climate policy

research article

An assessment of the climate change policies and performance of large European companies

RORY SULLIVAN*

Insight Investment, 33 Old Broad Street, London EC2N 1HZ, UK

How are large companies responding to the challenges of reducing their greenhouse gas (GHG) emissions? An analysis of the published climate change policies and performance of 125 large European companies is presented. The results suggest that most large European companies have now developed the management systems and processes necessary for them to effectively manage their GHG emissions and related business risks. However, there is a significant disconnect between the targets that companies set for themselves and the more ambitious targets being set by the European Union (which has committed to a 20% reduction in its emissions by 2020 against a 1990 baseline). Of the companies surveyed, just over one-third had stabilized or reduced their total GHG emissions over the period 2002–2007, and fewer than one-third expected their emissions to stabilize or reduce in the coming years. The relationship between the quality of corporate policies and performance outcomes (in terms of GHG emissions) suggests that while companies with stronger policies are likely to have relatively better performance, only a minority of those companies with the highest-quality policies are committing to absolute reductions in their GHG emissions.

Keywords: business strategy; climate policy; corporate performance; corporate policy; firm behaviour; GHG reductions; targets

Comment les grandes entreprises répondent-elles aux défis de réduire leurs émissions de gaz à effet de serre (GES)? Une analyse des politiques et performances sur le changement climatique publiées de 125 grandes entreprises européennes est présentée. Les résultats suggèrent que la plupart des grandes entreprises européennes ont maintenant développé les systèmes de gestion et les procédures nécessaires pour bien gérer leurs émissions de GES et les risques commerciaux associés. Cependant, il y a une rupture considérable entre les objectifs plus ambitieux que les entreprises se sont fixés pour elles mêmes et les objectifs fixés par l'union européenne (s'étant engagée à une réduction de 20% de ses émissions en 2020 par rapport au niveau de référence de 1990). Parmi les entreprises sondées, seulement un peu plus d'un tiers ont stabilisé ou réduit leurs émissions globales de gaz à effet de serre pendant la période 2002–2007, et moins d'un tiers s'attendent à ce que leurs émissions se stabilisent ou se réduisent durant les années à venir. La relation entre la qualité des politiques des entreprises et les résultats de leur performance (en terme d'émissions de GES) suggère que bien que la performance des entreprises aux politiques plus poussées est à même d'être relativement meilleure, seulement une minorité de ces entreprises aux politiques les plus avancées s'engagent à des réductions absolues de leurs émissions de GES.

Mots clés: comportement d'entreprise; objectifs; performance de l'entreprise; politique climatique; politique de l'entreprise; réductions de GES; stratégie commerciale

E-mail: rory@rorysullivan.org

doi:10.3763/cpol.2008.0591 ISSN: 1469-3062 (print), 1752-7457 (online) www.climatepolicy.com

earthscan

1. Introduction

The past five years have seen many large companies establish climate change-related policies, publish information on their GHG emissions, and set targets to reduce these emissions. Based on an analysis of the published climate change policies and performance of 125 large European companies, this article examines two questions. The first is how the GHG emissions reduction commitments being made by companies align with the commitments made by the European Union in 2007 that it would reduce its GHG emissions by 20% by 2020 against a 1990 baseline (with the potential that this would be increased to 30% in the event of an internationally binding climate change agreement being agreed) (Council of the European Union, 2007). The second is whether there is a relationship between the quality of the climate change policies being adopted by companies and the GHG emissions performance of these companies.

2. Literature on corporate responses to climate change: an overview

2.1. Drivers for action

The literature on business and climate change identifies a range of reasons why companies may take action to reduce their GHG emissions. These include policy or regulation, increasing costs, litigation risks and reputation/brand risks (Okereke, 2007; Carbon Trust, 2008; Sullivan, 2008a). The climate change literature does not provide a definitive answer on which of these is the most critical determinant of corporate responses, as the individual corporate response is contingent on a range of factors such as the GHG emissions profile of the company, the company's regulatory exposure, the company's competitive position, stakeholder expectations, as well as management's views on climate change specifically and environmental issues in general (Hoffman, 2006: 19–22; Busch and Hoffmann, 2007; Okereke, 2007).

What is clear from the literature is that the nature of the debate has changed significantly over the past five years, with climate change moving from being a niche environmental concern to a central question for economic and energy policy. The reasons include long-running campaigns by non-governmental organizations (NGOs) such as Greenpeace and WWF, the personal leadership shown by Al Gore (in particular, through his film *An Inconvenient Truth*), the linking of extreme weather events such as the 2003 summer heatwave in Europe to the effects of climate change, the Stern Review on the Economics of Climate Change (Stern, 2006) and the strengthening scientific evidence on the relationship between GHG emissions and climate change (IPCC, 2007a, 2007b, 2007c).

