

THE RELATIONSHIP BETWEEN CSR DISCLOSURE QUALITY AND INVESTOR RESPONSIVENESS TO EARNINGS NEWS

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Abstract. This study investigates whether there is a relationship between Corporate Social Responsibility (CSR) disclosure quality and investor responsiveness to earnings news. The notion is that CSR disclosure quality can signal earnings quality. Given that investors recognise and react to the signal, this would lead to a stronger (weaker) market reaction for firms with good CSR disclosure quality announcing good (bad) earnings news. A sample of 68 Large and Mid Cap industrial firms listed on Nasdaq Nordic is used. Looking into the Annual and CSR Reports for fiscal year 2014 for each of the sample firms, CSR disclosure quality aims to measure the perceived underlying CSR performance. The disclosure quality is graded based on economic, environmental and social indicators suggested by the Global Reporting Initiative as well as the reporting quality criteria auditability, business model relevance and comparability. An event study methodology is used to observe the Earnings Response Coefficients (ERCs) for different levels of CSR disclosure quality. The results provide no strong evidence for a relationship between CSR disclosure quality and investor responsiveness to earnings news. The results, however, give some indication that there is a positive (negative) relationship between CSR disclosure quality and investor responsiveness to good (bad) earnings news. The relationship is more evident for bad news, and is amplified for CSR disclosure quality that only captures business model relevant CSR activities.

Keywords: Business model relevance, content analysis, Corporate Social Responsibility (CSR), CSR disclosure quality, earnings news, earnings quality, Earnings Response Coefficient (ERC), investor responsiveness

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1. Introduction

The information environment of a firm comprises of firm related information from internal and external sources. In today's business society, global megatrends such as digitalisation and sustainability contribute to an information environment that is quickly expanding. Disclosure of Corporate Social Responsibility (CSR) information is one part of the firm's information environment that has increased significantly, reflecting that CSR has become more and more integrated into firms' business practices over the past decade. "The question is no longer whether a company has a CSR programme, but rather what kind of CSR programme it has and how this contributes to the overall value creation" (Qvartz, 2016). In parallel, organisations and coalitions have been formed that work with how to present the new kind of information in an appropriate way. For instance, integrated reporting guidelines have evolved (International Integrated Reporting Council, 2016). Also, sustainability reporting standards have been developed by the Global Reporting Initiative (GRI). These standards are not compulsory, still, 92% among the world's 250 largest companies report on their sustainability performance and 74% of these use GRI's standards in their reporting (Global Reporting Initiative, 2016b). In addition, large audit firms have started to audit CSR information (KPMG, 2016; EY, 2016).

Given the trends and increased focus on the communication of CSR from an accounting perspective, CSR disclosures could potentially reveal additional information useful for investors. In fact, the emergence of Socially Responsible Investing (SRI) and sustainability indices indicates that investors increasingly look to invest in socially responsible firms (FTSE Russell, 2016; Morgan Stanley, 2016; S&P Dow Jones, 2016; The Forum for Sustainable and Responsible Investment, 2016). However, the performance of such firms have been questioned. Plenty of researchers have tried to either legitimise or reject the benefits of CSR disclosures, by investigating the effects of CSR on firm value. More specifically, they have looked at the value relevance of CSR from value creating, value destructing and value preserving perspectives, reaching no consensus. Another bulk of the research literature focuses on the potential relationship between CSR and earnings quality. The notion is that CSR can signal quality of the firm's presented earnings. These studies mainly use measurements of earnings management, which is seen as low earnings quality, to examine the relationship between CSR and earnings quality. A potential proven signalling relationship between CSR disclosure quality and the quality of a firm's presented earnings could be useful for investors when evaluating the firm performance. Given that investors can distinguish between good and bad underlying CSR

performance, and that such distinction can reveal value relevant information, it can have implications for what firms should communicate to its investors. Even so, only a few studies have looked at the relationship between CSR and a firm's earnings quality from a clear investor perspective.

1.1 Purpose and research question

The purpose of this study is to investigate the potential relationship between CSR and earnings quality from an investor perspective, to better understand the information environment of the firm. To fulfil the purpose, we examine whether CSR disclosure quality can serve as a signalling mechanism for earnings quality by studying the investor reaction to earnings news observed in the market. Considering that a limited number of studies has looked at the relationship between CSR and a firm's earnings quality by using a measure of the investor response to earnings news, we identify a need to investigate the relationship further. Also, there is room for improvement when it comes to measuring the CSR performance, perceived by investors. Subsequently, the following research question is developed:

Is there a relationship between CSR disclosure quality and the investor responsiveness to earnings news?

By answering the research question, we wish to contribute to the literature that uses investor reaction to earnings announcements to understand the information environment of the firm. In addition, we wish to contribute by further developing the CSR grading framework introduced by Martinelli and Psychogyios (2014) in their Master thesis.

1.2 Scope and study design

As outlined in the purpose of this study, an investor perspective is taken to better understand the information environment of the firm. The information considered is CSR disclosures in Annual Reports and CSR Reports. This study takes a CSR standpoint in line with Elkington (1994) who introduced the triple bottom line concept of economic prosperity, social justice and environmental quality. Based on this perspective on performance related to CSR, GRI indicators on the economic, social and environmental dimensions are selected to evaluate CSR disclosure content. The measured CSR disclosure quality is assumed to be able to signal good management, including earnings quality, and the market reaction is deemed to reflect investor

perception of this earnings quality. This is conditional on that investors look into the CSR disclosures, recognise the signal and react accordingly. The definition of earnings quality is earnings based on economic fundamentals rather than managerial discretion (Gao and Zhang, 2015).

In order to answer our research question and fulfil the purpose of the thesis, a sample of 68 Large and Mid Cap industrial firms listed on Nasdaq Nordic is selected. The study is divided into two main parts. First, CSR disclosure quality as a measure of perceived underlying CSR performance is evaluated for each firm of interest in our study, based on content analysis and an adjusted version of the grading framework developed by Martinelli and Psychogyios (2014). Second, an event study methodology is used to both visually and statistically investigate the relationship between CSR disclosure quality and investor responsiveness to earnings news, as captured by the earnings response coefficient (ERC).

2. Previous research

2.1 Investor responsiveness to earnings news

Managers disclose accounting information such as earnings per share to reduce information asymmetry between investors and themselves. When there are unexpected earnings, the response to the news depend on how value relevant investors find the new information, as informativeness increases with higher quality earnings (DeFond, Hung and Trezevant, 2007). The quality of earnings can thus be defined as how value relevant the information is. In other words, whether it is based on economic fundamentals rather than managerial discretion (Gao and Zhang, 2015).

The market response to earnings news, using Earnings Response Coefficients (ERCs), has been commonly used as a proxy for earnings quality or earnings informativeness (Mehrani, Moradi and Eskandar, 2016; Lennox and Park, 2006). Previous literature has found mainly firm-specific, but also some country-specific characteristics, such as investor protection institutions, that can affect the responsiveness to earnings news. On a firm level, factors such as firm size, financial structure, growth opportunities and risk factors are commonly used in studies looking at what can have an impact on the earnings response to news (Muttakin, Khan and Azim, 2015; Martínez-Ferrero, Garcia-Sanchez and Cuadrado-Ballesteros, 2015).

Another such firm characteristic is Corporate Social Responsibility (CSR), increasingly becoming a prerequisite to legitimize the existence of a firm. Choi and Moon (2016) look at whether investors and analysts perceive earnings quality as being improved by engagement in activity related to CSR. Using a sample of Korean listed firms for the period 2002-2011, ERCs to measure investors' perceptions of earnings quality and the Korea Economic Justice Institute index to measure CSR engagement, they find that the ERC is higher for socially responsible firms. Furthermore, Jeong, Jeong, Lee and Bae (2016), conduct a similar study using the same index database in the Korean Stock Market between 2004 and 2009, scoring firms based on whether they invest in permanent CSR or temporary CSR activities and find that companies with lower variance in CSR activities have greater ERCs. Both these studies indicate that socially responsible firms have higher perceived earnings quality than less responsible firms.

The positive relationship between CSR and the ERC, argued for by Choi and Moon (2016) and Jeong et al. (2016), is an interesting finding. However, these are after all only two studies

performed in a particular market with a certain type of CSR measure. One can question whether the positive relationship holds also for other settings with different measurements of CSR, or if the relationship is highly specific for the study setup used. Except for these studies, the relationship between CSR and the ERC has not been directly tested, to the best of the present author's knowledge. However, the relationship between CSR and earnings quality has been quite extensively investigated, mainly through some accounting-based proxy for earnings management. The theoretical and empirical findings on the relationship between CSR and earnings quality will now be further explained.

2.2 CSR and earnings quality

2.2.1 Theoretical findings on the relationship between CSR and earnings quality

Choi and Moon (2016) argue for a two-folded signalling mechanism for CSR that can explain a positive relationship between CSR and earnings quality. First, they claim that managers use CSR to signal future financial improvements, and that these financial improvement expectations mitigate the incentive to engage in earnings management. This is commonly referred to as the good management hypothesis, where CSR improves performance thanks to good management of the company, signalled by CSR (Kang, Germann and Grewal, 2016; Gao and Zhang, 2015; Bozzolan, Fabrizi, Mallin and Michelon, 2015). Second, Choi and Moon reason that firms use CSR as a signal to increase the reputation of the firm. Engaging in earnings management would risk that reputation. Thus, they argue that CSR firms are more likely to have higher earnings quality than non-CSR firms. The reputation aspect is further mentioned by Martínez-Ferrero et al. (2015), who follow the reasoning by Francis, Nanda and Olsson (2008) about the possible relationships between financial reporting quality and sustainability information disclosure. On the one hand, CSR can be seen as a potential mechanism to promote the company, which would result in a complementary relationship between financial reporting quality and sustainability information disclosure. On the other hand, CSR can be seen as a mechanism of legitimacy, where sustainability information disclosures substitute the lack of financial reporting quality. This legitimisation mechanism reasoning is also present in a study by Muttakin et al., (2015) but who argue for the relationship to be context specific where CSR disclosures are used as a tool to mitigate opportunistic behaviour in emerging markets, but where powerful stakeholders, such as international buyers, can make the relationship to change such that earnings management is constrained. Chih, Shen and Kang (2008) further state that the reason for a negative relationship between CSR and earnings quality can be a result of the

multiple objectives of CSR firms. Due to tensions arising from those, the incentive to engage in earnings management to conceal opportunistic behaviour becomes incentivized. Kim, Park and Wier (2012) also argue for a potential opportunistic financial reporting hypothesis and tests it against a transparent financial reporting hypothesis, where socially responsible firms are also responsible when it comes to financial reporting.

To summarize, as far as we have noticed, the theories covered in previous literature on a possible positive relationship between CSR and earnings quality are the following:

- 1) CSR signals good management and future firm performance, which gives less incentive to engage in earnings management, indicating earnings quality.
- 2) CSR signals a reputational benefit, thus the risk of losing the reputation gives less incentive to engage in earnings management, indicating earnings quality.
- 3) CSR signals responsible behaviour, and thus also transparent financial reporting, indicating earnings quality.

The reason for a potential negative relationship between CSR and earnings quality is the following:

- 1) CSR signals an attempt to legitimize opportunistic behaviour, indicating poor earnings quality.

2.2.2 Empirical findings on the relationship between CSR and earnings quality

The empirical findings show evidence for both a positive and negative relationship between CSR and earnings quality. As mentioned before, Choi and Moon (2016) and Jeong et al. (2016) find a positive relationship between CSR and earnings quality, as measured by ERCs. In addition to these studies, there are several empirical findings supporting this positive relationship from the literature investigating the relationship between CSR and earnings management. The positive relationship between CSR and earnings quality, is in these studies indicated by the negative relationship between CSR and earnings management. Chih et al. (2008) finds a negative effect of CSR on earnings management, measured by earnings smoothing, earnings losses and earnings decrease avoidance. However, they found a positive effect when earnings aggressiveness was used as a measure of earnings quality, however mitigated with legal enforcement. While Chih et al. (2008) have used earnings smoothing simply as a measurement of earnings management, a manipulative tool, Gao and Zhang (2015) distinguish between value relevant and irrelevant earnings smoothing. They find that high CSR

score firms smooth earnings to a smaller extent than low CSR score firms. Even though high CSR score firms smooth earnings, they find that the information was perceived more value relevant for smoothers with high CSR scores than low CSR scores. Martínez-Ferrero et al. (2015), use compliance with GRI as a measure of sustainability reporting. Their findings support a complementary relationship between financial reporting quality and sustainability information disclosure. Kim et al. (2012), find a negative effect between CSR and discretionary accruals, real activities manipulation and the incidence of Accounting and Auditing Enforcement Releases (AAERs), thus also supporting a positive relationship between CSR and earnings quality. All these findings are potential support for a relatively higher ERC for firms with a signalled good underlying CSR performance.

Although many studies have found a positive relationship between CSR and earnings quality, there are studies that have found a negative relationship, indicated by a positive relationship between CSR and earnings management. For instance, in a study by Prior, Surroca and Tribó (2008) the effect of earnings management on CSR is studied, based on that CSR can act as an “entrenchment mechanism” to avoid damaging relationships with stakeholders. The causality here is from earnings management to CSR, in contrast to the studies above. They find a positive effect of earnings management on CSR and a negative effect of earnings management and CSR together on financial performance. The entrenchment mechanism can be seen as the legitimisation mechanism, but the other way around. In other words, instead of concealing opportunistic behaviour proactively, one does it reactively. Furthermore, Muttakin et al. (2015), studying the relationship in an emerging economy, also find support for a negative relationship between CSR and earnings quality, which is explained by firms trying to conceal opportunistic behaviour. However, the relationship is found to be context-specific dependent on expectations from stakeholders.

As depicted, there are empirical findings supporting both a positive and negative relationship between CSR and earnings quality, albeit the findings on a positive relationship are represented to a greater extent. As mentioned before, theory argues that the reason for a negative relationship between CSR and earnings quality is the incentive to conceal opportunistic, “greenwashing”, behaviour. The question becomes whether these studies really capture the underlying CSR performance, rather than only looking at opportunistic CSR. The use of CSR indices to measure CSR may not capture the relevance and quality of different CSR activities, but rather measure the quantity of CSR engagement. The use of indices to measure CSR is in

studies mentioned as a limitation as it may cause biased empirical results (e.g. Chih et al., 2008). The findings made by Jeong et al. (2016) indicate that one can distinguish between opportunistic and informative earnings information by assessing the type of CSR investments. From an investor perspective, the relationship between good underlying CSR performance and earnings quality could potentially be of interest. Given that investors can distinguish between good and bad underlying CSR performance, they could potentially evaluate a firm's earnings quality based on its signalled CSR performance.

CSR disclosures are a potential tool for investors to assess a firm's CSR activities. Whether investors do assess this information depends on whether they find the information to be of value relevance. To understand the value relevance of these disclosures, and the determinants of high CSR disclosure quality important for investors, the literature around CSR and firm performance will further be covered.

2.3. Value relevance of CSR disclosures

The literature on CSR has for a long time tried to establish the effect of CSR on financial performance, reaching no consensus.

There are studies arguing for the positive, value enhancing or preserving, effect of CSR. From a cash flow perspective, CSR has been found to be value enhancing by for instance attracting consumers who demand and/or are willing to pay more for socially responsible goods and services (Hainmueller, Hiscox and Sequeira, 2015) as well as employees who prefer socially responsible employers and thus are willing to get paid less (Fehr, Gächter and Kirchsteiger, 1997). An alternative way of CSR having potential cash flow impact, investigated by for instance Godfrey, Merrill and Hansen (2009) and Groening and Kanuri (2016), is that CSR can work as an insurance mechanism, and preserve rather than enhance value. The idea is that CSR can signal good management and build up moral capital for the firm, and thereby mitigate the negative effect in the aftermath of the event. Godfrey et al. (2009) and Groening and Kanuri (2016), both find that certain types of CSR activities can generate such an insurance effect. Another risk management related point of view is the found connection between CSR and a lower cost of capital (Reverte, 2012; Dhaliwal, Li, Tsang and Yang, 2011). The value enhancing and preserving perspective on CSR is in line with the good management view on CSR.

Even if studies have found a value generating or preserving mechanism of CSR, there are also studies showing that CSR is value destructing. Brammer and Pavelin (2006) find that firms with high social responsibility scores generate low stock returns, while firms with low social responsibility scores outperform the market by generating considerable abnormal stock returns. The authors thereby present a view of corporate social performance as value destructing and say that their findings have important implications for investors who are considering implementing ethical screens, since that would deteriorate their performance. This is in line with the opportunistic view on CSR.

Both value enhancing, value preserving and value destructing arguments for CSR exist in the literature. No matter what side to believe in, CSR disclosures can provide value relevant information for investors.

3. Research question and hypotheses formulation

As depicted, there is reason for investors to look into CSR disclosures to evaluate CSR disclosure quality, which can indicate the underlying CSR performance and thus earnings quality. Investigating the direct relationship between CSR and financial performance, or the relationship between CSR and earnings quality, can only give indications of the actual perception of CSR among investors. As previously mentioned, the relationship between CSR disclosure quality and the investor response, measured by the Earnings Response Coefficient (ERC) is fairly unexplored. From the studies around CSR and earnings quality, it is concluded that given that investors can distinguish between good and bad underlying CSR performance, they could potentially evaluate a firm's earnings quality based on its signalled CSR performance. There is therefore room to find an appropriate way of measuring CSR to capture this. To the best of our knowledge, there is room in the literature to further investigate and contribute to whether differences in investor responsiveness to firms' earnings news can be explained by differences in CSR. Based on this reasoning, we formulate the following research question:

Is there a relationship between CSR disclosure quality and investor responsiveness to earnings news?

Following previous literature, the ERC can be observed to capture investor responsiveness to earnings news, as a reflection of perceived earnings quality. The ERC captures the magnitude of a security's abnormal return in response to the unexpected component of reported earnings and is thus commonly used in examining valuation implications of accounting (Jeong et al, 2016). To illustrate how the ERC works, imagine if investors would perceive reported earnings to be of high quality, and 100% value relevant. In other words, the earnings reported are perceived to be based on economic fundamentals rather than managerial discretion (Gao and Zhang, 2015). In such a case, the ERC would be 1, meaning that earnings news of, say, +10% would lead to a 10% increase in the market price of that stock. However, due to for instance limited attention among investors and depending on the perceived value relevance of earnings news, ERC will deviate from 1 in practice. For this study, we want to see whether the ERC, for good and bad news respectively, is significantly different for different levels of CSR disclosure quality.

Given that investors can distinguish between good and bad underlying CSR performance, where good underlying CSR performance is such performance that can either preserve or enhance value of the firm, there are reasons to believe that Good CSR firms signal earnings quality whereas Bad CSR firms signal poor earnings quality. Good CSR firms, with good underlying CSR performance, are perceived to have earnings quality as a result of the perceived underlying CSR performance reflecting general good management and responsible behaviour. Bad CSR firms, are perceived to have poor earnings quality as a result of the perceived bad underlying CSR performance that reflects general bad management and opportunistic behaviour.

Following this reasoning, there is reason to believe that for good news, Good CSR firms have a higher ERC than Bad CSR firms ($ERC_{\text{Good CSR}} > ERC_{\text{Bad CSR}}$). This is since the market will perceive the same news more value relevant for a Good CSR firm than a Bad CSR firm. As a result, the first hypothesis is as follows.

Hypothesis 1: For good news, there is a significant and positive relationship between CSR disclosure quality and the Earnings Response Coefficient (ERC)

For bad news, however, the relationship is expected to be different. Bad news is for Good CSR firms perceived as transparent. Thus, the market reacts fully to the news, or partly if there is reason to believe that the firm will recover from any bad times due to general good management. If the bad news hit a Bad CSR firm, however, there is reason to believe that the bad news is even worse than reported, or at least more persistent than the bad news coming from a Good CSR firm. If investors perceive Bad CSR firms to conceal opportunistic behaviour, and recognise the signal of poor earnings quality, a stronger market reaction is expected for Bad CSR firms than Good CSR firms ($ERC_{\text{Good CSR}} < ERC_{\text{Bad CSR}}$). Consequently, the second hypothesis is formulated as follows.

Hypothesis 2: For bad news, there is a significant and negative relationship between CSR disclosure quality and the Earnings Response Coefficient (ERC)

4. Study methodology

To answer our research question, we need to find a way to measure perceived underlying CSR performance and a way to relate it to investor responsiveness to earnings news. The study methodology is divided into two main steps. First, CSR disclosure quality as a measure of perceived CSR performance is evaluated for each firm of interest in our study, based on content analysis and an adjusted version of the grading framework developed by Martinelli and Psychogyios (2014). Second, an event study methodology is used to both visually and statistically investigate whether there is a relationship between CSR disclosure quality and investor responsiveness to earnings news.

4.1 CSR disclosure quality as a measure of perceived CSR performance

As opposed to Jeong et al (2016) and Choi and Moon (2016), who both use available index databases to gather CSR data, we use content analysis to distinguish between perceived good and bad CSR performance. The content analysed is CSR disclosures found in Annual Reports and CSR Reports of each firm in our sample. To evaluate the CSR disclosure quality, as a measure of the perceived underlying CSR performance of a firm, we use an adjusted version of the grading framework developed by Martinelli and Psychogyios (2014).

