally weighted index, i.e. predefine a set of variables and count a one if the company reports about that certain issue and zero otherwise. The equally weighted index can either be the sum of all these variables per company (absolute value) or the ratio between the sum of all obtained variables and the sum of all possible variables (relative value). 26 studies use a weighted index, which is often referred to as quality index in the

literature. For example, a three point scale, where quantitative/monetary information is rated with three points, qualitative information with two points and only mentioning an aspect is rated with one point. The majority of the articles in the literature review use regression analyses to test their hypotheses. Fourteen articles are included that use t-test or correlation analyses.

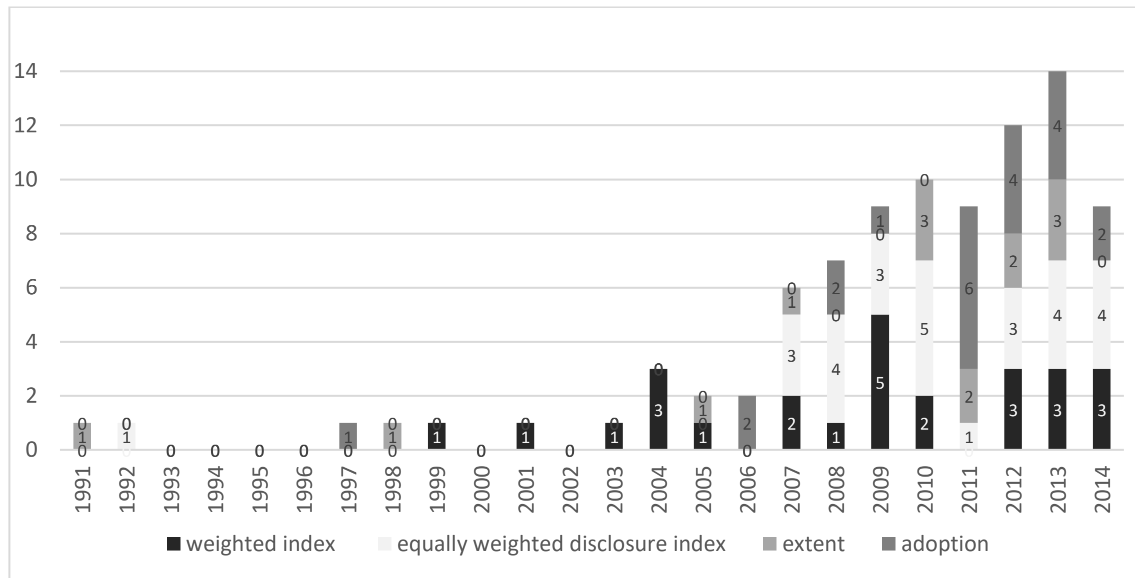

Figure 1: Number of studies per year and dependent variable

Summary of theoretical approaches

Legitimacy theory is the most frequently used theory in my sample (see figure 2). It is mainly used in the accounting literature. The main theory in the management literature is stakeholder theory. Note that the majority of studies do not refer to a certain theory. This is a current trend of recent years. As shown in figure 3, the combination of theories occurs more often in currently published articles (a table is provided in the appendix).

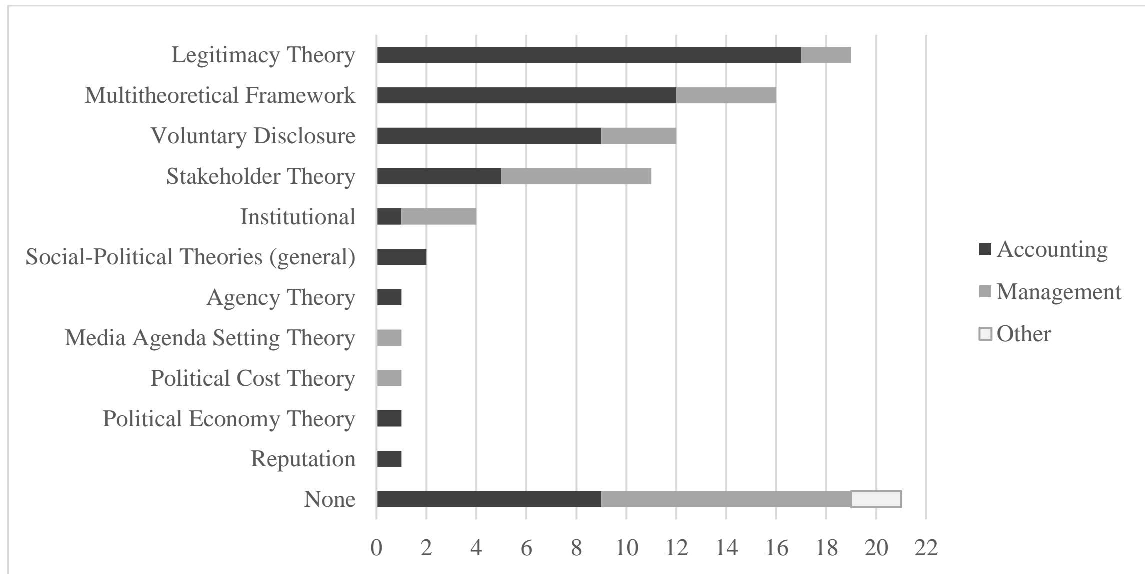

Figure 2: Frequency of theories by research area

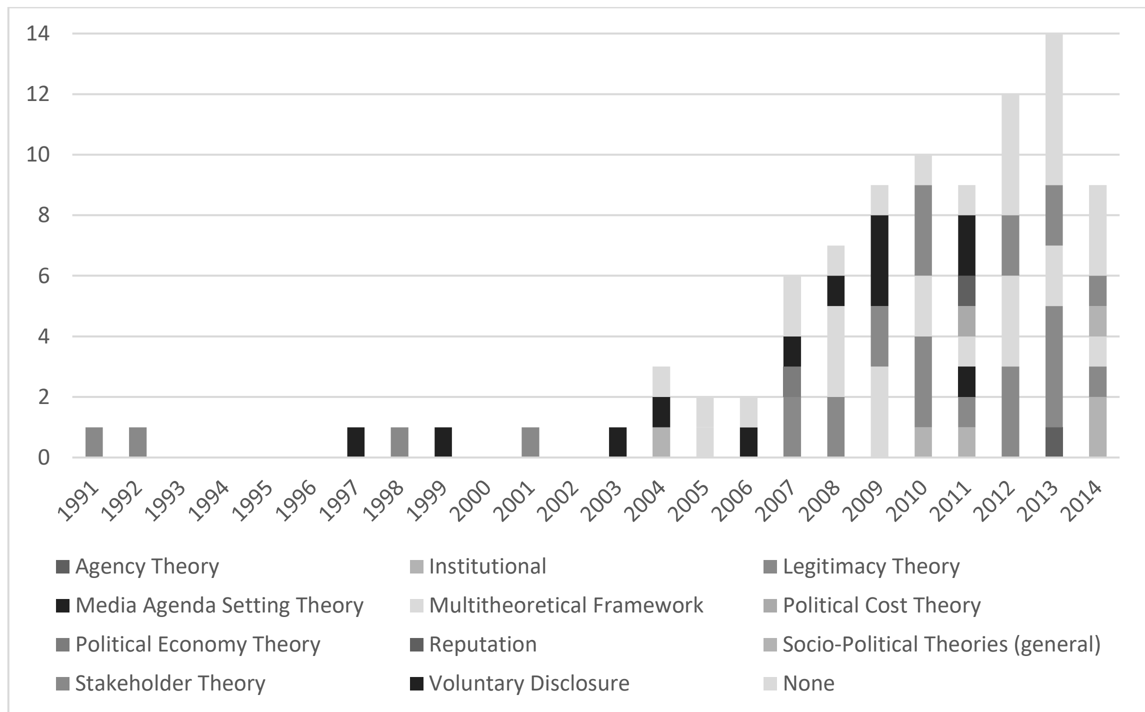

Figure 3: Frequency of theories per year

Legitimacy theory is mainly used to explain the extent of CSR disclosure. Stakeholder theory and voluntary theory are applied in weighted index studies. These indices are often announced as disclosure quality measures. While stakeholder theory is more common in management journals, voluntary disclosure theory is mainly used in accounting journals. Studies that deal with the adoption of CSR reporting or those using equally weighted disclosure indices are most likely to exhibit no theory.

The most frequently analysed determinant over the whole sample is firm size. In 61 of 116 cases it is used as a control variable. Size is often used as a proxy for the visibility of companies. The expected relation of size on a firms CSR reporting is always positive. The most commonly used explanatory variable is financial profitability (measured as either return on assets, return on equity or return on sales). Remarkably, profitability is in general not found to be significant. In 50 of 66 cases profitability does not show a significant effect on CSR reporting. Eleven studies expect a positive relation and five studies expect a negative relation between profitability and CSR reporting. Ownership structure seems to be especially important in the voluntary disclosure literature, but also in articles that refer to stakeholder theory. For studies arguing from the perspective of legitimacy theory, board composition is more frequently analysed than ownership structure. CSR-Performance is also often used, but public concerns (including media attendance) and risk (including leverage) more so.

2.3 Synthesis of theoretical approaches

A starting point to explain why firms use CSR reporting is the information asymmetry between the management of a firm and outside stakeholders. The various theories provide a framework under which the relationship between certain variables can be analysed. The theories differ in the mechanism through which they explain corporate behaviour (i.e. managers' reporting decisions), not necessarily in the choice of variables or the expected direction of a relation. I therefore conform with the following statement of Mukherjee *et al.* (2010, 26): "*Thus the different theories, despite providing distinct perspective on corporate environmental disclosure, should be viewed not as competing perspectives, but rather as alternative ways of providing the rationale behind corporations' decision to disclose environmental information.*" The following section describes the theories that are mentioned in the sample articles. They are structured in

group of studies which focus on the organisation-society relation and in group of studies which focus on the financial community; this distinction is also made by Gray *et al.* (1995). Consequently, I discuss articles which use multiple theories.

2.3.1 Social-political theories

Social-political theories take a system-oriented perspective, i.e. they analyse the interrelation between organisations, the state, individuals and groups. The basic understanding is that the economic domain is analysed under consideration of the political, social and institutional framework in which it exists (Gray *et al.*, 1995, 52). Stakeholder theory and legitimacy theory are closely related, and theories which explain corporate behaviour (e.g. CSR disclosure) are conditional on our view of the political economy. Political economy theory intends to explain social behaviour under certain institutional conditions. CSR disclosure can be analysed under legitimacy theory or stakeholder theory either with a focus on the legitimation process or stakeholder dialogues, but with an awareness of the tightly interwoven aspects of the single theories. Among social-political theories the literature mainly deals with the differences and similarities between legitimacy theory and stakeholder theory.

The main difference between legitimacy theory and stakeholder theory lies in the definition of the relevant audience. Cotter and Najah (2012, 174) state the following: *"While legitimacy theory considers the overall society and its role in organizational legitimacy, stakeholder theory explains the role of particular stakeholders in shaping management strategies."* Similarly, stakeholder theory acknowledges that there are different groups of stakeholders interested in company actions. Companies try to fulfil the information needs of relevant stakeholders. CSR disclosure can function as a tool to improve stakeholder dialogues (Roberts, 1992). Cormier *et al.* (2004, 149) point out that if CSR disclosures indicate legitimacy gaps, stakeholders will reassess their relationships with the firm. In a broader sense, stakeholder groups represent the public society that creates the huge overlap between both perspectives. But again, stakeholder theory does not claim to follow a general societal belief system. It rather concentrates on the satisfaction of stakeholder groups, and the more strategic the approach is, the more focused on the (few) most powerful stakeholder groups. Chu *et al.* (2013) announce another difference by stating that legitimacy theory, in contrast to stakeholder theory is based on a "*survival premise*". Note that there are other views, for example Huang and Kung (2010, 435) point out that the argumentation behind stakeholder theory is *"that*

firms need to ensure their survival and continued success by satisfying stakeholders' demands."

All stakeholder-related articles in this sample argue that economic performance is an important precondition for CSR activities in the stakeholder model. Legitimacy theory on the other hand distinguishes between economic and social legitimacy. Economic legitimacy is gained by being profitable. Therefore, economic performance is the main concern when gaining and maintaining economic legitimacy. It is, however, less important in the process of gaining and maintaining social legitimacy. Within both frameworks, the CSR reporting behaviour can either be interpreted as being proactive or reactive. Many articles state that under the view of legitimacy theory, CSR reporting is a reaction to political and social pressures, i.e. CSR reporting is an attempt to avoid the negative consequences of a legitimacy crisis (Moneva and Llena, 2000, Da Silva and Teixeira, 2008). Van Staden and Hooks (2007, 198) emphasise the proactive legitimacy approach. In terms of CSR disclosure this means that companies report about their CSR activities before legitimacy concerns arise.

A different way to combine stakeholder theory and legitimacy theory is suggested by Lu and Abeysekera (2014). They take the perspective of stakeholder theory in order to analyse the influence of different powerful stakeholder groups on the CSR reporting decision, and then they analyse different firm-specific characteristics (size, profitability, industry, cross-listing) under the viewpoint of legitimacy theory. At first glance, this seems to be a very strict distinction, but a closer look shows again the connectedness of both approaches. Under legitimacy theory, the firm-specific characteristics are the basis of the expectations that are made by the public against the company, for example because of its size or choice of industry. In the following, I present the single social-political theories and related approaches.

2.3.2 Legitimacy theory

Legitimacy theory is the most frequently used theory to explain CSR disclosure in the present sample. Suchman (1995, 574) defines legitimacy as *"a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions*". Suchman (1995, 574-5) states that companies seek for legitimacy as it fosters their continuity,

credibility, persistence and meaning. Legitimacy affects the way people understand and act toward organisations. This interaction is often referred to as the fulfilment of an implicit social contract between companies and society (Kent and Monem, 2008, Joshi and Gao, 2009, Cuganesan *et al.*, 2010, Dawkins and Fraas, 2011b, Faisal *et al.*, 2012, Muttakin and Khan, 2014). As it is most commonly defined, legitimacy theory is therefore when CSR disclosure is seen as a reaction towards public pressure to prove whether companies' actions are consistent with societies' norms (Guthrie and Parker, 1989, 344). As community expectations change over time, however, the process of legitimation has to be dynamic per definition (Joshi and Gao, 2009, Kent and Zunker, 2013). With rising awareness of nature and with societal needs, companies are required to report the implications of their business on environment and society. Cormier *et al.* (2005, 10) understand environmental disclosure as a response to public pressures: "*While boards of directors and management are not directly accountable to these stakeholders, a firm's long-term existence is dependent upon the ability to legitimize its activities to society.*"

Patten (1991) distinguishes economic legitimacy from social legitimacy. Economic legitimacy has roots in the classical view that companies only need to care about financial performance. Following this understanding, a company gains legitimacy by being financially profitable. Therefore a company has to care only about CSR disclosure as far as it influences a firm's profits. Social legitimacy, on the other hand, considers the consequences of business practices on consumer and employee health and safety, as well as taking the physical environment into account. Companies provide CSR disclosure to influence the public policy process and prevent social pressure (Patten, 1991). The conceptual work of Suchman (1995) builds the basis for the understanding of legitimacy theory as either an institutional or a strategic approach (Branco and Rodrigues, 2008b, Joshi and Gao, 2009, Mahadeo *et al.*, 2011). Institutional legitimacy theory proposes that the way companies are constructed and understood by the public is strongly dependent on cultural definitions (Suchman, 1995, 576). In other words, companies can comply with societal norms, values and beliefs by the way they choose to set up their business practice. This view includes studies that address country and industry differences, including internationality - the environment in which a company acts at large. Muttakin and Khan (2014), for example, consider family ownership and export orientation as relevant institutional factors when analysing the occurrence of CSR disclosure in Bangladesh.

Further to this, strategic legitimacy theory also includes the assumption that legitimacy can be actively influenced by managers (Suchman, 1995, 576). Lindblom (1994) announces four ways to legitimize corporate behaviour: Companies can report their activities and any changes in the organisations performance; they can try to change the perceptions of relevant public opinion without changing their own behaviour; they can try to refocus public opinion away from criticism of company practices to a new positive topic, or they can try to change expectations towards company's performance. In any case, it is corporate behaviour that leads to a certain legitimacy level. Guthrie and Parker (1989) doubt the power of reactive legitimacy and ask for a more proactive approach, i.e. companies disclose information to prevent legitimacy concerns from arising in the first place. Van Staden and Hooks (2007, 198) call it (environmental) responsiveness. They state that the proactive approach is often overlooked in the academic discussion of legitimacy theory.

The classification of variables to either institutional or strategic legitimacy theory is not always straightforward. While the institutional approach is more likely to represent the view of society and the general public on the company, the strategic approach is more likely to represent the view from the management on society and the general public (Suchman, 1995, 577). For some variables, it strongly depends on the line of argumentation. Media attention, for example, can serve as positive or negative representation of a firm, and directly affect the popularity of a company. As much as a company can benefit from such media attention, a company's high profile equally means it has to deal with the expectations of the public and society at large. Since it has to comply with certain social norms and rules, this can therefore be classified as a measure of institutional legitimacy. On the other hand, media focus can also be influenced by management through campaigns or increased corporate behaviour. In this case media attendance would thus no longer be exogenous, but rather a consequence of the strategic choice or unintentional consequence of the management behaviour. The same is true for company size. For example, company size can either be perceived by the public via media attention, or as a consequence of a strategic decision to grow. The second argument is, however, not used by any of the studies in the literature review. Not all studies fit into this classification. Branco and Rodrigues (2008b, 164) for example argue that the concept of visibility as a determinant of CSR is consistent with the strategic legitimacy approach. In this view, companies comply with social norms and beliefs to be able to gain and maintain access to resources in order to fulfil corporate objectives.

Nevertheless, it is important to note that the distinction between institutional and strategic legitimacy is a matter of perspective. Even though some authors make the distinction between institutional and strategic legitimacy theory in the 'theoretical background' part of their studies, it is typically not considered further in the empirical part of their studies (Cho and Patten, 2007).

There are basically three types of organisational legitimacy, pragmatic, moral and cognitive legitimacy (Suchman, 1995, 578-80). Pragmatic legitimacy means that a company only orients towards the most influential interest group; it is therefore dependent of the evaluation of that certain group. In contrast, moral legitimacy follows the moral imperative of "*the right thing to do*". Cognitive legitimacy, on the other hand, is based on comprehensibility or "*taken-for-grantedness*" of corporate behaviour. The operationalisation is often not taken to such a detailed level (Mahadeo *et al.*, 2011, 547). The legitimation process consists of three strategies: gaining, maintaining and repairing legitimacy (Suchman, 1995, 596). Following the argumentation of Kent and Zunker (2013, 1077), it is easier to maintain legitimacy which can be achieved by continuing previous (reporting) strategies - it is harder to gain or repair legitimacy. Legitimacy is gained through isomorphisms, mimentic processes and normative pressures (DiMaggio and Powell, 1983, Jensen and Berg, 2012). Gaining and repairing legitimacy are very similar tasks (Kent and Zunker, 2013, 1078). The necessity to repair legitimacy occurs when there is a (perceived) legitimacy gap. A legitimacy gap occurs whenever the company's activities are contrary to what society expects, based on societal norms, values, beliefs and definitions (Haniffa and Cooke, 2005). Many studies that base their arguments on legitimacy theory refer to the process of repairing. They analyse company's reporting behaviour as a reaction to certain incidents such as oil spills (Patten, 1992, Deegan *et al.*, 2000, Khan, 2010, Kent and Zunker, 2013).

The most frequently analysed determinants among legitimacy-related studies in this review are size, public concerns, CSR performance, industry, and board composition. Visibility is often mentioned as the core concept in the legitimacy framework. Size is the commonly used proxy for visibility which leads to higher public pressure (Branco and Rodrigues, 2008b, 165). This is also true for the present sample (Patten, 1991, Mahadeo *et al.*, 2011, Muttakin and Khan, 2014). Size in this sample is measured with total assets, revenues, number of employees, or number of branches. The expected effect of public concerns on CSR disclosure is positive. Public concerns contain news exposure (Neu *et al.*, 1998, Kuo and Chen, 2013), negative media coverage (Kent and Monem, 2008,

Rupley *et al.*, 2012) and tax aggressiveness (Lanis and Richardson, 2013). Only one article expects a negative relation between a media-related variable and CSR reporting (Neu *et al.*, 1998). The argumentation is that companies try to fulfil the demands of relevant stakeholder groups as long as they are homogenous. In cases of conflicting demands of different stakeholder groups, it is very likely that companies defy the demands of one relevant public in favour of another. Neu *et al.* (1998, 276) assume interests of financial stakeholders to be opposite to those of environmentalists. As a company cannot fulfil both demands, they decide for one and reject the other, often in favour of financial stakeholders. Following this view, simultaneous pressures from the financial community and from environmentalists lead to lower environmental disclosures.

Industry affiliation can also be a measure of visibility and public pressure (Patten, 1991, Mahadeo *et al.*, 2011, Faisal *et al.*, 2012, Chu *et al.*, 2013, Kuo and Chen, 2013). But industry can also be an indicator of a company's reporting strategy: Cuganesan *et al.* (2010) expect companies in high CSR profile industries to be more likely to report on CSR issues, but those in low CSR profile to be more likely to report on CSR changes. The reason is that it is harder for companies which have their core business in a negative or questionable CSR area to report on real changes.

The expected relation between CSR performance and CSR disclosure differs across the studies. The reason is that positive as well as negative CSR performance can lead to higher visibility. The relation between visibility and CSR reporting is expected to be positive. High profile firms are more in need to justify their behaviour and maintain legitimacy with the public. Some studies use positive measures for CSR performance, for example carbon emissions reductions (Kuo and Chen, 2013), a number of programs for alternative energy use or waste reduction (Hughes *et al.*, 2001), or a self-created or third-party index (Cho and Patten, 2007, Van Staden and Hooks, 2007). These studies expect a positive relation between CSR performance and CSR disclosure. Other studies use environmental exposure as an inverted measure of environmental performance (Cho and Roberts, 2010). As soon as bad CSR performance leads to higher visibility the company is in need to repair legitimacy, e.g. by reporting on critical CSR issues. The argumentation is either based on public pressure (Cho and Roberts, 2010) or on the assumption that the legitimising benefit is higher for low performers (e.g. Cho, 2007; Hughes et al., 2007).

Some legitimacy-based studies expect board composition to determine CSR disclosure (Kent and Monem, 2008, Khan, 2010, Faisal *et al.*, 2012, Rupley *et al.*, 2012). The use of board composition variables is not directly related to the legitimacy. More likely is that they are summarised under a general corporate governance logic (Kent and Monem, 2008, Khan, 2010). Board composition includes board independence, separation of roles between CEO and chairman of the board, gender diversity, and board activity. They are generally expected to have a positive effect on CSR disclosure. Also profitability can be seen as a measure of visibility that leads to a positive expectation between financial performance and CSR disclosure (Chu *et al.*, 2013). Another legitimacy argumentation is that highly profitable firms are evaluated as being more credible and raise the expectations of accountability (Lu and Abeysekera, 2014, 429). Profitability is more likely to be included as a control variable than as a determinant, which conforms to Patten (1991, 300)'s statement that social legitimacy is monitored through the public process rather than through the market. CSR disclosure should therefore be more closely related to public pressure variables than to economic related variables (Branco and Rodrigues, 2008b, 167). Leverage is often used as an indicator of financial risk. Even though the visibility argument can also be applied here, leverage is often included without an explicit connection to legitimacy (Mahadeo *et al.*, 2011, 549).

Media agenda setting theory and reputation theory are close to legitimacy theory. They are discussed in the following section.

2.3.3 Media agenda setting theory

Media agenda setting theory originates in communication sciences and deals with the relation between the attention of a certain topic in the mass media and the importance of that topic for the general public. It predicts that the media influences the public priorities more than it mirrors them (Ader, 1995, 300). The stronger the effect of this media agenda, the harder it is for individuals to collect their own information and consequently depend on the media. Individuals often are not aware of the direct consequence of environmental pollution and rely on the press coverage of these issues to become properly informed. In the field of CSR reporting, media agenda setting theory is often related to negative media attention; negative publicity is more likely to catch the attention of the public. This can cause a legitimacy gap and raise the need to repair

legitimacy (Brown and Deegan, 1998, Kent and Zunker, 2013) and companies react to public media coverage by increasing disclosures (Deegan *et al.*, 2002). Media agenda setting theory can then be interpreted as an extension of legitimacy theory in the sense that legitimacy theory predicts that adverse events can put legitimacy at risk. Note that under media agenda setting theory, companies are expected to react to media attention, not to the negative incident per se (if there is no media attention) (Kent and Monem, 2008).