From a business perspective, and of particular importance in the context of European companies, the introduction of the EU Emissions Trading Scheme (EU ETS) in 2005 has been of pivotal importance (see, generally, Hoffmann et al., 2008; Sullivan, 2008a). The EU ETS sets limits on CO_2 emissions from more than 12,000 installations, representing approximately half of the EU's total GHG emissions. Not only has the EU ETS given these emissions a real (market) price, it has also signalled that European governments are serious about responding to climate change and that they are willing to countenance public policy measures that impose costs on companies as a necessary part of delivering on this objective. This message has been reinforced by the impressive rate of climate change-related policy development and implementation in European countries more generally, with many governments increasing their support for renewable energy, adopting new product standards and providing incentives and other support for energy-saving measures.

2.2. Corporate responses

Climate change-related regulation and policy are increasingly recognized as proper matters for management attention and, at least in some sectors, as key drivers for future business growth (McKinsey, 2008; Sullivan, 2008a). Furthermore, there is a growing expectation among companies that most, if not all, governments will at some point adopt policy measures directed at reducing GHG emissions. In anticipation, companies have taken a variety of actions: establishing corporate management systems, making public commitments to emissions reductions or carbon neutrality, participating in voluntary initiatives such as product labelling, and seeking to influence their supply chains and their customers to reduce their emissions. See the case-studies and examples in Climate Group (2005), Hoffman (2006), Pinske and Kolk (2008) and Sullivan (2008a).

Despite the actions that have been taken by companies, various authors have suggested that relatively few companies seem to be systematically integrating climate change into their strategies or business planning activities (see, for example, Jones and Levy, 2007, and the references cited therein). For example, while a recent McKinsey survey found that a majority of executives view climate change as an important strategic issue for their business, this concern is not being built into business decisions, with 44% of respondents stating that climate change was not a significant item on their agendas and many respondents reporting that they only considered climate change occasionally, at best, when managing corporate reputation and brands, developing new products, or even managing environmental issues (McKinsey, 2008).

The literature proposes a number of reasons for this lack of integration. First, despite the high profile of the EU ETS, many sources of GHG emissions are not yet regulated. Second, even in those sectors that are regulated, the cost of carbon is frequently not sufficiently high to incentivize substantial reductions in GHG emissions (Kolk and Pinske, 2008). Third, there are many uncertainties in climate change policy, including the level of government support for climate policy measures, the manner in which climate change concerns can be reconciled with energy security or wider competitiveness issues, the specific targets that are to be met, the policy instruments that are to be used, and the duration of climate change policy instruments (Sullivan and Blyth, 2006; Hoffmann et al., 2008). In situations where reducing emissions is likely to require significant irreversible investment by the private sector and where the profitability of such investments is highly sensitive to climate change policy, companies will tend to adopt a 'wait and see' approach (Hoffman, 2006; Sullivan and Blyth, 2006; Okereke, 2007; Carbon Trust, 2008: 12–13; PricewaterhouseCoopers, 2008: iv).

2.3. Corporate reporting

It is generally agreed that a necessary first step for companies to take action on climate change is to develop an inventory of their GHG emissions, thereby enabling them to identify their current exposure to climate change-related risks (in particular those from policy measures directed at reducing GHG emissions) and to prioritize emission reduction options (Hoffman, 2006: 8).

Various stakeholders have pointed to the emergence of climate change-related policy and regulations as creating the need for companies to provide a more detailed account of the risks and opportunities presented by climate change (Climate Group, 2005; Kolk et al., 2008). Investors (see, for example, Sullivan and Kozak, 2006) and investor bodies such as the Institutional Investors Group on Climate Change (IIGCC)[1] have argued that climate change performance reporting is an essential part of overall corporate reporting, fitting within the broader corporate social responsibility (CSR) win–win debate, where better environmental performance should lead to

better financial performance. Environmental NGOs have also been interested in this type of reporting, seeing it as an opportunity to introduce a new element to corporate governance by shifting management attention towards environmental objectives and enabling these NGOs to exert influence on corporate processes (Kolk et al., 2008).

These pressures have resulted in a majority of large companies reporting on their GHG emissions, whether through their own corporate responsibility reports or by means of public databases such as the Carbon Disclosure Project (CDP).[2] In the most recent iteration of the CDP, 77% of the world's 500 largest corporations (the FT500) responded to the survey, with the survey achieving an 83% response rate in Europe (PricewaterhouseCoopers, 2008: ii). Given this high response rate and the level of investor support for the CDP, it can be argued that reporting on climate change-related information now represents a standard expectation of companies.