Content analysis is a tool for quantifying the existence of certain content. There is a trade-off between using content analysis and index databases. In both cases, the evaluation of CSR is inevitably subjective. However, by using content analysis, we can control our data to a greater extent than if using an external data index, where we get limited insights into how the data was arrived at. In previous studies investigating the relationship between CSR and earnings management, the use of index databases has been criticised as a weakness as the reliability can be questioned (Chih et al., 2008). There is also a risk of over working data if many studies use the same databases, and that such over working reduces the external validity of such studies (Ryan, Scapens and Theobald, 2002 p. 124). Also, the different indices have different criteria for evaluating the same activities. Using content analysis becomes an advantage, and allows for flexibility in the use of data. As a result, the data can be used to better distinguish between good and poor disclosure quality. Inevitably, however, content analysis is time consuming. The nature of content analysis in combination with the time constraints for this thesis limit the

sample size. However, the size of 108 observations is according to Brown and Warner (1985) enough to be able to make insightful inferences of the results.

4.1.1 Grading framework developed and used

4.1.1.1 Indicators to be assessed

The content to be assessed in our analysis is, in line with Martinelli and Psychogyios (2014), based on the Indicators along the Economic, Environmental and Social categories suggested by the Global Reporting Initiative's (GRI) G4 Sustainability Reporting Guidelines (Global Reporting Initiative, 2016a). The choice of these indicators are threefold. Firstly, the guidance provides an international quality indication and can be used by firms regardless of firm size, sector or geographical location. This allows for comparability across firms and industries. Secondly, the guidance has been developed together with a wide range of stakeholders such as business, auditors, regulators and financial markets. This, in combination with the globally acceptance of the standards, indicates that these indicators most likely can convey value relevant information to investors about the company performance with respect to CSR activities. Thirdly, these indicators are, to the extent possible, developed as specific and quantitative measures of a firm's CSR performance. The use of quantitative measures is motivated based on signalling theory, saying that a signal is effective if it is hard to mimic and verifiable (Spence, 1973).

GRI presents 91 indicators in total across the three categories - Economic (9 indicators), 34 Environmental (34 indicators) and Social (48 indicators). In contrast to Martinelli and Psychogyios (2014), who chose to narrow down the number of indicators based on what should be suitable for their sample firms in the banking sector, we choose to keep all indicators. Some indicators, however, have been merged if the indicators are related to such an extent that the quality criteria, which will be walked through in the next section, will capture the content of both indicators when evaluating the merged indicator¹. As a result, the final number of indicators is slightly reduced to 85. The logic behind not removing any indicators before the assessment is that we do not want to restrict the indicators to what we subjectively deem business model relevant for the industry in general. Rather, by not restricting which indicators

¹ For example, indicator 3 and 4 cover energy consumption within and outside the organisation respectively. These two indicators are merged to cover energy consumption, both within and outside the organisation.

to assess, we allow for differences in business model relevant indicators depending on what the firm discloses.

4.1.1.2 Quality criteria to assess indicators

CSR disclosures cannot measure actual CSR activity or performance. However, it is a way for firms to decrease the information asymmetry between its managers and investors (Wang, Zhou, Lei and Fan, 2016). It becomes important, however, to distinguish between firms with CSR disclosures that represent the underlying CSR performance and firms with CSR disclosures that does not represent the underlying performance. To achieve this, the indicators are assessed based on certain quality criteria such that quality rather than quantity is evaluated. In line with Martinelli and Psychogyios (2014), we use the quality criteria auditability, business model relevance and comparability to score the CSR disclosure quality. The use of these criteria is supported by signalling theory and also captures the reporting quality criteria suggested by GRI (Global Reporting Initiative, 2016a; Spence, 1973).

We follow their grading framework in detail for auditability and comparability with minor clarifications in the grading guidelines to secure internal validity. However, we score business model relevance on a higher level than Martinelli and Psychogyios (2014) who score it on an indicator level. This higher assessment level refers to what GRI refers to as the Economic and Environmental categories, as well as the Social sub-categories Labour Practices, Human Rights, Society and Product Responsibility. For simplicity reasons, in this thesis these categories and sub categories are merged and referred to as CSR dimensions. The motivation for assessing business model relevance on a CSR dimension level, is that this assessment level is deemed more relevant than assessing business model relevance on an indicator basis. It becomes challenging to assess business model relevance within a sub-category without ending up giving several indicators the same score. In fact, after comparing the scoring resulting from assessments made separately by the authors of the same report, it was found more reliable and time efficient to score business model relevance on a CSR dimension level. Assessing business model relevance based on the CSR dimensions is further supported by previous studies that commonly use this level of detail to distinguish between the value relevance of a firm's CSR activities.

The score range possible for business model relevance is further extended and improved compared to the range used by Martinelli and Psychogyios (2014) to better capture differences

across firms in their signalling of business model relevance. Each of the 68 reports that were assessed was dedicated approximately 75 minutes for grading. Even if the total score possible for business model relevance is lower, we estimate the time dedicated to each of the three criteria to be the same. This is since the evaluation of business model relevance for each sub-category took place parallel to the evaluation of auditability and comparability, since the information about the sub-category increased with the evaluation of auditability and comparability for indicators related to each sub-category.

4.1.1.3 Quality criteria summarised

Below follows the grading framework used to assess CSR disclosure quality in this study.

Auditability: The auditability scale, with four possible values ranging between 0 and 2, is based on how auditable the disclosure of information about an indicator is. The more transparent and verifiable the information related to an indicator is, the higher score.

Points	Guidelines for grading
0	Nothing is mentioned about the indicator.
0.5	Only a very general and brief description is provided. Also, the same points are awarded if the company clearly mentions that the specific indicator is not applicable to its activities and thus do not disclose information on the specific indicator.
1	A numerical disclosure is provided. For indicators that are not explicitly numerical in nature, a more detailed description gives 1 point.
2	A thorough analysis is provided. This could include a specific and numerical description and/or explanatory examples with references to a specific action, person, event, or place.

Business model relevance: The business model relevance scale, with six possible values ranging between 0 and 2.5, is based on how integrated the CSR dimension is within the business model of the company. Points are given depending on the level of credibility in its conveying of information around how the CSR dimension is related to the company's cash flow. The more evidence of an integrated CSR dimension, the higher score.

Points	Guidelines for grading	Example applicable to Environment
0	No information is disclosed about the CSR dimension or the information disclosed does not express that the category/sub-category is important.	No information about the relationship between the company and the environment is mentioned.
0.5	The CSR dimension is expressed to be important to the company and/or how it is important, but without a description of how the category/sub-category affects the business and how it is integrated into the business model and processes.	Mentions that it is important to the company to respect the environment without mentioning how the environmental aspect is managed.
1	The company mentions or indicates that the CSR dimension is managed through processes of the company. A brief description of the processes could, but is not required to, be included.	Policies or programs that cover and/or manage environmental issues are mentioned.
1.5	In addition to what is required for 1 point, it is described in more detail how these processes are in place and work.	Mentions that there are Key Performance Indicators related to environmental goals.
2	In addition to what is required for 1.5 points, a specific reference example is given, illustrating how the CSR dimension is integrated within the business model and processes, and/or an explanation to how the process affects the business performance.	Refers to an example of how energy efficient products are developed as a response to a customer demand for such environmentally friendly products, indicating an improved business performance.
2.5	In addition to what is required for 2 points, a numerical disclosure is given that further explains that the CSR dimension affects the business performance.	Includes how much savings or increased sales the reference example for 2 points contributes to.

Comparability: The comparability scale, with three possible values ranging between 0 and 2, is based on how comparable an indicator is across years and across competitors. The more comparable, the higher score.

Points	Guidelines for grading
0	No comparison is provided, neither historically nor against competitors.
1	One comparison is provided for the indicator, across years or across competitors.
2	Both comparisons are provided for the indicator, across years and across competitors.

Table 1: Grading framework overview

No	Indicator	Category	Sub-category	Aspect	Indicator Guidance	2014			Total
						AUD	BMR	COM	
1	G4-EC1	Economic		Economic Performance	Direct economic value generated and distributed	0	0	0	0
...	...	...		...	...	0		0
Economic						0	0	0	
10	G4-EN1	Environmental		Materials	Materials used by weight or volume	0	0	0	0
...	...	...		...	...	0		0
Environmental						0	0	0	
38	G4-LA1	Social	Labour Practices and Decent Work	Employment	Total number and rates of new employee hires and employee turnover by age group, gender and region	0	0	0	0
...	...	...	...	...	...	0		0
Labour Practices and Decent Work						0	0	0	
...	0	0	0	0
...	...	...	...	...	...	0		0
Human rights						0	0	0	
...	0	0	0	0
...	...	...	...	...	...	0		0
Society						0	0	0	
...	0		0	0
85	G4-PR9	Social	Product Responsibility	Compliance	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	0	0	0	
Product Responsibility						0	0	0	
Social						0	0	0	0
TOTAL						0	0	0	0

4.1.1.4 Overview of the grading framework

Table 1 presents an overview of the grading framework used.

4.1.1.5 Weighting of scores

Distinction between different CSR activities

An important aspect in this study is how the different scores for the three quality criteria should be weighted. In the literature on CSR and firm performance, a distinction between different CSR activities is emphasised to be able to distinguish between value relevant and opportunistic

CSR activities (Groening and Kanuri, 2016; Godfrey et al., 2009; Prior et al., 2008). Godfrey et al. (2009) distinguish between institutional CSR activities, defined as CSR activities towards secondary stakeholders or society at large, and technical CSR activities, defined as CSR activities towards primary stakeholders or trading partners. They investigate whether firms with good CSR performance can benefit from moral capital and thus be insured against negative events, and find an insurance effect for institutional CSR activities, but not for technical CSR activities. This insurance effect for institutional CSR activities is further supported by Chang, Kim and Li (2014), who also find that technical CSR can improve financial performance.

Groening and Kanuri (2016), in line with Chang et al. (2014) and Godfrey et al. (2009), use the division of CSR activities into technical and institutional CSR. Technical CSR is defined as activities that closely affect the firm's value chain and thus its cash flow whereas institutional CSR is defined as activities that are not as closely related to the cash flow. Groening and Kanuri find that few technical CSR activities indicate that the firm only invests for self-serving purposes, leading to a negative stock market reaction, while many technical CSR activities indicate a true dedication to the value chain, leading to a positive stock market reaction. They also find that few institutional CSR activities create an insurance like moral reputation of the firm with a corresponding positive abnormal stock market return, while many institutional CSR activities indicate a waste of resources for the firm investing too much in activities not related to its cash flow.

The above studies emphasise the importance of distinguishing between different types of CSR activities. To focus on primary stakeholders, that can affect the cash flow directly and thus are relevant for the business model, are argued to give clear financial benefits. CSR activities towards secondary stakeholders, on the other hand, seem to potentially give risk mitigating benefits to some extents, but the effects are not completely clear.

Total CSR scores

Based on the findings above, the total CSR score for each firm is based on two different approaches.

Firstly, an equal weight is given to the three quality criteria scores, reasonably assuming that the three are equally important to explain differences in CSR disclosure quality that investors recognize and react to. The weighting allows for firms to receive scores on indicators regardless

of the conveyed business model relevance of the CSR dimension. Thus, potential institutional CSR activities that can be deemed value relevant for risk management purposes and/or opportunistic purposes are also incorporated in the CSR score. For instance, if business model relevance for Human Rights is given 0 points in the grading, but indicators within the Human Rights dimension are given scores on auditability and comparability, these scores will still count in the total CSR score. This type of total CSR score is hereafter referred to as an equally weighted CSR score.

Secondly, the highlighted importance of technical CSR on financial performance is further given emphasis in the second approach to grading. In this total CSR score, business model relevance is used as a weighting tool to the auditability and comparability criteria scores. More specifically, the score from auditability and comparability for each CSR dimension is weighted, based on the level of business model relevance score for the corresponding CSR dimension. For instance, if business model relevance is given 1 point out of the 2.5 possible points for Human Rights, 40% of the score for auditability and comparability, for all Human Rights indicators, is transferred to the total CSR score. Following the same logic, if business model relevance is given 0 points out of the 2.5 possible points for Human Rights, 0% of the score for auditability and comparability, for all Human Rights indicators, is transferred to the total CSR score. The motivation for this measure of CSR disclosure quality is based on previous literature, which provide some evidence pointing at that CSR is perceived as value destroying if investors cannot see the cash flow effect from such a CSR investment. The measure is built to capture only value enhancing and institutional activities that are crucial for risk management, for each specific firm. In other words, any opportunistic CSR activities are not supposed to receive any points. On the contrary, the equal weight measure allows for getting points for all types of institutional CSR activities. Using both measures can thus give insightful guidance to how the different CSR activities are perceived by investors.

For investigation purposes, these CSR scores are ranked and divided into groups. Firstly, two groups are formulated, “Good CSR” and “Bad CSR”. Secondly, to be able to get a larger separation between different levels of CSR disclosure quality, a division into “Good CSR”, “Mid CSR” and “Bad CSR” is performed. The rationale behind these divisions is further explained in section 5.1.1.

4.1.1.6 Data collection and issues managed

Annual Reports, and CSR Reports² if available, are collected from each company website for fiscal year 2014. The selection of 2014 is twofold. Firstly, it allows us to say something about the current state. The view on CSR today and in most recent years is most certainly different from the view on CSR five or ten years ago. In 2015, when the 2014 reports are produced, there is a minimal risk that differences across companies in their CSR disclosure quality can be explained by asymmetry in knowledge about CSR and its implications. Thus, the evaluation of CSR disclosure quality becomes comparable across companies. Secondly, the reports for fiscal year 2014 are the latest available reports that allows us to include the largest number of earnings announcement dates for each company. We want to ensure that the information conveyed in CSR disclosures is available to investors at the time of the earnings announcement. Thus, the CSR disclosure quality score for 2014 can be linked to investor responsiveness to Q2, Q3 and year end earnings news for fiscal year 2015.

Any information not included in the reports is disregarded from evaluation. This is a limitation if investors look into for instance the website information when making their investment decisions. However, as Martinelli and Psychogios (2014) point out, there are studies indicating that websites are mainly a source of information for other stakeholders such as customers and prospective employees. Furthermore, even if separate CSR reports are not consistently published on the exact same day as the Annual Report, the CSR Reports are published as a complement to the Annual Report which says something about its target audience. There is reason to believe that the information in a published, perhaps audited, report is deemed more reliable and accurate than website information. Nevertheless, even if controlling for website information would be desirable, it is not possible to currently assess the companies' websites at the point in time when the CSR report was published. However, a check is performed for a group of firms with the lowest CSR score, where the current websites are screened for relevant CSR information. The logic behind is that the lowest performers might have decided to present their information on their website, not disclosed in a report. The current website gives an indication whether the company had such information on their website before. None of the

² The names of these CSR Reports differ. Examples are "Sustainability Report", "GRI Report" and "CSR Report". One separate CSR related report was evaluated for each firm, if available. Sometimes, there were GRI complement reports in addition to a separate CSR related report. In those cases, the complementary reports were disregarded due to time constraints. However, these complementary reports included references to the reports being evaluated, indicating that the main information was reported there as well. Thus, disregarding the complementary reports was deemed to not cause any bias.

companies had any such information deemed to make any difference for their achieved CSR score.

When evaluating the CSR disclosure quality using content analysis, it becomes important to test whether the grading based on the aforementioned framework can be repeated without getting any significant deviations. To test this, we randomly picked out companies and calibrated our individual CSR disclosure quality grading for the same companies. In the first rounds, significant discrepancies were discussed and the framework was clarified to mitigate the risk of future grading discrepancies. Once the framework was final and deemed clear enough, a couple of calibrations were made in the beginning and another one after approximately halfway into the data collection process to make sure we developed in the same manner. Furthermore, any major questions were discussed as they occurred to make sure we had the same view on different scenarios. Table 2 below presents the results of our calibration tests that were made when the final framework was established.

Table 2: Calibration test

	AUD		BMR		COM		Total	
	Coder 1	Coder 2	Coder 1	Coder 2	Coder 1	Coder 2	Coder 1	Coder 2
Economic	4	4	1	1	1	1	6	6
Environmental	8.5	8	1	1	2	2	11.5	11
Labour practices and decent work	8	7	2	2	0	1	10	10
Human rights	5	4.5	2	2	0	0	7	6.5
Society	3	4	2	2	0	0	5	6
Product responsibility	1	1.5	0.5	0.5	0	0.5	1.5	2.5
G4S	29.5	29	8.5	8.5	3	4.5	41	42
Economic	4	4	0.5	0.5	1	1	5.5	5.5
Environmental	7.5	5.5	2	2	0	0	9.5	7.5
Labour practices and decent work	4.5	5	2	1.5	1	1	7.5	7.5
Human rights	0	0	0	0	0	0	0	0
Society	0.5	0	0	0	0	0	0.5	0
Product responsibility	1	0.5	1	1	0	0	2	1.5
Konecranes³	17.5	15	5.5	5	2	2	25	22
Economic	10	9	2	1.5	3	2	15	12.5
Environmental	18	16	2	2	6	5	26	23
Labour practices and decent work	5	5.5	2	2	2	1	9	8.5
Human rights	0	0.5	0	1	0	0	0	1.5
Society	4	7.5	1.5	2	1	1	6.5	10.5
Product responsibility	0	0.5	0	0.5	0	0	0	1
SAAB⁴	37	39	7.5	9	12	9	56.5	57

³ Fiscal year 2008 reports evaluated, initially intended to be included.

⁴ Fiscal year 2011 reports evaluated, initially intended to be included.

4.2 Event study methodology

An event study methodology is used to both visually and statistically investigate whether there is a relationship between CSR disclosure quality and investor responsiveness to earnings news. An event study is used to examine the stock market response to a well-defined event by observing the security prices around such an event (Peterson, 1989). Based on the semi-strong form efficiency hypothesis, stock prices should speedily and unbiasedly react to publicly available information (Ryan et al., 2002). The event study methodology is a popular way to study whether this hypothesis holds. In other words, whether stock market prices do reflect the information that is available in the market place.

Following established event study methodology steps outlined by MacKinlay (1997), we divide the methodology into the following steps: i) select sample of interest ii) select event of interest and the event window iii) measure abnormal returns iv) conduct regression analysis.

4.2.1 Sample of interest

We select all Large and Mid Cap industrial companies listed on Nasdaq Nordic as per 30 September, 2016. The available firms listed at the time consisted of 43 Large Cap and 56 Mid Cap companies, including both A and B shares for some of the companies. The exclusion of Small Cap is due to the restricted disclosure of information by such companies. Thus, the evaluation of CSR disclosure quality cannot be made on the same premises for Small as for Mid and Large Cap companies. The investor type, which also can affect the reaction to earnings news, is also most likely different for Small Cap than Mid and Large Cap (Mehrani et al., 2016).

Since our possible sample size is limited due to the use of content analysis, the possibility to get statistically significant results is higher if we have a large enough sample where we can control for sector and market specific characteristics through sample selection rather than using sector and market fixed effect when running statistical tests. The Nordic market is selected as it allows us to control for large institutional differences related to legal enforcement and investor protection as well as cultural differences and norms when it comes to the perception of CSR (Haw, Hu, Lee and Wu, 2012; DeFond et al., 2006). Furthermore, by focusing on a single sector, industrials, we control for any sector specific differences when it comes to the effect of CSR on the investor responsiveness to earnings news. The industrials sector is reasonably subject to scrutiny when it comes to CSR. Thus, the majority of industrial companies are expected to

disclose some kind of CSR related information that can be evaluated. Thus, this sector allows for more CSR disclosure quality variation across companies. The initial sample of 99 companies was deemed a large enough sample to use as an initial sample in this study.

For comparability and consistency reasons, A stocks, holding companies, companies with reports that were only available in Swedish and companies with fiscal years different from calendar years are excluded. We also exclude companies with missing Annual Reports or missing CSR reports that were referred to on the website or in the Annual Report, and companies that were listed after 2014. As a result, the initial sample size of 99 companies is reduced to 68.⁵

4.2.2 Event identification and event window specification

4.2.2.1 Event of interest: Earnings news

The event of interest in this study is earnings announcements including earnings news. We choose earnings news conveyed in the Q2, Q3 and year end earnings announcements. Selecting these three events maximises the number of observations per CSR Report evaluated, while ensuring that the CSR Report for fiscal year 2014 was available to investors at the event date. It is worth noting that interim earnings announcements and year end earnings announcements have different characteristics. The earnings reported in the latter are audited and thus reasonably perceived as being of higher quality to begin with. This can potentially lead to a generally stronger reaction to any new information conveyed in year end announcements than in interim announcements. This is managed in the statistical analysis.