Both legitimacy theory and media agenda setting theory expect companies to react to media coverage. The difference is mainly the following: Legitimacy theory builds on the need for companies to comply with social norms, beliefs and values and implicitly assume that media attention is a result of the importance of a certain topic to the general public. Furthermore, media agenda setting theory considers the relative emphasis that is given by the media (Ader, 1995) and the fact that public attention can be created or influenced by the way the media covers an issue (Kent and Zunker, 2013, 1078). It therefore considers the arbitrary aspect of media coverage, i.e. media agenda setting does not necessarily match with social norms, beliefs and values.

Two articles use media agenda setting theory (Dawkins and Fraas, 2011a, Kent and Zunker, 2013). Dawkins and Fraas (2011a) distinguish between general visibility and issue visibility. General visibility is the attendance of a company created in the media and issue visibility is the time dependent visibility that refers to a certain incident or issue. According to media agenda setting theory, they expect issue visibility to show a stronger positive effect on CSR disclosure than the general visibility. Kent and Zunker (2013) and Kent and Monem (2008) expect a positive relation between adverse media publicity and CSR disclosure. The article of Kent and Monem (2008) is based on legitimacy theory, but it highlights the aspect of media attendance.

To sum up, media agenda setting theory is very close to legitimacy theory, as both use visibility as their main underlying concept. For the special case in which media attendance mirrors public norms, values and beliefs, media agenda setting theory would just be a sub-theory of legitimacy theory. As media attendance is not only created by the belief system of society, but also corporate interests which influence public awareness, both concepts do not necessarily coincide.

2.3.4 Reputation theory

The concept of reputation is similar to the concept of legitimacy as they both develop from the same social construct (Deephouse and Carter, 2005, 330). Deephouse and Carter (2005) concentrate on the differentiation of both concepts and serve as a base reference for reputation based articles (Michelon, 2011). The main difference is that legitimacy results from company's efforts to conform to the social system in general, and reputation is the social comparison of companies amongst each other. The concept of reputation builds on the status a company has in society relative to other companies (Shenkar and Yuchtman-Yaar, 1997).

According to Deephouse and Carter (2005), legitimacy and reputation exhibit the same antecedent variables – size, charitable giving, and diversification strategies – but they differ in the way they are related to isomorphism and financial profitability. On average, isomorphism is expected to be positively related to legitimacy and reputation. For companies with a good reputation, however, the assimilation to other companies is less favourable. Moreover, isomorphism is expected to be negatively related with companies of good reputation. Financial profitability is also expected to have a positive influence on legitimacy and reputation. Note that highly profitable companies are expected to be less sensitive to variations in financial performance, i.e. the influence of financial performance on the legitimacy of a firm is weaker amongst these companies.

One study in the present literature review applies reputation theory: Michelon (2011, 79) identifies four main components for the reputation of a company: the prestige of a company, its strategic posture, the relative competitive position, and the image of being a good corporate citizen. These components are operationalised along three dimensions; namely, commitment to stakeholders, financial performance and media exposure. Regarding the determinants of CSR disclosure, financial performance is expected to be more relevant when the argumentation is based on reputation rather than legitimacy theory. The commitment to stakeholder is measured by a self-created index and by the existence of a sustainability committee in the corporate board. Note that legitimacy-related studies in the present sample do not link board composition variables closely to the legitimacy argument, but develop a parallel argumentation of transparency and good corporate governance. Reputation theory now provides an additional argument to include board composition variables. The expected relation is positive, i.e. companies

which show a higher commitment to stakeholders are more likely to provide CSR reporting.

2.3.5 Stakeholder theory

The term "*stakeholder theory*" goes back to Ansoff (1965) who defines the balancing of different stakeholders' demands as a main objective of the firm (Roberts, 1992, 597). Freeman (1984, 46) defines stakeholder as "*any group or individual who can affect or is affected by achievement of the organization's objectives"*. Stakeholders can be external (e.g. government, debtors (lenders), consumers, suppliers, competitors), internal (e.g. shareholders, employees) or intermediate (environmental protection organizations, accounting firms). Stakeholder theory argues that companies try to satisfy these stakeholders' demands in order to avoid negative confrontation and to be able to get (or maintain) access to stakeholders' resources (Huang and Kung, 2010, 435).

Stakeholder theory can be divided into two approaches: ethical and managerial (Deegan *et al.*, 2002, Branco *et al.*, 2014). The first approach attaches the same importance to all stakeholder groups. The second, more common approach, is oriented towards certain relevant stakeholder groups (Cotter and Najah, 2012, Li *et al.*, 2013). The relevance of the stakeholder groups is dependent on their influence on corporate decisions. Stakeholder power is one of three dimensions in the conceptual framework of Ullmann (1985) to describe the relation between social disclosures, social performance and economic performance. The other two dimensions are strategic posture, and past and present economic performance. According to Ullmann (1985)'s evaluation companies provide high voluntary social disclosure if stakeholder power is high, if the company has an active strategic posture, and if the company exhibits good economic performance. Many studies refer to the model of Ullmann (1985) in the theoretical part of their study, (Roberts, 1992, Elijido-Ten, 2009, Huang and Kung, 2010, Orij, 2010, Salama *et al.*, 2012, Branco *et al.*, 2014), but only two studies in the present sample acknowledge the three dimensions in the empirical part (Roberts, 1992, Elijido-Ten, 2009).

Mitchell *et al.* (1997) further categorise stakeholders based on their power, legitimacy and urgency. Stakeholder power signifies the influence certain stakeholder groups have on the corporate decision making processes. Legitimacy expresses in what way a company's actions fit into the expectations of the stakeholders. Urgency means that

there is also a time pressure in the demand of the stakeholder (Orij, 2010). This breakdown of stakeholder attributes shows that legitimacy plays an important role in stakeholder theory.

Financial profitability is the most frequently analysed variable in the stakeholder theory-related articles of the present sample. Note that financial profitability is explicitly addressed in the Ullmann model, but it is also often used as a proxy of the power of financial stakeholders in Mitchell *et al.* (1997)'s classification (Li *et al.*, 2013, 162). In general, studies expect a positive relation between financial profitability and CSR disclosure. Most articles in the present sample argue that firms have to be in a good financial condition to be able to engage in CSR activities. Companies with weak financial capabilities have to prioritise economic issues over CSR issues (Roberts, 1992, Elijido-Ten, 2009, Da Silva Monteiro and Aibar-Guzmán, 2010, Salama *et al.*, 2012, Li *et al.*, 2013, Branco *et al.*, 2014). This is in line with the argumentation of Ullmann (1985) who says that good economic performance is a necessary condition for a company to care about more than financial issues alone.

Economic performance is therefore interpreted as a sign for priority. If a company is in a bad financial condition, it will not be able to pay a lot attention to CSR issues. CSR is therefore being viewed as inferior to financial profitability. The influence of financial profitability on a firm's CSR disclosure adoption and quality is expected to be lower in state owned companies than in privately owned companies because state owned companies are assumed to care more about the maximisation of the social welfare over shareholders' wealth (Li *et al.*, 2013, 163). Ownership structure is another measure of shareholder power. Kuo *et al.* (2012) argue that because state owned firms do not stress profit maximisation as much as privately owned firms, they are less likely to reject CSR activities. Therefore state owned companies are more likely to report on CSR issues. While some articles argue that greater ownership dispersion increases the demand of information disclosure (Elijido-Ten, 2009, 92), others state that the exerted pressure on companies decreases with increasing ownership dispersion (Liu and Anbumozhi, 2009). Foreign ownership is generally expected to have a positive influence on the firms reporting behaviours (Da Silva Monteiro and Aibar-Guzmán, 2010, Frias-Aceituno *et al.*, 2013).

Stakeholder pressure can vary across industries. Industries with high levels of political risk, high consumer visibility, high competition or those who are expected to have a

greater environmental or societal impact have to face greater pressure from different stakeholder groups, e.g. from environmental protection agencies (Huang and Kung, 2010, Branco *et al.*, 2014). Additionally, companies try to avoid penalties (Kuo *et al.*, 2012). Another reason for industry related differences might be that companies from environmentally or socially sensitive industries are more likely to be targeted by new regulations. Therefore, they are expected to provide more and/or better quality CSR disclosures than companies in non-sensitive industries (Elijido-Ten, 2009, Da Silva Monteiro and Aibar-Guzmán, 2010). The argumentation that companies try to avoid regulations by providing additional information is based in political cost theory (Watts and Zimmerman, 1978). It clearly states that both stakeholder theory and political cost theory address the potential influence of governance on corporate strategies and reporting behaviour (Roberts, 1992, 602).

The study of Gamerschlag *et al.* (2011), which is categorised by political cost theory, also analyses the influence of different stakeholder groups on CSR disclosure. The political cost-related argumentation is used in stakeholder theory-related articles, either explicitly (Roberts, 1992, Huang and Kung, 2010) or implicitly (Elijido-Ten, 2009). While the latter uses industry classifications as a proxy for the pressure of legislative bodies, the first group uses the measure of size to indicate higher political cost. Branco *et al.* (2014, 235) include size following the general assumption that larger companies exhibit a number of stakeholders which exert pressure on the company. Leverage is the main proxy for creditor power. Many stakeholder theory-related articles follow the idea that CSR information can be used to evaluate CSR risk. Companies try to be evaluated by creditors at the lowest possible risk level to avoid high interest payments. As a consequence, they provide additional information on their CSR activities (Elijido-Ten, 2009, Liu and Anbumozhi, 2009, Huang and Kung, 2010).

Frias-Aceituno *et al.* (2013) use stakeholder theory more indirectly to analyse the relation between board characteristics and integrated CSR reporting. Their argument is the following: As a company is concerned about the influence of different stakeholder groups on corporate activities, the role of the corporate board is of certain importance in the stakeholder management process. Therefore they analyse the effects of board composition (board size, activity independence, and diversity) on CSR reporting and expect all of them to have a positive influence.

2.3.6 Political economy theory

The study of Amran and Devi (2007) uses political economy theory to explain CSR disclosure. In this context, political economy theory evaluates CSR disclosure in an institutional framework by looking at different social groups and classes (Gray *et al.*, 1995, 52). Basically, it provides a view on the economics while considering the political and social system. Amran and Devi (2007) distinguish the proactive approach of political economy theory from the reactive legitimacy approach. As mentioned above, there are also differing views on when legitimacy theory is reactive to public and social pressure. However, according to Amran and Devi (2007) CSR disclosure is used to create a certain image to a particular audience. The main focus of their study is to analyse the influence of a certain external group on the CSR disclosure decision. The main variables of interest are governmental shareholdings and the dependents on governance contracts. Consequently, there will be a difference in the amount and extent of CSR disclosure for firms with a high proportion of government shareholdings and dependents on government contracts. Note that even if the directional expectations of government shareholdings are the same as in stakeholder theory, the mechanism is different. While the main influence in stakeholder theory is the pressure from particular stakeholder groups, it is the wish to portray an image that favours them in political economy theory that affects business behaviour. As cited by Gray *et al.* (1995) political economy theory is not restricted to the analyses of market exchanges but the relation of social institutions in any kind of institutional framework. Therefore, political economy theory can be interpreted as an institutional theory.

2.3.7 Institutional theory

Institutions are "*symbolic, rule-based and regulative processes that transcend organizations and determine their social behaviour*" (Cormier *et al.*, 2005, 12). According to institutional theory, socially acceptable beliefs and cultural frameworks influence collective moral values which could affect decisions made in companies. Within these frameworks different governance systems are favoured to develop, thus leading to different CSR approaches (DiMaggio and Powell, 1983, Prado-Lorenzo and Garcia-Sanchez, 2010). Institutions develop over time through imitation, routines or law, regulations and customs (Cormier *et al.*, 2005, 12), therefore it is expected to find

similarities of company decisions within countries, legal origins, industries, etc. Structural differences cannot only be found on the macro level, but they can also be related to different organisational settings, e.g. the existence of certain committees within a company. This means that institutional theory can function as a basis to analyse differences in company behaviour within the same institutional environments. These differences can be traced back to individual characteristics, e.g. CEO's education or tenure (Lewis *et al.*, 2014, 713). The most frequent variables in the present sample are board composition, ownership and country.

Chu *et al.* (2013, 117) distinguish between legitimacy and institutional theory rather than seeing one as a part of the other. They see institutional theory as a more specific tool to respond to institutional pressures rather than to closing legitimacy gaps.

The above mentioned theories all have in common that they analyse corporate behaviour in relation to the general public. This is often referred to as a social contract between the company and the society. The following theories basically view the financial community as the main interest group for company reporting. They have been adapted to some extent to explain non-financial CSR disclosure.

2.3.8 Voluntary disclosure literature

Voluntary disclosure theory follows the argumentation that companies try to distinguish themselves from others by providing private information to overcome the effect of adverse selection. Verrecchia (1983)'s analytical model builds the main reference for voluntary disclosure theory. Additionally, Dye (1985) shows that proprietary costs and outsider uncertainty about the existence of private information can keep companies from reporting information and lead to a separation equilibrium. Note that proprietary costs do not only result from the exposure of relevant information to competitors. They can also arise if the disclosed information leads to additional laws and regulations (Cormier and Magnan, 2004, 397). This argumentation is related to political cost theory in the sense that companies use the disclosure mechanism to avoid political costs. Note, however, that voluntary disclosure theory uses potential political costs as an argumentation to withhold information whereas the general understanding of political cost theory would lead to an increase in voluntary information disclosure. From a voluntary disclosure theory perspective, managers have an incentive to report when it leads to an increase in

the firm's financial performance. It is the consequence of a cost-benefit analysis and is therefore sometimes referred to as cost-benefits framework (see for example Cormier and Magnan (2003), Cormier and Magnan (1999) and Déjean and Martinez (2009, 64)). According to voluntary disclosure theory firms have an incentive to disclose positive information as long as it allows a positive distinction from other companies. With regard to CSR reporting, this means that firms with high CSR performance are able to provide more detailed information about their CSR activities (Yue *et al.*, 1997, Clarkson *et al.*, 2008). Therefore, it would conform to this theoretical perspective to expect a positive relation between CSR performance and CSR disclosure.

Note that contrary arguments can be found as well, e.g. De Villiers and Van Staden (2011) who state that *"[b]ad performers disclose more, because they have to provide information to the providers of capital regarding the reasons for the bad performance and the remedial actions taken in order to avoid adverse selection."* (De Villiers and Van Staden, 2011, 506). Even though the adverse selection mechanism is mentioned here, their argumentation does not include that badly performing companies might be better off to keep their information closed. The negative relation holds true, as long as bad performing companies are able to achieve better valuation than the average by disclosing private information.[3]

Among the reviewed articles, the most frequently analysed determinant of CSR disclosure is leverage. As the publication of voluntary information is costly, firms have to evaluate whether the benefits compensate these costs. Firms in a poor financial condition are less likely to overcome the initial costs. According to voluntary disclosure literature, one can therefore expect that companies with lower leverage are more likely to engage in CSR reporting (Cormier *et al.*, 2005). All of the studies which argue in line of voluntary disclosure literature expect a negative relation between leverage and voluntary disclosure. Ownership concentration is expected to be negatively related to CSR disclosure as the benefit of sharing information with the public gets lower when there is only a small group interested in this type of information.

[3] The authors refer to prior literature which finds a negative relation between environmental performance and disclosure. The mentioned articles are all based on legitimacy theory (Cho and Patten 2007, Patten 2002, Hughes et al. 2001).

2.3.9 Positive accounting theory, agency theory and political cost theory

Central to positive accounting theory is the analysis of accounting choices made by managers in order to maximise their own wealth (Watts and Zimmerman, 1978, 1990). Managers view the company as a nexus of contracts for which it is essential to minimise the contracting costs, i.e. transaction costs, agency costs, information costs, renegotiation costs and bankruptcy costs (Watts and Zimmerman, 1990, 134-5). The three main incentives to manipulate accounting numbers mentioned by (Watts and Zimmerman, 1990, 138) are bonus plans, debt contracts and political process. Agency theory, which emerged from the financial economics perspective, also deals with management behaviour under information asymmetry. The main focus is on differences in optimal capital structures depending on given tax systems and varying types of costs, e.g. agency costs, bankruptcy costs (Jensen and Meckling, 1976). Accounting numbers are used, for example, in debt contracts and compensation contracts to incentivise manager behaviour. The understanding of the accounting choice consequently becomes relevant in agency theory. Both theories are interwoven at this point. Many studies in accounting research therefore do not distinguish between positive accounting theory and agency theory (Cormier *et al.*, 2005, 7).

The study of Ho and Taylor (2013) in the present review uses agency theory as the main basis to explain CSR disclosure. Five additional studies use the agency perspective combined with other theories (e.g. Mallin *et al.*, 2013). Agency problems are founded in the separation of ownership and control (Jensen and Meckling, 1976). In this view, strong corporate governance structures are required to monitor senior management and reduce information asymmetry between the company and investors (Ho and Taylor, 2013). Companies with stronger governance structures are therefore expected to provide more extensive voluntary disclosures, including CSR information (Ho and Taylor, 2013, 9). Following the argumentation in Ho and Taylor (2013), companies are expected to provide more information when agency costs are high. It is assumed that agency costs are high in companies with dispersed ownership structures as well as in large and higher levered companies. Agency costs can occur from higher monitoring requirements (e.g. with larger, more complex firms or in firms with a higher debt ratio).

Political cost theory takes the view that companies have to deal with stakeholders of different power and face different levels of political and societal costs. The management

of a company has the incentive to reduce these costs. According to Watts and Zimmerman (1978), attention is created by a firm's visibility, e.g. its size and profits. Companies seek to prevent themselves from regulatory costs, especially tax payments (Gamerschlag *et al.*, 2011). Arguments can be found that the transparent disclosure of CSR information reduces political costs (Branco and Rodrigues, 2008b, 167). The article of Gamerschlag *et al.* (2011) uses political cost theory as the main underlying theory. Watts and Zimmerman (1990) mention the avoidance of political costs as an incentive for managers to make certain accounting choices. Political cost theory can therefore be seen as a part of positive accounting theory. Note, however, that the political cost argumentation is used in other studies for parts of their hypotheses, e.g. Roberts (1992), Branco and Rodrigues (2008b). This shows that the political cost arguments are closely related to stakeholder theory, or more generally to social-political theories (Milne, 2002).

In agreement with the argumentation of political cost theory, Gamerschlag *et al.* (2011) expect visibility and profitability to be positively related to the extent and quality of CSR reporting. Additionally they expect ownership dispersion and US stakeholders to have positive influence on the extent and quality of CSR reporting. The argument here is that shareholders who own large parts of the company are more likely to have direct access to information from the management board than small shareholders. The latter have a higher need for public information to be able to monitor whether the company acts in order to fulfil their interests (Gamerschlag *et al.*, 2011, 238). Note, however, that this argumentation is not based on the avoidance of political costs, but fits well into the framework of voluntary disclosure theory as well as agency theory. Gamerschlag *et al.* (2011, 239) expect a positive relation between US stakeholders and CSR reporting because in liberal markets, the opportunity to distinguish competitors is more important. They expect CSR information to be more relevant to US market participants compared to Europe. This argumentation is based on the avoidance of adverse selection, which can again be counted as a core argumentation of voluntary disclosure theory.

2.3.10 Accountability theory

The main idea of accountability theory is that companies are not only responsible for making a profit, but also for their social and environmental impact. It is mainly

normative and rights-driven; therefore not very helpful to explain the CSR reporting decision (Gray *et al.*, 1995, 70). Mukherjee *et al.* (2010, 25) take a different view and state that "*the essence of all the theories related to environmental disclosure arises from the concept of corporate accountability, which on the other hand, is derived from the notion of equity and fairness.*" Based on this argument, they subsume agency theory, legitimacy theory, stakeholder theory and voluntary disclosure theory under the accountability concept and develop their hypotheses based on different theoretical approaches. Thus, they do not speak of a multi-theoretical framework, as they state that all the theories are rooted in the same concept. Nevertheless, I finally categorised the article of Mukherjee *et al.* (2010) in the multi-theoretical frameworks section because they do not refer to the superordinate concept of accountability in the hypotheses development section. Articles which use multiple theories are discussed in the following.

2.3.11 Multiple theories or multi-theoretical frameworks

A total of sixteen studies in this sample present more than one theory (including the study of Mukherjee *et al.* (2010)). They either show the contradictory aspects of different theories (Clarkson *et al.*, 2008, Dawkins and Fraas, 2011b) or combine them into a joint framework (Cormier *et al.*, 2005, Aerts *et al.*, 2008).

Gray *et al.* (1995, 67) point out that CSR issues are too complex to be comprehensively explained by one single theory. Cormier *et al.* (2005) pick up on this point by demonstrating that different theories can be considered to explain the same determinants of CSR reporting. Among others, they mention firm size as an example. The size of the firm can be an indicator for higher visibility that leads to a greater need to legitimise companies' actions (legitimacy theory); it can also indicate higher political costs (political cost theory), or larger groups which exert pressure on the company (stakeholder theory). It demonstrates that the same variables can be used to measure different constructs. To adequately take these different constructs into account, it is useful to combine the underlying theories. Besides, combining theories counts for the fact that companies should not be regarded in isolation from the social system in which they act. The pressure of financial stakeholders is, on the other hand, so tremendous that business economic theories explain, to a large extent, the rationale of managements' (disclosure) decisions. CSR does not fit well in the worldview that is oriented towards

self-interest and financial wealth maximisation as it is mainly non-financial (Liu and Anbumozhi, 2009, 594). Decision usefulness models (e.g. economic voluntary disclosure theory) can therefore not fully explain CSR disclosure decisions (Cormier *et al.*, 2005). Consequently, Cormier *et al.* (2005, 8) argue in favour of multi-tier theoretical frameworks that consider "*financial stakeholders information needs, society's environmental concerns which translate into public pressures and institutional constraints and processes, which could be either firm- or country-specific*".

Most of the studies in this section combine the economic-based view to account for financial stakeholders' information needs with social-political theories to integrate public pressure and institutional aspects (Cormier *et al.*, 2005, Joshi and Gao, 2009, Reverte, 2009).

Branco and Rodrigues (2008a) combine resource-based perspectives with the view of legitimacy theory. This multitheoretical framework enables the simultaneous description of two forces that drive the CSR reporting decision. Firstly, economic considerations which assume that CSR engagement leads to a competitive advantage. Reporting on this issue is therefore expected to influence financial performance positively. Secondly, expectations from society which create an external pressure on company attitude towards social and environmental issues. This pressure is expected to be higher for companies which are more visible in the public eye (Branco and Rodrigues, 2008a). Branco and Rodrigues (2008a, 686) highlight that views of companies differ. There are those who see CSR engagement as a competitive advantage and those who are just reacting to external pressure. They point out that more theoretical viewpoints have to be considered to analyse the reporting behaviour of companies adequately.

Multiple theory approaches can also be useful to explain different aspects of CSR disclosure. Aerts *et al.* (2008, 647) use an integrated framework of the information costs and benefits perspective, media exposure and governance-based perspective. They argue that the stakeholder information needs and company disclosure decisions are interdependent and that a third party is needed to provide valuable information. Based on this framework, they analyse the effect of financial analysts' forecast dispersion and the extent of analyst following on CSR disclosure.

Different theoretical views can also merge into a new theoretical approach. Stakeholder-agency theory is an approach that combines social and political aspects with agency or political cost aspects. This theory is promoted by Hill and Jones (1992). It points out that

managers themselves are stakeholders of the firm, but with a certain power of control that gives them a superior role compared to other stakeholder groups. This is why Hill and Jones (1992, 134) called it stakeholder-agency theory. The basic idea is that the distribution of resources to other stakeholders reduces the amount of resources that can be invested to realise corporate growth opportunities. An extreme but illustrative example is the incentive to pay wages to Bangladeshi garment workers that are below living wage. Even though interests between managers and other stakeholders can also be consistent in some cases, the potential conflict of interests is obvious from this example.