3. Methods

The material presented in this article is based on a project conducted by Insight Investment[3] in 2007, as part of its programme of research into the investment implications of climate change. The aim of the project was to develop a systematic understanding of how large companies are managing their GHG emissions, as a subset of their broader approach to managing the risks and opportunities presented by climate change.[4] The total number of companies included in the study was 125, comprising companies in the FTSE100 (excluding investment trusts) and the 28 largest continental European (i.e. excluding companies listed in the UK) stocks by market capitalization, as at 30 June 2007.

3.1. Assessment framework

A framework against which all companies could be assessed was developed, focusing on the management processes that companies should have in place to identify, understand and manage the risks associated with their GHG emissions. The benchmark considered company performance in seven areas:[5]

- *Governance*: Has the company assigned board or senior executive responsibility for climate change-related issues?
- *Policy*: Has the company a clear policy statement on climate change? What is the scope and content of the policy? Does the policy state that the company sees climate change as a key business concern? Does the policy include a commitment to emission reductions? Does the policy express support for governmental efforts to reduce GHG emissions?
- *Risk assessment*: Has the company conducted a detailed analysis of climate change risks and opportunities for the business? Is the company aware of the financial and strategic significance of climate change for its business?
- *Inventory*: What is the quality of the GHG emissions data provided by the company? Are the data sufficiently robust to allow investors to properly assess the financial implications of these emissions for the business?
- *Targets*: What target(s) have been set by the company? What proportion of the company's total emissions is covered by the target? Are the target(s) expressed in relative or absolute terms? How far forward are the target(s) set?
- *Implementation*: Has the company explained how it proposes to reduce its GHG emissions? Has it provided information on the expected emissions reductions and costs associated with these actions?

- *Leadership and performance*: Has the company supported calls for government action on reducing GHG emissions? Has the company participated in any climate change leadership initiatives? Has the company reduced its own GHG emissions?

Within each of these areas, each company was evaluated against a number of criteria, with scores awarded according to how close the company was to best practice.

3.2. Data acquisition and review process

Over the period June–September 2007, a desktop review of each company's performance against the benchmark was conducted. Companies were assessed solely on the basis of their own non-confidential published literature, including annual reports, CSR reports and information on their websites. The analysis took account of information published by companies up to 30 September 2007 as well as companies' submissions to the 2007 CDP questionnaire. For each company, a summary spreadsheet that recorded its scores, an explanation for the score awarded, and details of the sources of this information was prepared.

Each company was sent its summary spreadsheet and supporting information, and given three weeks to review the score (to ensure the completeness of the data used in the assessment and to confirm the accuracy of our interpretations) and, as appropriate, provide additional information. Of the 125 companies covered by the study, 64 responded within the time period allocated – a response rate of 51%. The company scores were revised based on the feedback provided.

It is important to emphasize here that all scores (initial and revised) were based on published information only; in order for any supplementary information provided by companies to be incorporated, this information had to be in the public domain. It is acknowledged that most companies have information on their climate change strategies beyond that which they put in the public domain. However, given the consensus that companies should report on their GHG emissions and management strategies, the study confined itself to published information only. This also ensured that respondents and non-respondents to the survey were treated equally.

As part of this process, Insight had a number of meetings with companies about the benchmark and the information being sought. These discussions provided a series of insights into current corporate practice and the challenges faced by companies seeking to manage their GHG emissions; some of the key points raised are discussed further below.

3.3. Data quality

Before presenting the results of the analysis, it is pertinent to note that, despite the strong drivers outlined in Section 2.3 for companies to report on their GHG emissions and related information, corporate disclosures continue to fall far short of the quality required by investors and other stakeholders (see, for example, the discussion in CBI, 2009: 12–13). The project identified four important limitations in the quality of GHG emissions data provided by companies.

First, not all companies report on their GHG emissions. In fact, at the time of conducting the study, 13 of the 125 companies had published no emissions data at all.

Second, even though most companies (91 out of the 112 that did report) explained how they calculated their emissions data, either by referencing the WBCSD GHG Protocol (WBCSD/WRI, 2004) or by providing details of how they calculated their emissions, the degree of rigour in the application of emission calculation protocols was unclear. While the GHG Protocol clearly delineates between Scope 1, 2 and 3 emissions (i.e. between companies' direct and indirect (i.e. electricity) emissions and emissions from sources not owned or controlled by the company) (WBCSD/WRI,

2004: 26–34), companies presented their data in different ways. For example, some included the emissions from their own vehicles in Scope 1, whereas others included these emissions in Scope 3.[6]

Third, most inventories were incomplete. Most companies reported on their direct and indirect emissions, but only 71 of the 112 provided data on emissions from sources not owned or controlled by the company. Furthermore, this reporting tended to be confined to business travel and, to a lesser extent, transportation and logistics, with limited information provided on emissions from supply chains or the use/disposal of products and services. While this lack of comprehensiveness affected the robustness of the conclusions that could be drawn from the analysis, it is necessary to acknowledge that calculating GHG emissions from supply chains and product use is technically difficult and there is, as yet, no consensus on the methodologies that should be used to calculate these emissions. Companies were similarly inconsistent in the setting of reporting boundaries, and frequently did not explicitly state what was included or excluded from the scope of their reporting. It was often not clear whether and how subsidiaries were being treated for the purposes of reporting on emissions, and many companies only reported on a geographical subset of their operations.

