Who is lagging behind in climate change – Europe versus US?
- Exploring 2400 CEO letters 2000 – 2009

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Abstract: The CEO letters included in annual reports express strategic issues and the leadership vision. This study applies a content analysis approach to review 2400 CEO letters from European and US-based publicly-traded companies published in years 2000 through 2009. The aim is to analyze the development of the interest in adapting climate change issues on the corporate strategic agenda versus other issues of possible concern. The analysis show that the interest in climate issues on one hand has developed in a similar pattern in both regions. Between the years 2000 until 2004 the interest was very limited in both regions, the big growth of interest happened year 2005, since year 2007 the interest have decreased. In summary the findings on the other hand indicate that US industry is lagging behind Europe when it comes to adapting climate change on the corporate strategic agenda.

Keywords: climate change, corporate strategy, CEO letters.

1. Introduction

The overall objective of this paper is to analyze the last decade's development of European and US CEOs view of climate change issues considered from a strategic point of view. The main purpose is to be able to tell which industrial region that is lagging behind in adapting climate change issues on the corporate strategic agenda. To answer this question, the paper applies a content analysis method and explores 2400 CEO letters taken from the respective annual reports of European as well as US publicly-traded companies over the 2000-2009 time period.

1.1. Assuming Corporate Strategy will change due to Climate Change issues

It is a common claim that during the last decade the climate change issue has evolved into one of the primary global topics of today. It is also common claim that industry should, at least in the future will, act towards more climate friendly actions (Stern, 2009; Porter & Reinhardt, 2007).

From a corporate viewpoint, however, climate changes issues − like many other very complicated strategy issues - can be considered as a "wicked problem" (Coyne, 2005; Mason & Mitroff, 1981; Rittel & Weber, 1973;). This means that climate change issues are embedded with uncertainty and paradoxes that make it difficult for industry to handle it in a rational way. Furthermore, there have always been, and will always be, questions competing for attention on the corporate strategic agenda making these issues even more complicated to handle (Mintzberg, Ahlstrand & Lampell, 2009; Kotter, 2002; Norman, 2001). Financial problems is just one example of a different issue that might be a primary strategic issue at any given time compared for instance adaptation of climate change issues. Therefore it is also a constant need for industry developing methods in order to be able to handle turbulent situations (Chakravarty, Bala, 1997; Porter, 1980). The need even seems to have increased during the last decade (Taleb, 2008; Courtney, 2001).

Why companies in general should act on green issues purely for reasons of business opportunity has been of interest for more than a decade (Weber, 2008; Bansal & Roth, 2000; Hart & Milstein, 1999; Porter & Van der Linde, 1995). The literature also includes numerous

examples to indicate that industry have already begun to address climate change issues (Berkhout, Hertin & Gann, 2006; Guenster et al., 2005).

At the same time, signs indicate that climate change issues are seldom integrated into the overall managerial functions of a firm (Wagner, 2007). Indeed there are difficulties found even in asking for strategic action purely based on economic arguments (Korhonen & Seager, 2008). It has been said that the industry is still waiting for political "clarity" on climate change issues and that the incentives for early action are too low (Sullivan, 2008). Thus it can be claimed, like Aragon-Correa and Rubio-López (2007) and Scherrer, Daub and Burger (2007), that the topic of climate change is still full of myths. Thereby it still remains fairly unclear in what ways climate change issues will be adopted on the strategic agendas of corporations.

1.2. Perceptions on Europe versus US on Climate Change
During 2010 the United Nations Climate Change Conference, the COP 16 meeting, in Cancun was prepared and held. A common perception brought forward by media is that COP 16 repaired the UN process on climate abatement that was severely damaged by the failure in Copenhagen, the COP 15, held December 2009 (Economist 2010-12-18; South China Morning Post 2010-12-10). Instead of media focusing climate change, the way they did during the years around 2005 – 2009, the last year has shown a focus on the energy supply side as the global economy starts to recover from the financial crisis with China and other fast growing countries take the lead (Xinhua 2011-01-10, Reuters 2011-01-10).

Not long ago Boston Consulting Group presented a survey based on 1 500 Executive managers done globally claiming that there nearly existed consensus within industry that sustainability is having, and will continue to have, a major impact on how companies act and think (Boston Consulting, 2009). The survey could be considered as an example of one out of several analysis of similar kind, with similar conclusions, presented during the last years, see for example World Economic Forum (2010), PricewaterhouseCoopers (2010) and McKinsey (2008). Could thereby today's picture given by media mean that business interest in climate action suddenly have decreased? Or is it so that we ought to question the value within previous surveys made?

Before the COP 15 in Copenhagen held 2009 a common picture claimed was that EU and European companies had a global lead in climate change issues, see for instance (Economist, 2004, 2007; Reuters 2007-03-07; AFP 2009-04-09; The Times 2009-07-09; International Herald Tribune 2010-11-29). US industry has been supposed (or perceived) to be lagging behind European industry and even denying the global warming as such, i.e Exxon financing anticampaigning. (The Independent 2009-01-09; AFP 2009-05-19, 2009-12-04). But how do we know if US industry in general actually is lagging?

Previous research does not give clear answers – and even if knowledge concerning the topic raised does exist there are several embedded problems. In for instance Maginan & Ralston (2002) several European countries have been compared to USA. The authors do show that companies from these two regions communicate their actions taken with different means. But, the research done is too old for explaining today's situation. It is also so that their research mainly focuses on CSR-reporting. With such focus the result easily create a bias towards the climate change actions already from the start. Truly, as claimed for instance by Ziek (2009), it is difficult to make sense of CSR reporting since companies most often only convey information about classically accepted responsible and virtuous behaviors. Recently it has even been questioned whether CSR-reporting promotes climate action or just supports action of business-as-usual (Dobers & Springett, 2010). Some years later Tschopp (2005) investigated the different systems for CSR-reporting in Europe and USA. It is claimed that the movement in Europe seemed to be more progressive. However: neither company reporting nor company action was analyzed.

Interesting to note today, from a Swedish practice perspective, the country with major responsibility for the negotiations held in Copenhagen, is that the Green Party in Sweden during 2010 actually acknowledged that European global companies had taken over leadership (from the politicians) driving towards a low carbon society (Veckans Affärer 2010-12-02, 2010-11-30). Though one might question: what kind of knowledge did they base such a statement upon?

In practice the COP 16 outcome seem to have come as surprise to the media recently giving an advance picture of an upcoming failure number two and maybe an end of the whole UN process. But the 100 percent consensus model was abandoned under the Mexican chairmanship (Bolivia left behind) and an agreement was reached to proceed with a 30 billion

USD package (2012) to aid nations to halt the effects of global warming, to create a green fund (100 million USD annually) for long-term projects and launch a forestry conservation program (called REDD+, see English press release from the official website http://cc2010.mx/en.). In the coming negotiations one might foresee China and US having constructive talks and the Kyoto protocol having a chance to be replaced by a new one. Could that be a sign of US industry having increased their interest in climate change issues during the last years and actually never have been behind Europe?

All this shows that one must consider the changing context for the big (global) companies if their actions are studied. They might prepare or maybe even take the lead as global players in climate change abatement. Or, they still might just sit and wait for political decisions. Clearly, there is a need to understand what industry actually does in climate change issues and how they incorporate it in their strategies and avoid falling in the hands of common public perception as well as simplified explanations stemming from professional debaters.