Articles in the present review that adopt the view of stakeholder-agency theory focus on monitoring aspects. Prado-Lorenzo and Garcia-Sanchez (2010) investigate the relation of different board characteristics on the CSR reporting. The board of directors holds a large responsibility in managing the different stakeholder needs. Due to a conflict of interest, there might be an immanent mistrust between the management and other stakeholders. According to stakeholder-agency theory independent board members are more willing to share information and reduce information asymmetry to other stakeholders. The information disclosure on environmental information can therefore be expected to increase with the percentage of independent directors. They expect a negative relation between board duality and CSR reporting as well as a positive relation between gender diversity and CSR reporting. Moroney *et al.* (2012) investigate the influence of assurance on voluntary CSR disclosure. Again, the concept of monitoring is used under stakeholder-agency theory to explain CSR disclosure. They expect that companies with environmental assurance provide voluntary environmental disclosure of higher quality. Salama *et al.* (2012) claim that they adopt the stakeholder-agency approach, but the hypotheses development is mainly based on stakeholder theory. Contrarily, Huang and Kung (2010, 436) proclaim to adopt stakeholder theory for their analyses. At the same time they explain that the adoption of CSR disclosures is influenced by the agency relations between managers and stakeholders. In both cases, I follow the classification that is suggested by the authors.

Some studies formulate contradicting hypotheses based on different theories (Clarkson *et al.*, 2008, Dawkins and Fraas, 2011b, Meng *et al.*, 2013). They contrast economic voluntary disclosure theories from social-political theories. Clarkson *et al.* (2008) analyse the effect of environmental performance on environmental disclosure. Within social-political theories, Clarkson *et al.* (2008) concentrate on the reactive strategic aspect which leads to the hypotheses of a negative relation between environmental

performance and disclosure. On the other hand, economic voluntary disclosure theories expect a positive relation between environmental performance and environmental disclosure. The key incentive within this view is to avoid adverse selection (see above). Clarkson *et al.* (2008) formulate two contradicting hypotheses. (Dawkins and Fraas, 2011b) look at the same theories, but the authors do not assume two mutually exclusive effects. In accordance to Clarkson *et al.* (2008), they expect a positive relation between environmental performance and environmental disclosure under voluntary disclosure theory and a negative relation under legitimacy theory. But different to the aforementioned study they expect a curvilinear relation. Meng *et al.* (2013) use performance-impression theory, which is based on signalling theory to explain voluntary environmental disclosure and legitimacy theory to explain disclosure strategies in a mandatory reporting framework. They call it the pressure-legitimacy theory to count for the fact that it is a reactive approach. Mallin *et al.* (2013) combine social-political theories and agency theory to build contradicting hypotheses. As like the studies mentioned above, they expect public pressure to be greater for firms with bad social performance and therefore expect a negative relation between social performance and social disclosure, under the view of social-political studies. Based on agency theory they address the monitoring function of the board and expect a negative relation of monitoring intensity and CSR reporting.

2.4 Discussion

The reviewed articles are clustered in 11 different theories, and a category when the reviewed article is not based on a certain theory. The classification is mainly based on the explicit statements in the reviewed articles. This is, however, not always straightforward. For example, Cormier and Magnan (1999) mention social-political theories and economic theories in their study, but they build there hypotheses on benefit-cost arguments and the incentive to decrease information asymmetry by disclosing voluntary information. The article is therefore categorized to voluntary disclosure literature. Similarly, Mukherjee *et al.* (2010) mention the accountability concept as the underlying rationale of CSR disclosure and as the basis of their article; they argue that every theory develops from the concept of accountability and use different single theories to develop their hypotheses. It is therefore categorised as an article using multiple theories. The study by Dawkins and Fraas (2011a) explicitly refers to media

agenda setting theory and is therefore categorised as such. Along with media agenda setting theory, the authors mention other approaches to explain CSR disclosure which they call the defensive disclosure strategy and the accommodative disclosure approach. Even though these approaches are similar to stakeholder theory and voluntary disclosure theory, they do not refer to either of these theories by name; therefore, the article is classified to the media agenda setting.

It should be noted that the combination of different theories can have an effect of the way single theories are presented. It seems as if there is a bias to overemphasise the differences between theoretical views when combining them in a multiple theoretical framework. For example, with articles in which stakeholder theory is used as the single underlying theory, the financial aspect is very present. As mentioned above, financial profitability in a stakeholder theoretical view accounts for the concept of stakeholder power and as the economic precondition that allows a company to care about environmental and social issues. Articles which combine economic-based and social-political views often emphasise the social aspect of stakeholder theory. Vitezić *et al.* (2012, 41), for example point out that stakeholder theory "*is based on the idea that companies have social responsibility that requires them to consider interests of all parties affected by their actions.*" Therefore, they refer to the ethical aspect of stakeholder theory.

It also appears that the link between the presented theory, and the arguments on which the hypotheses are built, is weak, or that the argumentation chain diverges from the basic theoretical concept. For example, Da Silva Monteiro and Aibar-Guzmán (2010) adopt stakeholder theory, but they use different arguments, like cost advantage or reputation building to build their hypotheses. Even though these motivations might drive company decisions to report on CSR activities, the arguments are not based on stakeholder theory. One reason to do this is to strengthen the basic argument. For example, Van de Burgwal and Oliveira Vieira (2014) accumulate different theoretical argumentations that lead to a common hypotheses. In this case, however, it is important to clarify which theoretical concepts are used in order to be able to formulate correct hypotheses. If theoretical arguments are not clearly stated, it bears the risk of being too highly influenced by previous empirical findings (Joshi and Gao, 2009, Salama *et al.*, 2012). This can lead to confusion when confronted with ambiguous empirical results and makes it more difficult to formulate one-sided hypotheses. Theoretical approaches are important to formulate concepts which can be meaningfully connected to CSR disclosure. This article aims to

provide a guide for future researchers in the field of CSR disclosure. Many studies agree that social-political theories are most helpful to explain CSR disclosures. However, it is reasonable to point out the strong influence of the financial community in the corporate decision making process, as this makes the combination with economics based theories so important. The different theories should not be interpreted as contradictory, but rather as complementary to one another.

It must be noted that the present literature review only analyses published articles and is therefore likely to miss out relevant unpublished literature. Furthermore, the setting of filter terms in the basic search also bears the risk of leaving out relevant articles. It is a trade-off between comprehensiveness and feasibility that cannot be resolved completely to the satisfaction of both. Compared to other literature reviews, the number of 90 articles seems to be appropriate.

2.5 Conclusion

The present article reviews 90 empirical studies in order to systemise the theoretical explanations for the adoption, extent and quality of CSR disclosure. The literature review contains published articles from 1991 to 2014. It becomes clear from the review that there is a large overlap among theories, not only within the two major groups of social-political theories and economic based theories, but also between these two groups. For some theories it is less surprising to find large similarities as they originate from the same source. There are, for example, many articles that combine legitimacy theory and stakeholder theory. For other theories, however, the overlapping arguments are less obvious, as is the case for political cost and stakeholder theory. As stated already by Gray *et al.* (1995), the complexity of the CSR construct requires the combination of different theoretical argumentations. The need for a multi theoretical framework bears the risk of obfuscation of arguments. It is important to have a clear understanding of the single theories to be able to benefit from their combination. This is the point of departure from the present literature review by giving an overview on similarities and differences of commonly used theories in the CSR disclosure literature. It supports the development of a consistent argumentation chain to provide a well-founded basis for empirical analyses. The CSR disclosure decision can have many overlapping motives that can be explained by the theories. This review demonstrates the main underlying concepts of different theories and points out where argumentation chains deviate from the basic concept.

Appendix to Chapter 2

TABLE 1: JOURNALS INCLUDED IN THE LITERATURE REVIEW

(A)	Accounting & Finance	1
(A)	Accounting Forum	2
(A)	Accounting in Europe	1
(A)	Accounting Perspectives	1
(A)	Accounting Review	1
(A)	Accounting, Auditing & Accountability Journal	4
(D)	Accounting, Organizations & Society	5
(A)	Advances in Accounting	2
(A)	Australasian Accounting Business & Finance Journal	1
(A)	Australian Accounting Review	1
(M)	Australian Journal of Management	1
(M)	Baltic Journal of Management	1
(D)	Business Ethics-a European Review	1
(M)	Business Strategy & the Environment	2
(M)	Canadian Journal of Administrative Sciences	1
(M)	Chinese Management Studies	1
(A)	Contemporary Accounting Research	1
(M)	Corporate Governance: An International Review	1
(D)	Corporate Governance: The international journal of business and society	3
(D)	Corporate Reputation Review	1
(M)	Corporate Social Responsibility & Environmental Management	6
(D)	Ecological Economics	1
(D)	Emerging Markets Review	1
(O)	Energy Policy	1
(A)	European Accounting Review	1
(M)	European Journal of International Management	1
(A)	International Journal of Accounting Information Systems	2
(M)	International Journal of Commerce & Management	1
(M)	International Journal of Law & Management	1
(M)	International Journal of Technology Management	1
(A)	IUP Journal of Accounting Research & Audit Practices	1
(A)	Journal of Accounting and Public Policy	5
(A)	Journal of Accounting, Auditing & Finance	1
(D)	Journal of Accounting, Business & Management	1
(D)	Journal of Business Ethics	12
(A)	Journal of Business Finance & Accounting	2
(M)	Journal of Business Management	1
(D)	Journal of Cleaner Production	3
(O)	Journal of Corporate Citizenship	2
(A)	Journal of International Financial Management & Accounting	1
(A)	Malaysian Accounting Review	2
(M)	Management Decision	2
(A)	Managerial Auditing Journal	1
(M)	Organization Science	1
(A)	Pacific Accounting Review	1
(D)	Research in International Business and Finance	1
(M)	Review of Managerial Science	1
(A)	Revista Contabilidade & Finanças	1
(M)	Strategic Management Journal	1
(A)	The British Accounting Review	2
(A) = Accounting; (M) = Management; (O) = Other; (D) = Dependent on authors' research area		

TABLE 2: ANALYSED COUNTRIES IN THE REVIEWED ARTICLES

Single Countries	
Australia	7
Bangladesh	2
Belgium	1
Canada	7
China	8
Croatia	1
Denmark	1
France	2
Germany	2
Greece	1
Hong Kong	1
India	2
Japan	1
Malaysia	6
Mauritius	1
Netherlands	1
New Zealand	1
Portugal	3
Spain	2
Taiwan	1
Turkey	1
UK	3
USA	16
Country Groups	
America, Europe	1
Emerging Countries	1
Euronext Countries	1
North America	2
North America and Europe	1
Sweden and Spain	1
UK, Netherlands	1
Worldwide	11

America, Europe: Brazil, Chile, Mexico, Europe (Belgium, UK, France, Germany, Luxembourg, Italy, Portugal, Netherlands, Spain, Sweden, Switzerland), United States; North America: Canada, United States

TABLE 3: DEPENDENT VARIABLE BY THEORY

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	**Total**
Weighted DI	4	5	6	5	0	2	0	0	0	0	0	4	**26**
Equ.weighted DI	5	7	1	4	0	0	1	0	0	0	1	9	**28**
Extent	8	1	1	0	1	0	0	0	0	1	0	2	**14**
Adoption	2	3	4	2	3	0	0	1	1	0	0	6	**22**
Total	**19**	**16**	**12**	**11**	**4**	**2**	**1**	**1**	**1**	**1**	**1**	**21**	**90**

This table shows the frequency of studies per theory dependent on their dependent variable. Weighted DI is a disclosure index weighted by the authors; Equ. weighted DI is the (equally weighted) sum of a set of variables; Extent is the quantity of disclosure measured by the number of paragraphs, sentences or words; Adoption is a bivariate variable that takes the value of one if a company provides a report, and zero otherwise.
[1] Legitimacy Theory; [2] Multitheoretical Framework; [3] Voluntary Disclosure Literature; [4] Stakeholder Theory; [5] Institutional; [6] Social-Political Theories; [7] Agency Theory; [8] Media Agenda Setting Theory; [9] Political Cost Theory; [10] Political Economy Theory; [11] Reputation Theory; [12] None

TABLE 4: FREQUENCY OF DETERMINANTS PER THEORY (CLUSTER)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
Auditor	0	1	1	1	0	0	0	0	0	1	0	2
Board Composition	13	3	7	6	12	0	0	0	0	0	1	13
Company Age	0	0	0	0	3	0	0	0	0	0	0	1
Competition	0	1	2	1	0	0	0	0	0	1	0	1
Country	3	1	1	10	4	0	0	0	0	1	0	8
CSR-Performance	9	9	10	5	8	0	1	1	0	0	0	11
External Concerns	0	1	0	2	0	0	0	0	0	1	0	1
Growth Opportunity	0	0	0	0	0	0	0	0	0	0	0	3
Industry	6	9	9	9	3	0	0	0	0	1	0	21
International Activity	1	2	2	1	0	0	0	0	2	1	0	3
Investment Related	0	1	2	0	0	0	0	0	0	0	0	2
Location	0	0	0	0	0	0	0	0	0	0	0	1
Ownership	4	5	17	10	5	4	0	0	2	2	0	14
Profitability	5	11	12	11	3	0	0	0	2	1	1	20
Public Concerns	9	5	15	5	0	0	0	3	2	0	2	17
Risk	2	7	20	6	0	0	0	0	0	1	0	19
Size	10	12	8	6	0	0	0	0	0	1	0	18
Stock Market Concerns	0	4	10	0	3	0	0	0	0	0	1	1

This table presents the analysed determinants (clustered into 18 broad groups). The most frequent determinant of each column is highlighted. The column numbers represent the following theories: [1] Legitimacy Theory; [2] Multitheoretical Framework; [3] Voluntary Disclosure Literature; [4] Stakeholder Theory; [5] Institutional; [6] Social-Political Theories; [7] Agency Theory; [8] Media Agenda Setting Theory; [9] Political Cost Theory; [10] Political Economy Theory; [11] Reputation Theory; [12] None

TABLE 5: FREQUENCY OF DETERMINANTS PER THEORY (DETAILED)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
Analyst Following	0	0	2	0	0	0	0	0	0	0	0	0
Audit Committee Independence	1	0	0	0	0	0	0	0	0	0	0	1
Audit Committee Size	1	0	0	0	0	0	0	0	0	0	0	1
Beta	0	1	3	1	0	0	0	0	0	0	0	6
Big 4 Auditor	0	1	1	1	0	1	0	0	0	0	0	2
Board Activity	2	0	0	1	0	0	0	0	0	0	0	0
Board Size	0	0	0	1	0	0	0	0	0	0	0	2
Capital Employed (or Log)	0	1	0	0	0	0	0	0	0	0	0	0
Capital Intensity	0	1	2	0	0	0	0	0	0	0	0	1
CDP quest. Completion / Publication	0	0	0	1	2	0	0	0	0	0	0	0
CEO Education	0	0	0	0	2	0	0	0	0	0	0	0
CEO Stocks / Stock Options	0	0	0	0	0	0	0	0	0	0	0	2
Certification	1	2	0	3	4	0	0	0	0	0	0	1
CG Committee in the Board	0	0	0	0	1	0	0	0	0	0	0	0
Change in Management	0	0	0	0	1	0	0	0	0	0	0	1
Commodities Producer	0	1	1	0	1	0	0	0	0	0	0	0
Company Age	0	0	0	0	3	0	0	0	0	0	0	1
Comprehensive CDP Response	0	0	0	1	0	0	0	0	0	0	0	0
Concentrated Ownership	3	3	14	5	4	1	0	0	0	2	0	13
Concentrated Ownership / State Ownership	0	0	0	0	0	0	0	0	0	0	0	1
Concentration Ratio	0	1	2	1	0	0	0	0	0	0	0	1
Consumer Proximity	0	1	0	0	0	0	0	0	0	0	0	1
Country	0	1	0	3	2	0	0	0	0	0	0	5
CSR-Performance	2	3	0	0	2	0	1	0	0	0	0	4
Donations	0	0	0	2	0	0	0	0	0	0	0	5
Effective Tax Rate	0	1	0	0	0	0	0	0	0	0	0	0
Employees	1	1	0	1	0	0	0	0	0	0	0	2
Environmental Exposure	0	0	1	0	0	0	0	0	0	0	0	0
Environmental Exposure (inverse Perf)	0	0	1	0	0	0	0	0	0	0	0	3
Environmental Performance	6	4	8	0	0	0	0	1	0	0	0	3
Environmental Sensitivity	3	4	6	6	2	0	0	0	0	0	0	9
External Concerns	0	0	0	0	0	1	0	0	0	0	0	0
Financing	0	0	1	0	0	0	0	0	0	0	0	1
Fines and Penalties	2	0	4	2	0	0	0	0	0	0	0	4
Forecast Dispersion	0	1	0	0	0	0	0	0	0	0	0	0
Foreign Ownership	1	1	2	2	1	0	0	0	0	0	0	0
Implementation Costs	0	0	0	0	0	0	0	0	0	0	0	1
Industry	3	2	0	0	0	1	0	0	0	0	0	7

TABLE 5: CONTINUED

Integration of CDP in corp. Communication	0	0	0	1	0	0	0	0	0	0	0	0
International Activity	0	1	1	0	0	0	0	0	0	0	0	2
Inventory Turnover	0	0	0	1	0	0	0	0	0	0	0	0
Legal Concerns	3	0	1	0	2	1	0	0	0	0	0	2
Leverage	2	6	16	5	0	1	0	0	0	0	0	13
Liquidity	0	1	0	0	0	0	0	0	0	0	0	0
Long-term customer relationships	0	1	1	0	0	0	0	0	0	0	0	1
Market Capitalization (or Log)	1	1	0	0	0	0	0	0	0	0	0	3
Market Return	0	1	4	0	0	0	0	0	0	0	1	0
Media Exposure	7	5	11	0	0	0	0	3	0	2	1	6
MtB-Ratio	0	0	0	0	0	0	0	0	0	0	0	3
Non-executive Directors	3	1	7	1	1	0	0	0	0	0	0	4
Number of Branches	2	0	0	0	0	0	0	0	0	0	0	0
Positive Income	1	1	0	0	0	0	0	0	0	0	0	2
Product Markets	0	0	0	0	0	1	0	0	0	0	0	0
Profits	1	0	0	0	0	0	0	0	0	0	0	0
Return on Assets	2	6	12	9	3	0	0	0	0	0	0	5
Return on Equity	1	3	0	2	0	0	0	0	0	0	1	11
Return on Invested Capital	0	1	0	0	0	0	0	0	0	2	0	1
Return on Sales (Profit Margin)	1	0	0	0	0	1	0	0	0	0	0	1
Sales (or Log)	2	2	1	3	0	1	0	0	0	0	0	4
Section in annual report	0	0	0	0	0	0	0	0	0	0	0	1
Separation of Roles	1	1	0	0	5	0	0	0	0	0	0	0
Short-term customer relationships	0	0	1	0	0	0	0	0	0	0	0	0
Slack resources	0	0	0	0	3	0	0	0	0	0	0	0
Social Sensitivity	0	0	0	0	0	0	0	0	0	0	0	5
Stakeholder Impact	0	0	0	4	0	0	0	0	0	0	1	1
State Ownership / Government Dependency	1	1	0	3	0	1	0	0	4	0	0	2
Stock Exchange Listings	1	1	1	1	0	1	0	0	0	2	0	1
Subsidiary of Another Firm	0	0	1	0	0	0	0	0	0	0	0	0
Sustainability/Environmental Committee	2	0	0	2	2	0	0	0	0	0	1	0
Total (Net) Assets (or Log)	3	7	7	2	0	0	0	0	0	0	0	9
Trading Volume	0	1	3	0	0	0	0	0	0	0	0	0
Volatility	0	0	1	0	0	0	0	0	0	0	0	0
Women in Boards	2	1	0	1	0	0	0	0	0	0	0	1

This table presents the analysed determinants. The most frequent determinant of each column is highlighted. The column numbers represent the following theories: [1] Legitimacy Theory; [2] Multitheoretical Framework; [3] Voluntary Disclosure Literature; [4] Stakeholder Theory; [5] Institutional; [6] Social-Political Theories; [7] Agency Theory; [8] Media Agenda Setting Theory; [9] Political Cost Theory; [10] Political Economy Theory; [11] Reputation Theory; [12] None

Chapter 3

The Role of Earnings Quality in the CSR Reporting Decision of Listed European Companies

3.1 Introduction

Corporate social responsibility (CSR) reporting has been an emerging phenomenon over the last decades in corporate practice as well as in the academic literature. More and more countries establish binding regulations for companies to report on CSR issues, but still, these regulations are not exhaustively applicable for all company sizes or industries. Nevertheless many companies have already started to provide information on their CSR activities and academic research has analysed the determinants of CSR disclosure. Adam (2002) states that prior literature mainly focuses on factors which are related to corporate characteristics (including size and industry affiliation) and general contextual factors (including country of origin and the social and political context), but internal contextual factors are underrepresented in the research so far. The current paper uses earnings quality as an indicator of the internal appraisal of communication strategy and provides insights on its relationship to CSR reporting.

The article of Martíntez-Ferrero *et al.* (2015) shows that there is a relationship between earnings quality and the completeness of CSR reporting as measured by the guidelines of the Global Reporting Initiative. However, the decision to adopt CSR reporting and the CSR reporting level should be analysed separately as they are influenced by different determinants (Bouten *et al.*, 2012). The study at hand analyses whether earnings quality influences the CSR reporting decision and therefore complements to the study of Martínez-Ferrero *et al.* (2015). There are many reasons why companies decide to publish a CSR report, e.g. to reduce their costs of capital (Dhaliwal *et al.*, 2011) or to

respond to stakeholders' expectations (Dawkins et al., 2011b). The general contextual factors play an important role as the awareness for CSR issues that influences investors' valuation or stakeholder pressure is dependent on the institutional environment in which the company is placed. Thus, the internal context cannot be evaluated without the external context. The current study takes up this point and investigates the CSR reporting decision under consideration of the country engagement in CSR regulation. Analysing a sample of 1,422 firm-year observations (350 companies) over the time period of ten years from 2003 to 2012 I find a negative relationship between the likelihood of CSR adoption and three of my earnings quality measures; i.e. accruals quality, persistence and the combined measure two earnings quality measures among countries with high levels of national engagement in CSR regulation. The article contributes to the literature by providing further insight in how internal contextual factors influence the CSR reporting decision. It provides evidence for the importance of national engagement in regulation, even though the evidence is weak.

3.2 Related literature

Closest to the study at hand is the work of Martínez-Ferrero *et al.* (2015). Based on an international sample, including 747 companies from 19 countries over the time period from 2002 to 2010 they analyse the relationship between financial reporting quality and the quality of CSR reporting, measured by the completeness of CSR reports following GRI guidelines. The results show a positive relationship between their measures of financial reporting quality and CSR reporting quality. There are three main differences to the present study. First, the present study analyses the adoption of CSR reporting rather than the level of disclosure. According to the argumentation of Bouten *et al.* (2012) it is important to distinguish between the decision to provide a report and the follow-up decision on the level and quality of disclosure. Bouten *et al.* (2012) point out that companies which do not decide for a CSR report in the first place should not be included in the sample by which the reporting level is analysed. The present study therefore complements the study of Martínez-Ferrero *et al.* (2015). Second, the present study does not restrict CSR reporting on the use of GRI reporting guidelines. Companies are counted as reporters as soon as they provide a CSR report no matter which guidelines they follow. Third, and most importantly, the present study includes the

contextual factor of national engagement to draw further conclusions on the relationship between earnings quality and CSR reporting.

Yip *et al.* (2011) analyse the relationship between CSR reporting and earnings management in a political context. They compare CSR reports from oil and gas companies with them from food producers in the year 2006 and find a negative relationship between earnings management and CSR reporting for companies in the oil and gas industry and a positive relationship for companies in the food industry. Based on their findings Yip *et al.* (2011) state that the political context is more important for the CSR reporting decision than ethical factors. They analyse 30 companies from the oil and gas industry and 80 companies from the food industry in the US market. The results cannot be transferred directly from the US sample to the European market, mainly for the reason that the differences in the legislative processes create a different political environment which might influence strategic CSR decisions, like the reporting decision. In contrast to Yip *et al.* (2011), Choi and Pae (2011) show that the commitment to business ethics has a significantly positive influence on discretionary accruals, accruals quality and earnings conservatism.