Fourth, the number of years of historical data provided by companies varied significantly, with 32 of the 112 that reported providing less than five years of data. Of the remainder, 32 provided five years of data and 48 provided data for longer time periods.

4. Overall results

4.1. Governance and management systems

The primary finding from the analysis was that most large European companies have now developed the management systems and processes necessary for them to effectively manage their GHG emissions and related business risks. The majority of the companies considered in the study had clear management accountabilities for environmental and/or climate change issues (93% of companies published this information), published environmental and/or climate change policies (92%) and GHG emissions inventories (90%), and provided at least some information on their perceptions of the risks and opportunities presented by climate change (86%).

4.2. Corporate policies

The majority of the companies surveyed (115 out of 125, or 92%) had at least a published environmental policy, with many also having a stand-alone climate change policy. Of the other ten, five claimed to have internal climate change policies and two made their policies available on request.

The published environmental policies were broadly similar in scope, with most referring to climate change-related issues such as energy efficiency or air pollution in the overall scope of the policy. However, ten (9%) of the published policies did not explicitly mention climate change as being within the scope of the policy. There was also quite a wide variation in the content of policies, as indicated in Figure 1. Broadly, most companies acknowledged that climate change was a business risk and/or acknowledged that their activities contributed to GHG emissions, with many having an explicit policy commitment to emissions reductions. However, few companies had made commitments to achieve either carbon neutrality or to make significant reductions in their total GHG emissions over the longer term.

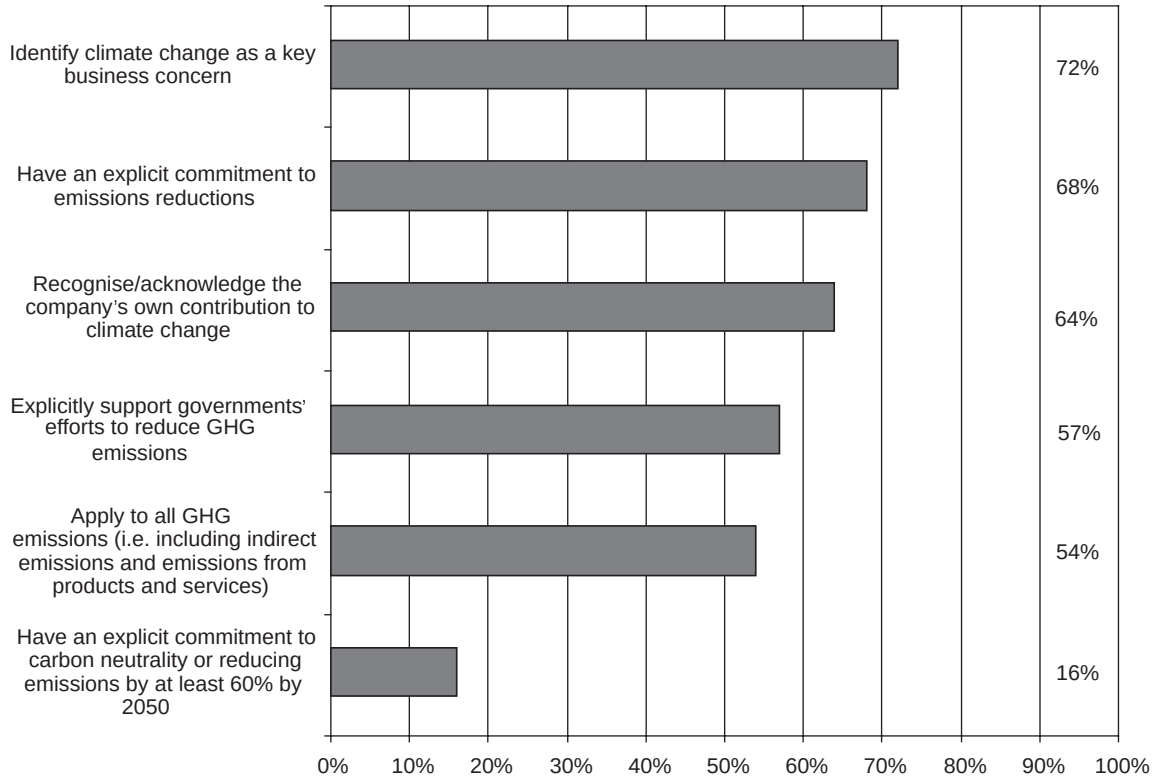

FIGURE 1 Content of company climate change policies (Sullivan, 2008b).