4.2.2.2 Event window specification

The event of interest, earnings news, occurs on the earnings announcement date. If we knew that the whole market reaction to this news would be observed on this particular day, we would only include one day, the event date, to study the investor responsiveness to earnings news. However, as MacKinlay (1997) states, it is customary to have an event window that is larger than the specific period of interest since part of the reaction to the news can take place before the event date, due to leakage of information, and/or after the event date, due to failure to incorporate all the news on the actual announcement date. To investigate whether such pre and post event reactions can be observed in our study, we first use an event window of 21 trading

⁵ More information about the 68 evaluated firms is provided in detail in Appendix 1.

days, comprising of 10 pre-event days, the event date and 10 post-event days. Graphing the average cumulative abnormal return (CAR) for event window (-10, +10) for good and bad earnings news separately, an event window of (-1, +3) days was deemed appropriate to capture the entire market reaction related to the earnings news event. There is a trade-off between using long and short event windows. A longer window is beneficial to make sure to capture the entire event of interest. A shorter window, on the other hand, gives larger power in the statistical tests and avoids including other impacting events surrounding the event of interest (MacKinlay, 1997). An event window of (0, +2) was therefore also deemed of interest, and included in a sensitivity analysis, to ensure the investor reaction to earnings news was captured properly.

Ideally for the purpose of this study, all three announcement occasions, Q2, Q3 and the year end announcement, included in the study would deliver earnings news. If the earnings announcement conveys new information to investors, we would expect a reaction on the stock market around the announcement date. Good (bad) news are expected to lead to an increase (decrease) in the valuation of the firm. If the market does not perceive any news, however, these observations will not contribute to our study. To make sure that we have a significant news event that is likely to create a market reaction, we follow MacKinlay (1997) and say that a difference between reported EPS and consensus EPS of at least $\pm 2.5\%$ indicates that we have good (bad) news⁶. Announcements conveying unexpected earnings of less than this threshold are dropped from the sample.

For each event, we collected data from Thomson Financial Datastream on the announcement date and the percentage difference between reported EPS and the corresponding consensus EPS forecast, which is a mean of analyst forecasts⁷. When data was missing from the database, the data was collected from the Financial Times website⁸. If the data was missing from Financial Times, the observation was dropped from our sample.

Furthermore, we have controlled for confounding events around the earnings announcement date that can create noise in our observation of investor responsiveness to earnings news. In

⁶ A higher threshold such as 5% or 10% could potentially provide stronger inference of the results. However, given the restricted sample size in this study, the 2.5% is deemed appropriate.

⁷ There are other ways of measuring earnings news, such as using previous reported EPS as expected EPS. However, using consensus EPS forecast is deemed to better represent the EPS expectation at the event date.

⁸ The data retrieved from Thomson Financial Datastream reconciled with the data reported on the Financial Times website. It was thus deemed a reliable alternative source.

other words, we want to isolate the market reaction from our event of interest. There is a trade-off between controlling for confounding events in a longer and shorter window. The longer, the more robust post-event movement analysis can be conducted. However, a longer window means that more observations are dropped, which leads to a less robust analysis of the reaction in the event window. Due to the restricted sample size in our study, we choose to narrow it down to ± 5 days and focus on the reaction in the event window rather than any potential post event drifts. Whereas some studies, such as Shiu and Yang (2016) and Godfrey et al. (2009), only consider days preceding the event date, we decide to exclude events that can create noise in the first days after the announcement date as well. As a result, we are able to better isolate the market reaction to the event of interest. Following previous literature, we have considered confounding events of significant strategic characters⁹ and capital structure changes¹⁰ as these are all likely to signal value relevant information to investors (Shiu et al., 2016; Godfrey et al. 2009; MacKinlay, 1997). For those events, we have looked into press releases on each company's website and eliminated events with potentially confounding events occurring ± 5 days around the event announcement date. Furthermore, for the same events, we have looked into the Factiva Database to search for any adverse reputational events that may not be presented on the company website but that can be confounding as well¹¹.

Worth mentioning, is that there may be other events than controlled for that could potentially have an impact on the response to a specific firm's earnings announcement. For instance, Lee (2016) argue that it is not absolute earnings news that matter, but also unexpected relative earnings news to industry peers. Also, other same-day announcements may distract investors or enhance their focus (Moulton and Leow, 2015; Hirshleifer, Lim and Teoh, 2009). However, due to the general complexity associated with controlling for such informational interactions, such information has not been considered.¹²

⁹ Mergers, acquisitions, divestments, organizational structure changes, CEO/CFO/board member changes.

¹⁰ Share and bond issues as well as equity structure changes such as conversion of shares and stock splits.

¹¹ Searched for the following words: "scandal", "fraud", "fine", "sanction" and "lawsuit".

¹² A potential approach to control for events where there is reason to believe that these issues are present, could be to exclude observations where unexpected earnings and CAR have opposite signs, since it contradicts what is expected given no confounding events around the announcement date. However, since such additional confounding events may impact other observations where unexpected earnings and CAR have the same signs, this approach was deemed subjective.

After eliminating observations that do not convey any significant news, observations with missing unexpected earnings or observations with confounding events around the announcement date, the final number of observations is 108.

4.2.3 Measurement of Cumulative Abnormal Returns (CAR)

The stock market movement, as a result of each earnings news event, is captured by a four-day Cumulative Abnormal Return (CAR). By calculating the average CAR, we can visually see the impact of the event on the stock market and whether the market is efficient. To arrive at CAR, we perform the following steps: First, by using the market model over an estimation window of 120 days we estimate the normal return of each security that we would expect if the event would not take place. Second, daily abnormal returns in the event window are measured for all securities, based on the estimated normal return from the first step as well as the security daily returns and OMX Nordic 40 daily returns in the event window. Third, the abnormal returns are added across time and across securities. These are then cumulated over the event window and taken as averages to arrive at average CAR.

4.2.3.1 Measurement of normal returns

Before abnormal returns can be calculated, normal returns for each security need to be determined. The normal return is the return that is expected to be observed if no event takes place (Peterson, 1989). To arrive at a normal return for each security, we first need to select a normal performance model and an estimation window. Second, we can estimate the normal returns.

Selection of a normal performance model

There are various ways of measuring normal returns of the stocks in our sample, such as the constant mean return model, the market model and economic models. Following MacKinlay (1997), we use the market model to estimate normal returns of the securities included in our sample. It is argued to be better to use than the constant mean return model. Multi-factor models can potentially give less variance of the abnormal returns by explaining more of the variation in the normal returns. Nevertheless, as MacKinlay points out, the market model is commonly used and widely accepted due to its simplicity as it allows us to use linear regression and ordinary least square (OLS) estimates. Furthermore, Peterson (1989) mentions that more advanced techniques for estimating normal returns have been found to not provide a clear cut

benefit over the market model. Also, in our study, where event dates are clustered with respect to calendar time, the market model is suggested (Peterson, 1989).

Estimation window specification

There is a trade-off associated with the length of the estimation period. On the one hand, a shorter window allows for the economic conditions to be better reflected in the normal return. On the other hand, the advantage of having a larger estimation window is that the contribution of the additional sampling error variance to the variance of the abnormal return can be assumed to be zero with a large enough window. As suggested by MacKinlay (1997), we choose a commonly used estimation window of 120 days, which we deem appropriate in order to manage the tradeoff described. It is further common to not let the estimation window and the event window overlap, to avoid that the event returns have large impact on the normal return measure such that the assumptions underlying the market model is violated (MacKinlay, 1997). Thus, the estimation window used is 120 days prior to the event window.

Estimation of normal returns

The market model relates stock returns of individual securities to the returns of some kind of market index in the same time period. As presented by MacKinlay (1997), the market model is, for any security, i , specified as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

$$E(\varepsilon_{it}) = 0 \text{ } var(\varepsilon_{it}) = \sigma_{\varepsilon_i}^2$$

where R_{it} is the return on security i in period t , R_{mt} the return on a market portfolio in period t and ε_{it} the zero mean disturbance term for security i in period t . α_i, β_i and $\sigma_{\varepsilon_i}^2$ are the parameters of the market model. By estimating these, a normal return for each security can be derived and used in the calculation of abnormal returns. As mentioned, OLS estimates are used to arrive at the estimated parameters. See appendix 2 for a specification of the estimators.

Simple returns, as justified by Brown and Warner (1985), are used and calculated as follows:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}}$$

$$R_{mt} = \frac{P_{mt} - P_{mt-1}}{P_{mt-1}}$$

where R_{it} is the return on security i in period t and R_{mt} represents the return for the OMXN40. P_{it} refers to the stock price of security i in period t and P_{mt} is the market portfolio stock price in period t .

The market portfolio chosen is the OMXN40 index, since it is deemed to represent the market of interest as a whole, as suggested by MacKinlay (1997). Since our event, earnings news, occurs on a single day we use daily returns when estimating the market model, as suggested by Peterson (1989). Daily price data was collected from Thomson Financial Datastream. Since our sample companies trade on Nasdaq Nordic in different currencies, we collect historical daily mid FX rates from Oanda.com to convert all daily stock prices to EUR, which is the currency that OMXN40 is traded in¹³. This to make the daily returns calculated comparable.

4.2.3.2 Measurement of abnormal returns

Using the normal returns calculated as described above, abnormal returns can be derived. The abnormal return captures the difference between the actual daily return for a given stock and the normal daily return that the market model predicted in the previous step for that same security. The abnormal return is calculated for each stock and day in the event window. As specified by MacKinlay (1997), the abnormal return is calculated as follows:

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt}$$

where AR_{it} is the daily abnormal return for security i and R_{mt} the daily return of the OMXN40 for security i , for day t in the event window. $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the estimated parameters from the market model for security i .

4.2.3.3 Aggregation of abnormal returns

In order to be able to draw any overall inference for the event of interest, earnings news, the estimated abnormal returns need to be aggregated over time and across securities. Also, since we have a multiple period event window related to Q2, Q3 and year end earnings news, cumulative abnormal returns are necessary (MacKinlay, 1997). The formula for the aggregation of abnormal returns looks as follows:

¹³ ISK/EUR, SEK/EUR and DKK/EUR.

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it}$$

where $CAR_i(t_1, t_2)$ is the cumulative abnormal return for security i over the event window, $t_1=-1$ and $t_2=3$. To be able to graphically understand the patterns of the cumulative abnormal return over the event window for our sample, we then calculate average CAR according to the following formula:

$$\overline{CAR}_i(t_1, t_2) = \frac{1}{N} \sum_{t=t_1}^{t_2} CAR_i(t_1, t_2)$$

where $\overline{CAR}_i(t_1, t_2)$ is the average CAR over the event window, $t_1=-1$ and $t_2=3$, and N is the number of observations.

4.2.4 Statistical testing

To be able to draw inferences from our results that can answer whether differences in investor responsiveness to earnings news can be explained by differences in CSR disclosure quality, we run statistical tests. We capture investor responsiveness to earnings news via the Earnings Response Coefficient (ERC), which gives the direction and magnitude of the stock market response to earnings news. As mentioned before, the ERC as a measure of earnings quality has been used in previous studies investigating the relationship between CSR and earnings quality from a stock market perspective (Choi and Moon, 2016; Jeong et al., 2016). The ERC captures the extent of a security's abnormal return in response to unexpected earnings.

In a first step, the relationship between unexpected earnings and CAR is investigated, excluding CSR disclosure quality. Previous research indicates that there is reason to believe that the response to earnings news differs between good and bad news (Soroka, 2006). Thus, we first run a regression including unexpected earnings (UE) in the regression and then one where we allow for an interaction effect between unexpected earnings as a continuous variable and unexpected earnings as a binary variable, (UE_G), which takes on value 1 for good news and 0 for bad news, to capture any differences in the effect between good and bad news. These two models are specified as follows:

$$CAR(t_1, t_2)_i = \alpha + \beta_1 UE_i + \beta_2 SIZE_i + \beta_3 ROIC_i + \beta_4 PB_i + \beta_5 Lev_i + \beta_6 FY15_i + \beta_7 Loss_i + \varepsilon \quad (1)$$

$$CAR(t_1, t_2)_i = \alpha + \beta_1 UE_i + \beta_2 UE_i * UE_G_i + \beta_3 SIZE_i + \beta_4 ROIC_i + \beta_5 PB_i + \beta_6 Lev_i + \beta_7 FY15_i + \beta_8 Loss_i + \beta_9 UE_G_i + \varepsilon \quad (2)$$

where the ERC is captured by β_1 in Model 1. In Model 2, ERC for bad news is captured by β_1 whereas ERC for good news is captured by $\beta_1 + \beta_2$. See table 4 for further specification of the variables.

In a second step, we include CSR disclosure quality into the equation. To be able to allow for different ERCs for CSR disclosure quality for both good and bad news, groups including both CSR group and type of news are formulated. Each combined group is then included as an interaction with unexpected earnings (UE) in the equations.

As mentioned previously, two approaches of dividing CSR disclosure quality scores into different groups are used. Consequently, two main models are specified to test our hypotheses. The first model (Model 3) is based on dividing CSR disclosure quality into Bad CSR and Good CSR, and is tested using both equally weighted CSR scores and BMR weighted CSR scores. As a result, the model looks as follows:

$$CAR(t_1, t_2)_i = \alpha + \beta_1 UE_i + \beta_2 UE * GG + \beta_3 UE * GB + \beta_4 UE * BG + \beta_5 SIZE_i + \beta_6 ROIC_i + \beta_7 PB_i + \beta_8 Lev_i + \beta_9 FY15_i + \beta_{10} Loss_i + \beta_{11} GG_i + \beta_{12} GB_i + \beta_{13} BG_i + \varepsilon \quad (3)$$

where table 3 explains the ERCs for each group and table 4 gives a specification of all other variables included in the regression, for each observation i .

The second model (Model 4) is based on dividing CSR disclosure quality into three groups, namely Bad CSR, Mid CSR and Good CSR, and is tested using both equally weighted CSR scores and BMR weighted CSR scores. The model is specified as follows:

$$CAR(t_1, t_2)_i = \alpha + \beta_1 * UE_i + \beta_2 UE * GG + \beta_3 UE * GB + \beta_4 UE * MG + \beta_5 UE * MB + \beta_6 UE * BG + \beta_7 SIZE_i + \beta_8 ROIC_i + \beta_9 PB_i + \beta_{10} Lev_i + \beta_{11} FY15_i + \beta_{12} Loss_i + \beta_{13} GG_i + \beta_{14} GB_i + \beta_{15} MG_i + \beta_{16} MB_i + \beta_{17} BG_i + \varepsilon \quad (4)$$

where table 3 explains the ERCs for each group and table 4 gives a specification of all other variables included in the regression, for each observation i .

Table 3: ERCs

Group	Coefficients – Model 3	Coefficients – Model 4
Good CSR – Good news (GG)	$\beta_1 + \beta_2$	$\beta_1 + \beta_2$
Mid CSR – Good news (MG)		$\beta_1 + \beta_4$
Bad CSR – Good news (BG)	$\beta_1 + \beta_4$	$\beta_1 + \beta_6$
Good CSR – Bad news (GB)	$\beta_1 + \beta_3$	$\beta_1 + \beta_3$
Mid CSR – Bad news (MB)		$\beta_1 + \beta_5$
Bad CSR – Bad news (BB)	β_1	β_1

Table 4: Variable specification

Variables	Description
<i>CAR</i>	The market risk adjusted cumulative abnormal return over the event window
<i>UE</i>	Unexpected earnings measured as reported EPS divided by consensus EPS minus 1
<i>UE_G</i>	Binary variable that takes on value 1 if $UE > 0.025$ (good news) and 0 if $UE < -0.025$ (bad news)
<i>SIZE</i>	Natural logarithm of market capitalization as per fiscal year end preceding the earnings announcement
<i>ROIC</i>	Natural logarithm of the return of invested capital as per fiscal year end preceding the earnings announcement
<i>PB</i>	Price per share divided by book value of equity per share as per fiscal year end preceding the earnings announcement
<i>LEV</i>	Leverage measured as total debt over total assets as per fiscal year end preceding the earnings announcement
<i>FY15</i>	Binary variable: 1 if year end earnings announcement and 0 otherwise
<i>Loss</i>	Binary variable: 1 if the reported earnings are negative and 0 otherwise

The choice of control variables (*SIZE*, *ROIC*, *PB*, *LEV* and *Loss*) is based on the model used by Jeong et al. (2016) who made a similar study. These control variables capture different risk

parameters that can influence the ERC and are further supported by previous literature (Choi and Moon, 2016; Ryan et al., 2002; Fama and French, 1992). Previous literature in the field also points at the importance of audited figures (e.g. Choi and Moon, 2016; Muttakin et al, 2015). Thus, we add a binary variable, FY15, to control for that the reported earnings for fiscal year 2015 are audited as opposed to the reported earnings announced in Q2 and Q3. The control variable data is collected from Thomson Financial Datastream.

To estimate the model, we use the method of Ordinary Least Squares (OLS), which chooses the estimates to minimize the sum of squared residuals (Wooldridge, 2015). Furthermore, since there exists some indications that the variance of the error term in our regressions suffer from heteroskedasticity, robust standard errors are used in order to control for potential bias¹⁴. This is a common way to manage such heteroskedasticity, and allows for a more robust inference of the results (Wooldridge, 2015). Also, as mentioned previously, a sensitivity analysis using a CAR measured over a shorter event window (0, +2) is performed.

¹⁴ The Breusch-Pagan test for heteroscedasticity, which is commonly used due to its great applicability, was performed. Using robust standard errors results in the same estimated coefficients as when ordinary OLS is used, but the standard errors are adjusted for heteroskedasticity. (Wooldridge, 2015)

5. Results and analysis

5.1 Descriptive statistics

5.1.1 CSR disclosure quality evaluation

As a first step, it becomes important to understand the data that has been obtained by the evaluation of CSR disclosure quality, based on the grading framework previously described. Table 5 presents descriptive statistics of the CSR disclosure quality evaluation of the integrated and/or CSR Reports for the 68 companies in our sample.¹⁵

Table 5: CSR disclosure grading

	Equally weighted CSR score				BMR weighted CSR score		
	Total	AUD	BMR	COM	Total	AUD	COM
N	68	68	68	68	68	68	68
Min	3.2	3.5	28.3	0.0	0.8	0.8	0.0
Max	239.8	100.5	136.0	26.0	88.0	68.8	20.8
Average	120.1	32.9	78.1	9.0	27.6	21.5	6.2
Median	122.5	29.3	79.3	7.5	24.1	17.7	4.6
Standard deviation	52.5	21.3	27.7	6.7	22.2	17.0	5.5
Levels							
50%							
Good CSR	≥ 122.7	≥ 29.5	≥ 85.0	≥ 8.0	≥ 24.2	≥ 18.0	≥ 5.0
Bad CSR	≤ 122.3	≤ 29.0	≤ 79.3	≤ 7.0	≤ 23.9	≤ 17.4	≤ 4.2
33%							
Good CSR	≥ 149.7	≥ 40.0	≥ 96.3	≥ 12.0	≥ 32	≥ 26.5	≥ 8.2
Mid CSR	88.3-140.2	20.5-39.5	68.0-90.7	5.0-11.0	12.8-31.9	11.2-25.5	2.4-7.8
Bad CSR	≤ 84.7	≤ 19.5	≤ 62.3	≤ 4.0	≤ 12.6	≤ 10.7	≤ 2.8

There is a large variation in the total CSR score, ranging between 3.2 and 239.8 for the equally weighted CSR score, and 0.8 and 88 for the BMR weighted CSR score. The total CSR scores were analysed in depth to discover any natural divisions among the firms' points. Since no natural divisions were identified either for the equally weighted or the BMR weighted CSR score, a new approach was necessary. All 68 companies were therefore divided based on their total CSR score in two different manners. First, a 50% threshold division was used where the top half was assigned into a Good CSR group and the bottom half was assigned into a Bad CSR

¹⁵ For illustration purposes, the complete grading for Valmet Corporation is provided in Appendix 3.

group. When dividing the sample into the 50% threshold division, the difference between the lowest performing firms in the Good CSR group and the highest performing firms in the Bad CSR group was minimal, which could restrain us from seeing a large separation between the groups. A threshold division of 40% was therefore tested, where the top 40% were included in the Good CSR group and the bottom 40% were included in the Bad CSR group, with a grey zone of 20% for the mid performers. The rationale behind was to only look at the Good and Bad CSR firms, and create a distance between the groups. When performing an initial review of graphs depicting the average cumulative abnormal return for those groups, including the mid performers, it was noted that the market response for Mid CSR performers moved in an interesting and unexpected matter. It became apparent that excluding the grey zone group of Mid CSR firms from the analysis could possibly limit us from making a correct interpretation of the results. We therefore instead performed a division into three groups where the top 33% were assigned into the Good CSR group, the middle 33% were assigned into the Mid CSR group and the bottom 33% were assigned into the Bad CSR group. The simplified 50% threshold division, with the same number of observations as the 33% division was kept and considered appropriate for robustness purposes. This entire procedure was performed for both the equally weighted CSR score approach and the BMR weighted CSR score approach.¹⁶

5.1.2 Firm size

Table 6 illustrates the division of firms into Large Cap and Mid Cap firms, as well as into the different CSR groups.