Kim *et al.* (2012), Hong and Andersen (2011), and Chih *et al.* (2008) investigate the consequences of CSR activities (rather than CSR reporting) on earnings management. While Kim et al. (2012) and Hong and Andersen (2011) find a negative relationship between earnings management and CSR activities, Chih *et al.* (2008) find a positive relationship for two of their four measures. Kim et al. (2012) interpret the negative relationship between CSR activities and earnings management as an indicator for a moral imperative of the management to "*do the right thing*" and this includes on the one side, a restriction in earnings management, and on the other side, engagement in CSR activities. Chih *et al.* (2008) find evidence for their multiple objectives hypothesis according to which high performing CSR firms try to meet the interests of different stakeholder groups. This can weaken their actual financial performance and can furthermore incentivise earnings management to meet their earnings benchmarks. Other studies investigate the relationship between CSR reporting and financial analyst forecast errors (Aerts *et al.* (2008), Dhaliwal *et al.* (2012)) or equity cost of capital (Dhaliwal *et al.,* 2011). They find a positive effect of CSR active firms on the variables of interest, i.e. smaller forecast errors and lower cost of capital. Dhaliwal *et al.* (2011) argue that CSR active behaviour has the potential to change future cash flows by reducing

compliance or litigation costs or by enhancing sales through better reputation. These studies analyse either the influence of CSR activities on earnings management (earnings quality) or investigate the market reactions to CSR reporting, for example, the change in the cost of capital or analyst forecasts. To sum up, prior literature provides evidence that CSR activities are relevant to capital market participants, and that there is a link between CSR activities and earnings management.

3.3 Theoretical background and hypothesis development

The phenomenon of CSR reporting is predominantly explained by social and political theories, e.g. legitimacy theory, political economy theory, stakeholder theory (Gray *et al.*, 1995). Compared to purely economic based theories, like economic voluntary disclosure literature or positive accounting theory, social-political theories consider the interrelation between organisations and society. They assume an implicit social contract between the company and the general public according to which a company is responsible for its impact on society and the environment (Guthrie and Parker, 1989). The concept of CSR is however too complex to be explained by one single theory (Gray *et al.*, 1995, Cormier *et al.*, 2005), therefore this study combines different theoretical viewpoints to formulate the hypotheses.

Legitimacy theory suggests that "*managers will adopt strategies, inclusive of disclosure strategies that show society that the organization is attempting to comply with society's expectations (as incorporated within the social contract)*" (Deegan *et al.*, 2002, 318).[4] Companies try to gain and maintain legitimacy by making public which actions they take to support the society. If a company cannot match society's expectations a legitimacy gap may arise. Scandals on bad working conditions or environmental disasters can put a whole industry's legitimacy at risk, even if a certain company might not be involved directly (Patten, 2002). The reaction to certain incidents in order to repair legitimacy is the mostly represented mechanism of legitimacy theory in the literature (De Villiers and Van Staden, 2011). Companies which are more visible in the

[4] Albeit the perception of what the society expects as well as the appraisal of what an appropriate strategy is, differs across managers (Deegan *et al.*, 2002).

public are more worried about their legitimacy status (Deegan, 2002). Earnings quality can be an indicator for the level of discretion a manager exercises. Companies with low earnings quality are more likely to get into the focus of external monitoring and thus try to draw the attention to different topics that legitimate their activities. Based on legitimacy theory I therefore expect a negative relationship between earnings quality and the likelihood of CSR reporting.

H1a: Companies with higher (lower) earnings quality in the previous year are less (more) likely to initiate CSR reporting in the following year.

Political economy theory deals with interactions between different interest groups or authority groups within a system, e.g. countries (Gray *et al.,* 2010). It can therefore be interpreted as an institutional theory. Institutions are processes that develop from the self-understanding within a system itself; they are symbolic, rule-based and regulative processes and determine the social behaviour of organisations (Cormier *et al.* 2005). Earnings quality can be interpreted as the self-understanding of a company to manipulate earnings numbers to present more or less transparent earnings. It can be expected that a company which decides to produce transparent earnings is also willing to be informative on CSR issues. Based on political economy theory I expect a positive relationship between earnings quality and the likelihood of CSR reporting (Amran and Devi, 2007). This view is in line with a proactive approach of legitimacy theory according to which a company reports on CSR issues based on an underlying social responsiveness (De Villiers and Van Staden, 2011).

H1b: Firms with higher (lower) earnings quality in the previous year are more (less) likely to initiate CSR reporting in the following year.

Stakeholder theory considers the demands of different interest groups in the decision making process of a company. The degree to which a company orients towards these

interest groups depends on their power, urgency and legitimacy (Mitchell *et al.* 1997).[5] The relevance of certain stakeholder groups for a company is influenced by the general contextual factors, for example in countries where the main financing is provided by the capital market, investors might play a more dominant role than in countries where companies' main funding source are bank loans. This however, is again affected by the legal and institutional frameworks in which a company behaves. Stakeholder theory takes a system based perspective on the organisation and its society (Gray *et al.,* 2010). In countries where the national engagement is high it is likely to find more powerful stakeholders which push forward CSR reporting requirements.[6] It is therefore expected that companies react to the pressure of these stakeholder groups by providing CSR reports. The second hypothesis is therefore stated as follows.

H2: Firms in countries with high engagement in national CSR regulations are more likely to report on CSR issues than firms in countries with less engagement in national CSR regulations.

Economic based theories also lead to contradicting hypotheses on the relationship between earnings quality and CSR reporting. Basically, these theories focus on monetary incentives to reduce information asymmetries (Clarkson *et al.*, 2008, Cormier *et al.*, 2005). Under the view of economic based theories CSR information is interpreted as useful if it provides additional information on financial risks and opportunities of a company. CSR information has to transfer to a financial value and can be either seen as a complement or substitute for financial information (Yip *et al.*, 2011). Voluntary disclosure literature states that managers provide additional information as long as they suspect the information to have a positive effect on investors' perception of the firm value (Verrecchia, 1983). On the one hand, the provision of additional information can be used by companies to differentiate from others and overcome adverse selection mechanisms. According to voluntary disclosure theory investors are more likely to rely

[5] There is also an ethical approach of stakeholder theory, according to which all stakeholder groups are regarded as equally important to the company. As this conception is less relevant in the literature it will not be further considered in the current article.

[6] Note that a strong CSR orientation among stakeholders can be the determinant as well as the consequence of a strong national engagement in CSR issues. For the argumentation of the current study it is only relevant that a relation between both factors exist.

on voluntarily published information when it comes from a reporting system that is of high quality (Francis *et al.*, 2008). Transferred to CSR reporting, this means that the reliability is expected to be higher when earnings quality is high. This underpins hypothesis 1b, which predicts that companies with high earnings quality are more likely to report on CSR issues. On the other hand, companies might have greater incentives to provide additional information, when they face high information asymmetry (Jung and Kwon, 1988). According to the analytical model of Einhorn (2005) the decision to voluntarily disclose private information is associated with the transparency of mandatory information. She shows that the likelihood of voluntary disclosure is increasing with the noise of the mandatory information signal, where higher noise of an information signal means lower (disclosure) transparency. Transferred to CSR reporting this means that the relationship between earnings quality and CSR reporting is expected to be negative. In other words, the likelihood of CSR reporting decreases if the information provided by the financial report is high. If earnings quality is low CSR reporting can be used as an additional channel to provide information. This underpins hypothesis 1a.

It is conceivable that in countries with high engagement towards a regulation of CSR reporting, the incentive for firms to provide CSR information - even before the adoption of laws - is higher than in countries where national engagement is low. Companies in countries with higher engagement towards mandatory CSR reporting face higher pressure to build up reliable information systems. According to political cost theory, companies try to avoid political costs; in countries with high national engagement in CSR regulation one way to avoid political costs can be the provision of CSR reports, as they might avert strict laws or influence the forming of the legislation (Gamerschlag *et al.*, 2011, Yip *et al.*, 2011). This underpins my second hypothesis.

There is an implicit assumption behind all these theories that the audience of company disclosures is aware that CSR reports are either informative about their environmental and social impact or about the financial consequences of CSR activities. This awareness is more likely to occur in an environment where CSR reporting is a national matter.[7] Consequently, CSR reporting can function as an alternative channel to disseminate information. According to social-political as well as economic based theories I expect the relationship between CSR reporting and earnings quality to be stronger in countries

[7] Note again that the causality of the society's awareness and the degree of national engagement is not relevant for the development of the hypothesis.

with national engagement in CSR regulation. The European sample provides a great opportunity to include national engagement in the analyses, as countries differ from the extent to which they force mandatory CSR reporting. My third hypothesis is stated as follows.

H3: The relationship between earnings quality and the likelihood of CSR adoption is stronger in countries with high engagement in national CSR regulations.

3.4 Research Design

3.4.1 Sample and Data

Within the last decade there was a large movement towards CSR reporting within European countries as well as in the European Union. Meanwhile many European countries showed effort in supporting or regulating CSR disclosure, for example the release of a Sustainability Code by the Council for Sustainable Development in Germany in 2011. Some countries have a more leading role in the implementation of CSR related regulations, as France and UK, for example. In many cases, however, the formulation of the directives leave space for discretion, as companies are, for example, required to report "*non-financial key performance indicators relevant to the particular business*" (European Parliament and Council, 2014), or they differ in the required format, i.e. part of the annual report or separate report. The European sample provides therefore an interesting field to analyse corporate reporting decisions under different national settings.

My sample covers ten years, from 2003 to 2012.[8] All European firms included in the ASSET 4 database (Thomson Reuters) are matched with financial data from Worldscope and Datastream (Thomson Reuters). ASSET 4 covers different aspects of sustainability reports, according to environmental, social and governance issues (ESG).[9]

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[8] As ASSET 4 data are only available from 2002 onwards I cannot consider companies that already provide a CSR report as CSR reporting initiators.

[9] The ASSET4 framework bases on four pillars: the three mentioned issues form one pillar each; the fourth pillar is defined by economic issues. Categories included in these four pillars can be found in the appendix.

Approximately 130 analysts collect data from publicly available sources, e.g. corporate websites, sustainability reports, annual reports, NGO reports and newspapers. In 2002, ASSET 4 covered about 1,000 companies, mostly from the US and from Europe. Continuously expanding its coverage, ASSET 4 does now cover more than 4,000 firms worldwide. After matching ASSET 4 data with data from Worldscope and Datastream, I obtain a final sample of 350 firms (1,422 firm-year observations) from 17 countries. Table 6 shows the sample distribution by industry, year and country. Most of the companies are from the industrial sector.

TABLE 6: SAMPLE DISTRIBUTION

Panel A: Distribution by industry

Industry	No. Of First-Time Reports	%	No. Of Asset 4 Firms	% of Asset 4 Firms disclosing CSR Reports
Oil & Gas	14	4.79%	16	87.50%
Basic Materials	22	7.53%	24	91.67%
Industrials	99	33.90%	112	88.39%
Consumer Goods	44	15.07%	55	80.00%
Health Care	14	4.79%	21	66.67%
Consumer Services	54	18.49%	63	85.71%
Telecommunications	10	3.42%	10	100.00%
Utilities	16	5.48%	17	94.12%
Financials	4	1.37%	5	80.00%
Technology	15	5.14%	27	55.56%
Total	**292**		**350**	

This table provides the sample distribution by industry (Panel A), year (Panel B) and country (Panel C) for the number of CSR reports. No. of Asset 4 firms per year are the firm year observations. No. of first-time reports shows the number of first-time reports of Asset 4 firms within the time period of 2003 to 2012.

TABLE 6: CONTINUED

Panel B: Distribution by year

Year	No. Of First-Time Reports	%	No. Of Firms per Year in Asset 4 Database	% Of Asset 4 Firms Disclosing CSR Reports
2003	12	4.11%	148	8.11%
2004	12	4.11%	145	8.28%
2005	18	6.16%	208	8.65%
2006	13	4.45%	243	5.35%
2007	104	35.62%	234	44.44%
2008	26	8.90%	138	18.84%
2009	36	12.33%	122	29.51%
2010	48	16.44%	101	47.52%
2011	15	5.14%	50	30.00%
2012	8	2.74%	33	24.24%
	292		**1422**	

Panel C: Distribution by country

Country	No. Of First-Time Reports	%	No. Of Firms	%
Austria	5	1.71%	6	2.05%
Belgium	7	2.40%	9	3.08%
Denmark	8	2.74%	9	3.08%
Finland	10	3.42%	10	3.42%
France	39	13.36%	40	13.70%
Germany	30	10.27%	38	13.01%
Greece	1	0.34%	3	1.03%
Ireland	3	1.03%	5	1.71%
Italy	9	3.08%	12	4.11%
Netherlands	12	4.11%	16	5.48%
Norway	5	1.71%	5	1.71%
Poland	2	0.68%	2	0.68%
Portugal	5	1.71%	5	1.71%
Spain	13	4.45%	15	5.14%
Sweden	12	4.11%	15	5.14%
Switzerland	18	6.16%	27	9.25%
United Kingdom	113	38.70%	133	45.55%
	292		**350**	

3.4.2 Empirical model

To test my hypothesis, I apply the following logit model:

$$\begin{aligned} \Pr(CSR-Initiator_{i,t}) = {} & \beta_1 EQ_{i,t-1} + \beta_2 ENG_{i,t-1} + \beta_3 EQ_{i,t-1} \cdot ENG_{i,t-1} + \beta_5 SIZE_{i,t-1} \\ & + \beta_6 ESG_Score_{i,t-1} + \beta_7 ROA_{i,t-1} + \beta_8 LEV_{i,t-1} + \beta_9 OWN_{i,t-1} + \beta_{10} COMP_{i,t-1} + \\ & + \Sigma IND_{i,t} + \Sigma COUNTRY_{i,t} + \Sigma YEAR_{i,t} + \varepsilon_{i,t} \end{aligned} \quad \textbf{(1)}$$

where *CSR-Initiator* is an indicator variable that equals 1 if a firm provides the first-time CSR report in a certain year and 0 otherwise. The group of non-reporters (*CSR-Report* = 0) includes all firms as long as they have not issued a CSR report. Once a company issued a CSR report, it drops out of the sample. *EQ* is the measure of earnings quality and is the main independent variable of interest here. I use the decile rank of seven earnings quality measures following Francis *et al.* (2004)[10], accrual quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism. *ENG* indicates that a company is settled down in a country that has mandatory requirements concerning CSR reporting. I control for size (*SIZE*), the environmental, social and governance score (*ESG_Score*) is a proxy for CSR performance, financial performance (*ROA*), leverage (*LEV*), ownership structure (*OWN*) and competition (*COMP*). I also include dummy variables for industries (*IND*), countries (*COUNTRY*) and years (*YEAR*).[11]

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[10] Francis *et al.* (2004) choose the term earnings attributes instead of earnings quality.

[11] In additional analyses I controlled for country effects, legal origins based on La Porta *et al.* (1997) or different reporting standards and find qualitatively the same results.

3.4.3 Variable description

Measurement of CSR Reporting

The variable on CSR reporting is a dichotomous variable that indicates 1 if the firm provides its first CSR report during the sample period and 0 if it had not reported on CSR issues yet. The company drops out of the sample once it provides a CSR report. I obtain data from the ASSET 4 database.[12]

Measurement of earnings quality

Earnings attributes are calculated over a period of 1996 to 2012 using rolling firm-specific eight-year windows. The rolling-window procedure enables the firm-year-specific analysis of earnings quality, whereas otherwise measures would be created on a cross-sectional level. The drawback of this procedure is that effects are inherited over the period of the rolling window due to overlapping time periods. For that matter it is better to keep the rolling-windows short, thus I deviate from the suggested ten-year rolling window suggested by Francis *et al.* (2004) and use eight-year rolling windows instead. To be included in the sample a firm must have at least seven observations per rolling period. Apart from the shorter time window, I follow the procedure of Francis *et al.* (2004, 975) and include only firms for which all earnings attributes are available.

Earnings attributes are calculated following Francis *et al.* (2004), but to simplify the interpretation of the final results I reverse the signs so that high earnings quality measures indicate high earnings quality as suggested by Cheng *et al.* (2013). Francis et al. (2004) distinguish between accounting based and market based earnings quality measures. Accounting based earnings quality measure are based only on accounting information whereas market based earnings quality metrics align market information and accounting information. Accruals quality, persistence, predictability and smoothing are counted as accounting based measures; value relevance, timeliness and conservatism fall under market based earnings quality measures. The present study is interested on the internal context of earnings quality, thus it seems reasonable to focus on the accounting based measures in the main analysis. The market based measures are presented in the appendix to this chapter.

[12] The Asset 4 Code for CSR / Sustainability Reporting is CGVSDP026.

Quality of Accruals

Accurals quality is based on Dechow and Dichev (2002), which is widely spread in the literature.[13] The idea is that an accounting system is of higher quality, the better total current accruals are related to past, present and future cash flows. The part that is not explained by those three variables is not informative about the cash generating process of the firm. *AccrualsQuality* is the negative of the standard deviation of residuals of the following regression:

$$\frac{TCA_{it}}{Assets_{it}} = \varphi_{0i} + \varphi_{1i}\frac{CFO_{it-1}}{Assets_{it}} + \varphi_{2i}\frac{CFO_{it}}{Assets_{it}} + \varphi_{3i}\frac{CFO_{it+1}}{Assets_{it}} + \varepsilon_{it} \quad \textbf{(2)}$$

where for firm i and year t, total current accruals (TCA_{it}) is the change in current assets minus change in current liabilities, and change in cash, plus change in short term debt between the subsequent years t-1 and t. Cash flow from operations in year t (CFO_t) is calculated as the difference from net income before extraordinary items and total accruals[14]. $Assets_{it}$ is the average total assets, calculated as the half of total assets at the beginning of a period plus total assets at the end of a period. Following Francis *et al.* (2004, 980) I estimate equation (2) using eight-year rolling windows.[15] I take the negative value of the standard deviation of residuals of equation (3) so that higher values of *AccrualsQuality* indicate high earnings quality.

[13] Another often cited accruals quality measure is the modified Dechow-Dichev model introduced by McNichols (2002). It includes also revenues and property, plant and equipment. When I run the logit model with accruals quality based on the modified Dechow-Dichev model I receive similar coefficients, but the interaction term is not significant anymore. The coefficients of the main variables are the following (standard errors in parentheses): accruals quality 0.041 (0.0459), ENG 1.748 (0.5872) and the interaction term EQ*ENG -0.0586 (0.0636).

[14] Total accruals is calculated as change of current assets minus change of current liabilities and change of cash, plus change in short-term debt, change in income tax payable and depreciation; each item is calculated per firm and between two subsequent years.

[15] Note again that Francis et al. (2004) use ten-year windows.

Earnings persistence

Earnings persistence means that current earnings are stable over time. Highly persistent earnings are therefore often called sustainable earnings. For the purpose of the paper, higher persistent earnings indicate more informative earnings and are therefore desirable (see Francis et al. (2004) and Penman and Zhang (2002)). I obtain earnings *Persistence* as the slope coefficient β_{1i} of the following regression:

$$EPS_{it} = \alpha_{0i} + \beta_{1i} EPS_{it-1} + \varepsilon_{it} \quad \textbf{(3)}$$

where EPS_{it} is a firms current earnings per share. Earnings are calculated as the net income before extraordinary items divided by average total assets as defined above. In this study, I interpret more sustainable earnings (higher values of *Persistence*) as good earnings quality.

Predictability

Predictability is estimated from the same equation than earnings persistence. It is the ability of earnings to predict itself. The regression is estimated as an autoregressive model of order 1 of annual earnings per share (ar(1) model). *Predictability* is the negative value of the estimated standard deviation of the white-noise disturbance (i.e. square root of error variance). Note, that a lower value of Predictability indicates lower earnings quality.

Smoothnes

Smoothness means that earnings volatility, compared to cash flow volatility is low. Therefore less volatile earnings imply less uncertainty concerning future earnings. The argumentation that managers use their private information about future incomes to smooth out transitory fluctuations makes earnings more representative and therefore more desirable for investors (Francis *et al.*, 2004, 972).[16] *Smoothness* is measured as the relative of standard deviation of net income before extraordinary items to the standard

[16] Note that the decision to smooth earnings can also result from other sources, like earnings targets and career concerns (Ewert and Wagenhofer, 2011). Thus, earnings smoothness is used as a measure of earnings management (Barth/Landsman/Lang (2001, 469/475). If this is the case, more smoothing activities (i.e. higher values of *Smoothness)* indicate higher proportions of earnings management, which might be disadvantageous for investors.

deviation of operating cash flow, again multiplied by -1. Both values are divided by average total assets. If there are companies which have to face more volatile earnings because of more volatile cash flows than the common variation cancels out. The higher the smoothing activity is, the higher the value of *Smoothness* and (for this study) the higher the earnings quality. The computation of earnings smoothness is consistent with Leuz (2003).

Earnings Quality Median

This additional measure is used as a combination measure of the aforementioned accounting based earnings quality measures and the market based measures as suggested by Francis *et al.* (2004). It is the median of yearly decile ranks of the seven earnings quality measures, namely accruals quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism; it should therefore provide an indication of the average rank of a company's earnings quality over the calculated measures, as they all contribute to different facets of the complex earnings quality construct.

Control variables

SIZE: Greater visibility of larger firms might be an indicator for higher public pressure, I control for size and expect this variable to be positively related to the CSR reporting decision.[17] Bouten *et al.* (2012) find that size is the most influential variable for the CSR reporting decision. I calculate SIZE as the natural logarithm of lagged common equity.

ESG-Score: The relationship between CSR Performance and CSR reporting is not unambiguous. Voluntary disclosure literature would lead to the expectation of a positive relation between CSR performance and CSR reporting, as the publication of a positive performance can distinguish the reporting company from its competitors. On the other hand, low CSR performance might create the need to repair legitimacy and thus lead to a higher probability of CSR disclosure in the first place. Empirical findings show the same picture. While many theoretical and empirical studies find a positive relation between corporate social performance and CSR disclosure (Van Staden and Hooks, 2007, Kent and Zunker, 2013, Kansal *et al*., 2014), Clarkson *et al.* (2011) find that companies with higher pollution propensity (therefore poorer environmental performance) disclose more

[17] Many studies control for size as a proxy for financial resources or visibility. All the interpretations suggest a positive relation between size and CSR reporting.

information in environmental issues. As a proxy of CSR performance, I use the ESG-Score provided by ASSET 4, which combines values from the environmental, social and corporate governance pillar, is used to measure a firm's CSR performance.

ROA: To capture the effect of better financial performance on the CSR reporting decision I include return on assets as a control variable. I calculate this variable as net income before extraordinary items divided by lagged total assets.

LEV: Low leverage can lead to "organizational slack" which makes it easier to fund voluntary disclosure costs. On the contrary, companies with high levels of leverage have to face greater monitoring activities of creditors who are concerned about their interest payments. However, greater monitoring activities can also force more transparent reporting and lead to greater demand of disclosure (Leftwich *et al.*, 1981)[18]. The net effect is unknown ex ante. I calculate this variable as the ratio of total debt to total assets.

OWN: When ownership is dispersed, managers have to deal with different stakeholder interests, which can attach importance to voluntary disclosures. Following Brammer and Pavelin (2006) and Bouten *et al.* (2012) I include *OWN* to control for ownership dispersion and expect a positive relation. As a measure of ownership dispersion I take the free float variable from Datastream.

COMP: Product market competition can be negatively related to the voluntary disclosure decision (Dye, 1985). The Herfindahl-Herschman index is a measure of concentration. I calculate the Herfindahl-Hirschman Index (multiplied by -1) in accordance to Dhaliwal *et al.* (2011) as the sum of the squared fractions of sales of the 50 largest companies per industry. As do Dhaliwal *et al.* (2011) I consider all companies of an industry if there are fewer than 50 companies in an industry. All independent variables are taken from the end of the preceding fiscal year. Brammer and Pavelin (2006, 1175) point out, that using a one-year lag between dependent and independent variables would be useful to clarify causality issues. For calculation I follow Dhaliwal *et al.* (2011) and Rhoades (1993) and use the square of the relative fraction of sales per firm to sales per industry (per year). To calculate sales per industry, I use the 50 largest companies of the basic sample. If there were less than 50 companies I use all firms of the industry year for calculation.