4.3. Historical emissions performance

In total, 112 companies reported their GHG emissions. Of those, 65 had seen their GHG emissions rise over the previous five years (or, where five years' data were not available, over the period for which data were available). Of the remainder, 15 (out of 47) had reduced their absolute emissions by more than 3% per annum, 26 had reduced their emissions by between 0.5% and 3% per annum and the remaining six had stabilized their emissions.

It is relevant to note that the increases in absolute emissions may obscure the very considerable efforts made by companies to reduce their GHG emissions. Of the 112 companies that reported their GHG emissions, 64 reported that their emissions intensity (i.e. GHG emissions per unit of production, sales, revenues or other metric) had reduced.[7] A further 12 reported that their emissions intensity had stabilized.

4.4. Targets

Of the 125 companies, 80 had published GHG emission targets, with most expressing their targets in relative terms (i.e. GHG emissions per unit of production or turnover). Of these, only 39 expected their total emissions (excluding offsets) to stabilize or reduce. Moreover, the targets were relatively short term. Of those companies with published targets, 23 had only set targets for the next

financial or calendar year, 27 had set targets to 2010, and 20 had set targets to 2012; and just ten had set targets that extended beyond 2012 (i.e. beyond the Kyoto Protocol compliance period).

It is also important to note that most companies were using relatively recent baselines, with 40 (or half of those that had set targets) using one of the years from 2004 to 2007 as the baseline. In interviews, companies highlighted a number of practical reasons why more recent baselines had been chosen: many of the companies surveyed did not exist in 1990 (the baseline year for the Kyoto Protocol), the gathering of data on GHG emissions was a relatively recent activity for many companies,[8] and more recent data were seen as a more relevant frame of reference.[9] While acknowledging the practical realities around choosing baselines, the baseline year is critical when assessing the quality of corporate climate change commitments. If one assumes that a company's emissions have grown by 5% per annum, a difference of ten years in the baseline year (e.g. if 2000 rather than 1990 is taken as the starting point) could mean that the baseline against which performance is to be assessed is 62% higher.

Finally, an important question is whether the published targets will, in fact, be achieved. One of the interesting findings from the study was that most companies – even those with a commitment to absolute emissions reductions – were poor at explaining exactly how they intended to deliver on their emissions reduction commitments. Few companies provided information on the specific actions they expected to take, the costs of these actions, the emissions reductions to be achieved through each action, and the costs per unit of GHG abated. This raises the question (although it is probably a question that can only be answered over time, as performance data are published) of whether companies have really established clear plans on how they intend to reduce their GHG emissions.

4.5. The adequacy of corporate responses to climate change

On one level, the data presented above are very encouraging. Most large European companies have now established the basic management systems and processes necessary for them to effectively manage their GHG emissions and related business risks. Furthermore, reporting on performance and setting targets are increasingly the norm. However, there are important gaps: a significant minority do not have published climate change policies and do not yet report on their GHG emissions, there are still systemic weaknesses in the quality of the inventory data being provided, and over one-third of companies have not published GHG emissions targets.

Turning to the question of performance, the data published by companies suggests that many have taken substantial action to reduce their GHG emissions. Across the 125 companies as a whole, 47 had stabilized or reduced their total GHG emissions and almost two-thirds had stabilized or reduced their emissions intensity over the period 2002–2007. While all 80 of the companies that had set emissions reductions targets expected their relative emissions (i.e. GHG emissions per unit of production or turnover) to decline, only 39 expected their total emissions to stabilize or reduce. When these targets are analysed in the context of the overall targets being set by the EU (i.e. a 20% reduction in GHG emissions by 2020 against a 1990 baseline, potentially increasing to 30% in the event of an internationally binding climate change agreement being achieved), it is clear that, in aggregate, companies' targets fall well short of the EU's expectations.

There is another way of looking at these data, which is to argue that companies should not – other than to the extent that it is justified in financial terms – seek to pre-empt public policy, but should instead respond to public policy as it emerges. That is, regulations and market-based instruments should set the boundary conditions within which companies then set their emissions reduction

targets. The uncertainty that surrounds public policy on climate change, in particular beyond 2012, means that there is a strong incentive for companies to adopt a 'wait and see' approach. In this situation, one would expect to see – as, in fact, the results presented here confirm – companies focusing their efforts on those actions that provide positive financial returns, while also seeking to improve their energy efficiency or GHG emissions intensity per unit of production of turnover.