1.3. CEO Letters as a way to understand Climate Change Adaptation
Large, publicly-traded companies spend large sums of money, careful planning, and long hours finalizing their annual reports (Bowman, 1984; Barr et al., 1992). Thus, annual reports are well studied in the literature from numerous different perspectives (Amernic, 2007a; Stanton &Stanton, 2008).

The CEO letters included in the annual reports of publicly-traded companies are a well-known field of research since they are clear communications statements directly from company management (Bowman, 1984; Petersen & Martin, 1996). Thus, CEO letters are important tools for CEOs to use when communicating issues of strategic importance to shareholders (Amernic & Russel, 2007b,). In many ways, CEO letters have a unique status in the arsenal of tools used for communication (Reeves et al., 2005). CEO letters are a communication driver for strategic issues (Hyland, 1998). However they also mirror CEO attention and corporate strategic change and thereby can be used to analyze corporate strategy, particularly if studied over a long period of time (Yadaw, Prabhu, Chandy, 2007; Santema & Jeroen, 2001). Thereby they can also be suitable tools for discovering strategic intent (Landrum, 2008).

However; CEO letters are rarely studied from the adaptation of climate change viewpoint on corporate strategic agendas, much less over a long period of time with a large sample. An exception though is a recent study presented Monteiro and Aibar-Guzman (2010). With the help of a content analysis made on Annual reports published by 109 Portuguese companies their conclusion is that during the years of 2002 – 2004 industry interest in climate change issues was rather low.

Most often however, previous research is dominated by short-term studies and a small sampling of companies used for analysis (Åhlström et al., 2008; Dawkins & Ngunjiri, 2008). Further, CSR-reporting is well analyzed in the literature in effort to determine where particular industries are headed concerning climate change (Mathis, 2007; Weber, 2008; Sullivan, 2008; Runhaar et al., 2009).

Extant research in the area of climate change adoption is therefore problematic for at least four reasons. First, since strategy is a slow-moving issue, it must be studied over a long time period. Second, issues must be studied in the context of which all possible strategic issues compete for placement on corporate strategic agenda. Third, simply by virtue of separation as a "reported issue," CSR-reporting does not necessarily capture a company's strategic change. Finally CSR-reporting includes many additional aspects other than climate change. Thus, analysis of CEO letters over a long time period could shed new light on the important topic of how industries handle climate change issues from a corporate strategy viewpoint.

1.4. Outline of this Study

The remaining part of this paper is organized as follows. Section 2 provides discussions about the (a) research design with specific focus on the content analysis method, (b) sampling method used in selecting companies from corporate Europe and US; (c) CEO letters method of content analysis; and (d) rigor and validity of research method and analysis including the mathematical statistical analysis done. In section 3, we present detailed analyses of CEO letters and our findings as well as a first round of interpretations. Section 4 is dedicated to our discussions and further potential interpretations of the research findings. Finally, we present our summary and conclusions in Section 5.

2. Research Methodology

In this section, the research process is presented followed by discussion about sampling method. Next, we present the CEOs letter content analysis and discuss the rigor applied and mathematical statistical methods used.
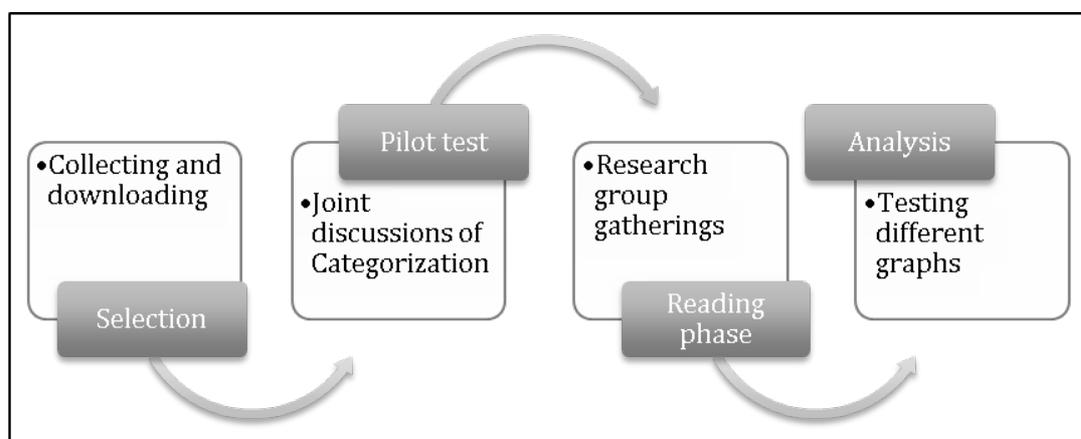
2.1. The Overall Research Process

Our research process follows four major steps. First, the companies are chosen with the intent to create a list of large companies that closely mirrors the industrial landscape of Europe as whole - including Eastern Europe – as well as US.

Second, a small sample of CEO letters are read and discussed within the research group. During the pilot test, categorization of different CEO statements is discussed in order to calibrate and create consistency for categorization following the steps suggested by "the Weber Protocol" (Weber, 1990).

Third, the main parts of all CEO letters are read, and issues are coded/categorized and collected in an Excel spreadsheet. If major "gray zone" categorization appears during the reading process, issues are discussed within the research group and settled.

Finally, results are analyzed with the help of mathematical statistical methods and presentations are made. During this step, different potential graphical representations are tested. The overall research process is shown in Figure 1.

Figure 1. Overall Research Process

2.2.   Sampling of Companies

The sampling process used in this study resulted in selection of 129 publicly listed companies throughout Europe and 113 publicly listed companies in US. The CEO letters of these companies studied for a ten-year period of 2000-2009. In total, 2400 CEO letters are taken from their respective annual reports for inclusion in the study.

The companies analyzed are big actors and cover industries from energy, mechanical industry, raw material intense industries to retail, banking, logistics, airlines, and life science – just to mention a few. The companies were mainly chosen from the Fortune Global 500 list in order to create a sample of the biggest, as well as most "public", global companies since big public companies tend to have a huge effect on how industry in general (other companies than themselves) adapt to major changes in society. Several of the companies are also part of different organizations working with climate change issues and/or listed on different climate change lists i.e. the Dow Jones Sustainable Index (DJSI) – the globally most well spread climate change list – and due to that the sample of companies done is also of interest when it comes to measuring on how industry in general adapt to climate change. For a detailed list of the companies included in the study, see Appendix 1.

2.3. Content Analysis of CEO Letters

Traditionally, the CEO letters included in annual reports discuss what the company's achievements over the past year as well as accomplishments during previous years (Bettman & Weitz, 1983). However, space in the letter is also provided for particular themes - mainly including potential issues, which the company will face in the future. Such themes may change over time, but can also be stable for a period of years, particularly if focused on the company's long-term strategy.

The method used for analysis of the CEO-letters is referred to as Content Analysis Method (CAM). This method is derived from the established traditional research field of text analysis but has developed rapidly during the last decades (See Toolin, 1983; Hart, 1984; O'Loughlin & Grant, 1990 or Duriau et al, 2007). The specific method of our study follows the recommended steps of Roberts (1989) and Weber (1990). First, data is collected. Next, data is coded and then statistical techniques are applied to the coded data. Finally, interpretations of results are offered.

