The Impact of a Corporate Culture of Sustainability on Corporate Behavior and Performance

Robert G. Eccles, Ioannis Ioannou, and George Serafeim*

Abstract

We investigate the effect of a corporate culture of sustainability on multiple facets of corporate behavior and performance outcomes. Using a matched sample of 180 companies, we find that corporations that voluntarily adopted environmental and social policies many years ago – termed as *High Sustainability* companies – exhibit fundamentally different characteristics from a matched sample of firms that adopted almost none of these policies – termed as *Low Sustainability* companies. In particular, we find that the boards of directors of these companies are more likely to be responsible for sustainability and top executive incentives are more likely to be a function of sustainability metrics. Moreover, they are more likely to have organized procedures for stakeholder engagement, to be more long-term oriented, and to exhibit better measurement and disclosure of nonfinancial information. Finally, we provide evidence that *High Sustainability* companies significantly outperform their counterparts over the long-term, both in terms of stock market and accounting performance.

* Robert G. Eccles is a Professor of Management Practice at Harvard Business School. Ioannis Ioannou is an Assistant Professor of Strategic and International Management at London Business School. George Serafeim is an Assistant Professor of Business Administration at Harvard Business School, email: gserafeim@hbs.edu. Robert Eccles and George Serafeim gratefully acknowledge financial support from the Division of Faculty Research and Development of the Harvard Business School. We would like to thank Cecile Churet and Iordanis Chatziprodromou from Sustainable Asset Management for giving us access to their proprietary data. We are grateful to Chris Allen, Jeff Cronin, Christine Rivera, and James Zeitler for research assistance. We thank Ben Esty, Costas Markides, Catherine Thomas and seminar participants at Boston College for helpful comments. We are solely responsible for any errors in this manuscript.

1. Introduction

Neoclassical economics and several management theories assume that the corporation's objective is profit maximization subject to capacity constraints. The central focus is shareholders as the ultimate residual claimant, providing the necessary financial capital for the firm's operations (Jensen and Meckling, 1976; Zingales, 2000). However, there is substantial variation in how corporations actually compete and pursue profit maximization. Different corporations place more or less emphasis on the long-term versus the short-term (Brochet, Loumioti, and Serafeim, 2011); care more or less about the impact of externalities, which have not been fully addressed by regulation, from their operations on other stakeholders and the environment (Paine, 2004); focus more or less on the ethical grounds of their decisions (Paine, 2004); and place relatively more or less importance on shareholders compared to other stakeholders (Eccles and Krzus, 2004). For example, Southwest Airlines has identified employees as their primary stakeholder; Novo Nordisk has identified patient (i.e. their end customers) as their primary stakeholder; Dow Chemical has been setting 10-year goals for the past 20 years and recently ventured into a goal-setting process for the next 100 years; Natura has committed to preserving biodiversity and offering products that have minimal environmental impact.

During the last 20 years, a relatively small number of companies have integrated social and environmental policies in their business model[1] and operations, on a voluntarily basis. We posit that these policies reflect the underlying culture of the organization, a culture of sustainability, where environmental and social performances, in addition to financial performance, are important, but also forge a stronger culture by making explicit the values and beliefs that underlie the mission of the organization. We view culture consistent with Hills and Jones (2001), as "the specific collection of values and norms that are shared by people and groups in an organization and that control the way they interact with each other and with stakeholders outside the organization."

[1] During the same period many more companies are active in corporate social responsibility (CSR). However, many of these companies do not necessarily implement or are unable to implement CSR as a central strategic objective of the corporation. Moreover, CSR has diffused broadly in the business world only in the last 5-7 years (Eccles and Krzus, 2010).

The emergence of this corporate culture of sustainability raises a number of fundamental questions for scholars of organizations. Does the governance structure of sustainable[2] firms differ from traditional firms and, if yes, in what ways? Do sustainable firms have better stakeholder engagement and longer time horizons? How do their information collection and dissemination systems differ? Finally, but importantly, what are the performance implications? Could meeting other stakeholders' expectations come at the cost of creating shareholder value? On the one hand, some argue that companies can "do well by doing good" (Godfrey, 2005; Margolis, Elfenbein and Walsh, 2007; Porter and Kramer, 2011). This claim is based on the belief that meeting the needs of other stakeholders, such as employees through investment in training and customers through good customer service, directly creates value for shareholders (Freeman et al., 2010, Porter and Kramer, 2011). It is also based on the belief that *not* meeting the needs of other stakeholders can destroy shareholder value through, for example, consumer boycotts (e.g., Sen, Gurhan-Canli and Morwitz 2001), the inability to hire the most talented people (e.g., Greening and Turban 2000), and punitive fines by the government.