5. What is the relationship between climate change policies and performance?

5.1. Some comments on methods

For the purposes of this part of the analysis, corporate climate change policies were classed as 'high', 'medium' or 'low' quality. High-quality policies were defined as those that had at least five of the six elements identified in Figure 1 (i.e. they identified climate change as a key business concern, they acknowledged the company's own contribution to climate change, they applied to all of the company's emissions, they contained an explicit commitment to emissions reductions, they explicitly supported governments' efforts to reduce GHG emissions, and they had an explicit commitment to carbon neutrality or to emissions reductions of at least 60% by 2050). Conversely, poor policies were defined as those that had a maximum of one of these six elements. Firms with no published environmental or climate change policies were categorized as having poor-quality policies.

A number of assumptions were also made in relation to performance. First, if a company did not have a published target, it was assumed that the company expected both its absolute and relative emissions to increase. The rationale was that the absence of a target suggests that emissions reductions are not a priority for the company.[10] Second, for those companies that did not publish targets for their relative or absolute emissions, it was assumed that companies that expected their absolute emissions to stabilize or reduce would also see their relative emissions reduce. The rationale was that business growth would probably mean increases in many of the denominators (turnover, profit, etc) commonly used as a basis for assessing performance.[11] Third, for companies that only published a relative emissions target, it was assumed that their total emissions would increase as a result of overall business growth. Finally, for the 13 companies that did not publish any emissions data, it was assumed that both absolute and relative emissions from these companies had increased.

5.2. Results

The results of the analysis are presented in Table 1 (for the relationship between corporate policies and expected changes in GHG emissions) and Table 2 (for the relationship between corporate policies and historical GHG emissions). The results presented in Table 2 should be treated with some caution and are probably of less value than those in Table 1 because most companies have only adopted climate change policies in recent years and, therefore, it may not be appropriate to attribute changes in GHG emissions to changes in corporate policies.

The question of whether the quality of corporate climate policies is a good indicator of corporate performance can be considered in relative (i.e. do companies with higher-quality policies have relatively better performance?) or absolute terms (i.e. do higher-quality polices mean that companies are more likely to have made commitments to, or delivered, reductions in their absolute levels of GHG emissions?).

Table 1 and Table 2 (although acknowledging the limits in ascribing historical performance outcomes to current policies) provide clear evidence that companies with higher-quality policies set significantly stronger targets (in both intensity and absolute terms) for themselves than

TABLE 1 How does the quality of corporate climate change policies influence expected changes in GHG emissions?

Quality of policy	Absolute emissions targets			Emissions intensity targets		
	Increase	Stabilize	Reduce	Increase	Stabilize	Reduce
High	21 (46%)	3 (7%)	22 (48%)	5 (11%)	0 (0%)	41 (89%)
Medium	40 (77%)	2 (4%)	10 (19%)	16 (31%)	0 (0%)	36 (69%)
Low	25 (93%)	0 (0%)	2 (7%)	24 (89%)	0 (0%)	3 (11%)

Percentages may not sum to 100 due to rounding.

TABLE 2 How has the quality of corporate climate change policies influenced emissions performance?

Quality of policy	Absolute emissions			Emissions intensity		
	Increased	Stabilized	Reduced	Increased	Stabilized	Reduced
High	20 (43%)	3 (7%)	23 (50%)	8 (17%)	7 (15%)	31 (67%)
Medium	38 (73%)	1 (2%)	13 (25%)	23 (44%)	3 (6%)	26 (50%)
Low	20 (74%)	2 (7%)	5 (19%)	18 (67%)	2 (7%)	7 (26%)

Percentages may not sum to 100 due to rounding.

companies with lower-quality policies. That is, the research does seem to confirm that companies with higher-quality policies will have relatively better performance and will tend to set stronger targets for themselves.[12]

A far less encouraging picture emerges when absolute GHG emissions are considered. From the data in Table 1, it can be seen that even the existence of high-quality policies does not necessarily result in companies committing to absolute reductions in their GHG emissions; just over half of these companies expect their total GHG emissions to stabilize or reduce, a broadly similar picture to how these companies' historical emissions performance has evolved. Unsurprisingly, for companies with low- and medium-quality policies, their performance is even worse, with over four-fifths of these companies expecting their absolute emissions to increase. A more positive picture emerges when emissions intensity targets are considered, with the vast majority of companies with high-quality policies – almost 90% – expecting their GHG emissions intensity to improve. Similar results emerge for those companies with medium-quality policies where, while the majority expect their total emissions to increase over time, many expect their emissions intensity to improve over time. While these results are disappointing, they are not unexpected. For virtually all companies, there is a tension between the goals of business growth and GHG emissions reductions, and it is therefore unsurprising that many companies have focused on reducing their relative rather than their absolute GHG emissions.[13]

6. Conclusions

The most important conclusion from the analysis presented here is that there is a major disconnect between the messages being sent by public policy makers and the actions being taken by companies.