Content analysis is a method that lies at the intersection of the qualitative and quantitative tradition and is increasingly used over the last few decades by scholars interested in complex business phenomena (Neuendorf, 2002; Krippendorf, 2004). In particular, recently it is applied to analyze written documents like CEO letters and annual reports (Short & Palmer, 2008). Indeed, as a research method, content analysis offers "considerable potential to gain key insights into the thinking of top managers and, in following, the choices they make" (Short & Palmer, 2008; p. 729). The method also assumes that insights about the authors´ mental models can be detected thorough the presence of and frequency with which certain concepts are used in the text (Carley, 1997).

There are alternative approaches to implementation of the content analysis (Duirau et al., 2007). Therefore, it should be noticed that the content analysis done for the present study neither accounts for every word written by a CEO in a CEO letter, nor is it done with the help of a computerized tool. Rather, our method follows the tradition of a "human scored schema" of content analysis (Short & Palmer, 2008). This content analysis is based on examination of the number of sentences and length of sections given to a certain topic - and the context in which the topic is discussed. In this way, the present study is similar to Bowman (1989) and Kohut and Segars (1992).

For the CEO letters content analysis, the following three categories for coding were applied:

1. Do CEOs talk about climate change issues? (Not environmental issues or sustainability in general)
2. Do CEOs talk about their external economic situations? (The economic situation in the specific industry/the business cycle/external factors)
3. Do CEOs talk about internal economic issues? (This year's results for the company and what internal actions are being taken).

Using these three categories, space in terms of sentences, given to each topic in each letter was measured and compared to the overall size of the entire text of the CEO letter. This means that percentage space given to the category is compared to the CEO-letter as a whole for the research. Such method is necessary since CEO-letters can vary from 1 to as many as 15 pages.

Most importantly, from a research design viewpoint, all of the CEO letters under analysis were read by the research team members, without the aid of a computerized tool to recognize clear-cut keywords to categorize the words used in CEO letters. This was done even though it is claimed that such computerized tools are well developed and the use of them for coding of text is increasing globally (Kabanoff, 1996; Short & Palmer, 2008). The importance of the human interface with the text is based on the fact that CEOs writings are not only a collection of individual words; but words are expressed in a certain context, which makes their interpretation complex. In order to best categorize and offer content analysis, this context must also be analyzed as well. Therefore we choose to examine each CEO letter manually, in its context.

Further, certain words indicate the need for a manual method, such as terms like "sustainability" as well as "climate". These terms may have several different meanings in a given context, for example: human rights issues, ethics, work-labor organization, chemical risks, injuries, business climate, internal cultural climate etc. None of these aspects are included here in terms of climate change issues. Of course, it might also be the case that a CEO writes about climate issues without using the specific term "climate change" – but still discusses the topic in his/her letters.

A description on how the process for coding/categorization is conducted, in detail, including gray zone cases, is given in Appendix 2.

2.3. Research Process Rigor

Like every research process, our method has particular limitations. We aim for validity in the process in several ways. First, the constructed method is compared to other research - both from within as well as from outside the particular field; specifically, Bowman (1984) and Lord (2002). Second, the research work and its results are presented at a symposium of 50 researchers and practitioners who are invited for comment, which is completed one month after the survey. Invited participants are not involved in the research processes, as such. Third, the findings are compared with companies that utilize CSR-reporting. Since one might assume that a company, which has decided to create a separate CSR-report, could save space in the CEO letter for discussing climate change issues, it is necessary to investigate that assumption. Results showed that companies that provide separate CSR reports also write

more, not less, in their CEO letters concerning climate change issues. In other words, the existence of CSR reports does not exclude the existence of climate change issues in CEO letters. Forth, during the process different kind of statistical techniques has been utilized, for instance linear regression analysis as well as the nonparametric Spearman correlation test (see section 3.2 for details).

As Roberts (1989) claims, one of the difficulties in rigor concerning qualitative content analysis is the training/supervision of coders. Consensus must emerge on a standard procedure for establishing reliability (Kabanoff, 1996). Therefore, reliability in the process is addressed by having all major steps of the analysis initially conducted by a group of three researchers who assess the CEO letters jointly. Different judgments are handled such that a common opinion on categorization is created.

3. Findings

3.1. Overall Pattern

Figure 2 and 3 show the findings concerning the overall pattern as to how interest in particular issues have develop over time when result from all European and US-based CEO letters analyzed are summoned (average figures on each category from the whole sampling included). The three categories include: climate change, external issues and internal issues. The horizontal-axis represents years, starting with the year 2000 and ending in 2009. On the vertical-axis, percentage of space given to the topic in the CEO-letter relative to the entirety of the letter is presented.