[18] Dhaliwal *et al.* (2011) follow the same argumentation, but do not find a significant relation between leverage and CSR disclosure.

Finally, I multiply the Herfindahl-Hirschman Index by -1 to control for effects based on industry competition. Larger values therefore indicate higher competition.

TABLE 7: DESCRIPTIVE STATISTICS OF EARNINGS QUALITY MEASURES

Panel A: Summary information on the distribution of earnings quality measures[a]

	N	Mean	Median	Std. Dev.	25%	75%
AccrualQuality	1422	-0.02	-0.02	0.02	-0.03	-0.01
Persistence	1422	0.39	0.43	0.40	0.11	0.76
Predictability	1422	-1.27	-0.40	2.97	-1.01	-0.16
Smoothness	1422	-0.57	-0.51	0.34	-0.78	-0.30

Panel B: Correlations among Earnings Quality Proxies[b]

	AccrualQuality	Persistence	Predictability	Smoothness
AccrualQuality	1	0.2572	0.2318	0.4164
		(0.0000)	(0.0000)	(0.0000)
Persistence	0.2835	1	0.1165	0.1496
	(0.0000)		(0.0000)	(0.0000)
Predictability	0.2755	0.1745	1	0.1309
	(0.0000)	(0.0000)		(0.0000)
Smoothness	0.4402	0.1878	0.1331	1
	(0.0000)	(0.0000)	(0.0000)	

a) I report the mean values of each statistic calculated across all firm-years.

b) Pearson (Spearman) correlations are reported above (below) the diagonal. P-values are shown in parentheses.

Sample description and variable definitions: The sample consists of all firm-years in the full sample; all variables are measured each year for each firm, using rolling eight-year windows.

AccrualQuality	=	the standard deviation of firm j's residuals from a regression of current accruals on lagged, current, and future cash flows from operations;
Persistence	=	the negative of firm j's slope coefficient from an AR1 model of annual earnings;
Predictability	=	the square root of the error variance from firm j's AR1 model;
Smoothness	=	the ratio of firm j's standard deviation of earnings before extraordinary items (scaled by assets) to the standard deviation of cash flows from operations (scaled by assets);

TABLE 8: DESCRIPTIVE STATISTICS OF CONTROL VARIABLES

Panel A: Summary information of control variables (including national engagement variable)

	N	Mean	Median	Std. Deviation	25%	75%
ENG$_{(t-1)}$	1422	0.54	1.00	0.50	0.00	1.00
SIZE$_{(t-1)}$	1422	15.17	14.95	1.36	14.19	16.09
ESG Score$_{(t-1)}$	1422	0.52	0.52	0.22	0.35	0.71
ROA$_{(t-1)}$	1422	0.07	0.06	0.07	0.03	0.10
LEV$_{(t-1)}$	1422	0.60	0.61	0.17	0.50	0.71
OWN$_{(t-1)}$	1422	0.69	0.70	0.22	0.51	0.88
COMP$_{(t-1)}$	1422	-0.07	-0.05	0.06	-0.07	-0.04

Panel B: Correlations of control variables (including national engagement variable)

	ENG$_{(t-1)}$	SIZE$_{(t-1)}$	ESG Score$_{(t-1)}$	ROA$_{(t-1)}$	LEV$_{(t-1)}$	OWN$_{(t-1)}$	COMP$_{(t-1)}$
ENG$_{(t-1)}$	1.0000	-0.1463	0.1404	0.0247	0.0352	0.1248	0.0229
		(0.0000)	(0.0000)	(0.1557)	(0.0430)	(0.0000)	(0.1642)
SIZE$_{(t-1)}$	-0.1377	1.0000	0.5165	-0.1700	0.2007	0.0901	-0.0466
	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0074)
ESG Score$_{(t-1)}$	0.1352	0.5414	1.0000	-0.0863	0.0823	0.2142	0.0393
	(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.0000)	(0.0240)
ROA$_{(t-1)}$	0.0285	-0.1872	-0.0766	1.0000	-0.3146	-0.0123	-0.0170
	(0.1072)	(0.0000)	(0.0000)		(0.0000)	(0.4876)	(0.3278)
LEV$_{(t-1)}$	0.0305	0.2050	0.0660	-0.3119	1.0000	0.0114	0.0238
	(0.0848)	(0.0000)	(0.0002)	(0.0000)		(0.5195)	(0.1713)
OWN$_{(t-1)}$	0.1180	0.1006	0.2351	0.0261	0.0010	1.0000	-0.0089
	(0.0000)	(0.0000)	(0.0000)	(0.1403)	(0.9559)		(0.6141)
COMP$_{(t-1)}$	0.0310	-0.1708	-0.0603	0.0007	0.0909	-0.0355	1.0000
	(0.0799)	(0.0000)	(0.0006)	(0.9691)	(0.0000)	(0.0451)	

a) I report the mean values of each statistic calculated across all firm-years

b) Pearson (Spearman) correlations are reported above (below) the diagonal. P-values are shown in parentheses.

Sample description and variable definitions: The sample consists of all firm-years in the full sample

ENG	= dichotomous variable that is one for countries which engage in CSR regulation (Denmark, France, Norway, UK)
SIZE	= logarithm of assets;
ESG Score	= environmental, social, governance performance score taken from ASSET 4;
ROA	= net income (before extraordinary items) divided by lagged total assets;
LEV	= leverage is calculated by the ratio of total debt to total assets
OWN	= freefloat as provided by Datastream;
COMP	= Herfindahl-Hirschman Index: Sum of squared fractions of sales of the 50 largest firms in an industry;

3.5 Empirical Results

3.5.1 Descriptive statistics

Table 8 (Panel A) provides the summary statistics of all control variables. Companies included in this sample are on average larger than in those in the benchmark study of Dhaliwal et al. (2011). ESG Score can only take positive values (between 0 and 1) and is therefore not directly comparable to Dhaliwal *et al.* (2011). It has a mean of 0.52 and a standard deviation of 0.22, whereas Dhaliwal *et al.* (2011) report a negative value for their performance measure. Financial performance (ROA) and the competition variable (COMP) are similar to the benchmark.

3.5.2 Main results

The first hypothesis predicts that firms' earnings quality influences the probability of a firm to start CSR reporting. Hypothesis 1a predicts a negative relation and hypothesis 1b predicts a positive relation based on different aspects of voluntary disclosure theory. I estimate a two-way clustered logit regression[19] as proposed by Petersen (2009), which is also used by Kim *et al.* (2012). Results reported in do not support any of these two hypotheses. None of the earnings quality measures are significantly influencing the probability of a first time report. The second hypothesis states that CSR reporting is more likely in countries which have a leading role in the attempt to regulate CSR reporting. As indicated by the engagement variable (ENG) the relation is positive and significant. This is in line with the findings of Yip *et al.* (2011) who point out the importance of the national context for the impact of CSR reporting. The third hypothesis is tested by the interaction term between the engagement and the earnings quality variable. Persistence shows a significantly negative relation between earnings quality and CSR reporting. Two other measures, accruals quality and the earnings quality median show a significant interaction term at least at the ten percent level. The results indicate that the relation between earnings quality and CSR reporting is different in countries with high national engagement compared to the others. The sum of the earnings quality coefficient and the coefficient from the interaction term is negative, which means that the net effect for companies in high engaging countries is negative.

[19] I used firm identity and time (years) as the two dimensions of clustering.

Companies with low earnings quality are more likely to report on CSR issues. This result can be interpreted the way that companies use CSR reporting to legitimate for low earnings quality when CSR reporting is a serious tool pushed by the national legislators. Note, however, that the results are weak and not consistent for all earnings quality measures. As shown in the appendix the results cannot be found for market based measures of earnings quality.

TABLE 9: MAIN RESULTS

	AccrualQuality	Persistence	Predictability	Smoothness	EQ Median
EQ(t-1)	0.0201	0.0322	-0.0264	0.0397	0.0579
	(0.6631)	(0.2699)	(0.7951)	(0.3797)	(0.3432)
$ENG_{(t-1)}$	1.7135	1.9816	1.4693	1.5345	1.9333
	(0.0038)	(0.0001)	(0.0125)	(0.0268)	(0.0058)
$EQ_{(t-1)}$ * $ENG_{(t-1)}$	-0.0668	-0.0904	-0.0034	0.0090	-0.0743
	(0.0765)	(0.0000)	(0.9668)	(0.7902)	(0.0867)
SIZE(t-1)	0.1570	0.1553	0.1361	0.1606	0.1517
	(0.0847)	(0.0807)	(0.1930)	(0.0783)	(0.0957)
ESG Score(t-1)	0.0205	0.0205	0.0204	0.0205	0.0204
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ROA(t-1)	0.9219	1.0224	0.9222	0.9767	0.8094
	(0.3847)	(0.3872)	(0.3661)	(0.3616)	(0.4830)
LEV(t-1)	0.0914	0.0674	0.0784	0.0531	0.0558
	(0.8419)	(0.8821)	(0.8614)	(0.9067)	(0.9061)
$OWN_{(t-1)}$	-0.4994	-0.4816	-0.4806	-0.5118	-0.4718
	(0.0980)	(0.1314)	(0.0999)	(0.0776)	(0.1082)
COMP(t-1)	18.8578	19.5796	18.8017	18.4936	18.7398
	(0.0736)	(0.0734)	(0.0785)	(0.0825)	(0.0825)

This table reports results of the logit regression to identify the determinants of CSR reporting. The dependent variable is a dichotomous variable which is one if the company provides its first CSR report in a certain year and zero otherwise. Once a company provides a first time report it is deleted from the sample. Earnings quality measures are included with their decile rank. All continuous variables are winsorised at the 1% level. All independent variables are lagged by one year. The model is estimated with 2-way-clustered standard errors (company and year). All models control for industry, country and year effects. P-values are displayed in parentheses. The variables reported in the table are as follows:

EQ	= earnings quality measure as displayed in the heading of every column (accruals quality, persistence, predictability, smoothness and the median of the seven earnings quality measures suggested by Francis et al., 2004);
ENG	= dichotomous variable that is one for countries which engage in CSR regulation (Denmark, France, Norway, UK);
SIZE	= logarithm of assets;
ESG Score	= environmental, social, governance performance score taken from ASSET 4;
ROA	= net income (before extraordinary items) divided by lagged total assets;
LEV	= leverage is calculated by the ratio of total debt to total assets,
OWN	= freefloat as provided by Datastream;
COMP	= Herfindahl-Hirschman Index: Sum of squared fractions of sales of the 50 largest firms in an industry;

3.6 Conclusions

In this article I investigate the relationship between financial reporting quality (i.e. earnings quality) and the decision to provide a CSR report. I hypothesise that earnings quality is a driver for the CSR reporting decision. I formulated two contradicting hypothesis: Arguing in the view of legitimacy theory I formulate a competing hypothesis of a negative relationship between earnings quality and the CSR reporting decision. According to this view managers try to compensate bad earnings quality with nonfinancial information. I suggested a positive relation according to a proactive political economy approach. I do not find a significant relationship between earnings quality and the CSR reporting decision in general.

I find evidence that the country engagement in mandatory CSR reporting requirements is an important factor for the company reporting decision. Companies in strong engaging countries exhibit a relationship between earnings quality and CSR reporting which is negative and only weakly significant. The results are contrary to the findings of Martínez-Ferrero *et al.* (2015). This might be due to several reasons. First, Martínez-Ferrero *et al.* (2015) analyse the level of disclosure. As we know from previous studies, the determinants of the primary reporting decisions might differ from the determinants of follow-up decisions on the reporting level (Bouten *et al.,* 2012). Second, the fact that Martínez-Ferrero *et al.* (2015) analyse a global sample, including US firms might influence their results as the legislation process differs between the US and Europe. Further research is required to found this conclusion. However, the study has also limitations. The measure of CSR reporting is a very rough measure that does not catch the quality of reporting. Every form of CSR report is counted as a report, regardless to length or content of the report. As the dataset starts at 2003, I lose every company observation that already started to report on CSR issues before 2003. This shows the need to continue research in a longer time series and with a more distinctive measure of CSR reporting.

Appendix to Chapter 3

Further analysis

The main analysis does not indicate a significant relationship between CSR reporting and earnings quality over all earnings quality measures. It is obvious, however, that efforts of national legislation does have an effect on companies' reporting behaviour. Nevertheless there are some limitations, which I would like to address in the following section. The information about the CSR reporting decision in this sample is taken from ASSET4 and therefore restricted to the time period of 2003 to 2012. Some companies started with CSR reporting before 2003. As I cannot distinguish between companies which started CSR reporting in 2003 and those which started earlier, the results can be to strong for early first time reports. To test the robustness of my previous findings I also run the regression model with different measures of earnings quality.

Alternative measures for CSR reporting

One limitation of this variable is that data from ASSET 4 are only available from 2003. Therefore I take companies providing a CSR report in 2002 as first-time reporters, as they are first-time reporters within my sample. As companies might have started to publish a CSR report earlier than 2003 I built a second variable from former ASSET 4 data material. ASSET 4 provided a variable that gives the number of published CSR reports, but it is only available to 2010 and exhibits gaps. I filled up missing variables by counting the latest filled number of reports down to 2003. If the number in 2003 is greater than one, the company has obviously reported on CSR issues before. I used this variable to create an alternative first-time report variable and repeatedly estimated the first model.

When using the alternative measure for the issuance of the first-time CSR report, the results show the same picture. Earnings quality does not have an influence on the CSR reporting decision. Bigger companies and those with a positive ESG performance are more likely to provide a CSR report.

Market based measures of earnings quality

Value Relevance

Value relevance is an indicator for how good earnings can explain market returns. It is often referred to as an attempt to operationalize the relevance and reliability of accounting data as demanded in the FASB framework (Barth *et al.*, 2001, 78) and as a measure of decision usefulness (Francis and Schipper, 1999). Francis *et al.* (2004) base the value relevance equation on market returns.[20] Barth *et al.* (2008, 477) argue that high quality earnings faithfully reflect firms' underlying economics and are "*less subject to opportunistic managerial discretion*". As a measure of *ValueRelevance* I use the adjusted R^2 from the following equation:

$$Ret_{it} = \alpha_1 + \beta_1 Earn_{it} + \beta_2 \Delta Earn_{it} \quad \textbf{(4)}$$

where RET_{it} is the firm i's 15-month return beginning twelve months before and three months after fiscal year t, $Earn_{it}$ is the net income before extraordinary items scaled by the lagged market value and $\Delta Earn_{it}$ is the change in net income before extraordinary items between year t and t-1, again scaled by lagged market value. Value relevance indicates the ability of earnings level and earnings changes to reflect the market stock return. I estimate equation (4) using a rolling eight year window. As higher values of adjusted R^2 indicate a higher goodness-of-fit between earnings and returns, earnings quality is higher with higher values of *ValueRelevance*.

Accounting Timeliness and Conservatism

Timeliness and conservatism, taken together are often summarised as transparency of earnings, as they give insight how fast economic income is reflected in earnings (timeliness) and if there is an asymmetric recognition between gains and losses (conservatism). I interpret higher values of Timeliness as of higher earnings quality, as contemporaneous returns explain earnings more precisely (Basu, 1997, 11). Conservatism can be interpreted as the average understatement of book value of net assets relative to their market value. Following the argumentation of Watts (2003), I interpret more conservative earnings as of higher quality as they restrict the exploitation

[20] The returns-based value relevance equation goes back to (Easton, 1999).

of asymmetric verifiability of accounting information and constrain overpayments to managers or other parties (Watts, 2003, 219).[21] To capture timeliness and conservatism, I refer to the Basu (1997) measure and estimate the following regression:

$$Earn_{it} = \alpha_0 + \alpha_{1i} Neg_{it} + \beta_{1i} Ret_{it} + \beta_{2i} Neg_{it} \cdot Ret_{it} + \varepsilon_{it} \quad \textbf{(5)}$$

where $Earn_{it}$ is the net income before extraordinary items scaled by lagged total assets, Neg_{it} is a dummy variable that indicates 1 if $Ret_{it} < 0$ and 0 otherwise. Ret_{it} is the firm i's 15-month return beginning twelve months before and three months after fiscal year t. The measure of *Timeliness* is the negative from R^2 of equation (5), whereas *Conservatism* is the ratio between ($\beta_{1i} + \beta_{2i}$) and β_{1i}. The regression is calculated within a rolling 8-year window.

Alternative measures for earnings quality

Discretionary accruals

The first alternative measure of earnings quality, namely the absolute value of discretionary accruals, is generated by the performance adjusted Jones (1991) model following Kothari *et al.* (2005). Compared to the original Jones (1991) model, the performance adjusted model controls for firm performance as it integrates ROA_{it-1} in the regression. This measure is often used to make any statements about earnings management (Kim *et al.*, 2012), as it is the absolute difference of total accruals and normal accruals.

$$AbsAA_{it} = |DA_{it}| = \frac{TA_{it}}{Assets_{it}} - NA_{it} \quad \textbf{(6)}$$

Total accruals (TA_{it}) are calculated as the change of current assets minus the change of current liabilities and change of cash, plus change in short-term debt, change in income tax payable and depreciation between year t and t-1. Normal (NA_{it}) accruals are

[21] On the other hand are conservative earnings less informative as they systematically evaluate economic gains differently from economic losses.

calculated using the industry- and year-specific parameters from the following regression:

$$\frac{TA_{it}}{Assets_{it-1}} = \kappa_0 \frac{1}{Assets_{it-1}} + \kappa_1 \frac{\Delta REV_{it}}{Assets_{it-1}} + \kappa_2 \frac{PPE_{it}}{Assets_{it-1}} + \kappa_3 ROA_{it-1} + \varepsilon_{it} \qquad \textbf{(7)}$$

where TA_{it} again is total accruals, ΔREV_{it} is the change in net sales and revenues, PPE_{it} is the level of property, plant and equipment and ROA_{it-1} is a firm i's return on assets for year t-1. $Assets_{it-1}$ are average total assets. Discretionary accruals are calculated as follows:

$$DA_{it} \equiv \frac{TA_{it}}{Assets_{it-1}} - \hat{\kappa}_0 \frac{1}{Assets_{it-1}} + \hat{\kappa}_1 \frac{(\Delta REV_{it} - \Delta AR_{it})}{Assets_{it-1}} + \hat{\kappa}_2 \frac{PPE_{it}}{Assets_{it-1}} + \hat{\kappa}_3 ROA_{it-1} \qquad \textbf{(8)}$$

where ΔAR_{it} is the firm i's change in accounts receivable between two consecutive years.

<u>Timeliness and Conservatism</u>

Alternative metrics of conservatism and timeliness are introduced by Khan and Watts (2009), namely the G-Score and C-Score. The sum of both scores give the total bad news timeliness, the first one reflects the timeliness of good news and the second one the timeliness of bad news.

$$\begin{aligned} Earn_i &= \beta_1 Neg_i + RET_i\left(\mu_1 + \mu_2 Size_i + \mu_3 MtB_i + \mu_4 Lev_i\right) + \\ &+ Neg_i \cdot RET_i\left(\lambda_1 + \lambda_2 Size_i + \lambda_3 MtB_i + \lambda_4 Lev_i\right) + \\ &+ \left(\delta_1 Size_i + \delta_2 MtB_i + \delta_3 Lev_i + \delta_4 Neg_i \cdot Size_i + \delta_5 Neg_i \cdot MtB_i + \delta_6 Neg_i \cdot Lev_i\right) + \varepsilon_i \end{aligned} \qquad \textbf{(9)}$$

Using the appropriate coefficients from (9) I obtain the G-Score and C-Score as follows:

G-Score = $\mu_1 + \mu_2 Size_i + \mu_3 MtB_i + \mu_4 Lev_i$

C-Score = $\lambda_1 + \lambda_2 Size_i + \lambda_3 MtB_i + \lambda_4 Lev_i$

As the total timeliness of bad news is the sum of both scores, I follow the notation of Choi and Pae (2011):

B-Score = G-Score + C-Score = $\mu_1 + \mu_2 Size_i + \mu_3 MtB_i + \mu_4 Lev_i +$
$+ \lambda_1 + \lambda_2 Size_i + \lambda_3 MtB_i + \lambda_4 Lev_i$

Regression (9) allows for the difference in timeliness of earnings with respect to good news (positive stock returns) versus bad news (negative stock returns). The primary measure of conservative financial reporting is C-Score. As an alternative measure, I follow Choi and Pae (2011) using the B-Score, which indicates the timeliness of reported earnings with respect to bad economic news.

The results do not show any significant relations. The previous results should therefore interpreted with great caution. Table 10 summarises the regression results.

TABLE 10: ADDITIONAL RESULTS

	ValueRelevance	Timeliness	Conservatism	Abs.AA	C-Score	B-Score
EQ(t-1)	0.0428	-0.0462	0.0011	0.0455	0.0174	0.0500
	(0.2995)	(0.2078)	(0.9787)	(0.1224)	(0.7565)	(0.4497)
$ENG_{(t-1)}$	1.5796	1.0825	1.4224	1.2423	1.2813	1.6337
	(0.0475)	(0.1815)	(0.0885)	(0.1247)	(0.0223)	(0.0022)
$EQ_{(t-1)}$ * $ENG_{(t-1)}$	-0.0078	0.0620	0.0119	0.0204	0.0311	-0.0240
	(0.8725)	(0.2173)	(0.8542)	(0.6048)	(0.5130)	(0.7106)
SIZE(t-1)	0.1595	0.1529	0.1495	0.1686	0.1720	0.1571
	(0.0745)	(0.0800)	(0.0976)	(0.0651)	(0.0444)	(0.0697)
ESG Score(t-1)	0.0204	0.0203	0.0203	0.0205	0.0202	0.0203
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ROA(t-1)	0.7341	0.8785	0.7892	1.0676	0.8373	0.7859
	(0.4944)	(0.3961)	(0.4739)	(0.2344)	(0.4569)	(0.4528)
LEV(t-1)	0.0581	0.0696	0.0786	0.1494	0.1005	0.1054
	(0.9033)	(0.8767)	(0.8639)	(0.7491)	(0.8273)	(0.8145)
$OWN_{(t-1)}$	-0.5270	-0.5090	-0.4898	-0.5016	-0.4916	-0.4875
	(0.0598)	(0.0939)	(0.0956)	(0.0849)	(0.0866)	(0.0947)
COMP(t-1)	19.2691	18.4363	18.5881	22.5713	18.7738	18.8738
	(0.0789)	(0.0899)	(0.0834)	(0.0222)	(0.0834)	(0.0854)

This table reports results of the the logit regression of additional earnings quality measures to identify the determinants of CSR reporting. The dependent variable is a dichotomous variable which is one if the company provides its first CSR report in a certain year and zero otherwise. Once a company provides a first time report it is deleted from the sample. Earnings quality measures are included with their decile rank. All continuous variables are winsorised at the 1% level. All independent variables are lagged by one year. The model is estimated with 2-way-clustered standard errors (company and year). All models control for industry, country and year effects. P-values are displayed in parentheses.

The variables reported in the table are as follows:

EQ	= earnings quality measure as displayed in the heading of every column
ENG	= dichotomous variable that is one for countries which engage in CSR regulation (Denmark, France, Norway, UK);
SIZE	= logarithm of assets;
ESG Score	= environmental, social, governance performance score taken from ASSET 4;
ROA	= net income (before extraordinary items) divided by lagged total assets;
LEV	= leverage is calculated as the ratio between total debt and total assets;
OWN	= freefloat is taken from Datastream;
COMP	= Herfindahl-Hirschman Index: Sum of squared fractions of sales of the 50 largest firms in an industry;

Chapter 4

Attributes of Carbon Reporting and the Relation to Financial Reporting Quality

4.1 Introduction

Global warming is a central issue in public and political debates and puts pressure on firms to manage and report about their greenhouse gas emission, either through environmental activist groups (Reid and Toffel, 2009) or regulatory initiatives (i.e., emission trading schemes). Weinhofer and Busch (2013) conclude that climate change is a material issue for firms. This is also reflected in the broader set of non-financial information provided by companies (Cormier et al., 2005, Eccles et al., 2012). At the same time the voluntary character of environmental disclosure and the different ways to measure and report quantitative environmental information provide considerable discretion for firms (Kolk et al., 2008). Particularly because of that discretion of firms to organize carbon reporting the way it is most useful for them, it is informative to take a closer look on carbon reporting attributes. Bhimani and Soonawalla (2005) point out that the firms' striving for conformance with financial reporting standards and the performance reporting of voluntary corporate social and environmental responsibility practices are "essentially different ends of the same continuum". Both practices are not independent from each other. They interpret disclosure issues as one part of corporate responsibility. Andrew and Cortese (2011) draw some parallels between the requirement for carbon disclosure and the existing quality characteristics of financial disclosures (understandability, relevance, reliability, and comparability). What is missing by now, are quality criteria to assess the existing reporting practice and to support the standard setting process to improve the quality of carbon related disclosure. We embark on that debate and attempt to measure carbon reporting quality based on the construct of earnings quality. Earnings quality is a central issue in accounting research (Schipper and

Vincent, 2003, Francis *et al.*, 2004, Dechow *et al.*, 2010), which is often discussed in terms of reporting transparency (Bhat *et al.*, 2006, Barth *et al.*, 2013) but is not yet in the focus of environmental disclosure research.