On paper at least, the message from public policy makers seems clear: significant reductions in GHG emissions will be required in order to avert the worst consequences of climate change. Yet an analysis of the targets that large companies are setting themselves suggests that a majority of companies expect their total GHG emissions to increase. These expected increases come on top of the increases that most companies have seen in their emissions over the past five years.

While the research did not explicitly examine corporate motivations, the literature presented in Section 2 suggests that the uncertainties in climate change policy (e.g. the level of government support for climate policy measures, concerns about energy security, or wider competitiveness issues) are major barriers to action. Addressing policy uncertainty – through, for example, ensuring consistency between domestic and international climate change targets, avoiding policy disconnects (in particular, avoiding a post-2012 hiatus in the international policy framework), and accepting consequences such as higher electricity prices as a necessary part of delivering on climate change goals – therefore represents the key action for policy makers seeking to encourage business to take much stronger and more rapid action on climate change.

The research has also allowed important conclusions to be drawn about the potential role of corporate self-regulation in the policy response to climate change. The data that are available suggest that the quality of corporate climate change policies can, at least to some extent, be used as a proxy for the relative performance of companies; companies with stronger policies are likely to have relatively better performance. However, the results should also caution against over-reliance on self-regulation as a means of delivering the absolute emissions reductions that are required; while companies with high-quality climate change policies are likely to commit to improving their emissions intensity, there is no guarantee that they will commit to substantial reductions in their absolute (or total) GHG emissions.

Notes

1. See www.iigcc.org for more information.
2. The Carbon Disclosure Project (CDP) is an investor-backed disclosure request to more than 3,000 of the world's largest corporations, requiring information on their GHG emissions, the risks and opportunities presented by climate change to their businesses, and their strategies for managing these risks and opportunities. The 2008 iteration of the CDP was backed by 385 institutional investors, representing more than US$57 trillion of funds under management (PricewaterhouseCoopers, 2008; see the CDP website, www.cdproject.net, for further information).
3. Insight Investment is one of the largest asset managers in the UK, with over £100 billion in assets under management.
4. The results and a discussion of the investment implications of the analysis are presented in Sullivan (2008b).
5. The benchmark was based on the questions asked in the CDP (see Note 2) questionnaire, the disclosure frameworks developed by IIGCC for the electricity and automotive sectors (see http://www.iigcc.org/Publications.aspx) and earlier work by Insight Investment on the climate change disclosures of European electricity utilities (Sullivan and Kozak, 2006).
6. Concerns about the rigour in the application of emission calculation protocols were also raised in the 2007 iteration of the CDP: 'there were frequently discrepancies between the emissions disclosed privately to the CDP and those already disclosed elsewhere. Sometimes this was due to companies reporting to different standards other than the GHG Protocol in other documents … companies can use either the control or equity share methods of defining their organisational boundaries, which can make a large difference to their reported emissions … some FTSE350 companies included Scope 3 emissions in CDP5 reporting on Scopes 1 and 2' (Trucost, 2007: 20).
7. This number (64) comprises 49 companies that reported explicitly on their GHG emissions intensity plus another 15 that reported that their total emissions had stabilized or reduced but did not separately report emissions intensity data alongside their total GHG emissions. As noted by one of these companies: 'We do not provide normalised data as there are so many methods of normalisation which could be used. In our reports we provide

details of our premium income and investment sales, our number of staff our square meterage, etc. so that readers can use whichever factor they wish to, to normalise the data.' Of the 49 companies that did report on their emissions intensity, 12 reduced their emissions intensity by more than 5% per annum, 18 by between 3% and 5%, ten by between 1% and 3%, and nine by less than 1%.

8. A number of companies commented on this point. One stated 'We use 2002 as a baseline because that is the year when we are confident that our emissions figures are robust for the Group'. Another noted: 'Data reporting is a process that takes several years for a full implementation. This means that a part of the increase in the figures is linked to an increase in the coverage of the data and/or the quality of the data that is reported'.
9. For example, one company commented: 'Our decision to formally base our reduction commitments on 2001/2 rather than 1990 (the Kyoto base year) is primarily driven by the fact that [the company] did not exist as a company in 1990. Basing improvements on the 'opening position' of the merged company (by using 2001/2) is a much more powerful internal message to those who have to do the work.'
10. It is acknowledged that this may be an overly harsh assumption. However, given the broad consensus that companies should report on their GHG emissions and management strategies, it is not unreasonable to assume that companies that do not report these data have yet to fully engage with climate change-related issues and, hence, that emissions reductions are not a corporate priority.
11. It is acknowledged that this assumption may no longer be valid as a consequence of the 'credit crunch' and global financial crisis, which are likely to see many companies' production and turnover reduce.
12. This conclusion challenges the somewhat more sceptical conclusion presented in Gouldson and Sullivan (2007), which argued that, in relation to pollutant emissions from the oil and gas refining sector, the links between corporate policies, procedures and performance (measured in terms of pollutant emissions) were not clear, i.e. that high-quality policies and procedures did not necessarily translate into good environmental outcomes.
13. A number of companies raised this point in their comments; one, in a view that was representative of the comments we received on this point, noted: '[The company] has been and is growing very fast (more than 15% a year). In such a situation it is virtually impossible to reduce absolute emissions. If for example we would have to reduce the emissions in absolute terms by 2% every year, we would have to improve the emissions efficiency (emission per sales) by 17% every year! This may be possible in one specific year but very unlikely over many years.'