It should be noted that the three curves do not create a zero-sum situation. Rather, the three categories are measured percentage of space used to discuss the topic in the CEO letter - compared to the space given to the CEO letter as a whole. It may also be noted that, the total percentage of space given to the three categories as whole is still much smaller than the percentage of space dedicated to other discussions in the CEO letters. This suggests that a significant percentage of space in the letters is devoted to "standard matters," or topics that occur every year (such as shareholder dividends presentation). Researchers (Santema & Jeroen, 2001) have previously made this observation. Hence, we may conclude that the space within a CEO letters discussing "themes and strategic issues" is rather limited.
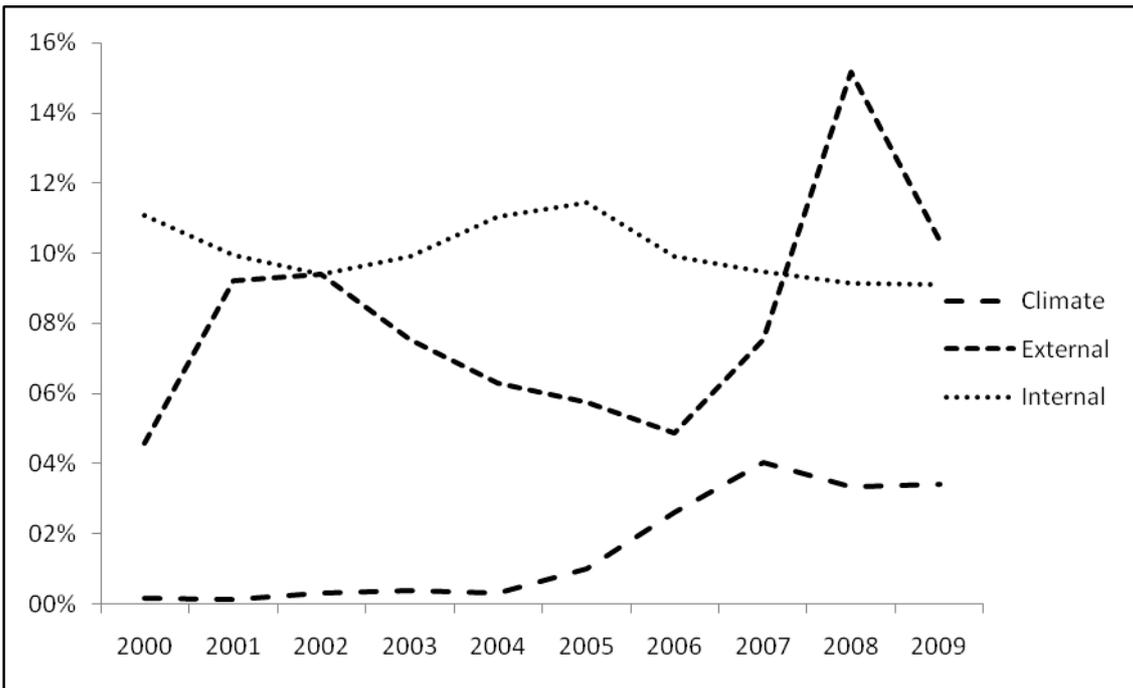
Figure 2. European CEO Interest in Climate Change, External and Internal Issues (Average interest for each category within the sampling as whole).
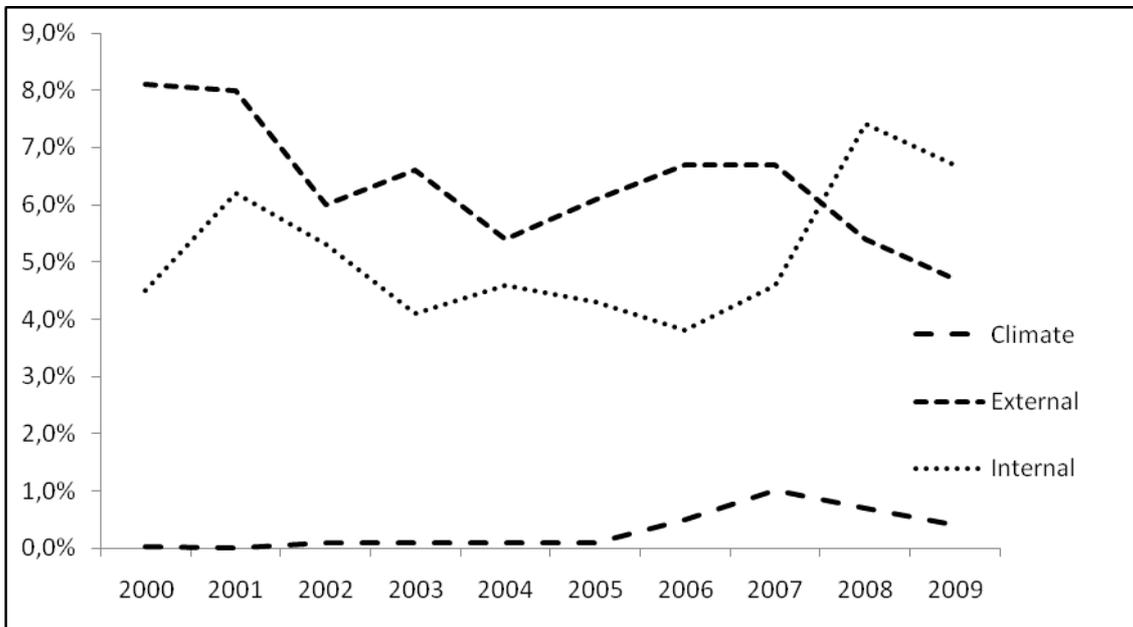
Figure 3. US CEO Interest in Climate Change, External and Internal Issues (Average interest for each category within the samplig as whole).

It should also be noted that it does not matter if the CEO discusses the climate change issues as potential business opportunity or a problem - both aspects of climate change issues are

categorized under this heading. The same applies to external and internal issues - good, as well as bad economic results and situations/actions are included under these respective headings. What is measured is the average amount of attention given to a particular topic for the sampling as whole.

The following observations from the overall pattern can be made:

a) The overall pattern between the two regions is rather similar during the whole time period analyzed. Between the years 2000 until 2004 the interest was very limited in both regions. The big growth of interest happened after year 2005. Since the peak year 2007 the interest has decreased.

b) European industry has developed a greater interest into climate change issues than companies based in US. The peak of interest, year 2007, is for instance four times higher in Europe than in US.

c) At the same time: there are general differences between the two regions as whole. During the time period analyzed the interest for internal and external issues centers around levels of 4-8 % in US, but in Europe the same issues centers around levels of 4-15 %.

3.2. Patterns within climate change issues

The combined values of US and European observations regarding the climate change issue within CEO letters are shown in the dot plot in figure 4 together with 95% percentiles and a connected mean line. Number of observations n, mean values and a 95% confidence interval is also expressed in table 1. It could be observed that not that many single observations possibly could distort the average pattern as whole presented in previous section.

2241 observations of the space devoted for the climate change issue within CEO letters is the ground for the following mathematical statistical analysis. Year 2000 holds the least amount of observations with 196 observations and year 2005 the most with 239. It is also shown that the average within a 95% confidence interval year 2003 and the period of year 2005 and onwards is distinct from 0.
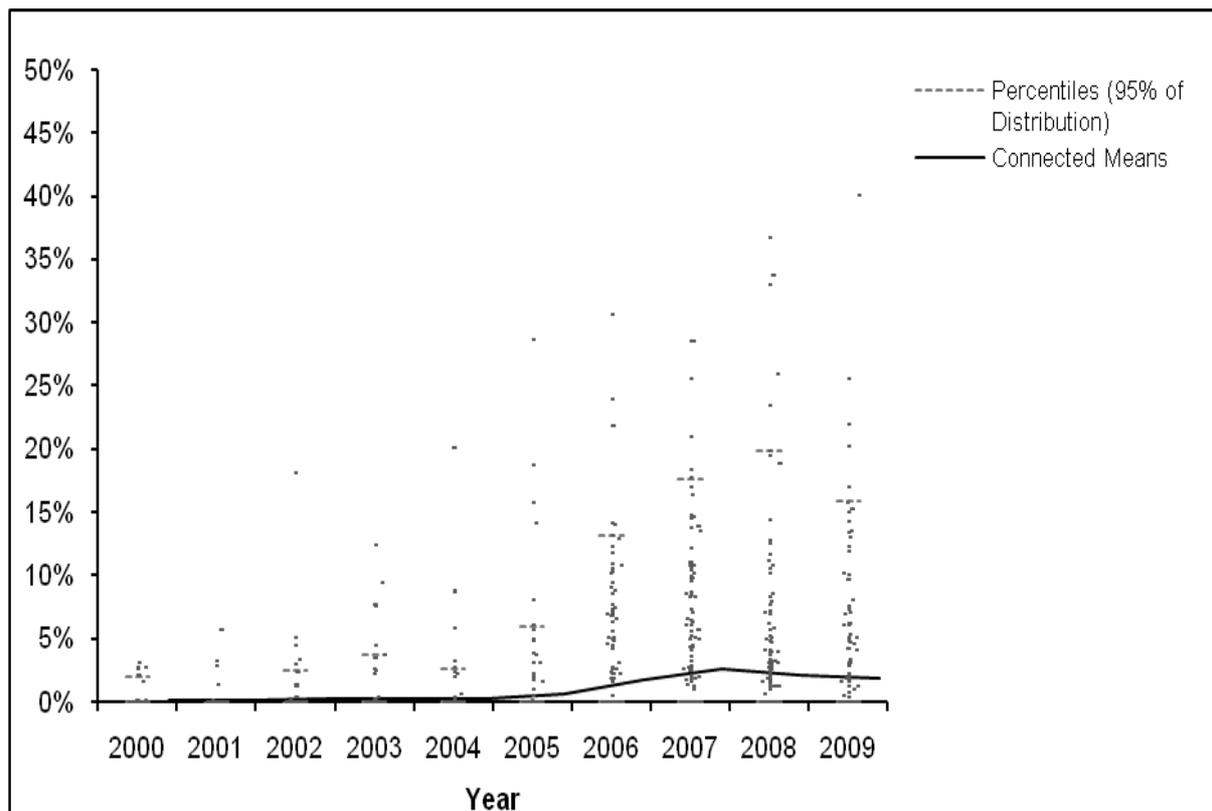
Figure 4. Dot plot over climate change issue space in CEO letters (Single observations).