Table 6: Firm size

	<u>50% threshold division</u>			<u>33% threshold division</u>		
	Large Cap	Mid Cap	Total	Large Cap	Mid Cap	Total
Good CSR	21	10	31	15	5	20
Mid CSR				11	11	22
Bad CSR	9	21	30	4	15	19
Total	30	31	61	30	31	61

¹⁶ Identical divisions were performed for the equally weighted CSR score based on the three separate CSR disclosure quality criteria, auditability, business model relevance and comparability, to be able to assess any differences from how the points were gained. When comparing the ranking assigned based on the total CSR score, compared to the ranking based on the three CSR disclosure criteria respectively, the majority of the firms remain in the same group, in both the 50% and 33% threshold division sample. This indicates that if a firm has a high CSR disclosure quality overall, it tends to perform well over all criteria. Due to these correlations, dividing CSR into the three CSR disclosure quality criteria should not contribute more to our results than when only looking at the total CSR score.

Important to notice is that when dividing the sample in half, 70% of the Good CSR firms are Large Cap firms and almost 70% of the Bad CSR firms are Mid Cap firms. Also when dividing the sample into three different groups, the majority of the Good CSR firms are Large Cap firms and the majority of the Bad CSR firms are Mid Cap firms. A relationship between high CSR disclosure quality and firm size is identified, which will be discussed further on.

5.1.3 Earnings news events

Table 7 shows the distribution of the final sample of 108 observations across the different earnings announcements and across good and bad news.

Table 7: Earnings news (+/-2.5%)

	Q215	Q315	FY15	Total
Good news	22	11	25	58
Bad news	16	19	15	50
Total	38	30	40	108

As can be observed, there is an approximate equal division between good and bad news, which gives large enough samples for statistical inference.

5.1.4 Earnings news and CSR disclosure quality

To be able to analyse any potential difference between good and poor CSR disclosure quality, we combine the developed CSR groups, Good CSR and Bad CSR for the 50% threshold division and Good CSR, Mid CSR and Bad CSR for the 33% threshold division, with good and bad earnings news, to create combination groups as shown in table 8.

Table 8: CSR/Earnings news combination groups (+/-2.5%)

Number of observations	Equally weighted (50%)	BMR weighted (50%)	Equally weighted (33%)	BMR weighted (33%)
Good CSR-Good news (GG)	30	32	21	20
Mid CSR-Good news (MG)			19	20
Bad CSR-Good news (BG)	28	26	18	18
Good CSR-Bad news (GB)	26	24	15	14
Mid CSR-Bad news (MB)			20	24
Bad CSR-Bad news (BB)	24	26	15	12
Total	108	108	108	108

5.2 Event study results

5.2.1 Earnings news and average CAR

To verify that the stock market reacts according to expectations to the gathered earnings news data in itself, we first graph the data without adding a CSR perspective. Graph 1 depicts the average cumulative abnormal return (CAR) for all events included in the sample, divided into good and bad earnings news over an event window of (-10, +10). To be classified as good news (bad news), the actual return must exceed (fall below) the consensus expectations by 2.5%. It is expected that the market will react positively to good earnings news and generate a positive average CAR, and that the market will react negatively to bad earnings news and generate a negative average CAR, leading to a positive ERC for both good and bad news. As graph 1 depicts, the market reaction to both good and bad earnings news moves as expected. The reaction seems to occur around day -1 or 0 and stabilise around day 2 or 3. Thus, the use of the event windows, (-1, 3) and (0, 2) is justified.

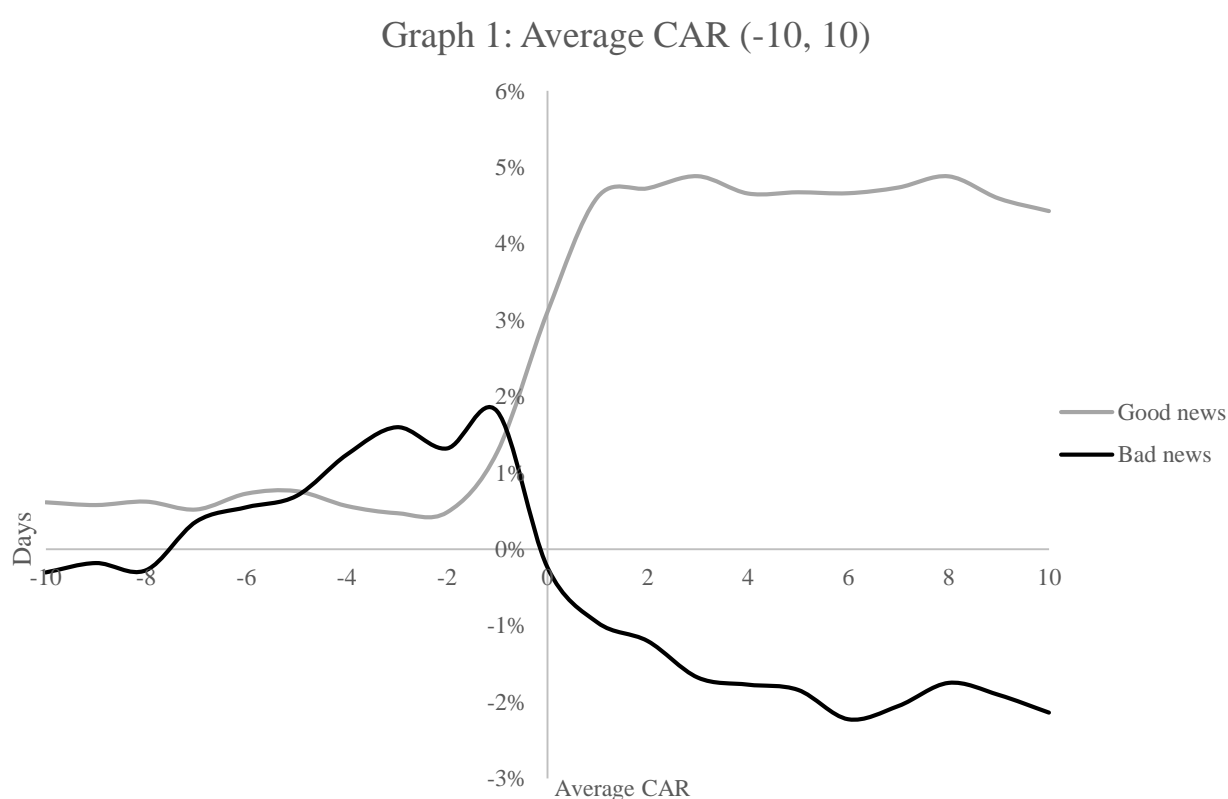


Table 9 and 10 show the average CAR over the event windows (-1, +3) and (0, +2) respectively.

Table 9: Average CAR (-1, +3)

t	-1	0	1	2	3
Good news	0.79%	2.62%	4.12%	4.24%	4.40%
Bad news	0.49%	-1.55%	-2.28%	-2.52%	-3.00%

Table 10: Average CAR (0, +2)

t	0	1	2
Good news	1.83%	3.34%	3.45%
Bad news	-2.04%	-2.76%	-3.01%

A t-test is performed at a 99% confidence level to determine if the average CAR for both event windows respectively is significantly different from zero. For average CAR (-1, +3), we obtain statistical significance at the 1% level for both good and bad earnings news, with a t-statistic of 3.9692 and a p-value of 0.0001 for good earnings news and a t-statistic of -3.6175 and a p-value of 0.9996 for bad earnings news. For average CAR (0, +2), we obtain statistical significance at the 1% level for both good and bad earnings news, with a t-statistic of 3.3254 and a p-value of 0.0008 for good earnings news and a t-statistic of -3.5912 and a p-value of 0.9996 for bad earnings news. We therefore feel confident that we can continue with our dataset and analyse the potential difference between good and poor CSR disclosure quality when it comes to the investor response to earnings news.

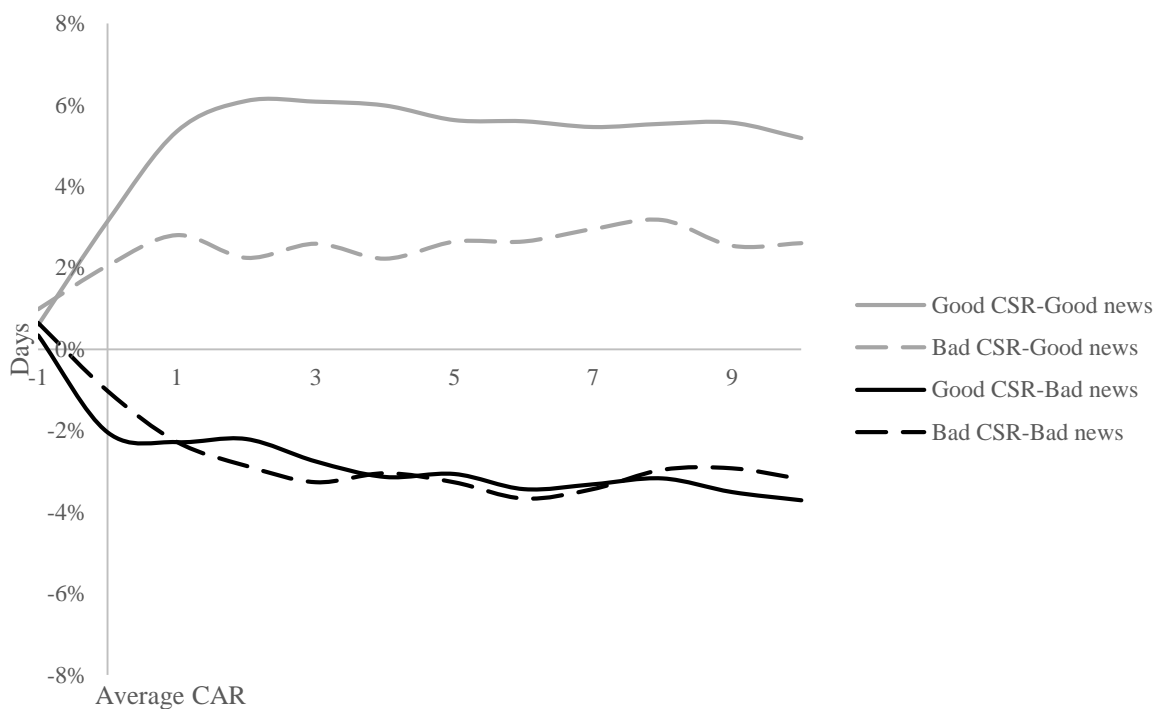
5.2.2 CSR and earnings news

Before performing regression analysis to test the relationship between CSR disclosure quality and the ERC, we will present graphs that illustrate the relationship. The graphs are presented for illustrative purposes, to get an overview before interpreting the regression results. The graphs do not, however, take into account the magnitude of the earnings news, and are therefore not directly comparable to the regression results.

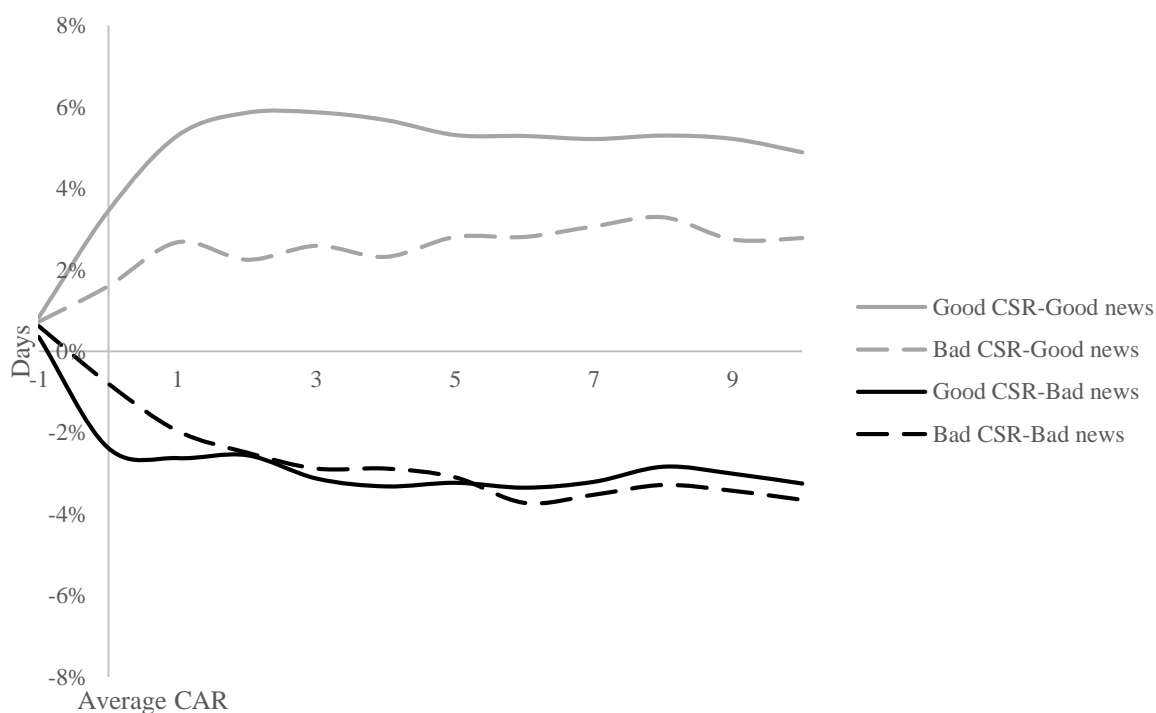
50% threshold division

Graphs 2 and 3 depict the average CAR for the 50% threshold division over the period (-1, +10) with the four different combinations of Good/Bad CSR and good/bad earnings news for both the equally weighted and the BMR weighted CSR score.

Graph 2: Average CAR: Equally weighted CSR score



Graph 3: Average CAR: BMR weighted CSR score

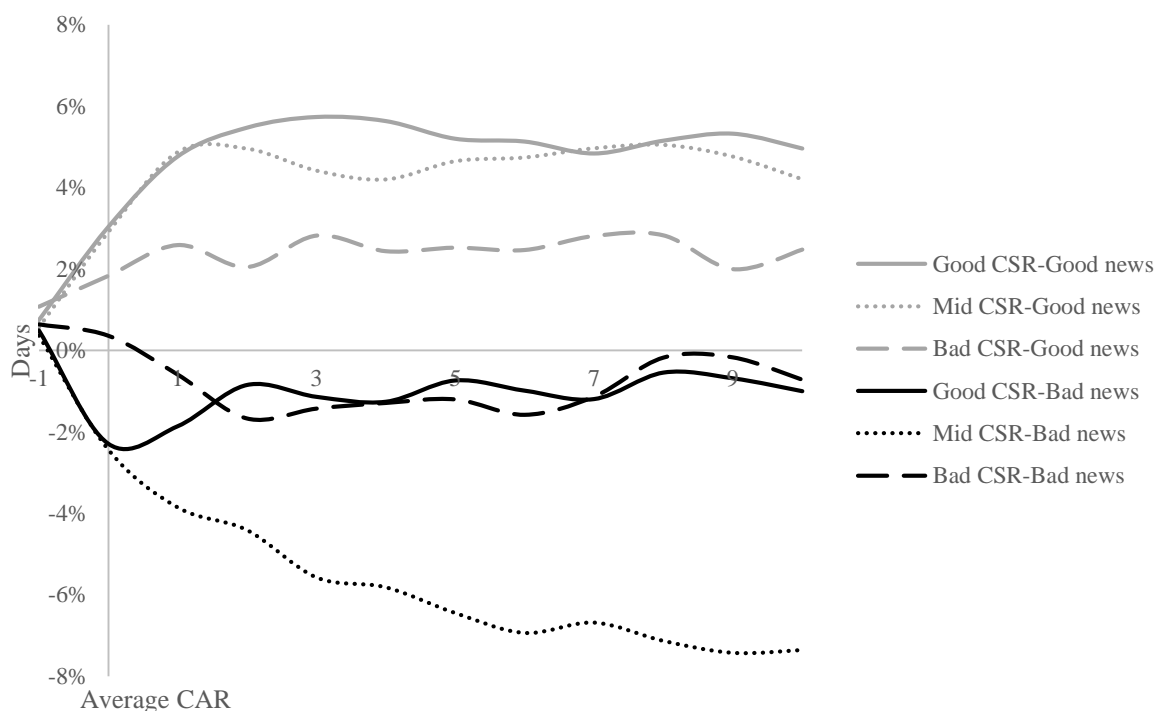


Looking at good earnings news first, a difference can be noted between Good and Bad CSR firms. The stock market reaction to good earnings news seems to be stronger for firms with good CSR disclosure quality than for firms with poor CSR disclosure quality. When it comes to bad earnings news, the stock market reaction is similar for firms with good CSR disclosure quality and firms with poor CSR disclosure quality.

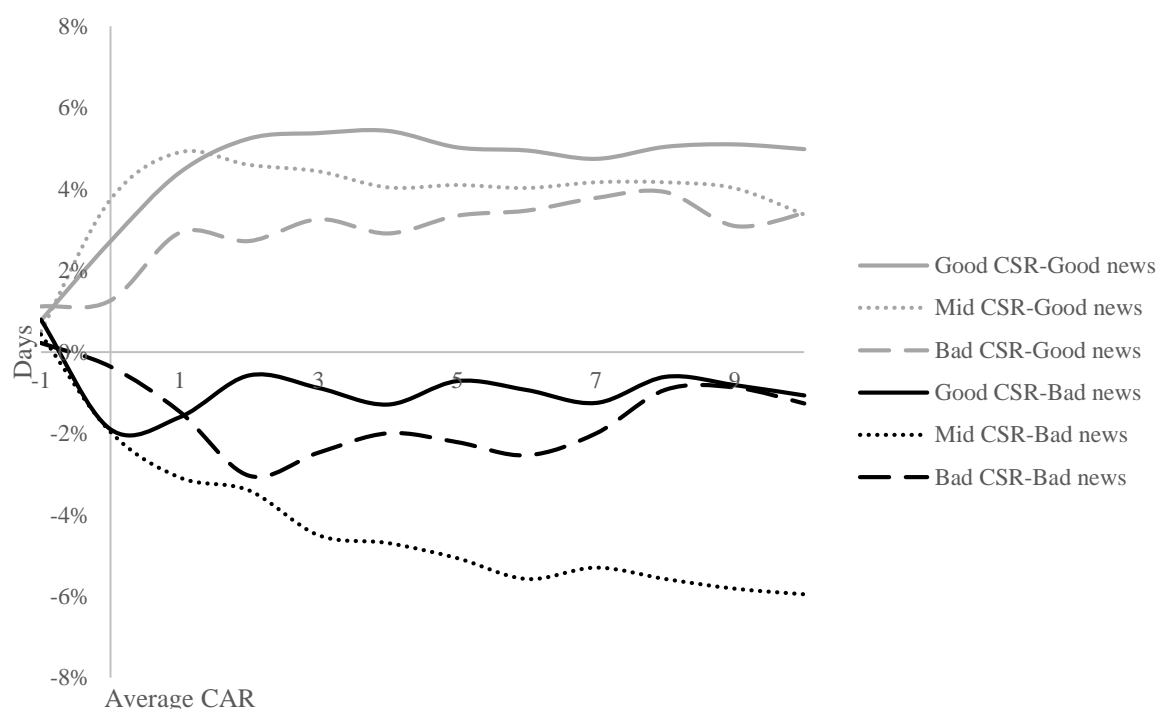
33% threshold division

Graphs 4 and 5 depict the average CAR for the 33% threshold division over the period (-1, +10) with the six different combinations of Good/Bad CSR and good/bad earnings news for both the equally weighted and the BMR weighted CSR score.

Graph 4: Average CAR: Equally weighted CSR score



Graph 5: Average CAR: BMR weighted CSR score



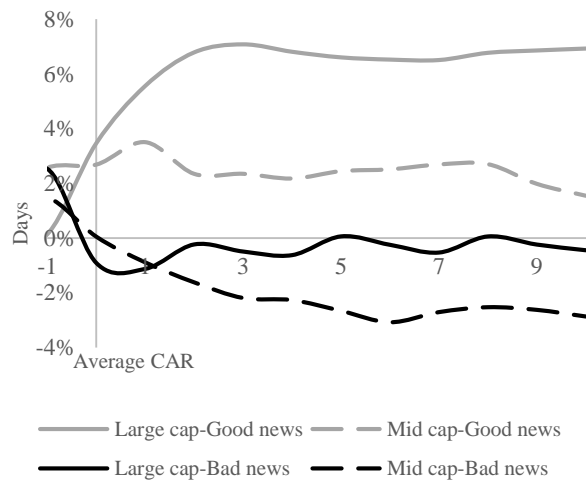
For good earnings news, the stock market reaction seems to be stronger for firms with good and mid CSR disclosure quality than for firms with poor CSR disclosure quality. For bad news, Mid CSR seems to experience the strongest and most persistent negative reaction.