Given the nature of such strategic decisions, the question of what is the relevant time frame over which economic value is created or destroyed becomes salient. A short-term focus on creating value exclusively for shareholders may result in the loss of value over the longer term through a failure to make the necessary investments in process and product quality and safety. Such a short-term approach to decision-making often implies both an inter-temporal loss of profit and a negative externality being imposed on stakeholders. That is, managers take decisions that increase short-term profits, but reduce shareholder value (Stein, 1989) and may hurt other stakeholders. For example, a lack of investment in quality control may result in the production of defective products that hurt or even kill customers, leading to costly recalls, reduced sales in the future, and damage to the company's brand; in this case not only the

[2] We use the term "sustainable companies" to refer to firms that focus on environmental and social issues. We do not intend this term to have a positive or negative connotation. Also, we use the term "sustainable companies" and "high sustainability" firms, as defined in the empirical section, interchangeably. Similarly we use the term "traditional companies" to refer to firms that do not adopt environmental and social policies. Again, we intend no *a priori* positive or negative connotation and we use this term interchangeably with the term "low sustainability" firms.

other stakeholders but also the shareholders themselves are being hurt by this type of managerial behavior.

Moreover, the question of whether and over what time frame negative (positive) externalities might be eliminated (rewarded), or how these externalities interact with the business model of a company, is up for debate. For example, companies that actively invest in technologies to reduce their greenhouse gas (GHG) emissions or to develop products to help their customers reduce their GHG emissions, make a bet on regulators imposing a tax on GHG emissions. Similarly, firms that invest in technologies that will allow them to develop solutions to reduce water consumption, make a bet on water receiving a fair market price instead of being underpriced (Eccles, Edmondson, and Serafeim, 2011). Companies that build schools and improve the welfare of communities in underdeveloped regions of the world, believe that their license to operate is more secure and that they might be able to attract employees or customers from these areas.[3]

On the other hand, scholars have argued that adopting environmental and social policies can destroy shareholder wealth (e.g., Friedman 1970; Clotfelter 1985; Navarro 1988; Galaskiewicz 1997). According to this argument, management might lose focus by diverting attention to issues that are not core to the company's strategy and business model. Moreover, these companies might experience a higher cost structure by, for example, paying their employees above-market wages or by engaging in mitigation effects regarding environmental externalities over and above what is required by regulation, failing to reduce their payroll rapidly enough in times of economic austerity, passing on valuable investment opportunities that are not consistent with their values, earning lower margins on their products due to more expensive sourcing decisions to appease an NGO, and losing customers to competitors by charging a higher price for features that customers are not willing to pay for. Companies that do not operate under these constraints will, it is argued, be more competitive and as a result will better thrive in the competitive

[3] For example, Intel Corporation has invested more than $1 billion in the last decade to improve education globally. In 2010, in conjunction with U.S. President Barack Obama's "Educate to Innovate" campaign, Intel announced a $200 million commitment to advance math and science education in the U.S.

environment.[4] The hypothesis that companies trying to address environmental and social issues will underperform is well captured in Jensen (2001): "Companies that try to do so either will be eliminated by competitors who choose not to be so civic minded, or will survive only by consuming their economic rents in this manner."(p. 16).

Our overarching thesis in this article is that organizations voluntarily adopting environmental and social policies represent a fundamentally distinct type of the modern corporation, characterized by a governance structure that takes into account the environmental and social performance of the company, in addition to financial performance, a long-term approach towards maximizing inter-temporal profits, and an active stakeholder management process. Empirically, we identify 90 organizations – we term these as *High Sustainability* companies -- with a substantial number of environmental and social policies that have been adopted for a significant number of years (since the early to mid-1990s) and as a result reflect policy and strategy choices that are independent and in fact far preceded the current hype around sustainability issues (Eccles and Krzus, 2010). Then, we use propensity score matching in 1993, to identify comparable firms that have adopted almost none of these policies – we term these as *Low Sustainability*, or simply traditional, companies. In the year of matching, the two groups, each consisting of 90 firms, operate in exactly the same sectors and exhibit almost identical size, capital structure, operating performance, and growth opportunities.