Year	N	Mean	95% CI	
2000	196	0.078%	0.0%	0.1%
2001	205	0.065%	0.0%	0.1%
2002	219	0.198%	0.0%	0.4%
2003	227	0.266%	0.1%	0.4%
2004	235	0.244%	0.0%	0.5%
2005	239	0.565%	0.2%	0.9%
2006	232	1.682%	1.1%	2.2%
2007	237	2.630%	2.0%	3.3%
2008	229	2.074%	1.4%	2.8%
2009	222	1.888%	1.2%	2.5%

Table 1. Observations – climate change issue.

Figure 5 and Table 2 present the average specific curve of Climate change issues over the years of 2000 – 2009. It could be noticed that the overall pattern presented by the total average curve follows fairly well by the development in the two regions. The relationship between the two variables was mathematically analyzed through the nonparametric Spearman correlation test. In this the alternative hypothesis rs>0 was tested with a confidence interval of 95%. The result is a Spearman Correlation of 0.95 within the interval 0.83 to 1.00 which

shows that a correlation exists. In other words: an increased discussion of climate change issues in Europe is statistically correlated to an increased discussion in US. This correlation was described through the use of linear regression analysis with the least-squares method.

R^2	0.90
Adjusted R^2	0.88
SE	0.0010922816

Term	Coefficient	95% CI		SE	t statistic	DF	P
Intercept	-0.0001133	-0.0012710	to 0.0010444	0.00050203	-0.23	8	0.8271
Slope	0.1957	0.1418	to 0.2495	0.02336	8.37	8	<0.0001

Table 2: Results from a linear regression analysis between average Europe and US climate change issue value relationship.

The result (in table 1) shows that the expected return is US = Europe * 0.2. A coefficient of determination of 0.9 and a p value bellow 0.0001 shows that the linear regression is a good representation of the relationship. On average the climate change issue from a statistical point of view is expected to be discussed five times more in Europe than in US. Or within a 95% confidence interval four to seven times more. This relationship is well illustrated by figure 5, which shows the average specific curves.
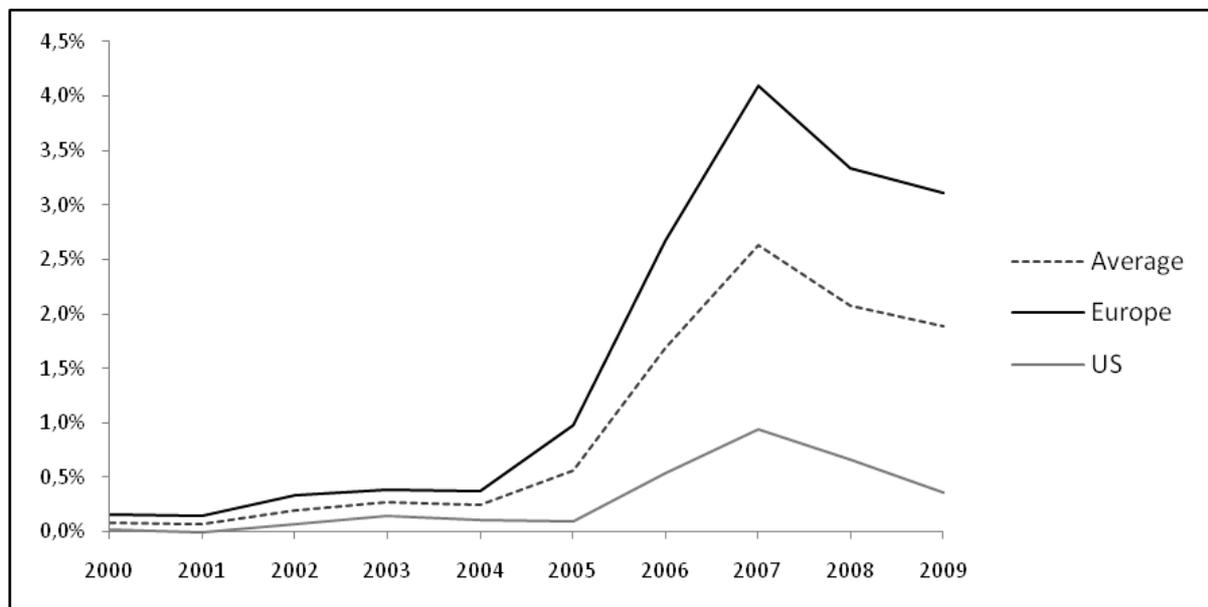
Figure 5. Average space for climate change issues US vs. Europe.

4. Discussion and interpretations

In any kind of organizational communication cultural/regional differences exist (Jang, Barnett, 1994). It should therefore be noticed that legal action in US, not the least the actions raised based on the Enron-case year 2001 (The Sarbanes–Oxley Act of 2002) , have increased the need for CEOs in US to be very careful with what they are saying publically concerning strategy. A similar reaction appeared in Europe, but later (year 2004 and 2005) and with less affect. In US it by that has become far more important for a CEO to publicly talk of what actually has been done previous year than to talk about the future and long-term strategy (Shakespeare, 2008).

However, it is complicated to establish a clear understanding in what way these cultural aspects should affect the interpretation of the findings. Previous research has on one hand suggested that there is always a tendency for cultural/regional differences concerning the way CEO letters are written when comparing different continents, like for instance North and South America (Conaway & Wardrope, 2010). On the other hand however, it has also been claimed that the importance of geographical differences often is overstated when it comes to external communication and that global corporations (the kind of companies analyzed here) are trying to adapt to a more general and global way of presenting their Annual Reports (Jameson, 2007). It has even been claimed to be of bigger importance to understand the culture differences embedded in the specific business situation as such, than focusing on geographical differences (Yuan, 1997).

It should also not be forgotten that business communication, in general, have changed over time, meaning that business communication can be different just depending on when in time it is conducted (Graham, 2006). Compared to ten years ago the interest in presenting more narrative information as such has increased concerning CEO-letters (Beattie & Dhanani, 2008).

4.1. European CEO letters versus US CEO letters

During the reading-phase of the CEO-letters different cultural styles of writing the CEO letters as such was empirically observed - well in line with Shakespeare (2008). These differences are of importance to bring forward in more detail in order to deepen the interpretation of the findings made so far.