5.2.3 CSR disclosure quality and firm size

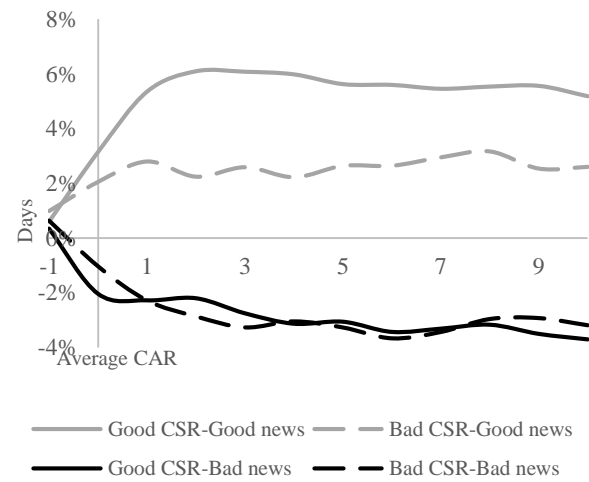
As mentioned previously, it was discovered when analysing the CSR data scores that the majority of the Good CSR firms are Large Cap firms and the majority of the Bad CSR firms are Mid Cap firms. A relationship between high CSR disclosure quality and firm size was then established.

For illustrative purposes, the equally weighted, 50% threshold division graph (Graph 2 above, below presented as Graph 7) is used as a comparison towards a graph presenting the average cumulative abnormal return for good and bad earnings news, dividing the sample into Large and Mid Cap firms, completely excluding the CSR perspective (Graph 6).

Graph 6: Average CAR: Large and Mid Cap firms



Graph 7: Average CAR: Equally weighted CSR score (50%)



As can be noticed above, graph 6 and 7 show similar tendencies. The average cumulative abnormal return for Large Cap firms and Good CSR move in a similar way for both good and bad news. The same holds for Mid Cap firms and Bad CSR firms. It can be questioned whether firm size, rather than CSR disclosure quality, explains the differences in average CAR. However, there are still differences between the graphs and as mentioned before, statistical tests are needed to draw any inferences on the relationship. In such statistical tests, controlling for firm size in the regressions will be crucial.

5.3 Regression analysis results

5.3.1 Pearson correlation matrix

To get a better understanding of the variables of interest that we want to statistically test, we first look at the correlations between the variables. Table 11 and 12 show the correlation using a Pearson correlation table, which was deemed appropriate in order to grasp how the variables are related to each other.

Table 11: Pears on correlation matrix (50% CSR threshold)

	CAR[-1,3]	CAR[0,2]	UE	UE_G	GG	GB	BG	BB	GG**	GB**	BG**	BB**	PB	LEV	FY15	Loss	SIZE	ROIC
CAR[-1,3]	1																	
CAR[0,2]	0.9472*	1																
UE	0.138	0.139	1															
UE_G	0.4609*	0.4177*	0.214	1														
GG	0.3879*	0.3705*	-0.0243	0.5547*	1													
GB	-0.2567*	-0.220	-0.128	-0.6296*	-0.3492*	1												
BG	0.117	0.0983	0.237	0.5292*	-0.3669*	-0.3331*	1											
BB	-0.2774*	-0.2768*	-0.0915	-0.5080*	-0.3315*	-0.3010*	-0.3162*	1										
GG**	0.3886*	0.3550*	-0.0268	0.5804*	0.9105*	-0.3654*	-0.245	-0.3468*	1									
GB**	-0.2680*	-0.223	-0.129	-0.5976*	-0.3315*	0.8451*	-0.3162*	-0.179	-0.3468*	1								
BG**	0.111	0.110	0.246	0.5036*	-0.3009*	-0.3171*	0.9024*	-0.3010*	-0.3654*	-0.3010*	1							
BB**	-0.2658*	-0.2717*	-0.0921	-0.5424*	-0.3492*	-0.114	-0.3331*	0.8451*	-0.3654*	-0.3010*	-0.3171*	1						
PB	0.0406	0.0833	-0.115	-0.0107	-0.0492	-0.118	-0.0775	0.0664	0.0541	-0.113	0.0590	0.171	1					
LEV	0.0984	0.134	-0.0558	0.0340	0.0206	0.0982	-0.0915	0.0125	-0.0222	0.0683	-0.193	-0.111	-0.208	1				
FY15	0.172	0.148	-0.0643	0.107	0.108	0.0246	0.0171	-0.0862	0.177	-0.0106	-0.0343	-0.0881	0.141	-0.0202	1			
Loss	0.00240	-0.0176	0.0710	0.0378	-0.0830	-0.0679	-0.0756	0.4209*	-0.0806	-0.0652	-0.0756	0.120	-0.215	0.209	-0.130	1		
SIZE	0.221	0.226	-0.135	0.0933	0.3623*	0.2922*	-0.3264*	-0.3149*	0.4273*	0.3088*	-0.3109*	-0.235	0.3186*	0.0425	0.234	-0.2629*	1	
ROIC	0.109	0.0693	-0.0235	0.109	0	-0.0852	0.0940	-0.0232	0.0390	-0.0946	0.2636*	0.0650	0.6409*	-0.3864*	-0.105	-0.189	0.177	1

* p<0.01 (two sided test) **CSR group based on BMR weighted CSR scores

Table 12: Pearson correlation matrix (33% CSR threshold)

	CAR[-1,3]	CAR[0,2]	UE	UE_G	GG	GB	MG	MB	BG	BB	GG**	GB**	MG**	MB**	BG**	BB**	PB	LEV	FY15	Loss	SIZE	ROIC
CAR[-1,3]	1																					
CAR[0,2]	0.9472*	1																				
UE	0.138	0.139	1																			
UE_G	0.4609*	0.4177*	0.214	1																		
GG	0.2862*	0.2553*	-0.0172	0.4394*	1																	
GB	-0.104	-0.0829	-0.0975	-0.4490*	-0.197	1																
MG	0.195	0.220	-0.0180	0.4133*	-0.227	-0.186	1															
MB	-0.3819*	-0.3430*	-0.116	-0.5330*	-0.234	-0.192	-0.220	1														
BG	0.101	0.0655	0.2858*	0.4000*	-0.220	-0.180	-0.207	-0.213	1													
BB	-0.118	-0.136	-0.0402	-0.3413*	-0.197	-0.161	-0.186	-0.192	-0.180	1												
GG**	0.2568*	0.227	-0.0170	0.4264*	0.9101*	-0.192	-0.158	-0.227	-0.213	-0.192	1											
GB**	-0.0876	-0.0804	-0.0964	-0.4315*	-0.190	0.9609*	-0.178	-0.184	-0.173	-0.155	-0.184	1										
MG**	0.202	0.216	-0.00330	0.4264*	-0.114	-0.192	0.7814*	-0.227	-0.0853	-0.192	-0.227	-0.184	1									
MB**	-0.3579*	-0.3197*	-0.0840	-0.5080*	-0.2626*	-0.150	-0.2470*	0.8919*	-0.239	-0.0215	-0.2548*	-0.206	-0.2548*	1								
BG**	0.125	0.0992	0.2703*	0.4000*	-0.220	-0.180	-0.0761	-0.213	0.8667*	-0.180	-0.213	-0.173	-0.213	-0.239	1							
BB**	-0.149	-0.156	-0.0813	-0.3953*	-0.174	-0.142	-0.163	-0.169	-0.158	0.8803*	-0.169	-0.136	-0.169	-0.189	-0.158	1						
PB	0.0406	0.0833	-0.115	-0.0107	-0.0492	-0.118	0.187	-0.0121	-0.0775	0.0664	0.0541	-0.113	-0.0522	-0.0927	0.0590	0.171	1					
LEV	0.0984	0.134	-0.0558	0.0340	0.0206	0.0982	0.00710	-0.0387	-0.0915	0.0125	-0.0222	0.0683	0.148	0.0844	-0.193	-0.111	-0.208	1				
FY15	0.172	0.148	-0.0643	0.107	0.108	0.0246	0.0485	-0.119	0.0171	-0.0862	0.177	-0.0106	0.0293	-0.0871	-0.0343	-0.0881	0.141	-0.0202	1			
Loss	0.00240	-0.0176	0.0710	0.0378	-0.0830	-0.0679	-0.0781	-0.0806	-0.0756	0.4209*	-0.0806	-0.0652	-0.0806	0.181	-0.0756	0.120	-0.215	0.209	-0.130	1		
SIZE	0.221	0.226	-0.135	0.0933	0.3623*	0.2922*	0.150	-0.183	-0.3264*	-0.3149*	0.4273*	0.3088*	0.0737	-0.2612*	-0.3109*	-0.235	0.3186*	0.0425	0.234	-0.2629*	1	
ROIC	0.109	0.0693	-0.0235	0.109	0	-0.0852	0.126	-0.112	0.0940	-0.0232	0.0390	-0.0946	-0.0702	-0.169	0.2636*	0.0650	0.6409*	-0.3864*	-0.105	-0.189	0.177	1

* p<0.01 (two sided test) **CSR group based on BMR weighted CSR scores

A first observation from the Pearson correlation matrix is that the unexpected earnings is positively correlated with CAR(-1, +3) as expected, but it is relatively low (0.138) and not significant. This can indicate that there is a difference in the correlation between CAR(-1, +3) and good news, and the correlation between CAR(-1, +3) and bad news. It can also indicate the importance of controlling for other firm specific factors, as some firms may generally respond less than other firms. We can also see that UE_G is positively and significantly correlated with CAR(-1, +3), which is what we expect.

A second observation is related to the correlation between CAR and CSR disclosure quality scores. When the division between Good and Bad CSR is based on a 50% threshold, we notice that for the good news sample, equally weighted Good CSR firms have a higher positive correlation with CAR (0.389), and a more significant one, than Bad CSR firms (0.117). This holds also for BMR weighted CSR, and is an indication that Good CSR firms may have a stronger ERC than Bad CSR firms. For the bad news sample, we see that both Good and Bad CSR are negatively and significantly correlated with CAR for both CSR score weightings. They are relatively similar in terms of how correlated they are with respect to CAR, but Bad CSR firms are slightly more negatively correlated (-0.277) than Good CSR firms (-0.257) for equally weighted CSR whereas the difference is marginal for BMR weighted CSR. Thus, there is no clear indication from the correlation matrix on whether there is a difference in ERC for Good and Bad CSR firms.

When looking at the equally weighted 33% CSR threshold division and good news, we see that the better CSR group, the higher positive correlation with CAR (0.2862 for Good CSR, 0.1915 for Mid CSR and 0.101 for Bad CSR). This pattern holds for BMR weighted CSR as well. This indicates that a higher CSR disclosure quality can lead to a higher ERC. For both weighting approaches, however, the correlation is only significant for Good CSR firms. For bad news, and equally weighted CSR, Mid CSR is significantly and negatively correlated with CAR (-0.3819). Good and Bad CSR firms are insignificantly and less negatively correlated with CAR than Mid CSR (-0.104 for Good CSR and -0.118 for Bad CSR). The difference is minor. For BMR weighted CSR, however, the difference is more clear with a negative correlation for Good CSR of -0.0876 and Bad CSR of -0.149. This would indicate a higher ERC for Bad CSR firms.

A third observation is the correlation between firm size (SIZE) and CSR. As expected from the graphs and descriptive statistics, SIZE is positively and significantly correlated with the

majority of variables where CSR is included. This confirms the importance of controlling for size when statistically investigating whether CSR can have an effect on CAR as captured by differences in the ERCs depending on the CSR level measured.

A last observation is the correlation between the control variables. Price to book (PB) is highly correlated with the profitability measure, ROIC (0.641). The correlation is rather high between PB and the other control variables as well, although these correlations are insignificant at the 1 % level. Even though this causes potential multicollinearity problems with our sample, we choose to include PB in our model, as the inclusion of this variable increases adjusted R^2 , and the estimated coefficient for UE changes when PB is excluded¹⁷. This indicates that the control variables jointly can explain more of the variation in CAR. Thus, we deem it important to include PB to test our hypotheses.

5.3.2 The effect of unexpected earnings on CAR

Table 13 presents the results from Model 1 and 2, which shows the relationship between unexpected earnings and CAR, excluding CSR.

Table 13: ERC excluding CSR (Model 1 and 2)

	CAR (-1, +3)	CAR (-1, +3)
UE	0.0794***	0.0735**
UE*UE_G		-0.0690**
SIZE	0.0128***	0.00760*
PB	-0.0124**	-0.0110**
ROIC	0.0358**	0.0262*
Lev	0.000732	0.000675
FY15	0.0343**	0.0329**
Loss	-0.0589	-0.00360
UE_G		0.0551***
Constant	-0.241***	-0.171**
Observations	101	101
Adjusted R-squared	0.237	0.316

*** p<0.01, ** p<0.05, * p<0.1 (one sided test)

¹⁷ Adjusted R^2 is used for the evaluation as it is preferred over usual R^2 , since the adjusted R^2 controls for the number of independent variables included in the model (Wooldridge, 2015, p.182). Thus, it gives a better indication of which independent variables need to be included to control for alternative explanations for the response to the earnings news.

From the first regression, we notice that there is a positive and significant effect of unexpected earnings (UE) on CAR (0.0794), holding all other variables constant. In other words, the ERC for the sample as a whole is 0.0794. From the second regression though, when allowing for an interaction effect between unexpected earnings (UE) and good news (UE_G), we see that the ERC is higher for bad news (0.0735) than good news ($0.0735 - 0.0690 = 0.0045$). This indicates that the effect of a given increase in unexpected earnings (UE) on CAR is larger for bad news observations than good news observations. Running the same regressions using the three day CAR for the event window (0, +2) shows the same tendency. What we do see is that the adjusted R^2 is slightly higher when using the larger event window (-1, +3).

The asymmetric recognition of good and bad news that we find here indicates that we may observe differences between good and bad news also when including CSR into the equation. This confirms the importance of taking the type of news into account when studying the effect of CSR disclosure quality on the ERC.

5.3.3 The effect of CSR disclosure quality on the ERC

5.3.3.1 Main results using CAR (-1, +3)

In table 14, the results from Model 3 and 4 are presented. All results are shown for an event window of (-1, +3), with a 50% and a 33% CSR threshold division, based on both an equally weighted and a BMR weighted CSR score.

Table 14: Main results (Model 3 and 4)

Dependent variable: CAR (-1, +3)	50% threshold		33% threshold	
	Equally weighted CSR	BMR weighted CSR	Equally weighted CSR	BMR weighted CSR
UE	0.0526**	0.0552**	0.0575**	0.1960***
UE_GG	0.0544	0.0506	-0.0496	-0.1790
UE_GB	-0.0481	-0.0545	-0.0746*	-0.1910***
UE_MG			0.0545	-0.1680**
UE_MB			0.0029	-0.1470***
UE_BG	-0.0444	-0.0437	-0.0454	-0.2060***
SIZE	0.0035	0.0029	0.0019	0.0017
PB	-0.0084*	-0.0102**	-0.0073	-0.0107**
ROIC	0.0304*	0.0323**	0.0328*	0.0344**
Lev	0.0009*	0.0008	0.0008	0.0006
FY15	0.0353***	0.0373***	0.0340**	0.0341**
Loss	-0.0223	-0.0268	-0.0376	-0.0166
GG	0.0599***	0.0615***	0.0705**	0.0350
GB	-0.0129	-0.0132	-0.0175	-0.0379
MG			0.0254	0.0087
MB			-0.0288	-0.0615***
BG	0.0354*	0.0331	0.0220	0.0039
Constant	-0.1380*	-0.1280*	-0.1120	-0.0679
Observations	101	101	101	101
Adjusted R-squared	0.336	0.339	0.310	0.318

*** p<0.01, ** p<0.05, * p<0.1 (one sided test)

The base case in all regressions is the group Bad CSR-Bad news and the coefficient for the variable UE is therefore the ERC for that case. Adding the coefficients for the interaction variables to the base case, respectively, the ERC for each case can be derived. See Table 15 and 16 for a summary of the ERCs.

50% threshold division

Table 15 summarises the calculated ERCs for each CSR group and news type, based on the above regression results.

Table 15: ERC summary – 50% threshold, CAR (-1, +3)

Group	Coefficients – Model 1	ERC – Equally weighted CSR score	ERC – BMR weighted CSR
Good CSR – Good news (GG)	$\beta_1 + \beta_2$	0.1070	0.1058
Bad CSR – Good news (BG)	$\beta_1 + \beta_4$	0.0082	0.0115
Good CSR – Bad news (GB)	$\beta_1 + \beta_3$	0.0045	0.0007
Bad CSR – Bad news (BB)	β_1	0.0526	0.0552

The equally weighted and the BMR weighted CSR score generate a model with an adjusted R-squared of 0.336 and 0.339 respectively. Starting with good news, the Good CSR group has a higher impact on CAR (0.1070 for equally weighted and 0.1058 for BMR-weighted CSR respectively), compared to the Bad CSR group (0.0082 and 0.0115 respectively). The relatively high coefficient for Good CSR is in line with what could be seen in graphs 2 and 3, where the Good CSR group deviates from the Bad CSR group. This is in line with the expected positive relationship between CSR disclosure quality and the ERC stated in hypothesis 1. However, since none of these groups' effects on CAR are significant, hypothesis 1 cannot be confirmed¹⁸.

For bad news, the Bad CSR group shows a positive impact on CAR for both equally weighted and BMR weighted CSR (0.0526 and 0.0552 respectively), both significant at the 5% level. For the Good CSR group, the effect on CAR is lower (0.0045 and 0.0007 respectively) and insignificant. This is in line with the expected negative relationship between CSR disclosure quality and the ERC stated in hypothesis 2. However, since only the ERCs for Bad CSR firms are significant, a significant difference between the ERCs for Good and Bad CSR firms cannot be established. As a result, hypothesis 2 cannot be confirmed.

An important observation from the results is the insignificant effect of firm size on CAR. Given the strong correlation between CSR score and firm size in our sample, a significant effect of size on CAR is a prerequisite in order to establish a relationship between CSR disclosure quality and the ERC. Thus, this further hinders confirming the hypotheses, regardless of the

¹⁸ Significance is not tested for the sum of coefficients as stated in tables 15, 16, 18 and 19. Even though the significance of two separate coefficients can reasonably reflect the significance of the sum of the same coefficients, this cannot be taken for granted. However, for this thesis, this assumption is deemed reasonable.

significance of the ERCs.¹⁹ Worth noting is also that the control variable FY15, taking on a value of 1 if the earnings announcement is the yearly announcement, is positive and significant at the 1% level. The effect on CAR seems to be larger from a yearly earnings announcement, compared to a quarterly earnings announcement, in line with what we expected.

33% threshold division

Table 16 summarises the calculated ERCs for each CSR group and news type, based on the above regression results.

Table 16: ERC summary – 33% threshold, CAR (-1, +3)

Group	Coefficients – Model 2	ERC – Equally weighted CSR score	ERC – BMR weighted CSR score
Good CSR – Good news (GG)	$\beta_1 + \beta_2$	0.0079	0.0170
Mid CSR – Good news (MG)	$\beta_1 + \beta_4$	0.1120	0.0280
Bad CSR – Good news (BG)	$\beta_1 + \beta_6$	0.0121	-0.0100
Good CSR – Bad news (GB)	$\beta_1 + \beta_3$	-0.0171	0.0050
Mid CSR – Bad news (MB)	$\beta_1 + \beta_5$	0.0604	0.0490
Bad CSR – Bad news (BB)	β_1	0.0575	0.1960

The equally weighted and BMR weighted CSR score generate a model with an adjusted R-squared of 0.310 and 0.318 respectively.

Starting with good news, the Good CSR group and the Bad CSR group both have small impacts on CAR (Good CSR: 0.0079 for equally weighted and 0.0170 for BMR weighted CSR. Bad CSR: 0.0121 for equally weighted and -0.0100 for BMR weighted CSR, the latter significant at the 1% level). As expected from the graphs, the Mid CSR group has the relatively largest effect on CAR (0.1120 and 0.0280 respectively, the latter significant at the 5% level). However, the relative difference is substantially lower in the regressions using BMR weighted CSR, where

¹⁹ It would have been insightful to look at Large and Mid Cap regressions separately to investigate whether any differences in ERCs across the different CSR groups could be observed. However, it was deemed that no inference could be drawn from performing such regressions due to the restricted sample size.

both the effects from Mid CSR and Bad CSR are significant. From the results, no linear relationship between CSR disclosure quality and the ERC can be supported. Thus, hypothesis 1 cannot be confirmed, although there are indications that being a Mid CSR firm leads to a higher ERC relative to being a Bad CSR firm.

For bad news, the Good CSR group has an impact on CAR of -0.0171 for equally weighted CSR (significant at the 10% level) and 0.0050 for BMR weighted CSR (significant at the 1% level). The Mid CSR group has an effect on CAR of 0.0604 and 0.0490 respectively, the latter significant at the 1% level. The relatively high effect on CAR for the Mid CSR group was also concluded in graphs 4 and 5 discussed above. The Bad CSR group shows a positive relationship to CAR of 0.0575, significant at the 5% level for the equally weighted CSR score. For the BMR weighted CSR score, the coefficient is substantially larger (0.1960) and significant at the 1% level. From the results, no linear relationship between CSR disclosure quality and the ERC can be confirmed for equally weighted CSR. However, there is a significant difference between the ERC for Good and Bad CSR, in line with hypothesis 2. Using BMR weighted CSR, a significant linear negative relationship between CSR disclosure quality and the ERC is present. This is in line with the expectations stated in hypothesis 2.