On the one hand higher earnings quality is desirable from a firm valuation perspective because it helps to assess firm value more precisely (Dechow *et al.*, 2010). On the other hand, carbon disclosure cannot be directly linked to firm value. However, Barth and McNichols (1994) argue that environmental information is relevant for capital market participants because it informs about firms' ability to manage exposure to environmental risk. Estimates of future environmental performance benefit from higher environmental disclosure quality. Furthermore, high environmental disclosure quality can be an indicator of a good environmental management system. This means, the association between carbon disclosure and firm value is indirect and that carbon reporting quality is an important issue.

Basically, we can distinguish two different approaches in the literature, which leads us to the formulation of two contradicting hypotheses: Based on signalling theory ((Hughes, 1986), we expect a positive relation between earnings quality and carbon reporting quality. Agency theory and literature on Corporate Social Responsibility (CSR) on management entrenchment (Cespa and Cestone, 2007) brings us to the expectation of a negative relation, meaning that managers use carbon disclosure to distract from low earnings quality. We aim to transfer the construct of earnings quality to carbon disclosure and analyse associations between both constructs.

Our sample consists of 109 listed US-firms over the years 2007 to 2012. In the current status of this working paper, we calculate time series persistence of carbon emissions and earnings. We use panel regressions to test our hypotheses. Our results support the argumentation that managers who decide to provide high quality earnings information also try to provide high quality carbon emissions information. Analysis from the cross sectional dimension will follow in the next version of this working paper.

We contribute to environmental disclosure literature, which mainly focuses on market valuation and value relevance of environmental information (Barth and McNichols, 1994, Hughes II, 2000, Clarkson *et al.*, 2004, Cho *et al.*, 2012, Chapple *et al.*, 2013) in the following ways. We explore the relation between carbon reporting quality and earnings quality to draw conclusions of how carbon disclosure can be appraised from a

general reporting perspective. We address the need for quality criteria by transferring the earnings quality concept to carbon disclosure. Our aim is to enhance a discussion on reporting quality in the field of carbon disclosure. To the best of our knowledge, we are the first to approach a measurement of carbon reporting quality to make quality criteria of reported items obvious and facilitate comparison of carbon emissions.

The remainder of the chapter is organized as follows. Section 4.2 provides related literature and develops our hypotheses. Next, section 4.3 describes our sample and methodology. Section 4.4 discusses the empirical results on the relation between carbon reporting quality and earnings quality and outlines some limitations of this study. We present our additional analysis, including cross section analysis and alternative earnings quality measures, in section 4.5. Section 4.6 concludes our study.

4.2 Related Literature and Hypothesis Development

Climate change and carbon disclosure

Research on carbon disclosure has recently gained attention. This is driven by the rapid increase in public attention towards climate change. With the ratification of the Kyoto Protocol and growing evidence of the role of humans in climate change, firms have experienced a growing pressure from stakeholders to provide information about their climate change related emissions (Reid and Toffel, 2009). Additionally, the implementation of emission taxes and trading schemes and/or threats thereof constitute a financial risk for many firms, and firms might face long-term risks regarding their operations due to climate change (Eccles *et al.*, 2012). These financial risks are of interest for investors and shareholders. Overall, climate change is a material issue for firms (Busch and Hoffmann, 2011).

Regulation about carbon disclosure is pushed forward but by special interest groups[22]. A central institution is the Carbon Disclosure Project, a non-profit organization, which was

[22] The Environmental Protection Agency (EPA) forces top emitters by law to report on their emissions, i.e. they introduced an environmental Greenhouse Gas Reporting Program but this regulation starts only by 2010 and is by now not nationwide applicable for all companies. (http://www.epa.gov/ghgreporting/)

founded in 2000 in London, and is meanwhile active in more than 60 countries worldwide. Prior research on carbon disclosure is primarily interested in firms' motivations to voluntarily disclose climate change related information (e.g., Stanny and Ely, 2008, Prado-Lorenzo and Garcia-Sanchez, 2010, Luo *et al.*, 2012, Stanny, 2013). Although there is a problem of data variability of reported carbon emissions disclosure (Talbot and Boiral, 2013), it is often assumed to be credible – because market participants can compare data within the industry and over time and reveal inconsistencies (Matsumura *et al.*, 2013), but has not yet been introduced as a systematic quality measure of carbon emissions. However, the quality of the disclosed information is also an important issue and is raised recently in the academic debate (Andrew and Cortese, 2011, Eccles *et al.*, 2012). High quality carbon related disclosures are more helpful for its addressees because they allow meaningful interpretations and a better assessment of a firm's carbon performance.

Accounting research and earnings quality

Earnings quality is defined as the ability of reported earnings to provide information about a firm's financial performance which is relevant for decision making processes (Dechow *et al.*, 2010). For example, investors can better estimate a firm's performance (and the firm value) if the firm reports high quality earnings (Leuz *et al.*, 2003, Lennox and Park, 2006). Earnings quality is determined by many different factors such as firm characteristics, financial reporting practices, governance procedures, auditing, incentives of capital markets and other external factors (Dechow *et al.*, 2010). Although some of these factors are exogenous, a firm's management has some influence on earnings quality. On the one hand, management can engage in earnings management to meet or beat earnings forecasts or to increase executive compensation. This decreases earnings quality. On the other hand, there are some benefits of high earnings quality such as lower cost of capital (Francis *et al.*, 2004) or higher market valuation (Barth *et al.*, 1999, Kasznik and McNichols, 2002). This interplay between motivations to decrease earnings quality (often for personal reasons) and benefits for or regulations aimed at increased earnings quality lie at the heart of accounting research (Dechow *et al.*, 2010).

Research on earnings quality is characterized by a central measurement problem. Many different measures of earnings quality have been proposed. For example, Francis *et al.* (2004) use seven measures to assess earnings quality and for many of these, literature

suggests different measurement methods. Dechow et al. (2010) provide an overview of different proxies of earnings quality and conclude that “all of them are affected by both, the firm’s fundamental performance … and by the ability of the accounting system to measure performance” (Dechow *et al.*, 2010, p. 349). Hence, the contribution of a study can be increased by addressing the measurement problem and by a distinction between fundamental performance and the firm’s inherent earnings quality as a result of the management’s effort toward transparent reporting.

Empirical literature on earnings quality and corporate social responsibility

Recently, the association between earnings quality and non-financial performance measures gained attention in accounting research. Kim *et al.* (2012) is closest to our study by focusing on the relation between earnings quality and CSR activities. The authors formulate two contradicting hypotheses. On the one hand, they discuss how ethical theories lead to assume a positive association between CSR and earnings quality and on the other hand, they argue how managerial opportunism can lead to negative relations. They find that companies which engage in social responsible activities are less active in earnings management. Similarly, Mahjoub and Khamoussi (2013) investigate the relation between the extent of environmental and social disclosure and earnings persistence. They find a positive relation, i.e. firms which report a higher number of environmental and social items exhibit higher earnings persistence. Hong & Andersen (2011) focus on the impact of CSR performance on accrual quality and earnings management. They find that firms with better CSR performance tend to deliver higher accrual quality and less engagement in earnings management. However, there are also empirical studies which do not support the notion that CSR and earnings quality are positively related. Chih *et al.* (2008) analyse four indicators of earnings management and test the relations to CSR engagement. The results are inconsistent, with two of the measures finding support of a positive relation and one measure indicating a negative relation. Labelle *et al.* (2010) find that earnings quality is negatively related to governance and business ethics (proxied by diversity management). Also Prior *et al.* (2008) argue that firms which engage in earnings management address the concerns of stakeholders by an increase in CSR practices. Accordingly, they show that earnings quality is negatively related to corporate social responsibility engagement. To sum up, the empirical evidence regarding direction of the association between corporate social responsibility and earnings quality is conflicting.

Earnings quality and carbon reporting quality

From a reporting perspective, the relation between engagement in CSR activities and financial reporting behaviour does not seem to be direct and straightforward. Nevertheless, our hypotheses develop from the same theoretical considerations. Signalling theory argues that under conditions of asymmetric information managers use signals to contrast from other companies (Hughes, 1986). While unregulated voluntary disclosure may not be suitable as a credible signal in the first place, the credibility is strengthened when it comes to repeated disclosures (Spence, 1976). Managers who expect higher valuation when they are considered as straight reporters by market participants (e.g. investors) provide both, high earnings quality and high carbon reporting quality. We try to capture the relationship between carbon and financial reporting by focusing on the quality of disclosure and predict that transparent financial reporters are more likely to provide carbon reports of high quality. We formulate our first hypothesis as follows.

H1a (Transparent reporting hypothesis): Earnings quality is positively associated with carbon reporting quality.

Contrary to this, agency theory argues for a negative association between carbon disclosure and earnings quality. Agency theory (Jensen and Meckling, 1976) is based on the notion that managers primarily pursue personal gains. Indeed, McWilliams et al. (2006) argue that managers use CSR for the advancements of their careers. In this case, managers would attempt to improve carbon reporting quality to hide poor performance in other areas, such as earnings quality. Empirical findings of Cespa and Cestone (2007), Petrovits (2006) and Prior *et al.* (2008) support this explanation. We formulate a competing hypothesis for the association between carbon reporting quality and earnings quality.

H1b (Managerial opportunism hypothesis): Earnings quality is negatively associated with carbon reporting quality

As mentioned above earnings quality is not only determined by the management's actions towards a more or less transparent financial report but, as a result of its business concept and value added processes, by the firm's fundamental performance. Therefore we extract abnormal earnings quality from total earnings quality, with the attempt to better capture the management's actions to increase (or decrease) transparency – which is evident in the abnormal earnings quality. Following the theories explained above, we formulate again two contradicting hypotheses with our refined earnings quality measure:

H2a (Transparent reporting hypothesis – abnormal earnings quality): Abnormal earnings quality is positively associated with carbon reporting quality.

H2b (Managerial opportunism hypothesis – abnormal earnings quality): Abnormal earnings quality is negatively associated with carbon reporting quality

With our research setting and the measurement of carbon reporting quality, we aim to address two possible explanations for these inconsistent results of empirical studies on the CSR-earnings quality relation. First, prior studies apply CSR as an indicator for both, obfuscation and aspiration towards transparency. By focusing on carbon reporting quality instead of CSR activities, we put the emphasis on the reporting behaviour rather than on performance measurement. Irrespective of whether companies report high or low carbon emissions, carbon reporting quality is more directly linked to the concept of earnings quality and helps to assess reporting transparency.

Second, the fact that earnings quality measures capture both, normal and abnormal earnings quality might be the reason for rather confusing empirical evidence regarding the sign of the relationship to CSR. We argue that the relationship between carbon reporting quality and earnings quality might depend on whether the earnings quality measure can isolate the effect of management's effort toward transparency from fundamental firm performance. Studies which do not acknowledge this issue might find different signs for this relationship. By focusing on abnormal earnings quality, we aim to shed some light on this important measurement issue.

4.3 Research Design

4.3.1 Data and Sample Selection

Our sample consists of 109 listed US firms over a time period of six years from 2007 to 2012. Due to time series estimations of carbon and earnings quality data, our study draws upon data from 2002 to 2012. Data are taken from Worldscope, Datastream and ASSET4 (Thomson Reuters). We only include companies from which data on carbon emissions and all of the other relevant accounting data are available. Time series variables are calculated over rolling six-year windows.[23] We exclude all firms which exhibit less than five observations per rolling window.[24] Finally, our sample contains 339 firm-year observations. The distribution among industries is tabulated in Table 1 (Panel A). Industries are classified by the Industry Classification Benchmark (ICB). The Telecommunications and Financial Services Sectors are excluded because they do not contain sufficient observations. Industrials and Health Care are the largest and second largest sectors of the sample (60 and 52 observations), while Consumer Services and Basic Materials bring up the rear (18 and 29 observations). Panel B of Table 1 shows the distribution by year. As the number of sustainability reporting (including environmental issues) increases over time, it is not surprising that the observations of carbon persistence are rising as well.

[23] Francis *et al.* (2004) use ten-year windows, due to limited data availability we decided to shorten the rolling windows to six years.

[24] To maintain more firm-year observations in the sample, we are currently analysing cross-sectional data, which are going to be included in the next version of this paper.

TABLE 11: SAMPLE DISTRIBUTION

Panel A: Observations by industry		
	Number of Firms	**Number of Observations (Main Analysis)**
Oil & Gas	8	33
Basic Materials	12	29
Industrials	18	52
Consumer Goods	18	50
Health Care	15	60
Consumer Services	7	18
Utilities	15	49
Technology	16	48
	109	**339**
Panel B: Observations by year		
2007		12
2008		23
2009		41
2010		76
2011		94
2012		93
		339

The table comprises the sample descriptions by industry and year. The first column shows the number of firms per industry. The second column of Panel A (i.e. the only column in Panel B) shows the number of observations per industry (per year).

4.3.2 Empirical Models

To test our first hypothesis, we estimate the following base model regression:

$$co2qual_{i,t} = \alpha_t + \beta_{i,t} earnqual_{i,t} + \beta_{i,t} sales\,\mathrm{var}_{i,t} + \beta_{i,t} eps_{i,t-1} + \beta_{i,t} co2total_{i,t-1} + \beta_{i,t} size_{i,t-1} + \beta_{i,t} lev_{i,t-1} + \beta_{i,t} tobinq_{i,t-1} + \beta_{i,t} fin_{i,t-1} + \varepsilon_{i,t} \quad \textbf{(10)}$$

We expect earnings quality (*earnqual*) to be related to carbon quality (*co2qual*). We formulated two contradicting hypotheses, whereas in hypothesis 1a we assume a positive relation based on transparency considerations and expect a negative relation in hypothesis 1b if managerial opportunism might be the driving factor.

To test our second hypothesis we establish a two stage model to isolate abnormal earnings quality. The aim of the decomposition is to receive the part of earnings quality which is mostly influenced by management decisions. We estimate the following model:

$$co2qual_{i,t} = \alpha_0 + \beta_1 abnormal_earnqual_{i,t} + \beta_2 sales\,\mathrm{var}_{i,t} + \beta_3 eps_{i,t-1} + \beta_4 co2total_{i,t-1} + \beta_5 size_{i,t-1} + \beta_6 lev_{i,t-1} + \beta_7 tobinq_{i,t-1} + \beta_8 fin_{i,t-1} + \varepsilon_{i,t} \quad \textbf{(11)}$$

4.3.3 Variables measurement

Measurement of earnings quality

We use three measures of earnings quality, two of them can be categorized as "total earnings quality measures", namely persistence, change of persistence and the third one is taken from the decomposition of earnings quality, i.e. abnormal earnings persistence.

Our first measure of earnings quality is earnings persistence. Earnings persistence captures how sustainable earnings are. This is an important characteristic of earnings because investors and analysts can be more certain that changes in earnings will persist over the next periods (Francis *et al.*, 2004).We measure earnings persistence (*earnpers*)

$$eps_{i,t} = \alpha_{i,t} + \beta_{i,t} eps_{i,t-1} + \varepsilon_{i,t} \quad \textbf{(12)}$$

as the slope coefficient $\beta_{i,t}$ of the following regression:

where $eps_{i,t}$ is the firm i's earnings before extraordinary items per share. We calculate firm-year-specific earnings persistence by using six-year rolling windows. Higher values of *earnpers* indicate higher earnings quality. Consistent with (Francis *et al.*, 2004) and (Penman and Zhang, 2002) among others we interpret higher values of *earnpers* as more desirable and therefore of higher earnings quality.

To better control for firm specific effects, we apply an alternative measure of earnings quality in which we focus on the changes of earnings persistence. We create a binary variable (*D.earnpers*) which takes the value of 1 to indicate improvement positive change in earnings persistence and which is 0 otherwise.

To isolate abnormal earnings quality, which we assume to be strongly influenced by management decisions, we establish the following two stage model: First, we estimate the following cross sectional regression for each of the nine industries (classified by the Industry Classification Benchmark, ICB).

$$earnpers_{i,t} = \alpha_{i,t} + \beta_{i,t} size_{i,t} + \beta_{i,t} cfo\,\mathrm{var}_{i,t} + \beta_{i,t} sales\,\mathrm{var}_{i,t} + \beta_{i,t} opcycle_{i,t} + \\ + \beta_{i,t} negearn_{i,t} + \beta_{i,t}\,\mathrm{int}\,in_{i,t} + \beta_{i,t} D.\mathrm{int}_{i,t} + \beta_{i,t} capin_{i,t} + \varepsilon_{i,t} \quad \textbf{(13)}$$

The industry and year specific parameters estimated in equation (13) are taken to estimate our measure of normal earnings quality (*norm_earnpers*) in the second stage.[25]

$$norm_earnpers_{i,t} = \hat{\alpha}_0 + \hat{\beta}_1 size_{i,t} + \hat{\beta}_2 cfo\,\mathrm{var}_{i,t} + \hat{\beta}_3 sales\,\mathrm{var}_{i,t} + \hat{\beta}_4 opcycle_{i,t} + \\ + \hat{\beta}_5 negearn_{i,t} + \hat{\beta}_6\,\mathrm{int}\,in_{i,t} + \hat{\beta}_7 D.\mathrm{int}_{i,t} + \hat{\beta}_8 capin_{i,t} \quad \textbf{(14)}$$

To calculate abnormal earnings persistence, our third measure of earnings quality, we subtract normal earnings persistence (*norm_earnpers*) from total earnings persistence (*earnpers*) for each company per year.

$$abnorm_earnpers_{i,t} = earnpers_{i,t} - norm_earnpers_{i,t} \quad \textbf{(15)}$$

[25] Innate determinants are taken from Francis *et al.* (2004, 985).

Measurement of carbon reporting quality

Our measure of carbon reporting quality is based on the concept of earnings quality. Carbon disclosure is part of environmental disclosure and offers a suitable research setting because global warming is a central issue in public and political debates and already led to regulatory initiatives (i.e., emission trading schemes). In our study we focus on carbon persistence and its relation to earnings persistence. Carbon persistence is a desirable feature of carbon disclosure to assess future risk concerning a firm's future carbon emissions. In our main analysis we estimate carbon persistence from the following autoregressive model of order one ar(1) for each individual firm using six-year rolling windows.

$$co2total_{i,t} = \alpha_{i,t} + \beta_{i,t} co2total_{i,t-1} + \varepsilon \quad \textbf{(16)}$$

where $co2total_{i,t}$ is a firm i's total carbon emissions reported in year t scaled by total assets of year t. Carbon persistence (co2pers) is the slope coefficient $\beta_{i,t}$ of the regression. Equivalent to the notion of earnings quality we define that carbon reporting quality is higher for larger values of co2pers. Note that our understanding of the term quality relates to the certain attribute of the reported items to be self-recurring over time. Carbon quality can be an indicator of solid reporting behaviour, but does not allow drawing any conclusions of the amount or savings potential of the underlying emissions.

Our second measure of carbon reporting quality is equivalent to our second earnings persistence measure, based on the change of carbon persistence over time. We calculate a binary variable (*D.co2pers*) which takes the value of one to indicate a positive change in carbon reporting persistence and zero otherwise.

Control variables

Within our analysis we control for several firm specific effects. The control variables are derived from prior literature (Chih *et al.*, 2008, Prior *et al.*, 2008, Labelle *et al.*, 2010, Dhaliwal *et al.*, 2011, Hong and Andersen, 2011, Kim *et al.*, 2012, Mahjoub and Khamoussi, 2013). As carbon persistence might be affected by a volatile operating field, our first control variable is sales variability (*salesvar*). We calculate *salesvar* as the standard deviation of sales over a rolling time period of six years. We include previous

year's earnings per share (*eps*$_{t-1}$) as indicator for a firm's profitability. We control for the mean reversion effect of emissions disclosure by including previous year's carbon emissions (*co2tot*) into our regression model. *Size* might be an indicator for greater visibility and therefore the reason for higher pressure to thorough reporting behaviour. Furthermore, smaller companies are pooling expertise and responsibilities more strongly, what can make decisions easier to put into practice. *Size* is measured as the natural logarithm of total assets. Firms with higher leverage often have to face a stronger monitoring which can influence a firm's reporting behaviour. We calculate *lev* by dividing total liabilities by total assets. Firms with high growth opportunities might be more likely to report items of higher (carbon) quality as a reaction to high information asymmetries. To control for growth opportunities we include *tobin's q* in our regression model. We calculate *tobin's q* as the sum of common equity, book value of preferred stock, book value of long-term debt and current liabilities, divided by total assets (Dhaliwal *et al.*, 2011). We also control for financing opportunities (*fin*), calculated as the sale of common and preferred shares minus the purchase of common and preferred shares plus long-term debt issuance minus long-term debt reduction for every firm-year, scaled by total assets.

Innate determinants

Size is again the natural logarithm of total assets, cash flow variability (cfovar) is the standard deviation of six year rolling windows of operating cash flows, sales variability (*salesvar*) is the standard deviation of six year rolling windows of sales, the operating cycle (*opcycle*) is calculated as the log of the sum of accounts receivable days and inventory days, *negearn* is the six-year average number of negative earnings, intangibles intensity (*intin*) is the amount of research and development costs per year scaled by total sales, *D.int* is a dummy variable that indicates 1 if a firm's intangible intensity is zero, and capital intensity (*capin*) is measured by property, plant and equipment divided by total assets.

4.4 Empirical results

4.4.1 Descriptive statistics

Table 12 shows the descriptive statistics of the main variables. Panel A summarises carbon and earnings quality measures. Our time series earnings persistence (*earnpers*) is smaller than the values reported in other studies (0.15), Francis *et al.* (2004) depict an average earnings persistence of 0.48, Krishnan and Parsons (2008) mention 0.64 and Mahjoub and Khamoussi (2013) calculate earnings persistence of 0.76. Our control variables are summarised in Panel B. Sales variability is smaller in our sample than it is in (Francis *et al.*, 2004), (0.113 compared to 0.218). The average earnings per share (3.27) is comparable to the mean of 2.50 reported in Mahjoub and Khamoussi (2013). The standard deviation in Mahjoub and Khamoussi (2013)'s descriptive statistics is very much higher than the one reported in our paper (3.00 compared to 5.18). Compared to (Francis *et al.*, 2004), companies in our sample are on average considerably larger (17.2 compared to 5.6). All figures in the table are winsorised at the 1% level on both sides.

TABLE 12: DESCRIPTIVE STATISTICS

Variables of interest	**Obs.**	**Mean**	**Median**	**Std. Dev.**	**25th Percentile**	**75th Percentile**
$co2pers_{t\ (time\ series)}$	339	0.3923	0.5019	0.4064	0.1622	0.7320
$earnpers_{t\ (time\ series)}$	339	0.1501	0.1539	0.4445	-0.2047	0.5246
$D.co2pers_{t\ (time\ series)}$	339	0.3451	0.0000	0.4761	0.0000	1.0000
$D.earnperst_{(time\ series)}$	339	0.4602	0.0000	0.4991	0.0000	1.0000
Control variables	**Obs.**	**Mean**	**Median**	**Std. Dev.**	**25th Percentile**	**75th Percentile**
salesvar	339	0.1128	0.0763	0.1271	0.0445	0.1251
eps	339	3.2697	3.0021	2.5926	1.7328	4.4952
co2tot	339	0.3192	0.0593	0.5940	0.0225	0.2894
size	339	17.1895	17.2242	1.0156	16.4123	17.9350
lev	339	0.2573	0.2490	0.1321	0.1688	0.3306
tobinq	339	1.6299	1.5143	0.7043	1.0502	2.0471
fin	339	-0.0090	-0.0114	0.0673	-0.0429	0.0144

This table shows the descriptive statistics of carbon quality and earnings quality measures as well as control variables. We report the mean values of each statistic calculated across all firm-years. Carbon emissions scaled by total assets (co2tot) and earnings per share (eps) are used to calculate our measure for carbon quality and earnings quality.