The sampling of the US-based CEO-letters tends to speak in a more market-oriented manner than CEO-letters from Europe. It means that they talk less as whole of long-term strategic issues, compared to European companies – but more about direct customer (and internal) oriented actions done the previous year. A clear example of this is the CEO-letter from the web-based e-shopping company Amazon.com, published 2007 where the CEO directly starts of the letter by claiming the following:

> "To our shareowners: November 19, 2007, was a special day. After three years of work, we introduced Amazon Kindle to our customers…As you might expect after three years of work, we had sincere hopes that Kindle would be well received, but we did not expect the level of demand that actually materialized."

Such kind of direct short-term focused and very upfront market-oriented comment, as the main starting comment of the previous year, has not been identified in any of the CEO-letters from Europe within the sampling.

The sampling of European CEO-letters on the other hand is written in a more "relaxed and narrative" way than the CEO-letters from US. The CEO-letters in average uses a softer style and it is more common to write the CEO-letter as if it was a speech, and not a written formal report. CEOs also do tend to talk of broader strategic issues to a greater extent than CEOs in US. An unusually clear example of this can be found in the French pharmaceutical company Sanofi-Aventis where the CEO in the Annual Report of 2008 writes the following (it is written like an interview):

> "Chris Viehbacher, you made headline news in 2008 when you were appointed as the Chief Executive Officer of Sanofi-Aventis. What have you learned about the Group since your appointment as CEO? I've discovered very solid foundations and many under-appreciated assets that I want to talk about….And finally, what is your vision for Sanofi-Aventis? We aim to become a global healthcare company. In the past, we started with a compound or technology that met a medical need and then determined the market, like others in our industry. Today, I want us to say: "There are six billion people on the planet that could one day become our customers. How can we help them?"

This shed light on why US-based CEO letters in average talk less about strategy as such – compared to CEO letters from Europe. It do also bring forward one explaination for the

differences observed here where all the three categories (climate change, external and internal issues) in European CEO letters have higher value compared to the US-based CEO letters during the whole time period analyzed.

Such an interpretation is indirectly also supported in a study by Hartman, Rubin and Dhanda (2007), who did a survey on 16 U.S. and European corporations concerning CSR-reporting. Their conclusion raised was that U.S. companies tend to communicate about CSR using economic terms whereas European companies rely more heavily on language of accountability and moral commitment.

Due to this a higher level in general in all the curves from European companies compared to companies based in US therefore ought to be expected when discussing a deepened analysis of the comparisons between these two regions. It also means that it would be reasonable to expect a higher level of peak interest in climate change issues in Europe than in US.

However: the question on how high that interest ought to be, in order to be considered as "high", when comparing Europe and US, still remains to be discussed.

4.2. Climate change interest versus internal/external issues – Europe versus US

Getting back to al three categories presented in figure 2 and 3 it can be observed that in US during the whole time period analyzed the internal and the external curves centers on levels of 4-8 % (a rather stable pattern). In Europe the internal and the external curve centers on levels of 4 -15 % over the time period studied (with 15 % as an unusual exception). During the same time period the peak interest in climate change issues in US increases to 1% but it increases to 4 % in Europe (both of them starting off at the level of 0 %).

If comparing the level of the climate change curve towards the level of external/internal issues in US the differences between climates change issues and the other categories centers around 5-6 times higher than climate change during the whole time period. In Europe the same difference never gets higher than 4 times (year 2007). During year 2005 and 2006 the difference between climate change issues and external issues do not even get bigger than 2 percent-units. Comparing that to the same period in US shows big differences between the two regions. Our statistical correlations also show that the pattern is stable during the whole period analyzed (section 3.2).

5. Summary and Conclusions

The overall aim of this article is to analyze in what way CEOs in Europe versus US adapt climate change issues on the corporate strategic agenda, compared to other possible issues of major strategic concern. The method used is a content analysis via exploration of 2400 European and US-based CEOs letters taken from their respective annual reports over the 2000-2009 time period. The percentage of space given in CEO letters to three different topics: climate change issues, external and internal economic situations, is measured and compared to that space given to the CEO letter as a whole.

The analysis shows that company interest in climate change issues during the period under study developed in a similar pattern in both regions even though levels of interest are different. Between the years 2000 until 2004 the interest was very limited. The big growth of interest happened year 2005 but since year 2007 the interest have decreased. During 2008 instead the interest in external factors peaked – possible to assume: due to issues related to the extraordinary situation of global financial crises.

The analysis do also show that European industry seem to have developed into a far greater interest into climate change issues than companies based in US. But however: Since there is an overall difference between the interest of handling strategy in a narrative way as such written in CEO-letters from Europe and US it is reasonable to superpose the curves as whole when comparing them. In practice it means that the result from European companies should be expected to have become higher in overall compared to companies from US. The level of all curves must therefore be taken into account when analyzing the difference between the two regions concerning climate change issues.

However. Even so, when doing a deeper analysis, it seems reasonable to claim that European industry have developed bigger interest in the climate change issue than companies from other regions - even though the figures presented indirectly show an extremely much higher interest in Europe versus US.

To conclude, our findings indicate that when it comes to adapting climate change issues US industry is actually lagging behind Europe.

Appendix 1

Companies included in the study

European companies:

From the list below, most companies are chosen based on the European Fortune 500 list. Since the Fortune 500 list is over-weighted in Western Europe-based companies, some major Eastern European Companies are added.

Name	Industry	Home Country	Fortune 500 ranking	DJSI	Global 100	CSR-Europe
A.P. Møller-Mærsk Group	Shipping	Denmark	62			
ABB	Technology	Switzerland	101			Yes
Aegon	Insurance	Netherlands	51	Yes		
Agrofert Holding	Chemistry	Czech	-			
Agrokor	Food/ Bev	Croatia	-			
Air France-KLM	Airlines	France	91	Yes	Yes	
Allianz	Insurance	Germany	12	Yes		
ArcelorMittal	Metal	Luxembourg	21			Yes
Assicurazioni Generali	Insurance	Italy	18			
Aviva	Insurance	UK	34			Yes
AXA	Insurance	France	7	Yes		
Banco Bilbao	Bank/ Finance	Spain	63			
Bank of Ireland	Bank/ Finance	Ireland	175			
Barclays	Bank/ Finance	UK	35			
BASF	Chemistry	Germany	36	Yes	Yes	Yes
Bayer	Chemistry	Germany	70			
BMW	Automotive	Germany	41	Yes		
BNP Paribas	Bank/ Finance	France	11	Yes		
Bouygues	Constructon	France	76			Yes
BP	Petroleum	UK	2			
BT	Telecom	UK	73		Yes	Yes