Once again, the effect of Size on CAR is insignificant. Following the same reasoning as for the 50% threshold CSR regression results, this insignificance hinders us from confirming the hypotheses, regardless of the significance of the ERCs. In addition, the control variable FY15 is positive and significant at the 5% level, confirming the results found previously.

A somewhat surprising observation from these results is the presence of negative ERCs. A positive relationship is expected between unexpected earnings and CAR for both good and bad earnings news, since positive unexpected earnings are expected to generate a positive CAR, and negative unexpected earnings are expected to generate a negative CAR.

An interesting note, is that all negative effects appear in either the Bad CSR-Good news group or in the Good CSR-Bad news group. This also holds for event window (0, +2) tested as a sensitivity analysis. A negative ERC for good news would imply a negative effect on CAR as a reaction to a good earnings surprise. Since this effect only appears for Bad CSR firms, one could reason that the negative ERC is a reaction to signalled opportunistic behaviour. A negative ERC for bad news, on the other hand, would imply a positive effect on CAR as a reaction to a bad earnings surprise. Since this effect only appears for Good CSR firms, one

could reason that the negative ERC is a reaction to signalled good management, such that the negative trend is not expected to be persistent.

However, one cannot ignore alternative explanations. There is empirical evidence for negative ERCs, pointing at the difficulties of isolating the effects of only the single firm's earnings announcement, due to a need of taking informational interactions around the event date into account (Schroeder, 1995). As previously discussed, other same-day announcements and announcements relative to one another may affect the response to a specific firm's earnings announcement (Lee, 2016; Moulton and Leow, 2015; Hirshleifer et al., 2009). These results could indicate that the firm-specific confounding events controlled for in this study may not be enough to find the causal effects of CSR disclosure quality on the ERC.

5.3.3.2 Results using CAR (0, +2)

As a sensitivity analysis, we run regressions to estimate the same models, now using the CAR over a shorter event window (0, +2).

Table 17: Results (Model 3 and 4)

Dependent variable: CAR (0, +2)	50% threshold		33% threshold	
	Equally weighted CSR	BMR weighted CSR	Equally weighted CSR	BMR weighted CSR
UE	0.0653*	0.0645*	0.0720	0.3410***
UE_GG	0.0715	0.0613	-0.0401	-0.3050***
UE_GB	-0.1130**	-0.1070**	-0.1320**	-0.3930***
UE_MG			0.0299	-0.3170***
UE_MB			-0.0284	-0.3040***
UE_BG	-0.0687	-0.0651	-0.0640	-0.3640***
SIZE	0.0023	0.0021	0.0003	0.0006
PB	-0.0008	-0.0021	-0.0002	-0.0047
ROIC	0.0158	0.0164	0.0195	0.0246*
Lev	0.0011**	0.0010**	0.0009*	0.0005
FY15	0.0275**	0.0286**	0.0269**	0.0266**
Loss	-0.0516	-0.0497	-0.0637	-0.0184
GG	0.0511**	0.0543**	0.0665**	0.0038
GB	-0.0198	-0.0149	-0.0168	-0.0720**
MG			0.0351	-0.0097
MB			-0.0246	-0.0801***
BG	0.0349*	0.0380*	0.0195	-0.0236
Constant	-0.1150	-0.1120	-0.0883	-0.0254
Observations	101	101	101	101
Adjusted R-squared	0.306	0.293	0.267	0.354

*** p<0.01, ** p<0.05, * p<0.1 (one sided test)

50% threshold division

Table 18 summarises the calculated ERCs for each CSR group and news type, based on the above regression results.

Table 18: ERC summary – 50% threshold, CAR (0, +2)

Group	Coefficients – Model 1	ERC – Equally weighted CSR	ERC – BMR weighted CSR
Good CSR – Good news (GG)	$\beta_1 + \beta_2$	0.1368	0.1258
Bad CSR – Good news (BG)	$\beta_1 + \beta_4$	-0.0034	-0.0006
Good CSR – Bad news (GB)	$\beta_1 + \beta_3$	-0.0477	-0.0425
Bad CSR – Bad news (BB)	β_1	0.0653	0.0645

For the 50% threshold CSR sample, the tendency is the same for CAR (0, +2) as CAR (-1, +3) for both equally weighted and BMR weighted CSR. For good news, higher CSR disclosure quality is associated with higher ERC. For bad news, higher CSR disclosure quality is associated with lower ERC. Whereas the latter relationship was insignificant in the results for CAR (-1, +3), these results show a significant negative relationship between CSR disclosure quality and the ERC, in line with hypothesis 2. Nevertheless, the issue related to firm size not being statistically significant in the regression still remains.

33% threshold division

Table 19 summarises the calculated ERCs for each CSR group and news type, based on the above regression results.

Table 19: ERC summary – 33% threshold, CAR (0, +2)

Group	Coefficients – Model 2	ERC – Equally weighted CSR	ERC – BMR weighted CSR
Good CSR – Good news (GG)	$\beta_1 + \beta_2$	0.0319	0.0360
Mid CSR – Good news (MG)	$\beta_1 + \beta_4$	0.1019	0.0240
Bad CSR – Good news (BG)	$\beta_1 + \beta_6$	0.0080	-0.0230
Good CSR – Bad news (GB)	$\beta_1 + \beta_3$	-0.0600	-0.0520
Mid CSR – Bad news (MB)	$\beta_1 + \beta_5$	0.0436	0.0370
Bad CSR – Bad news (BB)	β_1	0.0720	0.3410

When CSR is divided into three groups based on a 33% threshold, the results differ slightly between using CAR (0, +2) and CAR (-1, +3).

For good news, and equally weighted CSR, there is still a relatively larger but insignificant ERC for Mid CSR firms. For BMR weighted CSR, however, a difference is noted from the CAR (-1, +3) regressions. Whereas no linear relationship could be established from the CAR (-1, +3) regression results, a linear and significant positive relationship between CSR disclosure quality and the ERC is found, in line with hypothesis 1.

For bad news, a negative linear relationship can now be established for equally weighted CSR, as opposed to when CAR (-1, +3) is used. However, the differences in ERC across the groups are not significant. Using BMR weighted CSR, the significant linear negative relationship between CSR disclosure quality and the ERC is confirmed, in line with hypothesis 2.

Even if the results for both good and bad news indicate the expected relationships between CSR disclosure quality and the ERC, as stated in the hypotheses, the effect of size is still a potential issue in order to establish a significant relationship. Thus, the hypotheses cannot be supported. Another observation is that FY15 again has a significant and positive effect on CAR.

6. Discussion and implications

6.1 Discussion of the results

The positive relationship between CSR disclosure quality and the Earnings Response Coefficient (ERC) for good earnings news is in line with previous studies arguing that CSR can signal earnings quality and thus lead to a stronger investor responsiveness to earnings news, captured by a higher ERC (Choi and Moon, 2016; Jeong et al., 2016). The notably larger ERC for Mid CSR firms relative to Bad CSR firms when using equally weighted CSR scores is an interesting finding. It can be supported by the findings and previous literature discussing how investors perceive too large investments in CSR as a misallocation of resources whereas too small investments are deemed to not be sufficient for the company to perform well (Groening and Kanuri, 2016). This is reasonable, since the equally weighted CSR score allows for firms to receive a higher CSR disclosure quality score regardless of whether the CSR dimension is conveyed as business model relevant or not. The finding of a higher ERC for Mid CSR firms indicates that investing in any type of CSR activity is only good to a certain extent. The signal of good management via a balanced level of CSR investments, captured by the CSR disclosure quality by Mid CSR firms in this study, could explain why these firms have a higher ERC. In other words, these firms signal investments in CSR activities that enhance value as well as manage risk at an optimal level. The lower ERC for Good CSR firms could be explained by a perceived waste of resources on CSR activities for risk management purposes above the optimal level, indicating a waste of resources or opportunistic behaviour. For Bad CSR firms, investors perceive the level of CSR investment to be insufficient. The result indicates that there is a benefit from not signalling poor CSR disclosure quality and that this benefit is not necessarily associated with being best in class, but rather with being good enough.

However, the reasoning above does not hold to explain the results for the BMR weighted CSR regressions. The measure is in itself built to capture the optimal balance between value enhancing and risk management activities for each specific firm. Thus, it becomes natural that a more linear relationship between CSR disclosure quality and the ERC is found when using this measure. Even if the good news results for BMR weighted CSR do not provide a clear linear relationship, they do provide indications that there is a benefit associated with not being perceived as a Bad CSR firm.

Looking at bad earnings news, the negative relationship found in this study is supported by the studies showing a positive relationship between CSR and earnings quality (e.g. Gao and Zhang, 2015; Kim et al., 2012). The main finding is the strong reaction to bad news for Bad CSR firms relative to Good and Mid CSR firms, when using the BMR weighted CSR score. In other words, firms that have invested in no CSR activities or CSR activities that are not relevant for their business model, experience a stronger negative CAR. A possible contributing determinant is that industrial firms are reasonably subject to scrutiny when it comes to CSR related issues as the business in itself is considered to have high impact on the economic, environmental and social dimensions. Thus, this risk needs to be managed. The failure to signal sufficient management of such risk, as captured by low CSR disclosure quality in this study, has severe consequences. Good and Mid CSR firms seem to signal good enough CSR to serve as an insurance-like mechanism as discussed and found by Godfrey et al. (2009).

The findings of this study indicate that business model relevance is important to understand the relationship between CSR disclosure quality and the ERC. This is in line with the reasoning from previous studies emphasizing the importance of distinguishing between different CSR activities (Groening and Kanuri, 2016).

Overall, the findings indicate larger ERC differences across the CSR groups for bad news than good news. In other words, the negative relationship found on the bad news side is stronger than the positive relationship found on the good news side. This asymmetric recognition of good and bad news is in line with findings from other studies, arguing that there is evidence that investors generally respond to negative earnings news more than positive news (Soroka, 2006). It could be that the market is more pessimistic in general to good news, since there are incentives for firms to look good to meet or exceed expectations. Due to lack of incentives for firms to look bad, if a firm reports less than expected, investors tend to react accordingly. In this study, the asymmetric recognition of good and bad news observed is captured by the substantially larger ERC for the Bad CSR group for bad news. These findings imply that being a Bad CSR firm has a negative impact on abnormal returns although the size of the negative effect depends on whether we look at good or bad earnings news. Being perceived as a Bad CSR firm when bad earnings news hit the firm seems to have more severe consequences than being a Bad CSR firm when good earnings news are conveyed in the earnings announcement. Put differently, to not be deemed as a Bad CSR firm has its advantages, as being better than bad

leads to a slightly larger reaction to good news but most importantly serve as an insurance like mechanism when bad news hit the firm.

Even if the results from this study give indications for both a positive relationship between CSR disclosure quality and the ERC for good news, and a corresponding negative relationship for bad news, the evidence is not strong enough to confirm the two formulated hypotheses. An explanation to the findings might as well be firm size related, resulting from reasonably larger media exposure, more publicly available information, and a higher percentage of institutional investors, related to Large Cap firms. In other words, there is reason to believe that investors respond more to good news conveyed by larger firms than smaller firms, and that an insurance-like mechanism is stronger for larger firms than for smaller firms when bad news hit the firm.

After all, capturing a relationship between CSR disclosure quality and the ERC is challenging. CSR performance, as well as firm size, are only two of many firm specific characteristics that can have an impact on firm value via the ERC. Researchers are continuously investigating additional firm specific characteristics that can help in explaining cross firm differences in the ERC, with varied results. The heterogeneous findings, and the firm specific nature of how the market reacts to earnings news, make it reasonable to find that CSR disclosure quality has no significant role in explaining differences in the ERC across firms.

6.2 Limitations

Inevitably, the way this study has been conducted has its limitations that can potentially constrain the explanatory power of our results.

Firstly, even if using content analysis and a grading framework to measure CSR is a motivated choice and a deemed contribution of this study, it comes with certain restrictions. The procedure is time consuming and due to our time constraints, the number of firms evaluated was restricted to 68. A larger sample could have allowed for stronger inferences of the results. Also, time constraints restricted our disclosure selection to Annual Reports and CSR Reports. One cannot neglect the possibility that other information sources such as company websites, indices and investor-firm relations can be incorporated into an investor's decision making. Furthermore, even if we, given the time constraints, have done what we possibly can to minimise potential

bias from subjectivity when CSR disclosure quality has been assessed, one cannot completely eliminate this possibility.

Secondly, there are challenges associated with the event study methodology. Even if we have made an attempt to control for confounding events around the announcement dates, one cannot ignore the possibility of additional information releases around the same time that is not firm specific but has an impact on how the investor perceives the firm's reported earnings. Also related to the event study methodology, the small sample size made us exclude an analysis of potential post event drifts after the event window, which could have further helped in explaining the relationship between CSR disclosure quality and investor responsiveness to earnings news.

6.3 Conclusion

This thesis investigates the potential relationship between CSR disclosure quality and investor responsiveness to earnings news. The notion is that CSR disclosure quality can signal earnings quality. Given that investors recognise and react to the signal, this would lead to a stronger (weaker) market reaction for firms with good CSR disclosure quality for good (bad) news. To answer this question, two main steps are taken. First, CSR disclosure quality is measured by assessing Annual Reports and CSR Reports for fiscal year 2014 for the 68 firms in the sample, using a grading framework based on GRI indicators and the quality criteria auditability, business model relevance and comparability. Second, an event study methodology is used to investigate whether differences in CSR disclosure quality can explain cross firm differences in the market reaction to earnings news, captured by the Earnings Response Coefficient (ERC).

The results provide no strong evidence for a relationship between CSR disclosure quality and investor responsiveness to earnings news. The results, however, give some indication that there is a positive relationship between CSR disclosure quality and investor responsiveness to good earnings news, and a negative relationship between CSR disclosure quality and investor responsiveness to bad earnings news. The relationship is more evident for bad news, and is amplified for CSR disclosure quality that only captures business model relevant CSR activities.

6.4 Implications

Overall, the results do not provide strong evidence of any relationship between CSR disclosure quality and investor responsiveness to earnings news, although the opposite cannot be ignored

with confidence. No relationship would imply that, given that the firm solely takes on an investor perspective, there is no benefit from investing in CSR to signal earnings quality. The indications of a relationship, especially for bad news, would however imply that there is reason to believe that investors may incorporate CSR disclosures in their investment decisions. From a firm perspective, this could imply that firms may benefit from not being perceived as a Bad CSR firm.

The grading framework used to evaluate CSR disclosure quality is applicable to any industry and market since it allows for differences in business model relevant CSR activities. Such activities can vary within an industry. However, due to differences in stakeholder pressure, there are probably even larger differences in business model relevant activities across industries. To be able to compare across industries, one would have to control for the total CSR disclosure quality score that is relevant for the industry in general. Ignoring this, one would run the risk of giving firms in an industry with high stakeholder pressure, such as the industrials sector, generally higher CSR disclosure quality points relative to firms in another industry with lower stakeholder pressure. In the extreme case, all industrial firms would end up as Good CSR firms whereas all firms in the other industry would be deemed Bad CSR firms.

This study is performed on the Nordic market which reasonably has a certain level of stakeholder expectations related to CSR. There is reason to believe that, for Large Cap firms with global exposure, these expectations are fairly similar regardless of the home market. However, for Mid and Small Cap firms, more local expectations will most likely impact on the existence and content of CSR disclosures. Thus, whether these results can be generalised to other markets depend on the stakeholder expectations present in those markets.

6.5 Further research

The setup of this thesis and our findings open up for questions and improvements that are suggested for further research.

Firstly, relating to the limitation of this study, it would be favourable to increase the sample size to allow for stronger inferences of the results. A larger sample would allow for more variation in CSR disclosure quality across firms with similar size to further validate whether CSR disclosure quality can explain differences in the market response to earnings news across

firms. In addition, following the same firms across time could be useful since firm specific characteristics could be controlled for to a greater extent than this study allows for. Also, replicating this study for other industries and markets to investigate whether the findings still hold, would be interesting.

Secondly, it would be interesting to see whether the use of other CSR measures such as indices would give the same results. Results from such comparisons could be used to further understand the information that investors recognise and react to. They could also give insightful information regarding the relationship between different types of measures of perceived underlying CSR performance.

Lastly, our results indicate that the market response to earnings news is generally higher for earnings news conveyed by audited reported earnings. It would be interesting to conduct this study using a larger sample and only the audited annual earnings to allow for larger reactions in general. This would provide further insights into the relationship between CSR disclosure quality and investor responsiveness to earnings news.

References

- Bozzolan, S., Fabrizi, M., Mallin, C. A. and Michelon, G. (2015). Corporate social responsibility and earnings quality: International evidence. *International Journal of Accounting*, 50 (4), 361-396.
- Brammer, S.J. and Pavelin, S. (2006). Corporate Reputation and Social Performance: The Importance of Fit. *Journal of Management Studies*, 43 (3), 435-455.
- Brown, S.J., Warner, J.B. (1985). Using daily stock returns: The case of event studies. *Journal of Financial Economics*, 14 (1), 3-31.
- Chang, K., Kim, I. and Li, Y. (2014). The heterogeneous impact of corporate social responsibility activities that target different stakeholders. *Journal of Business Ethics*, 125 (2), 211-234.
- Chih, H.-L., Shen, C.-H. and Kang, F.-C. (2008). Corporate social responsibility, investor protection, and earnings management: Some international evidence. *Journal of Business Ethics*, 79 (1-2), 179-198.
- Choi, H., Moon, D. (2016). Perceptions of corporate social responsibility in the capital market. *Journal of Applied Business Research*, 32 (5), 1507-1518.
- DeFond, M., Hung, M. and Trezevant, R. (2007). Investor protection and the information content of annual earnings announcements: International evidence. *Journal of Accounting and Economics*, 43 (1), 37-67.
- Dhaliwal, D. S., Li, O. Z., Tsang, A. and Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *Accounting Review*, 86 (1), 59-100.
- Elkington, J. (1994). Towards the sustainable corporation: Win-win-win business strategies for sustainable development. *California Management Review*, 36 (2), 90–100.
- EY (2016). *Mätning, verifiering och rapportering - Climate Change and Sustainability Services*. [online] Available at: <http://www.ey.com/se/sv/services/specialty-services/climate-change-and-sustainability-services/ey-climate-change-and-sustainability-services-matning-verifiering-och-rapportering> [Accessed 2 Dec. 2016]
- Fama, E.F. and French, K.R. (1992) The cross-section of expected stock returns. *The Journal of Finance*, 47(2), 427–465.
- Fehr, E., Gächter, S. and Kirchsteiger, G. (1997). Reciprocity as a contract enforcement device: Experimental evidence. *Econometrica*, 65 (4), 833-860.
- Francis, J., Nanda, D. and Olsson, P. (2008). Voluntary disclosure, earnings quality, and cost of capital. *Journal of Accounting Research*, 46 (1), 53-99.