Table 13 summarises the correlations of the earnings and carbon quality variables, Pearson correlation coefficients are stated below and spearman correlation coefficients are stated above the main diagonal.

TABLE 13: CORRELATIONS TABLE

	(1)	(2)	(3)	(4)
(1) co2pers$_t$	1	0.0218	0.2702	0.0502
	(0.0000)	(0.6883)	(0.0000)	(0.3558)
(2) earnpers$_t$	0.0040	1	0.0816	0.6474
	(0.9417)	(0.0000)	(0.1328)	(0.0000)
(3) D.co2pers$_t$	0.2541	0.0343	1	0.0380
	(0.0000)	(0.5270)	(0.0000)	(0.4843)
(4) D.earnpers$_t$	0.0501	0.4808	0.0399	1
	(0.3559)	(0.0000)	(0.4616)	(0.0000)

Spearman (Pearson) correlations are reported above (below) the diagonal. P-values are shown in brackets. Persistence measures are estimated using rolling six-year windows. D.co2pers and D.earnpers are dummy variables which takes the value of one if changes in co2pers and earnpers are positive, and are zero otherwise.

Relation between carbon reporting quality and earnings quality

Table 14 summarises our findings. We employ model 1 and 2 to test our hypotheses 1a and 1b. Both models show that carbon persistence and earnings persistence are significantly positively related (model 1: 0.22; $p = 0.0001$ and model 2: 0.77; $p = 0.0014$). This supports our financial transparency hypothesis (1a).

Abnormal carbon reporting quality

Hypotheses 2a and 2b are tested by applying models 3.1 and 3.2 (see Table 14). We find that within our sample abnormal earnings persistence is positively related to carbon persistence (model 3.1: 0.19; $p = 0.0014$). These findings support our hypotheses 2a. That means the positive sign for earnings quality remains even after we isolate the part of earnings persistence which is more strongly influenced by the management's motivation to increase or decrease transparency. It appears that transparency considerations drive managers to provide persistent data, financial and non-financial. Carbon disclosures seem to be an additional tool with which managers provide

transparent reports to the public. This is also supported by the results of the model 3, in which we focus on abnormal earnings persistence.

TABLE 14: RESULTS OF REGRESSION MODELS

Dep. Variable:	Model 1 *co2pers*	Model 2 *D.co2pers*	Model 3.1 *co2pers*	Model 3.2 *co2pers*
Independent variables				
$earnpers_t$	0.2208 (0.0001)			
$D.earnpers_t$		0.7758 (0.0014)		
$abnorm_earnpers_t$			0.1919 (0.0014)	0.1918 (0.0012)
$norm_earnpers_t$				0.4374 (0.0072)
Control variables				
$salesvar_t$	-0.1702 (0.7722)	-0.2094 (0.8941)	-0.2975 (0.6166)	-0.0456 (0.9387)
eps_{t-1}	-0.0207 (0.0863)	0.0344 (0.5288)	-0.0185 (0.1283)	-0.0216 (0.0737)
$co2tot_{t-1}$	-0.1932 (0.1372)	0.0455 (0.8724)	-0.1910 (0.1473)	-0.2078 (0.1104)
$size_{t-1}$	0.3113 (0.0561)	0.1175 (0.4031)	0.3301 (0.0452)	0.3025 (0.0630)
lev_{t-1}	-0.7102 (0.1883)	0.2388 (0.8263)	-0.6927 (0.2050)	-0.7535 (0.1626)
$tobinq_{t-1}$	-0.0742 (0.2686)	-0.1186 (0.6043)	-0.0690 (0.3107)	-0.0658 (0.3267)
fin_{t-1}	0.0622 (0.8422)	0.8408 (0.6093)	0.0015 (0.9962)	0.1237 (0.6943)

The table reports results of regression models for which the dependent variable is provided as the column title. Model 1 shows the relation between carbon disclosure persistence (co2pers) and earnings persistence (eanpers). Model 2 uses dummy variables for positive change in carbon or earnings quality. Model 3.1 and 3.2 are the results of our two-stage approach. All regression models are estimated for a sample of 339 firm-year observations. P-values are displayed in parentheses. The variables reported in the table are as follows:

co2pers	=	Carbon persistence, is the estimation coefficient of the first order autoregressive regression of total carbon emissions (scaled by total assets)
D.co2pers	=	Dummy variable, that takes the value of one if the change in carbon persistence between the years (t) and (t-1) is positive, and zero otherwise.
earnpers	=	Earnings persistence, is the estimation coefficient of the first order autoregressive regression of earnings (scaled by total assets)
D.earnpers	=	Dummy variable, that takes the value of one if the change in earnings persistence between the years (t) and (t-1) is postive, and zero otherwise
salesvar	=	Sales variability, calculated from the 6year-variability of sales
eps	=	Earnings before extraordinary items per share
co2tot	=	Total value of carbon emissions per unit of total assets
size	=	Total sales and revenues divided by total assets
lev	=	Total liabilities divided by total assets
tobinq	=	The sum of market capitalization, book value of preferred stock, book value of longterm debt and current liabilities divided by total assets
fin	=	Sale of common and preferred stock mines purchase of common and preferred stock plus longterm debt issuence minus longterm debt reduction

4.5 Discussion

In our main analysis, we find a positive relation between earnings quality and carbon reporting quality, which supports our transparent reporting hypothesis. The positive relations are still demonstrable when refining our earnings quality measure. This is consistent with the findings of other studies (Chih *et al.*, 2008, Kim *et al.*, 2012, Mahjoub and Khamoussi, 2013), which look at the relation of earnings quality and CSR. Regarding our main analysis (persistence measures), we conclude that firms either consistently apply their notion of transparency to financial and carbon disclosure.

For the interpretation of the results it is important to note the limitations of our study. First, a general limitation of earnings quality research is the measurement, which depends on multiple factors such as measurement approach, model selection and data. Hence, it is difficult to generalize the results obtained by a specific measure of earnings quality on a specific sample. We address this issue by providing different measures of earnings persistence. All three lead to the same results.

Second, our results indicate that the existence of a relation between earnings quality and carbon reporting quality depends on the measure of quality. While we find support of the transparent reporting hypothesis for different measures of persistence, our results change for predictability. Undisclosed results show that there is no significant relation between time series earnings predictability and carbon predictability. We are going to get more precise in the next version of this paper.

Third, our sample consists of firms which already report their carbon emissions over a time period of at least five years. Thus we cannot draw any conclusions whether firms which report carbon emissions are anyhow better than firms that do not. Additionally, our analysis does not aim to explain firms' motivation to report carbon emissions in a certain manner. Although we attempt to measure carbon reporting quality, our approach cannot be used to verify whether the reported data are correct. Specifically, our approach cannot assess whether a firm consistently misreports over a longer time period. However, disclosure literature argues that firms have little incentives to willingly engage in misreporting in a multiple period setting because it is more likely that such practices will eventually be discovered (Stocken, 2000). We interpret persistence as one of the most relevant measures in the context of carbon reporting quality, as market participants

compare carbon data within the industry and over time to gain credibility (Matsumura *et al.*, 2013). Therefore we decided for persistence to be our main earnings quality measure. Nevertheless, our results show the need for further analyses of the earnings quality carbon quality relation, using different measures. More measures are going to be provided in the next version of this paper.

4.6 Additional analysis

Cross sectional estimation of earnings and carbon persistence

For our main analysis we use quality measures gained form time series regressions. The major drawback of this approach is that data have to be available for longer time periods to perform the regression. We lose many observations by employing this approach. Additionally, the time series estimations lead to a stronger survivorship bias because we exclude firms with shorter time periods of reported data. Therefore we are going to add cross sectional analysis to our study. For our measure of cross sectional carbon persistence, we take the coefficient of the annual industry cross sectional regression of total carbon emissions on lagged total carbon emissions. We require a minimum of five observations in each industry group to be included in our analysis. Cross sectional earnings persistence is calculated equivalently, by taking the coefficient of the annual industry cross sectional regression of earnings per share on lagged earnings per share. By calculating cross sectional quality metrics, nearly twice the number of observations remains in our sample. We run the regressions to test our hypotheses 1a and 1b. The industry-specific approach does not allow estimating firm individual abnormal earnings persistence. Undisclosed results of the cross-sectional calculations support hypothesis 1a for model 1 and 2, which is consistent with our basic analysis.

4.7 Conclusion

The aim of the study is shed light on carbon emissions reporting practices – to show whether companies tend to behave similarly in financial and non-financial disclosure concerns. Therefore we estimate carbon reporting quality, based on the concept of earnings quality. We transfer earnings persistence, which is the regression coefficient of current earnings per share on previous year's earnings per share to the field of carbon emissions. We define carbon persistence to be the regression coefficient of current reported total carbon emissions on previous year's total carbon emissions. To test whether earnings persistence is related to carbon persistence we run our regression with two different quality measures, which lead to the result that the relation is positive. In order to meet the concerns of persistence simply being a matter of the industry or more or less volatile business field, we ask further, whether the relation is due to discretionary managerial decisions (abnormal earnings quality). We separate normal earnings persistence from abnormal earnings persistence and find that abnormal earnings quality is positively associated with carbon persistence. This supports our transparent reporting hypothesis.

We contribute to the literature as we introduce the first attempt to measure carbon reporting quality, not concerning the content, but by learning more about the attributes' characteristics. We add to this literature by focusing on the reporting quality of carbon disclosure instead of broader issue of CSR activities. Carbon reporting quality, and therefore the findings of our study, can be helpful for analysts, investors or any other stakeholders to evaluate the environmental management system and to gain confidence in reported carbon emissions data. Furthermore, we add to previous literature on the association between CSR and earnings quality by showing that the more direct link of carbon reporting quality supports the transparent reporting hypothesis.

Chapter 5

General Conclusion and Outlook

This thesis investigates the relationship between CSR reporting and earnings quality. It comprises three main chapters, which can be summarised as follows. Chapter 2 provides a literature review on theories that are used in the 90 reviewed empirical quantitative articles to explain the adoption, extent and quality of CSR reporting. Eleven theoretical approaches are identified and evaluated, providing a systematic overview on the determinants of CSR reporting according to these theories. It presents the main concepts on which the diverse theories are based. The review shows huge overlaps amongst theories and highlights that also theories which are used to formulate diametrical hypotheses exhibit similarities. Literature reviews usually focus on the empirical results of previous studies in a certain field and neglect a review of the line of arguments that underlie a certain theory. Consequently, explanations of why certain relationships can be expected get easily confused and the general argumentations become more and more superficial. Chapter 2 of the present thesis addresses this problem by focusing on the theoretical concepts of CSR reporting. It also emphasises that the diverse theories should not be seen in a competitive relationship, but combined to multitheoretical frameworks. None of the existing theories can fully explain CSR reporting; the combination of different motives is therefore reasonable. Furthermore, the evaluation of the determinants of CSR reporting show that earnings quality was hardly noticed as an influencing factor of CSR reporting.

Chapter 3 explains from different theoretical viewpoints why a relationship between earnings quality and the decision to adopt CSR reporting can be expected. This study takes the advantage of the European context to take a political institutional perspective. It includes the national engagement in CSR regulation in the analysis and finds that this variable has a strong effect on the likelihood of CSR reporting. Furthermore, I find a negative relation between earnings quality and the likelihood of CSR reporting within countries with strong engagement in national regulation. Note, however, that the evidence is weak and not robust to other earnings quality measures. The study

contributes to the literature as it is the first study that connects earnings quality to the adoption of CSR reporting. It complements to previous findings that earnings quality is related to the completeness level of CSR reporting. The study further contributes to the literature by showing the importance of the political context. Further research is needed to evaluate the effect of different levels of national or supranational engagement on companies' CSR reporting decisions.

Chapter 4 takes a more narrow perspective and focuses on a single aspect of CSR reporting, namely carbon emissions reporting. I transfer the concept of earnings quality to carbon reporting and provide evidence for a positive relation between earnings quality measures and carbon reporting attributes. Hence, firms which provide high quality financial reports also provide high quality carbon reports. This study contributes to the literature as it introduces the first attempt to measure carbon reporting quality, not concerning the content, but reporting characteristics, e.g. persistence. As earnings quality is a well-established concept in the process of financial reporting standard setting, the introduction of a measure of carbon reporting quality might therefore be useful to set up and evaluate carbon reporting standards. Furthermore, carbon reporting quality measures can lead to higher confidence in reported carbon emissions data. These measures need to be further developed and evaluated in future research.

To sum up, this thesis investigates the relation between earnings quality and CSR reporting from two different angles. First, by evaluating the influence of earnings quality on the decision to provide a CSR report; and second, by investigating the relation of earnings attributes and carbon reporting attributes. I show that earnings quality is, under certain circumstances, a driver for the CSR reporting decision, and that there is a positive relation between earnings persistence and carbon persistence. I contribute to the literature by providing a new way to evaluate the characteristics of carbon reporting. Future research is also needed to transfer the measures of carbon quality to other aspects of CSR reporting.

Bibliography

Adams, C.A., 2002. Internal organisational factors influencing corpoate social and ethical reporting. *Accounting, Auditing & Accountability Journal,* 15**,** 223-250.

Ader, C.R., 1995. A Longitudinal Study of Agenda Setting for the Issue of Environmental Pollution. *Journalism & Mass Communication Quarterly,* 72**,** 300-311.

Aerts, W., Cormier, D. & Magnan, M., 2008. Corporate environmental disclosure, financial markets and the media: An international perspective. *Ecological Economics,* 64**,** 643-659.

Al-Tuwaijri, S.A., Christensen, T.E. & Hughes Ii, K.E., 2004. The relations among environmental disclosure, environmental performance, and economic performance: a simultaneous equations approach. *Accounting, Organizations and Society,* 29**,** 447.

Amran, A. & Devi, S.S., 2007. Corporate Social Reporting in Malaysia: A Political Theory Perspective. *Malaysian Accounting Review,* 6**,** 19-44.

Andrew, J. & Cortese, C., 2011. Accounting for climate change and the self-regulation of carbon disclosures. *Accounting Forum,* 35**,** 130-138.

Ansoff, I.H., 1965. *Corporate Strategy*. New York: McGraw-Hill.

Barth, M., Elliott, J. & Finn, M., 1999. Market Rewards Associated with Patterns of Increasing Earnings.

Barth, M.E., Beaver, W.H. & Landsman, W.R., 2001. The relevance of the value relevance literature for financial accounting standard setting: another view. *Journal of Accounting and Economics,* 31**,** 77-104.

Barth, M.E., Konchitchi, Y. & Landsman, W.R., 2013. Cost of capital and earnings transparency. *Journal of Accounting and Economics,* 55.

Barth, M.E., Landsman, W.R. & Lang, M.H., 2008. International Accounting Standards and Accounting Quality. *Journal of Accounting Research,* 46**,** 467-498.

Barth, M.E. & McNichols, M.F., 1994. Estimation and Market Valuation of Environmental Liabilities Relating to Superfund Sites. *Journal of Accounting Research,* 32**,** 177-209.

Basu, S., 1997. The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics,* 24**,** 3-37.

Bhat, G., Hope, O.-K. & Kang, T., 2006. Does corporate governance transparency affect the accuracy of analyst forecasts? *Accounting and Finance,* 46**,** 715-732.

Bhimani, A. & Soonawalla, K., 2005. From conformance to performance: The corporate responsibilities continuum. *Journal of Accounting and Public Policy,* 24**,** 165-174.

Bouten, L., Everaert, P. & Roberts, R.W., 2012. How a Two-Step Approach Discloses Different Determinants of Voluntary Social and Environmental Reporting. *Journal of Business Finance & Accounting,* 39**,** 567-605.

Brammer, S. & Pavelin, S., 2006. Voluntary Environmental Disclosures by Large UK Companies. *Journal of Business Finance & Accounting,* 33**,** 1168-1188.

Branco, M.C., Delgado, C., Sa, M. & Sousa, C., 2014. Comparing CSR communication on corporate web sites in Sweden and Spain. *Baltic Journal of Management,* 9**,** 231-250.

Branco, M.C. & Rodrigues, L.L., 2008a. Factors Influencing Social Responsibility Disclosure by Portuguese Companies. *Journal of Business Ethics,* 83**,** 685-701.

Branco, M.C. & Rodrigues, L.L., 2008b. Social responsibility disclosure: A study of proxies for the public visibility of Portuguese banks. *British Accounting Review,* 40**,** 161-181.

Brown, N. & Deegan, C., 1998. The public disclosure of environmental performance information - a dual test of media agenda setting theory and legitimacy theory. *Accounting & Business Research,* 29**,** 21-41.

Busch, T. & Hoffmann, V.H., 2011. How Hot Is Your Bottom Line? Linking Carbon and Financial Performance. *Business & Society,* 50**,** 233-265.

Carroll, A.B., 1979. A Three-Dimensional Conceptual Model of Corporate Performance. *Academy of Management Review,* 4**,** 497-505.

Cespa, G. & Cestone, G., 2007. Corporate Social Responsibility and Managerial Entrenchment. *Journal of Economics & Management Strategy,* 16**,** 741-771.

Chapple, L., Clarkson, P.M. & Gold, D.L., 2013. The Cost of Carbon: Capital Market Effects of the Proposed Emission Trading Scheme (ETS). *ABACUS,* 49**,** 1-33.

Cheng, P., Man, P. & Yi, C.H., 2013. The impact of product market competition on earnings quality. *Accounting & Finance,* 53**,** 137-162.

Chih, H.-L., Shen, C.-H. & Kang, F.-C., 2008. Corporate Social Responsibility, Investor Protection, and Earnings Management: Some International Evidence. *Journal of Business Ethics,* 79**,** 179-198.

Cho, C.H., Freedman, M. & Patten, D.M., 2012. Corporate disclosure of environmental capital expendituresA test of alternative theories. *Accounting, Auditing & Accountability Journal,* 25**,** 486-507.

Cho, C.H. & Patten, D.M., 2007. The role of environmental disclosures as tools of legitimacy: A research note. *Accounting, Organizations and Society,* 32**,** 639-647.

Cho, C.H. & Roberts, R.W., 2010. Environmental reporting on the internet by America's Toxic 100: Legitimacy and self-presentation. *International Journal of Accounting Information Systems,* 11**,** 1-16.

Chu, C.I., Chatterjee, B. & Brown, A., 2013. The current status of greenhouse gas reporting by Chinese companiesA test of legitimacy theory. *Managerial Auditing Journal,* 28**,** 114-139.

Clarkson, P.M., Fang, X., Li, Y. & Richardson, G., 2013. The relevance of environmental disclosures: Are such disclosures incrementally informative? *Journal of Accounting and Public Policy,* 32**,** 410-431.

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,* 33**,** 303-327.

Clarkson, P.M., Overell, M.B. & Chapple, L., 2011. Environmental Reporting and its Relation to Corporate Environmental Performance. *ABACUS,* 47**,** 27-60.

Clarkson, P.M., Yue, L. & Richardson, G.D., 2004. The Market Valuation of Environmental Capital Expenditures by Pulp and Paper Companies. *The Accounting Review,* 79**,** 329-353.

Cormier, D., Gordon, I.M. & Magnan, M., 2004. Corporate Environmental Disclosure: Contrasting Management's Perceptions with Reality. *Journal of Business Ethics,* 49**,** 143-165.

Cormier, D. & Magnan, M., 1999. Corporate Environmental Disclosure Strategies: Determinants, Costs and Benefits. *Journal of Accounting, Auditing & Finance,* 14**,** 429-451.

Cormier, D. & Magnan, M., 2003. Environmental reporting management: a continental European perspective. *Journal of Accounting and Public Policy,* 22**,** 43-62.

Cormier, D. & Magnan, M., 2004. The impact of the web on information and communication modes: the case of corporate environmental disclosure. *International Journal of Technology Management,* 27**,** 393-416.

Cormier, D., Magnan, M. & Van Velthoven, B., 2005. Environmental disclosure quality in large German companies: Economic incentives, public pressures or institutional conditions? *European Accounting Review,* 14**,** 3-39.

Cotter, J. & Najah, M.M., 2012. Institutional investor influence on global climate change disclosure practices. *Australian Journal of Management,* 37**,** 169-187.

Cuganesan, S., Guthrie, J. & Ward, L., 2010. Examining CSR disclosure strategies within the Australian food and beverage industry. *Accounting Forum,* 34**,** 169-183.

Da Silva Monteiro, S.M. & Aibar-Guzmán, B., 2010. Determinants of environmental disclosure in the annual reports of large companies operating in Portugal. *Corporate Social Responsibility & Environmental Management,* 17**,** 185-204.

Da Silva, R.V. & Teixeira, N., 2008. Environmental business strategy: the Portuguese case. *Business Strategy & the Environment,* 17**,** 208-218.

Dawkins, C.E. & Fraas, J.W., 2011a. Coming Clean: The Impact of Environmental Performance and Visibility on Corporate Climate Change Disclosure. *Journal of Business Ethics,* 100**,** 303-322.

Dawkins, C.E. & Fraas, J.W., 2011b. Erratum to: Beyond Acclamations and Excuses: Environmental Performance, Voluntary Environmental Disclosure and the Role of Visibility. *Journal of Business Ethics,* 99**,** 383-397.

De Villiers, C. & Van Staden, C.J., 2011. Where firms choose to disclose voluntary environmental information. *Journal of Accounting and Public Policy,* 30**,** 504-525.

Dechow, P., Ge, W. & Schrand, C., 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting & Economics,* 50**,** 344-401.

Deegan, C., 2002. Introduction: The legitimising effect of social and environmental disclsoures - a theoretical foundation. *Accounting, Auditing & Accountability Journal,* 15**,** 282-311.

Deegan, C., Rankin, M. & Tobin, J., 2002. An examination of the corporate social and environmental disclosures of BHP from 1983-1997. *Accounting, Auditing & Accountability Journal,* 15**,** 312-343.

Deegan, C., Rankin, M. & Voght, P., 2000. Firms' disclosures reactions to major social incidents: Australian evidence. *Accounting Forum,* 24**,** 102-130.

Deephouse, D.L. & Carter, S.M., 2005. An Examination of Differences Between Organizational Legitimacy and Organizational Reputation. *Journal of Management Studies,* 42**,** 329-360.

Déjean, F. & Martinez, I., 2009. Environmental Disclosure and the Cost of Equity: The French Case. *Accounting in Europe,* 6**,** 57-80.

Dhaliwal, D.S., Li, O.Z., Tsang, A.H. & Yang, Y.G., 2011. Voluntary Non-Financial Disclosure and the Cost of Equity Capital: The Initiation of Corporate Social Responsibility Reporting. *The Accounting Review,* 86**,** 59-100.

Dhaliwal, D.S., Radhakrishnan, S., Tsang, A. & Yang, Y.G., 2012. Nonfinancial Disclosure and Analyst Forecast Accuracy: International Evidence on Corporate Social Responsibility Disclosure. *The Accounting Review,* 87**,** 723-759.

DiMaggio, P.J. & Powell, W.W., 1983. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review,* 48**,** 147-160.

Dye, R.A., 1985. Disclosure of Nonproprietary Information. *Journal of Accounting Research,* 23**,** 123-145.

Easton, P.D., 1999. Security Returns and the Value Relevance of Accounting Data. *Accounting Horizons,* 13**,** 399-412.

Eccles, R.G., Krzus, M.P., Rogers, J. & Serafeim, G., 2012. The Need for Sector-Specific Materiality and Sustainability Reporting Standards. *Journal of Applied Corporate Finance,* 24**,** 65-71.

Einhorn, E., 2005. The Nature of the Interaction between Mandatory and Voluntary Disclosures. *Journal of Accounting Research,* 43**,** 593-621.

Elijido-Ten, E., 2009. Can Stakeholder Theory Add To Our Understanding Of Malaysian Environmental Reporting Attitudes? *Malaysian Accounting Review,* 8**,** 85-110.