Carrefour	Food/	France	17	Yes		
Centrica	Energy	UK	94		Yes	
CEZ	Energy	Czech	-			
Cie Nationale à Portefeuille	Bank/ Finance	Belgium	169			
CNP Assurances	Insurance	France	55			
Commerz-bank	Bank/ Finance	Germany	83			
Crédit Agricole	Bank/ Finance	France	13	Yes		
Credit Suisse	Bank/ Finance	Switzerland	38			
CRH	Constructon	Ireland	111	Yes		
Daimler	Automotive	Germany	5			
Danske Bank	Bank/ Finance	Denmark	96			
Delhaize Group	Food/ Beverages	Belgium	117			
Deutsche Bahn	Railway	Germany	72			
Deutsche Post	Transport/ Logistics	Germany	26		Yes	
Deutsche Telekom	Telecom	Germany	31	Yes		
Deutsche Bank	Bank/ Finance	Germany	14	Yes		
Dexia Group	Bank/ Finance	Belgium	9		Yes	
DZ Bank	Bank/ Finance	Germany	93			
E.ON	Energy	Germany	25	Yes		
EADS	Space/ Defense	Netherlands	61	Yes		
Électricité de France	Energy	France	33			
Enel	Energy	Italy	52	Yes		Yes
ENI	Petroleum	Italy	15	Yes		
Erste Bank	Bank/ Finance	Austria	162			
Fiat	Automotive and trucks	Italy	37			
Foncière Euris	General Merchand.	France	87			
Fortis	Bank/ Finance	Belgium/ Netherlands	6	Yes		Yes
France Télécom	Telecom	France	42			Yes
Franz Haniel	Pharma/ Steel	Germany	79			

Galp Energia	Petroleum	Portugal	177			
Gaz de France	Energy	France	82			Yes
GlaxoSmith-Kline	Pharma	UK	68			
Groupe Auchan	Food/ Beverages	France	65			
Groupe Caisse d'Épargne	Bank/ Finance	France	60			Yes
HBOS	Bank/ Finance	UK	23		Yes	
HSBC Holdings	Bank/ Finance	UK	10			
INA Group	Energy	Croatia	-			
Inbev	Food/ Beverages	Belgium	157			
ING Group	Bank/ Finance	Netherlands	3	Yes	Yes	
Intesa Sanpaolo	Bank/ Finance	Italy	66			Yes
J. Sainsbury	Food/ Beverages	UK	88		Yes	
KBC Group	Bank/ Finance	Belgium	90			
KFW Bankengrupp	Bank/ Finance	Germany	85			
KGHM	Metal	Poland	-			
L.M Ericsson	Technology	Sweden	114			
La Poste	Transport/ Logistics	France	97			Yes
Landesbank Baden-Württemberg	Bank/ Finance	Germany	81			
Legal & General Group	Insurance	UK	86			
Lloyds TSB Group	Bank/ Finance	UK	54			Yes
Lufthansa Group	Airlines	Germany	99	Yes		
Metro Group	Food/ Beverages	Germany	27			
MOL	Energy	Hungary	-			
Munich Re	Insurance	Germany	49			
Nestlé	Food/ Beverages	Switzerland	28		Yes	Yes

Nokia	Technology	Finland	44	Yes	Yes	
Nordea Bank	Bank/ Finance	Sweden	152			Yes
Norsk Hydro	Metal/ Petroleum	Norway	171			
Novartis	Pharma	Switzerland	80			Yes
Old Mutual	Insurance	UK	92			
OMV Group	Petroleum	Austria	115		Yes	
Petrom	Petroleum	Romania	-			
Peugeot	Automotive	France	32			
PGNiG	Energy	Poland	-			
PKN Orlen group	Energy	Poland	173			
Prudential	Insurance	UK	47			
Rabobank	Bank/ Finance	Netherlands	67			
Renault	Automotive and trucks	France	57			
Repsol YPF	Petroleum	Spain	46	Yes		
Robert Bosch	Technology	Germany	50			
Roche Group	Pharma	Switzerland	77			
Royal Ahold	Food/ Beverages	Netherlands	64			
Royal Bank of Scotland	Bank/ Finance	UK	19		Yes	
Royal Dutch Shell	Petroleum	Netherlands	1		Yes	
Royal Philips Electronics	Technology	Netherlands	84	Yes		
RWE	Energy	Germany	56	Yes		
Saint-Gobain	Constructon	France	53			
Sanofi-Aventis	Pharma	France	78			Yes
Santander Central Hispano Group	Bank/ Finance	Spain	29			
Scottish & Southern Energy	Energy	UK	100			
Siemens	Technology	Germany	20	Yes		
SEB	Bank/ Finance	Sweden	170			
Skanska	Constructon	Sweden	148			

Company	Industry	Country	No.			
Skoda Auto	Automotive and trucks	Czech	-			
Slovnaft	Petroleum	Slovakia	-			
SNCF	Railway	France	95			
Société Générale	Bank/ Finance	France	22		Yes	
Statoil Hydro	Petroleum	Norway	30			
Stora Enso	Forest	Finland	147	Yes		
Suez	Energy	France	48			Yes
Swiss Reinsurance	Insurance	Switzerland	89		Yes	
Telecom Italia	Telecom	Italy	71	Yes		Yes
Telefónica	Telecom	Spain	39	Yes		
Telekomunikac Yes Polska	Telecom	Poland	-			
Tesco	Food/ Beverages	UK	24			
Thyssen-Krupp	Metal	Germany	45			
Total	Petroleum	France	4	Yes		Yes
UBS	Bank/ Finance	Switzerland	16			
UniCredit Group	Bank/ Finance	Italy	40			
Unilever	Food/ Beverages	UK/Neth	59	Yes	Yes	Yes
Unipetrol	Petroleum	Czech	-			
Vattenfall	Energy	Sweden	143			Yes
Veolia Environment	Environ-ment/ Infra-structure	France	69	Yes		
Vinci	Constructon	France	75			
Vodafone	Telecom	UK	43			Yes
Volkswagen	Automotive and trucks	Germany	8	Yes		Yes
Wolseley	Constructon	UK	98			
Volvo	Automotive and trucks	Sweden	74			
Zurich Financial Services	Insurance	Switzerland	58			

US:

From the list below, companies are mostly chosen based on the Fortune 500 list.

Company	Industry	Fortune ranking	DJSI US
AES	Energy	158	
Alcoa	Metals	90	Yes
Allstate	Insurance: Property and Casualty	81	Yes
Amazon	Internet Services and Retailing	130	
American Electric Power	Energy	180	
American Express	Commercial Banks	74	
Amgen	Pharmaceuticals	168	
AMR	Airlines	104	
Arrow Electronics	Wholesalers: Electronics and Office	151	
ArvinMeritor	Motor Vehicles and Parts	346	
Atmos Energy	Utilities: Gas and Electric	343	
Automatic Data Processing	Diversified Outsourcing Services	297	
Avnet	Wholesalers: Electronics and Office	144	
Avon Products	Household and Personal products	255	
Baker Hughes	Oil and Gas Equipment, Services	227	
Ball	Packagin, Containers	336	
Bank of America	Commercial Banks	11	
Baxter International	Medical Products and Equipment	219	Yes
Becton Dickinson	Medical Products and Equipment	347	Yes
Berkshire Hathaway	Insurance	13	
Best Buy	Specialty Retailers	56	
Boeing	Aerospace and Defense	34	Yes
Boston Scientific	Medical Products and Equipment	320	
C.H. Robinson Worldwide	Transportation and Logistics	300	
Capital One Financial	Commercial Banks	145	
CarMax	Automotive Retailing, Services	311	
Caterpillar	Construction and Farm Machinery	44	Yes
Chubb	Insurance: Property and Casualty	203	Yes
Colgate-Palmolive	Household and Personal products	166	
Computer Sciences	Information Technology Services	153	
Consolidated Edison	Utilities: Gas and Electric	191	Yes