- FTSE Russell (2016). *FTSE4Good Index Series*. [online] Available at: <http://www.ftse.com/products/indices/FTSE4Good> [Accessed 5 Dec. 2016]
- Gao, L. and Zhang, J.H. (2015). Firms' earnings smoothing, corporate social responsibility, and valuation. *Journal of Corporate Finance*, 32, 108-127.
- Global Reporting Initiative (2016a). *G4 Sustainability Reporting Guidelines*. [online] Available at: <https://www.globalreporting.org/standards/g4/Pages/default.aspx> [Accessed 6 Oct. 2016].
- Global Reporting Initiative (2016b). *GRI and Sustainability Reporting*. [online] Available at: <https://www.globalreporting.org/information/sustainability-reporting/Pages/gri-standards.aspx> [Accessed 2 Dec. 2016]
- Godfrey, P. C., Merrill, C. B. and Hansen, J. M. (2009). The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis. *Strategic Management Journal*, 30(4), 425-445.
- Groening, C. and Kanuri, V.K. (2016). Investor reactions to concurrent positive and negative stakeholder news. *Journal of Business Ethics*, 1-24. Article in Press.
- Hainmueller, J., Hiscox, M.J. and Sequeira, S. (2015). Consumer demand for fair trade: Evidence from a multistore field experiment. *Review of Economics and Statistics*, 97 (2), 242-256.
- Haw, I.-M., Hu, B., Lee, J.J. and Wu, W. (2012). Investor protection and price informativeness about future earnings: International evidence. *Review of Accounting Studies*, 17 (2), 389-419.
- Hirshleifer, D., Lim, S.S. and Teoh, S.H. (2009). Driven to distraction: Extraneous events and underreaction to earnings news. *Journal of Finance*, 64 (5), 2289-2325.
- International Integrated Reporting Council (2016). *What? The tool for better reporting*. [online] Available at: <http://integratedreporting.org/what-the-tool-for-better-reporting/> [Accessed 2 Dec. 2016]
- Jeong, K.H., Jeong, S.W., Lee, W.J. and Bae, S.H. (2016). Permanency of CSR activities and firm value. *Journal of Business Ethics*, 1-17. Article in Press.
- Kang, C., Germann, F. and Grewal, R. (2016). Washing away your sins? Corporate social responsibility, corporate social irresponsibility, and firm performance. *Journal of Marketing*, 80 (2), 59-79.
- Kim, Y., Park, M.S. and Wier, B. (2012). Is earnings quality associated with corporate social responsibility? *Accounting Review*, 87 (3), 761-796.
- KPMG (2016). *Granskning - Granskning och kontroll av hållbarhetsinformation blir allt viktigare*. [online] Available at: <https://home.kpmg.com/se/sv/home/tjanster/hallbarhetstjanster/granskning.html> [Accessed 2 Dec. 2016]

- Lee, Y.-J. (2016). Market reactions to unexpected relative earnings performance. *Asia-Pacific Journal of Accounting and Economics*, 1-19. Article in Press.
- Lennox, C.S., Park, C.W. (2006). The informativeness of earnings and management's issuance of earnings forecasts. *Journal of Accounting and Economics*, 42 (3), 439-458.
- MacKinlay, A.C. (1997). Event studies in economics and finance. *Journal of Economic Literature*, 35(1), 13-39.
- Martinelli, F. and Psychogyios, K. (2014). CSR reporting as a signal of good management: Do investors really care? *SSE Publications*.
- Martínez-Ferrero, J., Garcia-Sanchez, I.M. and Cuadrado-Ballesteros, B. (2015). Effect of financial reporting quality on sustainability information disclosure. *Corporate Social Responsibility and Environmental Management*, 22 (1), 45-64.
- Mehrani, S., Moradi, M., Eskandar, H. (2016). Institutional ownership type and earnings quality: Evidence from Iran. *Emerging Markets Finance and Trade*, 1-20. Article in Press.
- Morgan Stanley (2016). *Institute for Sustainable Investing*. [online] Available at: <https://www.morganstanley.com/what-we-do/institute-for-sustainable-investing> [Accessed 5 Dec. 2016]
- Moulton, P.C. and Leow, S. (2015). Earnings announcements and investor focus in the hospitality industry. *Cornell Hospitality Quarterly*, 56 (1), 5-16.
- Muttakin, M.B., Khan, A. and Azim, M.I. (2015). Corporate social responsibility disclosures and earnings quality: Are they a reflection of managers' opportunistic behavior? *Managerial Auditing Journal*, 30 (3), 277-298.
- Peterson, P.P. (1989). Event studies: A review of issues and methodology. *Quarterly Journal of Business and Economics*, 28(3), 36-66.
- Prior, D., Surroca, J. and Tribó, J.A. (2008). Are socially responsible managers really ethical? Exploring the relationship between earnings management and corporate social responsibility. *Corporate Governance*, 16 (3), 160-177.
- Qvartz (2016). *Creating value through sustainable packaging – The Carlsberg case*. [online] Available at: <http://qvartz.com/buzz/case/carlsberg-sustainable-packaging/> [Accessed 2 Dec. 2016]
- Reverte, C. (2012). The impact of better corporate social responsibility disclosure on the cost of equity capital. *Corporate Social Responsibility and Environmental Management*, 19 (5), 253-272.
- Ryan, B., Scapens, R.W. and Theobald, M. (2002). *Research method and methodology in finance and accounting*. 2nd ed. London: Thomson Learning.

- S&P Dow Jones (2016). *Dow Jones Sustainability Indices*. [online] Available at: <http://www.djindexes.com/sustainability/> [Accessed 5 Dec. 2016]
- Schroeder, D.A. (1995). Evidence on negative earnings response coefficients. *Journal of Business Finance and Accounting*, 22(7), 939-956.
- Shiu, Y-M. and Yang, S-L. (2016). Does engagement in corporate social responsibility provide strategic insurance-like effects? *Strategic Management Journal*. Article in press.
- Soroka, S.N. (2006) Good news and bad news: Asymmetric responses to economic information. *The Journal of Politics*, 68(2), pp. 372–385
- Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3), 355-374.
- The Forum for Sustainable and Responsible Investment (2016). *SRI basics*. [online] Available at: <http://www.ussif.org/sribasics> [Accessed 2 Dec. 2016]
- Wang, J., Zhou, M., Lei, L. and Fan, W. (2016). Corporate social responsibility reporting, pyramidal structure and political interference: Evidence from China. *Journal of Applied Business Research*, 32 (2), 703-718.
- Wooldridge, J.M. (2015). *Introductory econometrics. A modern approach*. 2th ed. Boston: Cengage Learning.

Appendix 1: Evaluated firms

			Event date			Scored CSR points			Equally weighted CSR score		BMR weighted CSR score		
No	Company	Large/Mid cap	Q215	Q315	FY15	AUD score	BMR score	COM score	Weighted BMR score	Total CSR score	Weighted		Total CSR score
											AUD score	COM score	
1	A.P. Møller - Mærsk B A/S	Large	2015-08-13	2015-11-06	2016-02-10	44.0	9	9.0	102.0	155.0	31.2	6.8	38
2	ABB Ltd	Large	2015-07-23	2015-10-21	2016-02-03	100.5	10	26.0	113.3	239.8	68.8	19.2	88
3	Alfa Laval AB	Large	2015-07-16	2015-10-27	2016-02-02	49.5	8.5	18.0	96.3	163.8	38.5	14.4	52.9
4	ASSA ABLOY AB ser. B	Large	N/A*	N/A*	N/A*	72.5	9.5	24.0	107.7	204.2	59.5	20.8	80.3
5	Atlas Copco AB ser. B	Large	N/A*	N/A*	N/A*	46.5	9	14.0	102.0	162.5	31.7	9.6	41.3
6	Cargotec Oyj	Large	2015-07-21	2015-10-21	2016-02-10	25.0	7	8.0	79.3	112.3	15.3	5.0	20.3
7	DFDS A/S	Large	2015-08-20	2015-11-19	2016-02-12	41.0	7.5	9.0	85.0	135.0	25.1	5.0	30.1
8	DSV A/S	Large	2015-08-04	2015-10-28	2016-02-10	24.0	7	10.0	79.3	113.3	17.2	7.2	24.4
9	Fingerprint Cards AB ser. B	Large	N/A*	2015-11-05	2016-02-04	6.5	2.5	2.0	28.3	36.8	2.4	0.8	3.2
10	FLSmidth & Co. A/S	Large	2015-08-25	2015-11-12	2016-02-11	40.0	10	11.0	113.3	164.3	30.2	8.8	39
11	G4S plc	Large	2015-08-12	N/A*	2016-03-09	29.5	8.5	3.0	96.3	128.8	18.0	1.2	19.2
12	Huhtamäki Oyj	Large	2015-07-24	2015-10-22	2016-02-11	51.0	8.5	13.0	96.3	160.3	29.6	7.8	37.4
13	ISS A/S	Large	2015-08-27	2015-11-18	2016-03-02	15.0	5.5	3.0	62.3	80.3	6.1	1.4	7.5
14	KONE Oyj	Large	2015-07-17	2015-10-22	2016-01-28	31.0	8	13.0	90.7	134.7	22.0	10.0	32
15	Konecranes Oyj	Large	2015-07-17	2015-10-21	2016-02-03	45.5	8	18.0	90.7	154.2	28.3	11.6	39.9
16	Københavns Lufthavne A/S	Large	N/A*	N/A*	N/A*	45.5	6.5	21.0	73.7	140.2	29.7	14.0	43.7
17	Lifco AB ser. B	Large	2015-07-16	2015-11-03	2016-02-22	7.5	3	3.0	34.0	44.5	1.6	0.4	2
18	Loomis AB ser. B	Large	2015-07-31	2015-11-06	2016-02-04	9.0	3	3.0	34.0	46.0	2.6	1.0	3.6
19	Metso Oyj	Large	2015-07-23	2015-10-22	2016-02-04	66.5	8	19.0	90.7	176.2	38.3	11.4	49.7
20	NCC AB ser. B	Large	2015-07-17	2015-11-06	2016-01-28	55.5	10.5	16.0	119.0	190.5	43.6	12.8	56.4
21	NIBE Industrier AB ser. B	Large	2015-08-14	2015-11-13	2016-02-17	33.5	7.5	9.0	85.0	127.5	22.9	6.2	29.1
22	Peab AB ser. B	Large	2015-08-21	2015-11-12	2016-02-16	55.0	9.5	15.0	107.7	177.7	39.6	11.4	51
23	Rockwool International B A/S	Large	2015-08-25	N/A*	2016-02-26	22.0	5.5	4.0	62.3	88.3	12.0	2.0	14
24	SAAB AB ser. B	Large	2015-07-17	2015-10-23	2016-02-10	55.0	10	15.0	113.3	183.3	41.6	12.0	53.6
25	Sandvik AB	Large	2015-07-17	2015-10-23	2016-02-03	76.0	11.5	19.0	130.3	225.3	62.8	17.6	80.4
26	Securitas AB ser. B	Large	2015-08-05	2015-11-04	2016-02-09	25.0	7	7.0	79.3	111.3	12.2	3.2	15.4
27	Skanska AB ser. B	Large	2015-07-23	2015-10-28	2016-02-04	19.0	7.5	5.0	85.0	109.0	12.9	3.4	16.3
28	SKF, AB ser. B	Large	2015-07-15	2015-10-16	2016-02-02	65.5	9	18.0	102.0	185.5	44.5	13.0	57.5
29	SWECO AB ser. B	Large	2015-07-17	2015-10-23	2016-02-11	25.5	9.5	6.0	107.7	139.2	16.3	3.6	19.9
30	Trelleborg AB ser. B	Large	2015-07-21	2015-10-22	2016-02-04	35.0	8	13.0	90.7	138.7	21.5	8.4	29.9
31	Valmet Corporation	Large	2015-07-30	2015-10-28	2016-02-09	37.5	9.5	12.0	107.7	157.2	26.5	9.2	35.7
32	Volvo, AB ser. B	Large	2015-07-17	2015-10-23	2016-02-05	76.0	12	19.0	136.0	231.0	62.4	15.8	78.2
33	Wärtsilä Oyj Abp	Large	2015-07-17	2015-10-22	2016-01-27	67.0	9	24.0	102.0	193.0	46.3	17.6	63.9
34	Arcam AB	Mid	2015-07-21	2015-10-21	2016-02-08	13.0	3	4.0	34.0	51.0	5.6	2.4	8

* The data was not available on Thomson Datastream

		Event date				Scored CSR points			Equally weighted CSR score		BMR weighted CSR score		
No	Company	Large/Mid cap	Q215	Q315	FY15	AUD score	BMR score	COM score	Weighted BMR score	Total CSR score	Weighted Weighted		
											AUD score	COM score	Total CSR score
35	Beijer Alma AB ser. B	Mid	2015-08-18	2015-10-23	2016-02-17	29.0	6	11.0	68.0	108.0	19.7	8.2	27.9
36	Beijer Ref AB ser. B	Mid	2015-07-17	2015-10-22	2016-02-10	12.0	4	3.0	45.3	60.3	3.0	0.0	3
37	Brdr.Hartmann A/S	Mid	N/A*	N/A*	N/A*	11.0	4	4.0	45.3	60.3	3.1	0.8	3.9
38	Bufab AB	Mid	2015-07-21	2015-10-23	2016-02-26	24.0	5	4.0	56.7	84.7	8.2	1.2	9.4
39	Caverion Oyj	Mid	2015-07-23	2015-10-23	2016-01-27	28.0	8.5	8.0	96.3	132.3	19.7	5.8	25.5
40	Cavotec SA	Mid	2015-08-05	2015-11-05	2016-02-25	19.0	5	3.0	56.7	78.7	8.9	0.6	9.5
41	Concentric AB	Mid	2015-07-24	2015-10-23	2016-02-10	15.5	6	6.0	68.0	89.5	9.2	3.4	12.6
42	D/S Norden	Mid	2015-08-12	2015-11-11	2016-03-02	30.0	7	13.0	79.3	122.3	17.4	7.8	25.2
43	Eimskipafélag Íslands hf.	Mid	N/A*	N/A*	N/A*	19.5	6	2.0	68.0	89.5	10.7	1.2	11.9
44	Eltel AB	Mid	2015-08-20	2015-11-19	2016-02-19	12.0	2.5	4.0	28.3	44.3	4.3	1.6	5.9
45	Fagerhult, AB	Mid	2015-08-20	2015-10-22	2016-02-11	36.0	7.5	9.0	85.0	130.0	22.5	5.6	28.1
46	Gunnebo AB	Mid	2015-07-17	2015-10-21	2016-02-04	13.0	5	0.0	56.7	69.7	6.0	0.0	6
47	Inwido AB	Mid	2015-07-17	2015-10-20	2016-02-04	23.5	4.5	6.0	51.0	80.5	11.8	2.8	14.6
48	ITAB Shop Concept AB ser. B	Mid	2015-07-09	2015-11-03	2016-02-09	9.5	3.5	2.0	39.7	51.2	4.5	0.4	4.9
49	Lassila & Tikanoja Oyj	Mid	2015-08-05	2015-10-28	2016-02-03	44.0	6.5	5.0	73.7	122.7	24.2	3.0	27.2
50	Lemminkäinen Oyj	Mid	2015-07-29	2015-10-30	2016-02-04	43.5	9	13.0	102.0	158.5	31.4	10.4	41.8
51	Lindab International AB	Mid	2015-07-17	2015-10-27	2016-02-11	32.0	6.5	10.0	73.7	115.7	16.0	6.0	22
52	Marel hf.	Mid	N/A*	N/A*	N/A*	9.5	3.5	2.0	39.7	51.2	2.6	0.6	3.2
53	Mycronic AB	Mid	2015-07-14	2015-10-21	2016-02-04	7.5	3	2.0	34.0	43.5	3.5	1.2	4.7
54	Nolato AB ser. B	Mid	2015-07-21	2015-10-28	2016-02-04	39.5	8.5	16.0	96.3	151.8	32.2	13.2	45.4
55	OEM International AB ser. B	Mid	N/A*	N/A*	N/A*	20.5	4	5.0	45.3	70.8	8.0	2.4	10.4
56	Outotec Oyj	Mid	2015-07-30	2015-10-29	2016-02-09	88.0	10.5	23.0	119.0	230.0	66.7	18.0	84.7
57	PKC Group Oyj	Mid	2015-08-06	2015-10-29	2016-02-11	44.5	7.5	6.0	85.0	135.5	21.4	2.8	24.2
58	Ponsse Oyj	Mid	2015-08-04	2015-10-20	2016-02-16	3.5	2.5	0.0	28.3	31.8	0.8	0.0	0.8
59	Pöyry Oyj	Mid	2015-07-30	2015-10-30	2016-02-10	8.5	3.5	3.0	39.7	51.2	2.6	0.8	3.4
60	Ramirent Oyj	Mid	2015-08-06	2015-11-04	2016-02-11	38.5	10	3.0	113.3	154.8	28.4	2.4	30.8
61	Sensys Gatso Group AB	Mid	2015-08-27	N/A*	2016-02-25	6.5	4.5	1.0	51.0	58.5	2.5	0.2	2.7
62	Solar B A/S	Mid	2015-08-11	2015-11-05	2016-02-24	12.0	5.5	4.0	62.3	78.3	7.2	2.6	9.8
63	SRV Group plc	Mid	2015-08-06	2015-11-05	2016-02-18	16.5	4.5	4.0	51.0	71.5	10.2	2.6	12.8
64	Tikkurila Oyj	Mid	2015-08-04	2015-11-05	2016-02-09	24.5	8.5	10.0	96.3	130.8	14.8	6.2	21
65	Transcom WorldWide AB	Mid	2015-07-16	2015-10-21	2016-02-05	39.5	6.5	4.0	73.7	117.2	22.1	1.8	23.9
66	Uponor Oyj	Mid	2015-07-21	2015-10-29	2016-02-12	14.5	6	1.0	68.0	83.5	11.2	0.6	11.8
67	YIT Oyj	Mid	2015-07-28	2015-10-29	2016-02-05	21.0	6	7.0	68.0	96.0	12.1	4.2	16.3
68	ÅF AB ser. B	Mid	2015-07-13	2015-10-23	2016-02-08	34.0	9.5	8.0	107.7	149.7	25.5	6.4	31.9

* The data was not available on Thomson Datastream

No	Company	CSR information reported	Annual/Integrated report link	CSR report link
1	A.P. Møller - Mærsk B A/S	Separate	http://files.shareholder.com/downloads/ABEA-3GG91Y/3039541402x0x817087/42CD9C58-9686-4AEC-B0C4-0C7A291FDF14/Annual_Report_2014.pdf	http://www.maersk.com/~media/the%20maersk%20group/sustainability/files/publications/2014/maersk_sustainability_report_2014_online_version.pdf?la=en
2	ABB Ltd	Separate	http://new.abb.com/docs/default-source/investor-center-docs/annual-report/annual-report-2014/ABB-Group-Annual-Report-2014-English.pdf?sfvrsn=8	https://library.e.abb.com/public/6cce7b6b4c6f40d3838a423d798766e2/ABB%20Group%20Sustainability%20Performance%202014.pdf
3	Alfa Laval AB	Separate	http://www.alfalaval.com/globalassets/documents/investors/english/annual-reports/alfa_laval_www_en_14_low.pdf	http://www.alfalaval.com/search/?text=GRI%202014
4	ASSA ABLOY AB ser. B	Separate	http://www.assaabloy.com/Global/Investors/Annual-Report/2014/Annual%20Report%202014.pdf	http://www.assaabloy.com/Global/Sustainability/Sustainability-Report/2014/Sustainability%20report%202014.pdf
5	Atlas Copco AB ser. B	Integrated	http://www.atlascopcogroup.com/content/dam/atlas-copco/corporate/documents/investors/financial-publications/english/Annual%20Report%20incl.%20Sustainability%20Report%20and%20Corporate%20Governance%20Report%202014.pdf	
6	Cargotec Oyj	Separate	http://www.cargotec.com/en-global/investors/materials/financial-reports/Documents/Cargotec_Annual_report_2014.pdf	http://www.cargotec.com/fi-fi/cargotec/kestava-toiminta/Documents1/Sustainability_Report_2014.pdf
7	DFDS A/S	Separate	http://www.dfds.com/Downloadables/DFDS-Annual-Report-2014.pdf	http://www.dfds.com/Downloadables/DFDS-CR-Report-2014.pdf
8	DSV A/S	Separate	http://files.shareholder.com/downloads/AMDA-R3OLQ/3053061355x0x807731/31123336-634E-4ECA-9E0E-9211B28FAE6C/DSV%202014%20Annual%20Report.pdf	http://www.e-pages.dk/dsv/666/
9	Fingerprint Cards AB ser. B	Integrated	http://hugin.info/132202/R/1922397/704204.pdf	
10	FLSmidth & Co. A/S	Separate	http://hugin.info/2106/R/1894014/671323.pdf	http://www.flsmidth.com/~media/PDF%20Files/CorpCom/FLS_Sustainability_2014.ashx
11	G4S plc	Separate	http://www.g4s.com/~media/Files/Annual%20Reports/AR%202014/ARA%202014.pdf	http://www.g4s.com/~media/Files/CSR%20Reports/G4S%20CSR%20Report%202014.pdf
12	Huhtamäki Oyj	Separate	http://www.huhtamaki.com/documents/10841/56815d96-8d5b-4125-a966-ba6ea8bba979	http://www.huhtamaki.com/documents/10841/b3a95e41-d841-45c8-a4e9-21f07501b8c2
13	ISS A/S	Integrated	http://files.shareholder.com/downloads/ABEA-5ASMJV/3039352137x0x862285/C57417C7-A86C-4C1A-9248-B175E0ED45BD/ISS_AR_2014.pdf	
14	KONE Oyj	Separate	http://cdn.kone.com/www.kone.com/en/Images/KONE-Financial-statements-2014.pdf?v=3	http://cdn.kone.com/www.kone.com/en/Images/KONE_Sustainability_report_2014_EN.pdf?v=1
15	Konecranes Oyj	Integrated	http://www.konecranes.com/sites/default/files/investor/konecranes_annual_report_2014.pdf	
16	Københavns Lufthavne A/S	Integrated	https://www.cph.dk/globalassets/om-cph/investor/koncernarsrapporter/arsrapporter_uk/cph_uk_ar_report_2015_03_18_final.pdf	
17	Lifco AB ser. B	Integrated	http://mb.cision.com/Main/5431/9756815/367314.pdf	
18	Loomis AB ser. B	Integrated	http://www.loomis.com/PageFiles/7769/Eng_final_web.pdf	
19	Metso Oyj	Integrated	http://www.metso.com/reports/2014/assets/pdf/metso_annual_report_2014.pdf	http://www.metso.com/reports/2014/assets/pdf/metso_GRI_sustainability_data_2014.pdf