References

Busch, T., Hoffmann, V., 2007, 'Emerging carbon constraints for corporate risk management', *Ecological Economics* 62, 518–528.

Carbon Trust, 2008, *Climate Change: A Business Revolution*, Carbon Trust, London.

CBI (Confederation of British Industry), 2009, *All Together Now: A Common Business Approach for Greenhouse Gas Emissions Reporting*, CBI, London.

Climate Group, 2005, *Carbon Down, Profits Up*, 2nd edn, The Climate Group, Weybridge, UK.

Council of the European Union, 2007, 'Brussels European Council 8/9 March 2007. Presidency Conclusions', Council of the European Union, Brussels.

Gouldson, A., Sullivan, R., 2007, 'Corporate environmentalism: tracing the links between policies and performance using corporate reports and public registers', *Business Strategy and the Environment* 16, 1–11.

Hoffman, A., 2006, *Getting Ahead of the Curve: Corporate Strategies that Address Climate Change*, Pew Center on Global Climate Change, Arlington, VA.

Hoffmann, V., Trautmann, T., Schneider, M., 2008, 'A taxonomy for regulatory uncertainty: application to the European Emission Trading Scheme', *Environmental Science and Technology* 11, 712–722.

IPCC (Intergovernmental Panel on Climate Change), 2007a, *Climate Change 2007: The Physical Science Basis*, Cambridge University Press, Cambridge, UK.

IPCC (Intergovernmental Panel on Climate Change), 2007b, *Climate Change 2007: Impacts, Adaptation, and Vulnerability*, Cambridge University Press, Cambridge, UK.

IPCC (Intergovernmental Panel on Climate Change), 2007c, *Climate Change 2007: Mitigation of Climate Change*, Cambridge University Press, Cambridge, UK.

Jones, C.A., Levy, D.L., 2007, 'North American business strategies towards climate change', *European Management Journal* 25(6), 428–440.

Kolk, A., Pinske, J., 2008, 'The influence of climate change regulation on corporate responses: the case of emissions trading', in: R. Sullivan (ed.), *Corporate Responses to Climate Change*, Greenleaf, Sheffield, UK, 43–57.
Kolk, A., Levy, D., Pinske, J. 2008, 'Corporate responses in an emerging climate regime: the institutionalization of carbon disclosure', *European Accounting Review* 17(4), 719–745.
McKinsey, 2008, 'How companies think about climate change: a McKinsey global survey', *McKinsey Quarterly*, February 2008.
Okereke, C., 2007, 'An exploration of motivations, drivers and barriers to carbon management: the UK FTSE 100', *European Management Journal* 25(6), 475–486.
Pinske, J., Kolk, A., 2008, *International Business and Climate Change*, Routledge, Abingdon, UK.
PricewaterhouseCoopers, 2008, *Carbon Disclosure Project Report 2008: Global 500*, Carbon Disclosure Project, London.
Stern, N., 2006, *Stern Review: The Economics of Climate Changee* , Cambridge University Press, Cambridge, UK.
Sullivan, R. (ed.), 2008a, *Corporate Responses to Climate Change*, Greenleaf, Sheffield, UK.
Sullivan, R., 2008b, *Taking the Temperature: Assessing the Performance of Large UK and European Companies in Responding to Climate Change*, Insight Investment, London.
Sullivan, R., Blyth, W., 2006, *Climate Change Policy Uncertainty and the Electricity Industry: Implications and Unintended Consequences*, Chatham House Briefing Paper EEDP BP 06/02, Chatham House, London.
Sullivan, R., Kozak, J., 2006, *The Climate Change Disclosures of European Electricity Utilities: June 2006*, Insight Investment, London.
Trucost, 2007, *Carbon Disclosure Project Report 2007*, UK FTSE350, Trucost/Carbon Disclosure Project, London.
WBCSD/WRI (World Business Council for Sustainable Development/World Resources Institute), 2004, *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard*, revised edn, WBCSD, Geneva.