European Commission, 2001. *Promoting a European framework for Corporate Social Responsibility.* Brussels.

European Commission, 2011. *A renewed EU strategy 2011-14 for Corporate Social Responsibility.* Brussels.

European Parliament and Council, 2014. *Directive 2014/95/EU*.

European Parliament Debates, 2004. *Debate on economic and financial guidelines* [online]. http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+CRE+20040225+ITEM-005+DOC+XML+V0//EN&language=EN

Ewert, R. & Wagenhofer, A., 2011. Earnings Quality Metrics and What They Measure. *Working Paper*.

Faisal, F., Tower, G. & Rusmin, R., 2012. Legitimising Corporate Sustainability Reporting Throughout the World. *Australasian Accounting Business & Finance Journal,* 6**,** 19-34.

Fifka, M.S., 2013. Corporate Responsibility Reporting and its Determinants in Comparative Perspective - a Review of the Empirical Literature and a Meta-analysis. *Business Strategy & the Environment,* 22**,** 1-35.

Fink, A., 2010. *Conducting Research Literature Reviews: from the Internet to the Paper,* 3rd ed. Thousand Oaks: Sage Publications.

Francis, J., LaFond, R., Olsson, P.M. & Schipper, K., 2004. Costs of Equity and Earnings Attributes. *The Accounting Review,* 79**,** 967-1010.

Francis, J., Nanda, D. & Olsson, P., 2008. Voluntary Disclosure, Earnings Quality, and Cost of Capital. *Journal of Accounting Research,* 46**,** 53-99.

Francis, J. & Schipper, K., 1999. Have Financial Statements Lost Their Relevance? *Journal of Accounting Research,* 37**,** 319-352.

Freeman, R.E., 1984. *Strategic Management: A Stakeholder Approach*. Boston: Pitman.

Frias-Aceituno, J.V., Rodriguez-Ariza, L. & Garcia-Sanchez, I.M., 2013. The Role of the Board in the Dissemination of Integrated Corporate Social Reporting. *Corporate Social Responsibility & Environmental Management,* 20**,** 219-233.

Gamerschlag, R., Moller, K. & Verbeeten, F., 2011. Determinants of voluntary CSR disclosure: empirical evidence from Germany. *Review of Managerial Science,* 5**,** 233-262.

Gao, S.S., Heravi, S. & Xiao, J.Z., 2005. Determinants of corporate social and environmental reporting in Hong Kong: a research note. *Accounting Forum,* 29**,** 233-242.

Gray, R., 2006. Does sustainability reporting improve corporate behaviour?: Wrong question? Right time? *Accounting & Business Research,* 36**,** 65-88.

Gray, R., Kouhy, R. & Lavers, S., 1995. Corporate social and environmental reporting: a review of the literature and a longitudinal study of UK disclosure. *Accounting, Auditing & Accountability Journal,* 8**,** 47-77.

Gray, R., Owen, D. & Adams, C., 2010. Some theories for social accounting?: A review essay and a tentative pedagogic categorisation of theorisations around social accounting. *In* M. Freedman & B. Jaggi (eds.) *Advances in Environmental Accounting and Management.* Emerald Group Publishing Limited, 1-54.

Guthrie, J. & Parker, L.D., 1989. Corporate Social Reporting: A Rebuttal of Legitimacy Theory. *Accounting & Business Research,* 19**,** 343-352.

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

Hahn, R., Reimsbach, D. & Schiemann, F., 2015. Organizations, Climate Change, and Transparency. *Organization & Environment,* 28**,** 80-102.

Haniffa, R.M. & Cooke, T.E., 2005. The impact of culture and governance on corporate social reporting. *Journal of Accounting and Public Policy,* 24**,** 391-430.

Hill, C.W.L. & Jones, T.M., 1992. Stakeholder-Agency Theory. *Journal of Management Studies,* 29**,** 131-154.

Ho, P.-L. & Taylor, G., 2013. Corporate governance and different types of voluntary disclosureEvidence from Malaysian listed firms. *Pacific Accounting Review,* 25**,** 4-29.

Hong, Y. & Andersen, M., 2011. The Relationship Between Corporate Social Responsibility and Earnings Management: An Exploratory Study. *Journal of Business Ethics,* 104**,** 461-471.

Huang, C.L. & Kung, F.H., 2010. Drivers of Environmental Disclosure and Stakeholder Expectation: Evidence from Taiwan. *Journal of Business Ethics,* 96**,** 435-451.

Hughes II, K.E., 2000. The Value Relevance of Nonfinancial Measures of Air Pollution in the Electric Utility Industry. *The Accounting Review,* 75**,** 209-228.

Hughes, P.J., 1986. Signalling by direct disclosure under asymmetric information. *Journal of Accounting and Economics,* 8**,** 119-142.

Hughes, S.B., Anderson, A. & Golden, S., 2001. Corporate environmental disclosures: are they useful in determining environmental performance? *Journal of Accounting and Public Policy,* 20**,** 217-240.

Jensen, J.C. & Berg, N., 2012. Determinants of Traditional Sustainability Reporting Versus Integrated Reporting. An Institutionalist Approach. *Business Strategy & the Environment,* 21**,** 299-316.

Jensen, M.C. & Meckling, W.H., 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics,* 3**,** 305-360.

Jones, J.J., 1991. Earnings Management During Import Relief Investigations. *Journal of Accounting Research,* 29**,** 193-228.

Joshi, P.L. & Gao, S.S., 2009. Multinational corporations' corporate social and environmental disclosures (CSED) on web sites. *International Journal of Commerce & Management,* 19**,** 27-44.

Jung, W.-O. & Kwon, Y.K., 1988. Disclosure When the Market Is Unsure of Information Endowment of Managers. *Journal of Accounting Research,* 26**,** 146-153.

Kansal, M., Joshi, M. & Batra, G.S., 2014. Determinants of corporate social responsibility disclosures: Evidence from India. *Advances in Accounting,* 30**,** 217-229.

Kasznik, R. & McNichols, M., 2002. Does meeting earnings expectations matter? Evidence from analyst forecast revisions and share prices.

Kent, P. & Monem, R., 2008. What Drives TBL Reporting: Good Governance or Threat to Legitimacy ? *Australian Accounting Review,* 18**,** 297-309.

Kent, P. & Zunker, T., 2013. Attaining legitimacy by employee information in annual reports. *Accounting, Auditing & Accountability Journal,* 26**,** 1072-1106.

Khan, M.H.-U.-Z., 2010. The effect of corporate governance elements on corporate social responsibility (CSR) reporting Empirical evidence from private commercial banks of Bangladesh. *International Journal of Law & Management,* 52**,** 82-109.

Kim, Y., Park, M.S. & Wier, B., 2012. Is Earnings Quality Associated with Corporate Social Responsibility? *The Accounting Review,* 87**,** 761-796.

Klewitz, J. & Hansen, E.G., 2014. Sustainability-oriented innovation of SMEs: a systematic review. *Journal of Cleaner Production,* 65**,** 57-75.

Kolk, A., 2004. A decade of sustainability reporting: developments and significance. *International Journal of Environment and Sustainable Development,* 3**,** 51-64.

Kolk, A., Levy, D. & Pinske, J., 2008. Corporate Responses in an Emerging Climate Regime: The Institutionaliziation and Commensuration of Carbon Disclosure. *European Accounting Review,* 17**,** 719-745.

Kothari, S.P., Leone, A.J. & Wasley, C.E., 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics,* 39**,** 163-197.

Krishnan, G.V. & Parsons, L.M., 2008. Getting to the Bottom Line: An Exploration of Gender and Earnings Quality. *Journal of Business Ethics,* 78**,** 65-76.

Kuo, L. & Chen, V.Y.-J., 2013. Is environmental disclosure an effective strategy on establishment of environmental legitimacy for organization? *Management Decision,* 51**,** 1462-1487.

Kuo, L., Yeh, C.-C. & Yu, H.-C., 2012. Disclosure of Corporate Social Responsibility and Environmental Management: Evidence from China. *Corporate Social Responsibility & Environmental Management,* 19**,** 273-287.

La Porta, R., Lopez-De-Silanes, F., Shleifer, A. & Vishny, R., 1997. Legal Determinants of External Finance. *The Journal of Finance,* 52**,** 1131-1150.

Labelle, R., Makni Gargouri, R. & Francoeur, C., 2010. Ethics, Diversity Management, and Financial Reporting Quality. *Journal of Business Ethics,* 93**,** 335-353.

Lanis, R. & Richardson, G., 2013. Corporate social responsibility and tax aggressiveness: a test of legitimacy theory. *Accounting, Auditing & Accountability Journal,* 26**,** 75-100.

Leftwich, R.W., Watts, R.L. & Zimmerman, J.L., 1981. Voluntary Corporate Disclosure: the Case of Interim Reporting. *Journal of Accounting Research,* 19**,** 50-77.

Lennox, C.S. & Park, C.W., 2006. The informativeness of earnings and management's innuance of eanrings forecasts. *Journal of Accounting and Economics,* 42**,** 439-458.
Leuz, C., 2003. IAS Versus U.S. GAAP: Information Asymmetry-Based Evidence from Germany's New Market. *Journal of Accounting Research,* 41**,** 445-472.
Leuz, C., Nanda, D. & Wysocki, P.D., 2003. Earnings management and investor protection: An international comparison. *Journal of Financial Economics,* 69**,** 505-527.
Lewis, B.W., Walls, J.L. & Dowell, G.W.S., 2014. Difference in degrees: CEO characteristics and firm environmental disclosure. *Strategic Management Journal,* 35**,** 712-722.
Li, Q., Luo, W., Wang, Y.P. & Wu, L.S., 2013. Firm performance, corporate ownership, and corporate social responsibility disclosure in China. *Business Ethics - A European Review,* 22**,** 159-173.
Lindblom, C., 1994. The Implications of Organizational Legitimacy for Corporate Social Performance and Disclosure. *Paper presented at the Critical Perspectives on Accounting Conference, New York*.
Liu, X. & Anbumozhi, V., 2009. Determinant factors of corporate environmental information disclosure: an empirical study of Chinese listed companies. *Journal of Cleaner Production,* 17**,** 593-600.
Lu, Y. & Abeysekera, I., 2014. Stakeholders' power, corporate characteristics, and social and environmental disclosure: evidence from China. *Journal of Cleaner Production,* 64**,** 426-436.
Luo, L., Lan, Y.-C. & Tang, Q., 2012. Corporate Incentives to Disclose Carbon Information: Evidence from the CDP Global 500 Report. *Journal of International Financial Management & Accounting,* 23**,** 93-120.
Mahadeo, J., Oogarah-Hanuman, V. & Soobaroyen, T., 2011. A Longitudinal Study of Corporate Social Disclosures in a Developing Economy. *Journal of Business Ethics,* 104**,** 545-558.
Mahjoub, L.B. & Khamoussi, H., 2013. Environmental and Social Policy and Earnings Persistence. *Business Strategy and the Environment,* 22**,** 159-172.
Mallin, C., Michelon, G. & Raggi, D., 2013. Monitoring Intensity and Stakeholders' Orientation: How Does Governance Affect Social and Environmental Disclosure? *Journal of Business Ethics,* 114**,** 29-43.
Martínez-Ferrero, J., Garcia-Sanchez, I.M. & Cuadrado-Ballesteros, B., 2015. Effect of Financial Reporting Quality on Sustainability Information Disclosure. *Corporate Social Responsibility & Environmental Management,* 22**,** 45-64.
Matsumura, E.M., Prakash, R. & Vera-Munoz, S.C., 2013. Firm-Value Effects of Carbon Emissions and Carbon Disclosures. *The Accounting Review,* forthcoming.
McElroy, M.W. & Van Engelen, J.M.L., 2012. *Corporate Sustainability Management*. Oxon: Earthscan.
McNichols, M.F., 2002. Discussion of The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *The Accounting Review,* 77**,** 61-69.
McWilliams, A., Siegel, D.S. & Wright, P.M., 2006. Corporate Social Responsibility: Strategic Implications*. *Journal of Management Studies,* 43**,** 1-18.
Meng, X., Zeng, S. & Tam, C., 2013. From Voluntarism to Regulation: A Study on Ownership, Economic Performance and Corporate Environmental Information Disclosure in China. *Journal of Business Ethics,* 116**,** 217-232.

Michelon, G., 2011. Sustainability Disclosure and Reputation: A Comparative Study. *Corporate Reputation Review,* 14**,** 79-96.

Milne, M.J., 2002. Positive accounting theory, political costs And social disclosure analyses: a critical look. *Critical Perspectives on Accounting,* 13**,** 369.

Mitchell, R.K., Agle, B.R. & Wood, D.J., 1997. Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts. *Academy of Management Review,* 22**,** 853-886.

Moneva, J.M. & Llena, F., 2000. Environmental disclosures in the annual reports of large companies in Spain. *European Accounting Review,* 9**,** 7-29.

Moroney, R., Windsor, C. & Aw, Y.T., 2012. Evidence of assurance enhancing the quality of voluntary environmental disclosures: an empirical analysis. *Accounting & Finance,* 52**,** 903-939.

Mukherjee, K., Sen, M. & Pattanaya, J.K., 2010. Firm Characteristics and Corporate Environmental Disclosure Practices in India. *IUP Journal of Accounting Research & Audit Practices,* 9**,** 24-41.

Muttakin, M.B. & Khan, A., 2014. Determinants of corporate social disclosure: Empirical evidence from Bangladesh. *Advances in Accounting,* 30**,** 168-175.

Neu, D., Warsame, H. & Pedwell, K., 1998. Managing public impressions: Environmental disclosures in annual reports. *Accounting, Organizations and Society,* 23**,** 265-282.

Orij, R., 2010. Corporate social disclosures in the context of national cultures and stakeholder theory. *Accounting, Auditing & Accountability Journal,* 23**,** 868-889.

Patten, D.M., 1991. Exposure, Legitimacy, and Social Disclosure. *Journal of Accounting and Public Policy,* 10**,** 297-308.

Patten, D.M., 1992. Intra-Industry Environmental Disclosures in Response to the Alaskan Oil Spill: A Note on Legitimacy Theory. *Accounting, Organizations and Society,* 17**,** 471-475.

Patten, D.M., 2002. The relation between environmental performance and environmental disclosure: a research note. *Accounting, Organizations and Society,* 27**,** 763-773.

Penman, S.H. & Zhang, X.-J., 2002. Accounting Conservatism, the Quality of Earnings, and Stock Returns. *The Accounting Review,* 77**,** 237-264.

Petersen, M.A., 2009. Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches. *The Review of Financial Studies,* 22**,** 435-480.

Petrovits, C.M., 2006. Corporate-sponsored foundations and earnings management. *Journal of Accounting and Economics,* 41**,** 335-362.

Prado-Lorenzo, J.M. & Garcia-Sanchez, I.M., 2010. The Role of the Board of Directors in Disseminating Relevant Information on Greenhouse Gases. *Journal of Business Ethics,* 97**,** 391-424.

Prior, D., Surroca, J. & Tribo, J.A., 2008. Are Socially Responsible Managers Really Ethical? Exploring the Relationship Between Earnings Management and Corporate Social Responsibility. *Corporate Governance: An International Review,* 16**,** 160-177.

Reid, E.M. & Toffel, M.W., 2009. Responding to public and private politics: corporate disclosure of climate change strategies. *Strategic Management Journal,* 30**,** 1157-1178.

Reverte, C., 2009. Determinants of Corporate Social Responsibility Disclosure Ratings by Spanish Listed Firms. *Journal of Business Ethics,* 88**,** 351-366.

Rhoades, S.A., 1993. The Herfindahl-Hirschman index. *Federal Reserve Bulletin,* 79**,** 188-189.

Roberts, R.W., 1992. Determinants of corporate social responsibility disclosure: An application of stakeholder theory. *Accounting, Organizations and Society,* 17**,** 595-612.

Rupley, K.H., Brown, D. & Marshall, R.S., 2012. Governance, media and the quality of environmental disclosure. *Journal of Accounting and Public Policy,* 31**,** 610-640.

Salama, A., Dixon, R. & Habbash, M., 2012. An Examination of Environmental Disclosures in UK Corporate Annual Reports. *Journal of Accounting, Business & Management,* 19**,** 19-42.

Schipper, K. & Vincent, L., 2003. Earnings Quality. *Accounting Horizons,* 17**,** 97-110.

Seuring, S. & Müller, M., 2008. From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production,* 16**,** 1699-1710.

Shenkar, O. & Yuchtman-Yaar, E., 1997. Reputation, Image, Prestige, and Goodwill: An Interdisciplinary Approach to Organizational Standing. *Human Relations,* 50**,** 1361-1381.

Skouloudis, A., Jones, N., Malesios, C. & Evangelinos, K., 2014. Trends and determinants of corporate non-financial disclosure in Greece. *Journal of Cleaner Production,* 68**,** 174-188.

Spence, M., 1976. Informational aspects of market structure: An introduction. *Quarterly Journal of Economics,* 90**,** 591-597.

Stanny, E., 2013. Voluntary Disclosures of Emissions by US Firms. *Business Strategy and the Environment,* 22**,** 145-158.

Stanny, E. & Ely, K., 2008. Corporate environmental disclosures about the effects of climate change. *Corporate Social Responsibility & Environmental Management,* 15**,** 338-348.

Stechemesser, K. & Guenther, E., 2012. Carbon accounting: a systematic literature review. *Journal of Cleaner Production,* 36**,** 17-38.

Stocken, P.C., 2000. Credibility of voluntary disclosure. *RAND Journal of Economics,* 31**,** 359-374.

Suchman, M.C., 1995. Managing Legitimacy: Strategic and Institutional Approaches. *Academy of Management Review,* 20**,** 571-610.

Talbot, D. & Boiral, O., 2013. Can we trust corporates GHG inventories? An investigation among Canada's large final emitters. *Energy Policy,* forthcoming.

Ullmann, A.A., 1985. Data in Search of a Theory: A Critical Examination of the Relationship among Social Performance, Social Disclosure, and Economic Performance of U. S. Firms. *Academy of Management Review,* 10**,** 540-557.

Van de Burgwal, D. & Oliveira Vieira, R.J., 2014. Environmental Disclosure Determinants in Dutch Listed Companies. *Revista Contabilidade & Finanças,* 25**,** 60-78.

Van Staden, C.J. & Hooks, J., 2007. A comprehensive comparison of corporate environmental reporting and responsiveness. *British Accounting Review,* 39**,** 197-210.

Verrecchia, R.E., 1983. Discretionary Disclosure. *Journal of Accounting and Economics,* 5**,** 179-194.

Vitezić, N., Vuko, T. & Mörec, B., 2012. Does Financial Performance Have An Impact On Corporate Sustainability And CSR Disclosure - A Case Of Croatian Companies. *Journal of Business Management***,** 40-47.

Watts, R.L., 2003. Conservatism in Accounting Part I: Explanations and Implications. *Accounting Horizons,* 17**,** 207-221.

Watts, R.L. & Zimmerman, J.L., 1978. Towards a Positive Theory of the Determinants of Accounting Standards. *The Accounting Review,* 53**,** 112-146.

Watts, R.L. & Zimmerman, J.L., 1990. Positive Accounting Theory: A Ten Year Persective. *The Accounting Review,* 65**,** 131-156.

Weinhofer, G. & Busch, T., 2013. Corporate Strategies for Managing Climate Risks. *Business Strategy and the Environment,* 22**,** 121-144.

www.biotechnolgie.de, 2012. *BASF gibt Grüne Gentechnik in Europa auf* [online]. http://www.biotechnologie.de/BIO/Navigation/DE/root,did=147794.html

Yip, E., Van Staden, C. & Cahan, S., 2011. Corporate Social Responsibility Reporting and Earnings Management: The Role of Political Costs. *Australasian Accounting Business & Finance Journal,* 5**,** 17-34.

Yue, L.I., Richardson, G.D. & Thornton, D.B., 1997. Corporate Disclosure of Environmental Liability Information: Theory and Evidence. *Contemporary Accounting Research,* 14**,** 435-474.

Abstract

The main objective of my thesis is to connect CSR reporting with earnings quality. It differs from former studies as it does not focus on performance relations, but rather establishes a direct link on the basis of reporting behaviour. This thesis investigates the relationship between CSR reporting and earnings quality to evaluate the strategic decision to report on CSR issues. It comprises three main chapters, a literature review on the theories of CSR reporting and two empirical studies. The literature evaluates 90 empirical quantitative studies and provides a systematic overview on the theories of CSR reporting. So far, earnings quality is hardly noticed as a determinant of CSR reporting. The first empirical study analyses the influence of earnings quality on the decision to initiate CSR reporting under consideration of the national engagement in CSR regulation. Based on a European sample of 350 firms, I find weak evidence that there is a negative relation between earnings quality and the CSR reporting decision among countries with strong national engagement in CSR regulation. One possible explanation for this negative relation can be that companies with low earnings quality are more likely to consider CSR reporting as a possible way to legitimate their low earnings quality when CSR issues are a national matter. The second empirical article aims to transfer earnings quality measures to the field of carbon reporting. Analysing 109 listed US companies, I find a positive relation between the newly introduced measure of carbon reporting quality and the well-explored measure of earnings quality. I contribute to the literature by addressing the so far underrepresented research on the link between CSR reporting and financial reporting (e.g. earnings quality). I connect the research field of earnings quality with carbon reporting; as earnings quality measures are used to evaluate financial reporting standards, the aim of carbon reporting quality measures is to enhance carbon reporting standard setting.

Kurzzusammenfassung

Die vorliegende Doktorarbeit betrachtet CSR Berichterstattung als eine strategische Entscheidung von Unternehmen, bestimmte zusätzliche Informationen zur Verfügung zu stellen. Das Ziel der Arbeit ist es, einen direkten Zusammenhang zwischen CSR Berichterstattung und diversen Eigenschaften der Finanzberichterstattung herzustellen. Diese Eigenschaften werden in der Rechnungswesen-Literatur unter dem Begriff der Ergebnisqualität zusammengefasst. Drei Kapitel nähern sich diesen Zusammenhang auf unterschiedliche Weise beziehungsweise in unterschiedlicher Deutlichkeit. Zunächst stellt sich die Frage warum sich Unternehmen überhaupt dazu entschließen Informationen zu CSR Themen zu veröffentlichen. Ein Literaturüberblick soll dazu Aufschluss geben. Anhand von 90 empirischen quantitativen Studien werden verschiedene Erklärungsansätze dargestellt und einzelne Einflussfaktoren auf die Entscheidung zur Berichterstattung und dessen Ausmaß identifiziert. Der wesentliche Beitrag, den dieser Literaturüberblick leistet, ist die direkte Zuordnung der Einflussfaktoren zu den jeweiligen Erklärungsansätzen, die in der aktuellen empirischen quantitativen Forschung teilweise zu kurz gerät. Dem Literaturüberblick folgen zwei empirische Studien. Zunächst wird der Einfluss von Ergebnisqualität auf die Entscheidung einen (ersten) CSR Bericht zu erstellen untersucht. Dies geschieht unter der Berücksichtigung nationaler Bestrebungen zur Regulierung von CSR Berichterstattung. Für die Länder, die eine Vorreiterrolle in der Regulierung der CSR Berichterstattung einnehmen, zeigt die Studie einen – wenn auch schwachen – negativen Zusammenhang zwischen Ergebnisqualität und der Wahrscheinlichkeit zur CSR Berichterstattung. Der negative Zusammenhang könnte dadurch begründet sein, dass in Ländern mit stärkerem Bewusstsein für CSR Themen, CSR Berichterstattung von Unternehmen mit schlechter Ergebnisqualität eher als eine Möglichkeit zur Legitimierung eben dieser schlechten Ergebnisqualität gesehen wird. Die zweite empirische Studie überträgt Ergebnisqualitätsmaße auf CO2-Berichterstattung und zeigt einen positiven Zusammenhang zwischen diesem neu eingeführten CO2 Reporting-Qualitätsmaß und den in bereits stark beforschen Ergebnisqualitätsmaßen. Der wesentliche Beitrag meiner Arbeit ergibt sich aus Verdeutlichung, dass bereits entwickelte Maße der Rechnungswesen-Forschung in den Bereich der CSR Berichterstattung übertragen werden können. Dies zeige ich anhand der CO2-Berichterstattung.