No	Company	CSR information reported	Annual/Integrated report link	CSR report link
20	NCC AB ser. B	Integrated	https://www.ncc.group/contentassets/31b4bad8ca874d4686691a434be0711e/ncc_annual_report_20141.pdf	
21	NIBE Industrier AB ser. B	Separate	http://www.nibe.com/upload/nibe_industries/2015/GB_AR_2014_webbPM.pdf	http://www.nibe.com/upload/nibe_industries/2015/SUS_GB_2014_W.pdf
22	Peab AB ser. B	Separate	http://www.peab.com/Global/PeabCom/Reports/AR-eng-14.pdf	http://www.peab.com/Global/PeabCom/Reports/Sustainability-report-2014.pdf
23	Rockwool International B A/S	Integrated	http://www.rockwool.com/files/COM2011/Investor/Results/Annual-Report/2014/Annual-Report-2014_ROCKWOOL-International-AS.pdf	
24	SAAB AB ser. B	Separate	http://saabgroup.com/globalassets/cision/documents/2015/20150313-saabs-annual-report-for-2014-now-available-en-2-988879.pdf	http://saabgroup.com/globalassets/corporate/responsibility/sustainability-reports/sustainability-report-2014.pdf
25	Sandvik AB	Separate	http://www.home.sandvik/globalassets/sandvik_ar_2014_engprintedversion.pdf	http://www.home.sandvik/globalassets/6.-about-us/sustainable-business/sustainable-business-report-2014.pdf
26	Securitas AB ser. B	Integrated	http://www.securitas.com/globalassets/com/files/annual-reports/en/securitas_ab_annual_report_2014.pdf	
27	Skanska AB ser. B	Integrated + separate	http://group.skanska.com/globalassets/investors/reports--publications/annual-reports/2014/annual-report-2014.pdf	http://group.skanska.com/globalassets/sustainability/reporting--publications/sustainability-reporting/skanska-sustainability-review-2014.pdf
28	SKF, AB ser. B	Integrated	http://www.skf.com/irassets/afw/files/press/skf/SKF-Annual-Report-2014-150308-Fast.pdf	
29	SWECO AB ser. B	Integrated	http://portalvhds1fxb0jchzgjp.blob.core.windows.net/press-releases-attachments./508790/359770.pdf	
30	Trelleborg AB ser. B	Integrated + separate	http://mb.cision.com/Main/584/9759649/369520.pdf	http://www.trelleborg.com/en/investors/reports/corporate--responsibility--reports
31	Valmet Corporation	Separate	http://www.valmet.com/globalassets/investors/reports--presentations/annual-reports/valmet-financial-statement-2014.pdf	http://www.valmet.com/globalassets/investors/reports--presentations/annual-reports/valmet-gri-supplement-2014.pdf
32	Volvo, AB ser. B	Separate	http://www3.volvo.com/investors/finrep/ar15/ar_2015_eng.pdf	http://www.volvogroup.com/en-en/investors/reports-and-presentations/sustainability-reports.html
33	Wärtsilä Oyj Abp	Integrated	http://cdn.wartsila.com/docs/default-source/investors/financial-materials/annual-reports/wartsila_annual_report_2014.pdf?sfvrsn=6	
34	Arcam AB	Integrated	http://www.arcamgroup.com/files/Arcam-Annual-Report-2014-ENG-final.pdf	
35	Beijer Alma AB ser. B	Separate	http://beijeralma.se/images/stories/rapporter/2014/beijeralma_2014_eng.pdf	http://beijeralma.se/images/stories/rapporter/2015/beijeralma_sustainabilityreport_2014.pdf
36	Beijer Ref AB ser. B	Integrated	http://www.beijerref.com/en/Investor-Relations/Reports/Annual-reports/2014	
37	Brdr.Hartmann A/S	Integrated	http://www.hartmann-packaging.com/Investor/Financials/Annual%20reports.aspx	
38	Bufab AB	Integrated	http://www.bufab.com/wp-content/uploads/2013/12/BUFAB_2014_Eng_Annual-report.pdf	
39	Caverion Oyj	Integrated	http://www.caverion.com/docs/default-source/investors-docs/publications/annual-report-docs/2014/caverion-annual-report-2014_.pdf?sfvrsn=2	

No	Company	CSR information reported	Annual/Integrated report link	CSR report link
40	Cavotec SA	Integrated	http://files.shareholder.com/downloads/AMDA-FS92R/3052074211x0x812184/FB2A192D-7438-4319-93DB-31414334FF6A/Cavotec_SA_-_Annual_Report_2014_-_PUBLIC20150226.pdf	
41	Concentric AB	Integrated	http://www.concentricab.com/_downloads/AGM-2015/Concentric_AR_2014_ENG.pdf?dt=lhhgb0pr	
42	D/S Norden	Separate	https://www.ds-norden.com/public/dokumenter/reports/AR2014/NORDENAnnualreport2014.pdf	https://dl.dropboxusercontent.com/u/394193823/NORDEN_CSR_2014.pdf
43	Eimskipafélag Íslands hf.	Integrated	http://www.eimskip.com/media/1451/eimskip_annual_report_2014_lq.pdf	
44	Eltel AB	Separate	http://www.eltelgroup.com/en/eltel-annual-report-2014/	http://www.eltelgroup.com/en/eltel-sustainability-review-2014/
45	Fagerhult, AB	Separate	http://www.fagerhultgroup.com/afw/files/press/fagerhult/201503168779-1.pdf	http://www.fagerhultgroup.com/sites/default/files/spot/files/fagerhult_sustainability_report_2014.pdf
46	Gunnebo AB	Integrated	http://www.gunnebogroup.com/en/GunneboDocuments/Gunnebo-Annual-Report-2014.pdf	
47	Inwido AB	Integrated	http://www.inwido.com/sites/default/files/annual_reports/inwido_ar_2014_eng_web.pdf	
48	ITAB Shop Concept AB ser. B	Integrated	http://itab.se/Global/Parent%20Company/Investor%20Relations/Finansiella%20rapporter/%C3%85rsredovisningar/English/ITAB_Annual_Report_2014_web.pdf	
49	Lassila & Tikanoja Oyj	Integrated	http://www.lassila-tikanoja.fi/en/company/annual-report-2014/pdf/lt-annual-report-2014.pdf	
50	Lemminkäinen Oyj	Integrated	http://www.lemminkainen.com/globalassets/documents/investors/annual-reports/annual-report-2014.pdf	
51	Lindab International AB	Integrated	http://www.lindabgroup.com/English/ir/reports/Documents/annual-report-14.pdf	
52	Marel hf.	Integrated	http://ar2014.marel.com/Media/marel-annual-report-2014-in-a-pdf.pdf?ind=corporate	
53	Mycronic AB	Integrated	http://investors.mycronic.com/afw/files/press/mycronic/201504079998-1.pdf	
54	Nolato AB ser. B	Separate	http://www.nolato.com/downloads/nolato-annual-report-2014-en.pdf	http://www.nolato.com/downloads/nolato-sustainability-2014.pdf
55	OEM International AB ser. B	Integrated	http://www.oem.se/wp-content/uploads/2015/03/OEM_eng_2014.pdf	
56	Outotec Oyj	Separate	http://www.outotec.com/Global/Investors/2014/Financial%20reporting/Outotec_Financial_Statements_2014_FINAL.pdf	http://www.outotec.com/ImageVaultFiles/id_1598/cf_2/27729-Outotec_Sustainability_aukeemittain.PDF
57	PKC Group Oyj	Separate	http://www.pkcgroup.com/media/english/investors/annual-report/pkc-annual-report-2014.pdf	http://www.pkcgroup.com/media/corporate-responsibility-report/pkc-corporate-responsibility-report-2014.pdf
58	Ponsse Oyj	No info in report	http://www.ponsse.com/investors/financial-information/annual-reports	
59	Pöyry Oyj	No info in report	http://www.poyry.com/sites/default/files/financial_reports/poyry_fs_2014_en.pdf	
60	Ramirent Oyj	Separate	http://www.ramirent.com/files/attachments/annual_report_2014/ramirent_annual_report_2014_en_web.pdf	http://www.ramirent.com/files/attachments/sustainability/sustainable_2014/sustainability_report_2014_final_lr.pdf

No	Company	CSR information reported	Annual/Integrated report link	CSR report link
61	Sensys Gatso Group AB	Integrated	http://www.sensysgatso.com/storage/cms/5d6e846d52744d3597d1beca7212cfd2/dc8f647b2c9b444cbdd7257c5f1dc04f/pdf/-8/Annual%20Report%202014b_low.pdf?PropertyName=EmbeddedImg_3a5d8cf3-4526-4d98-a000-41593d0c2264&ValueIndex=0	
62	Solar B A/S	Separate	http://www.solar.eu/menu/investor/downloads/2014	https://www.unglobalcompact.org/system/attachments/cop_2015/132541/original/SOLAR_CSR_Report_2014_final.pdf?1420175053
63	SRV Group plc	Integrated	https://www.srv.fi/sites/default/files/files/investors/reports_and_presentations/2014_srv_annual_report_0.pdf	
64	Tikkurila Oyj	Separate	http://tikkurilagroup.com/files/4493/Tikkurila_Annual_Report_2014.pdf	http://www.tikkurilagroup.com/files/4488/Tikkurila_Corporate_Responsibility_report_2014.pdf
65	Transcom WorldWide AB	Integrated report	http://www.transcom.com/Documents/Pressmeddelanden/1869594.pdf	
66	Uponor Oyj	Separate	http://investors.uponor.com/sites/default/files/reports/Uponor_Financial_Statements_2014.pdf	http://investors.uponor.com/sites/default/files/reports/Uponor-Yearbook-2014_0.pdf
67	YIT Oyj	Integrated	http://www.yitgroup.com/docs/default-source/yit-annual-reports/yit-annual-report-2014c433efc011276d1f8970ff0000b98975.pdf?sfvrsn=2	
68	ÅF AB ser. B	Integrated	http://www.afconsult.com/globalassets/ir/reports/annual-reports/af_ar2014_eng.pdf	

Appendix 2: The estimation of the market model parameters $(\hat{\beta}_i, \hat{a}_i, \hat{\sigma}_{\varepsilon_i}^2)$:

$$\hat{\beta}_i = \frac{\sum_{t=T_0+1}^{T_1} (R_{it} - \hat{\mu}_i)(R_{mt} - \hat{\mu}_m)}{\sum_{t=T_0+1}^{T_1} (R_{mt} - \hat{\mu}_m)^2}$$

$$\hat{a}_i = \hat{\mu}_i - \hat{\beta}_i \hat{\mu}_m$$

$$\hat{\sigma}_{\varepsilon_i}^2 = \frac{1}{L_1 - 2} \sum_{t=T_0+1}^{T_1} (R_{it} - \hat{a}_i - \hat{\beta}_i R_{mt})^2$$

where

$$\hat{\mu}_i = \frac{1}{L_1} \sum_{t=T_0+1}^{T_1} R_{it}$$

and

$$\hat{\mu}_m = \frac{1}{L_1} \sum_{t=T_0+1}^{T_1} R_{mt}$$

Appendix 3: Example of complete grading of Valmet Corporation

No	Indicator	Category	Sub-category	Aspect	Guidance	AUD	BMR	COM	Total
1	G4-EC1	Economic	-	Economic Performance	Direct economic value generated and distributed	2	2	1	9.5
2	G4-EC2	Economic	-	Economic Performance	Financial implications and other risks and opportunities for the organization's activities due to climate change	1		0	
3	G4-EC3	Economic	-	Economic Performance	Coverage of the organization's defined benefit plan obligations	2		1	
4	G4-EC4	Economic	-	Economic Performance	Financial assistance received from government	0		0	
5	G4-EC5	Economic	-	Market Presence	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	0		0	
6	G4-EC6	Economic	-	Market Presence	Proportion of senior management hired from the local community at significant locations of operation	0		0	
7	G4-EC7	Economic	-	Indirect Economic Impacts	Development and impact of infrastructure investments and services supported	0		0	
8	G4-EC8	Economic	-	Indirect Economic Impacts	Significant indirect economic impacts, including the extent of impacts	0		0	
9	G4-EC9	Economic	-	Procurement Practices	Proportion of spending on local suppliers at significant locations of operation	0.5		0	
Economic						5.5	2	2	

No	Indicator	Category	Sub-category	Aspect	Guidance	AUD	BMR	COM	Total
10	G4-EN1	Environmental	-	Materials	Materials used by weight or volume	0	2	0	
11	G4-EN2	Environmental	-	Materials	Percentage of materials used that are recycled input materials	0		0	
12	G4-EN3-4	Environmental	-	Energy	Energy consumption within and outside the organization	2		1	
13	G4-EN5	Environmental	-	Energy	Energy intensity	1		1	
14	G4-EN6-7	Environmental	-	Energy	Reduction of energy consumption	0		0	
15	G4-EN8-9	Environmental	-	Water	Total water withdrawal by source	2		1	
16	G4-EN10	Environmental	-	Water	Percentage and total volume of water recycled and reused	0		0	
17	G4-EN11	Environmental	-	Biodiversity	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	0		0	
18	G4-EN12	Environmental	-	Biodiversity	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	0		0	
19	G4-EN13	Environmental	-	Biodiversity	Habitats protected or restored	0		0	
20	G4-EN14	Environmental	-	Biodiversity	Total number of iucn red list species and national conservation list species with habitats in areas affected by operations, by level of extinction risk	0		0	
21	G4-EN15-17	Environmental	-	Emissions	Greenhouse gas (ghg) emissions	2		1	
22	G4-EN18	Environmental	-	Emissions	Greenhouse gas (ghg) emissions intensity	2		1	
23	G4-EN19	Environmental	-	Emissions	Reduction of greenhouse gas (ghg) emissions	0.5		0	
24	G4-EN20-21	Environmental	-	Emissions	Other emissions	0		0	
25	G4-EN22	Environmental	-	Effluents and Waste	Total water discharge by quality and destination	0		0	
26	G4-EN23	Environmental	-	Effluents and Waste	Total weight of waste by type and disposal method	2		1	
27	G4-EN24	Environmental	-	Effluents and Waste	Total number and volume of significant spills	0		0	
28	G4-EN25	Environmental	-	Effluents and Waste	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the basel convention2 annex i, ii, iii, and viii, and percentage of transported waste shipped internationally	1		1	
29	G4-EN26	Environmental	-	Effluents and Waste	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharges of water and runoff	0		0	
30	G4-EN27	Environmental	-	Products and Services	Extent of impact mitigation of environmental impacts of products and services	1		1	
31	G4-EN28	Environmental	-	Products and Services	Percentage of products sold and their packaging materials that are reclaimed by category	0		0	
32	G4-EN29	Environmental	-	Compliance	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	0		0	
33	G4-EN30	Environmental	-	Transport	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce	0.5		0	
34	G4-EN31	Environmental	-	Overall	Total environmental protection expenditures and investments by type	0		0	
35	G4-EN32	Environmental	-	Supplier Environmental Assessment	Percentage of new suppliers that were screened using environmental criteria	1		0	
36	G4-EN33	Environmental	-	Supplier Environmental Assessment	Significant actual and potential negative environmental impacts in the supply chain and actions taken	0.5		0	
37	G4-EN34	Environmental	-	Environmental Grievance Mechanisms	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	0		0	
Environmental						15.5	2	8	25.5

No	Indicator	Category	Sub-category	Aspect	Guidance	AUD	BMR	COM	Total
38	G4-LA1	Social	Labour Practices and Decent Work	Employment	Total number and rates of new employee hires and employee turnover by age group, gender and region	2	1.5	1	
39	G4-LA2	Social	Labour Practices and Decent Work	Employment	Benefits provided to full-time employees that are not provided to temporary or part time employees, by significant locations of operation	0		0	
40	G4-LA3	Social	Labour Practices and Decent Work	Employment	Return to work and retention rates after parental leave, by gender	0		0	
41	G4-LA4	Social	Labour Practices and Decent Work	Labour/Management Relations	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	0		0	
42	G4-LA5	Social	Labour Practices and Decent Work	Occupational Health and Safety	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	1		0	
43	G4-LA6	Social	Labour Practices and Decent Work	Occupational Health and Safety	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	2		1	
44	G4-LA7	Social	Labour Practices and Decent Work	Occupational Health and Safety	Workers with high incidence or high risk of diseases related to their occupation	0		0	
45	G4-LA8	Social	Labour Practices and Decent Work	Occupational Health and Safety	Health and safety topics covered in formal agreements with trade unions	0		0	
46	G4-LA9	Social	Labour Practices and Decent Work	Training and Education	Average hours of training per year per employee by gender, and by employee category	0		0	
47	G4-LA10	Social	Labour Practices and Decent Work	Training and Education	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	1		0	
48	G4-LA11	Social	Labour Practices and Decent Work	Training and Education	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	2		0	
49	G4-LA12	Social	Labour Practices and Decent Work	Diversity and Equal Opportunity	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	0.5		0	
50	G4-LA13	Social	Labour Practices and Decent Work	Equal Remuneration for Women and Men	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation	0		0	
51	G4-LA14	Social	Labour Practices and Decent Work	Supplier Assessment for Labour Practices	Percentage of new suppliers that were screened using labour practices criteria	1		0	
52	G4-LA15	Social	Labour Practices and Decent Work	Supplier Assessment for Labour Practices	Significant actual and potential negative impacts for labour practices in the supply chain and actions taken	0		0	
53	G4-LA16	Social	Labour Practices and Decent Work	Labour Practices Grievance Mechanisms	Number of grievances about labour practices filed, addressed, and resolved through formal grievance mechanisms	0		0	
						9.5	1.5	2	13

No	Indicator	Category	Sub-category	Aspect	Guidance	AUD	BMR	COM	Total
54	G4-HR1	Social	Human Rights	Investment	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	0.5	1	0	3.5
55	G4-HR2	Social	Human Rights	Investment	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	0		0	
56	G4-HR3	Social	Human Rights	Non-discrimination	Total number of incidents of discrimination and corrective actions taken	0		0	
57	G4-HR4	Social	Human Rights	Freedom of Association and Collective Bargaining	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights	0		0	
58	G4-HR5	Social	Human Rights	Child Labour	Operations and suppliers identified as having significant risk for incidents of child labour, and measures taken to contribute to the effective abolition of child labour	0		0	
59	G4-HR6	Social	Human Rights	Forced or Compulsory Labour	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labour, and measures to contribute to the elimination of all forms of forced or compulsory labour	0		0	
60	G4-HR7	Social	Human Rights	Security Practices	Percentage of security personnel trained in the organization's human rights policies or procedures that are relevant to operations	0		0	
61	G4-HR8	Social	Human Rights	Indigenous Rights	Total number of incidents of violations involving rights of indigenous peoples and actions taken	0		0	
62	G4-HR9	Social	Human Rights	Assessment	Total number and percentage of operations that have been subject to human rights reviews or impact assessments	0.5		0	
63	G4-HR10	Social	Human Rights	Supplier Human Rights Assessment	Percentage of new suppliers that were screened using human rights criteria	1		0	
64	G4-HR11	Social	Human Rights	Supplier Human Rights Assessment	Significant actual and potential negative human rights impacts in the supply chain and actions taken	0.5		0	
65	G4-HR12	Social	Human Rights	Human Rights Grievance Mechanisms	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	0		0	
						2.5	1	0	

No	Indicator	Category	Sub-category	Aspect	Guidance	AUD	BMR	COM	Total
66	G4-SO1	Social	Society	Local Communities	Percentage of operations with implemented local community engagement, impact assessments, and development programs	0.5	2	0	5
67	G4-SO2	Social	Society	Local Communities	Operations with significant actual and potential negative impacts on local communities	0.5		0	
68	G4-SO3	Social	Society	Anti-corruption	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	0.5		0	
69	G4-SO4	Social	Society	Anti-corruption	Communication and training on anti-corruption policies and procedures	0.5		0	
70	G4-SO5	Social	Society	Anti-corruption	Confirmed incidents of corruption and actions taken	0		0	
71	G4-SO6	Social	Society	Public Policy	Total value of political contributions by country and recipient/beneficiary	0		0	
72	G4-SO7	Social	Society	Anti-competitive Behaviour	Total number of legal actions for anti-competitive behaviour, anti-trust, and monopoly practices and their outcomes	0		0	
73	G4-SO8	Social	Society	Compliance	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	0		0	
74	G4-SO9	Social	Society	Supplier Assessment for Impacts on Society	Percentage of new suppliers that were screened using criteria for impacts on society	1		0	
75	G4-SO10	Social	Society	Supplier Assessment for Impacts on Society	Significant actual and potential negative impacts on society in the supply chain and actions taken	0		0	
76	G4-SO11	Social	Society	Grievance Mechanisms for Impacts on Society	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms	0		0	
						3	2	0	
77	G4-PR1	Social	Product Responsibility	Customer Health and Safety	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	1	1	0	2.5
78	G4-PR2	Social	Product Responsibility	Customer Health and Safety	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes	0		0	
79	G4-PR3	Social	Product Responsibility	Product and Service Labelling	Type of product and service information required by the organization's procedures for product and service information and labelling, and percentage of significant product and service categories subject to such information requirements	0		0	
80	G4-PR4	Social	Product Responsibility	Product and Service Labelling	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labelling, by type of outcomes	0		0	
81	G4-PR5	Social	Product Responsibility	Product and Service Labelling	Results of surveys measuring customer satisfaction	0		0	
82	G4-PR6	Social	Product Responsibility	Marketing Communications	Sale of banned or disputed products	0		0	
83	G4-PR7	Social	Product Responsibility	Marketing Communications	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes	0		0	
84	G4-PR8	Social	Product Responsibility	Customer Privacy	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	0		0	
85	G4-PR9	Social	Product Responsibility	Compliance	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	0.5		0	
						1.5	1	0	
Social						16.5	5.5	2	24
TOTAL						37.5	9.5	12	59