Continental Airlines	Airlines	167	
Costco Wholesale	Specialty Retailers	24	
CVS Caremark	Food and drug stores	19	
Dean Foods	Food Consumer Products	216	
Dell	Computers, Office Equipment	33	Yes
Eastman Kodak	Scientific, Photographic, and Control	284	Yes
Eaton	Industrial Machinery	164	
eBay	Internet Services and Retailing	303	
Edison International	Utilities: Gas and Electric	184	
Emerson Electric	Electronics, Electrical Equipment	94	
EOG Resources	Mining, Crude-Oil Production	350	
FedEx	Mail, Package and Freight Delivery	59	Yes
Flour	Engineering, Construction	114	
Genuine Parts	Wholesalers: Diversified	247	
Goldman Sachs Group	Commercial Banks	40	Yes
Goodrich	Aerospace and Defense	354	
Goodyear Tire & Rubber	Motor Vehicles and Parts	127	
H.J. Heinz	Food Consumer Products	267	Yes
Halliburton	Oil and Gas Equipment, Services	141	
Hess	Petroleum Refining	55	Yes
Hewlett-Packard	Computers, Office Equipment	9	Yes
Home Depot	Specialty Retailers	25	
Humana	Health Care: Insurance and man	85	Yes
IBM	Information Technology Services	14	Yes
Illinois Tool Works	Industrial Machinery	148	1
Ingram Micro	Wholesalers: Electronics and Office	67	
International Paper	Forest and Paper Products	97	
ITT	Industrial Machinery	229	
Jabil Circuit	Semiconductors and Other Electronic	212	
Jacobs Engineering Gr.	Engineering, Construction	241	
Knight (Kinder Morgan)	Pipelines	223	
Lockheed Martin	Aerospace and Defense	54	
Macy's	General Merchandisers	96	Yes
Manpower	Temporary Help	119	Yes
Marriott International	Hotels, Casinos, Resorts	208	
Masco	Home Equipment, Furnishings	277	
McKesson	Wholesalers: Health Care	15	Yes
MetLife	Insurance: Life, Health	39	

MGM Mirage	Hotels, Casinos, Resorts	344	
Motorola	Network and Other Communications	78	Yes
Norfolk Southern	Railroads	256	
Omnicom Group	Advertising, Marketing	202	
Oshkosh	Motor Vehicles and Parts	349	
Owens & Minor	Wholesalers: Health Care	339	
Pantry	Specialty Retailers	317	
Parker Hannifi	Industrial Machinery	221	
Pepsi Bottling	Beverages	189	Yes
PepsiCo	Food Consumer Products	52	Yes
Plains All American Pipeline	Pipelines	79	
PNC Financial Services Group	Commercial Banks	278	
Praxair	Chemicals	249	Yes
Procter & Gamble	Household and Personal products	20	Yes
Qualcomm	Network and Other Communications	244	
R.R. Donnelley & Sons	Publishing, Printing	233	Yes
Safeway	Food and drug stores	50	Yes
Sempra Energy	Utilities: Gas and Electric	252	
Smith International	Oil and Gas Equipment, Services	250	Yes
Smithfield Foods	Food Production	183	
Southern	Utilities: Gas and Electric	149	
Southwest Airlines	Airlines	246	
Starbucks	Food Services	261	Yes
Steel Dynamics	Metals	318	
Sysco	Wholesalers: Food and Grocery	62	
Tech Data	Wholesalers: Electronics and Office	102	
Textron	Aerospace and Defense	173	
Tyson Foods	Food Production	89	
Union Pacific	Railroads	143	
United Airlines	Airlines	123	
United States Steel	Metals	105	
UnitedHealth Group	Health Care: Insurance and care	21	Yes
US Bancorp	Commercial Banks	129	
Wal-Mart Stores	General Merchandisers	2	
Walt Disney	Entertainment	60	Yes
Verizon	Telecommunications	17	
Western Digital	Computer Peripherals	319	

Weyerhaeuser	Forest and Paper Products	236	Yes
VF	Apparel	335	
Williams	Energy	218	
Winn-Dixie Stores	Food and Drug stores	340	
Xcel Energy	Utilities: Gas and Electric	242	
XTO Energy	Mining, Crude-Oil Production	330	
Yum Brands	Food Services	239	

Appendix 2

Method used for coding and categorization of CEO letters

The method used for counting percentage space required pasting each CEO letter, in its entirety into a Microsoft (MS) Word document. The amounts of words used as a whole are calculated using the "word-count function" embedded in MS Word. After that, each category is counted in the same way and the end result is collected in a Microsoft Excel spreadsheet to include data from each annual report. The overall results are counted within this spreadsheet and graphics are drawn using Excel's standard functions. For statistical analysis the Excel plug-in "Analyze-it version 2.22 Excel 12+" was used.

More than 3000 pages of text in the CEO letters is analyzed - the average size of a CEO letter is 2-3 pages, but could be as many as 15 pages long. Downloading the basic material for analysis from the Internet created a storage need for more than 6 Gigabytes - in nearly every case, the annual report was a PDF document, available for free download via the company's Web site (A few cases, reports were available in MS Word or text only formats, etc). All versions of CEO letters are read in English (home country versions are not read).

The following analytical framework is used for coding/categorization:

- With regard to climate change issues, the following are included: The phenomena of explicit climate change, CO2, ETS, new regulation concerning climate change and global warming. General sustainability, renewability, environment, in general, etc., without mention in the previous contexts, are excluded.

- For external economic issues, the following are included: Market phenomena, outside events directly affecting the company (that the company cannot change), future outlook, long-term scenarios, prognoses and business-cycle discussions.

- With regard to internal economic issues, the following are included: The company's performance during the year presented (revenue, income, profit, etc.) as well as actions taken in order to achieve it. Subjects of investments, transactions are excluded

if not directly mentioned in a climate-change context. Shareholder information/dividends, etc are excluded. This category mostly discusses short-term issues.

This framework requires, for example, that if a CEO discusses the internal economic effects of implementation of the ETS system (some companies have lost money on it, some have earned), 50% of that discussion is included in internal economic issues. At the same time, 50% of the ETS system discussion text is included in the "climate change" category.

The ETS system is implemented in 2005 (only in Europe) but decided earlier and, since it is an economic effect that the company must deal with, 50% is included there (in the same manner as an investment, or a loss in productivity, or increased salaries due to climate change issues).

Another example can be taken from how the catastrophes of 9/11 are categorized. If the CEO letter only comments on 9/11 as a common tragedy, such statements are not included at all. However, if the CEO claims that 9/11 created a recession in the company's particular industry, this text is categorized as part of the external economy.

A third example is text that claims that external issues, in a very clear way, resulted in internal activities, for example, in order to increase efficiency; 50 % of that text is included in external issues while 50% is included in internal issues.

A pure computerized-based framework can easily be used to count keywords. However, such a method does not create the same kind of deep understanding of the issues as developed here.

General environmental or sustainability issues (such as: health care risks, chemicals, etc.) are not included in the category of climate change. However, if it can be understood that the CEO, using the term "environment," or perhaps even "sustainability," actually means to discuss climate change issues; it is included in this category. Otherwise, environment and sustainability could mean many different things in the text analyzed—even salary for top management or general public relations activities.

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