Subsequently, we test whether the two groups of firms exhibit significantly different behavior and performance in the future. Using data from a plethora of sources primarily for fiscal year 2009, we document that sustainable firms are fundamentally different from their traditional counterparts with respect to their governance structure, the extent of stakeholder engagement, the extent of long-term orientation in corporate communications and investor base,[5] and the measurement and disclosure of nonfinancial information and metrics. This is an important finding because it suggests that the adoption of

[4] For example, recently PepsiCo CEO Indra Nooyi has been under attack for PepsiCo's focus on improving the healthiness of their products. PepsiCo's stock has underperformed Coca Cola Enterprises' stock in 2011 by more than 10%.

[5] The data for long-term orientation cover the years 2002-2008.

these policies reflects a substantive part of corporate culture rather than purely greenwashing and cheap talk (Marquis and Toffel, 2011).

We show that the group of firms with a strong sustainability culture is significantly more likely to assign responsibility to the board of directors for sustainability and to form a separate board committee for sustainability. Moreover, *High Sustainability* companies are more likely to make executive compensation a function of environmental, social, and external perception (e.g., customer satisfaction) metrics. In addition, this group is significantly more likely to establish a formal stakeholder engagement process where risks and opportunities are identified, the scope of the engagement is defined ex ante, managers are trained in stakeholder engagement, key stakeholders are identified, results from the engagement process are reported both internally and externally, and feedback from stakeholders is given to the board of directors. This set of sustainable firms also appears to be more long-term oriented. These firms have an investor base with more long-term oriented investors and they communicate more long-term information in their conference calls with sell-side and buy-side analysts. Information is a crucial asset that a corporation needs to have for effective strategy execution by management as well as the effective monitoring of this execution by the board. In line with this argument, we find that sustainable firms are more likely to measure information related to key stakeholders — such as employees, customers[6] and suppliers — and to increase the credibility of these measures by using auditing procedures. We also find that sustainable firms do not only measure but they also disclose more data related to nonfinancial information; this is consistent with these companies communicating important strategic dimensions and how well they perform in strategy execution. Collectively, the evidence above suggests that sustainable firms are not just adopting environmental and social policies for public relations reasons. In other words, adoption of these policies is not just cheap talk, they reflect substantive changes in business processes.

[6] Although we find directionally consistent results for customer related data, our results are not statistically significant.

Importantly, we show that there is significant variation in future accounting and stock market performance across the two groups of firms. We track corporate performance for 18 years and we find that sustainable firms outperform traditional firms in terms of both stock market and accounting performance. Investing $1 in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of sustainable firms would have grown to $22.6 ($14.3) by the end of 2010, based on market prices. In contrast, investing $1 in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of traditional firms would have grown to $15.4 ($11.7) by the end of 2010. Using a four-factor model to account for potential differences in the risk profile of the two groups, we find that annual abnormal performance is higher for the *High Sustainability* group compared to the *Low Sustainability* group by 4.8% (significant at less than 5% level) on a value-weighted base and by 2.3% (significant at less than 10% level) on an equal weighted-base.

We find that sustainable firms also perform better when we consider accounting rates of return. Investing $1 in the beginning of 1993 in book value of equity in a value-weighted (equal-weighted) portfolio of *High Sustainability* firms would have grown to $31.7 ($15.8) by the end of 2010, based on Return-on-Equity (ROE). In contrast, investing $1 in the beginning of 1993 in book value of equity in a value-weighted (equal-weighted) portfolio of *Low Sustainability* firms would have grown to $25.7 ($9.3) by the end of 2010. Investing $1 in the beginning of 1993 in assets in a value-weighted (equal-weighted) portfolio of sustainable firms would have grown to $7.1 ($3.5) by the end of 2010, based on Return-on-Assets (ROA). In contrast, investing $1 in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of traditional firms would have grown to $4.4 ($3.3) by the end of 2010.

These results have implications for investment managers that integrate environmental and social data in their investment decision making process. Given recent evidence that investors across both buy-side (e.g., money managers, hedge funds, insurance companies, pension funds) and sell-side companies are paying attention to environmental and social performance metrics and disclosure (Eccles, Krzus, and Serafeim, 2011), evidence about the performance consequences of a culture of sustainability are particularly relevant.

The remainder of the paper is as follows. Section 2 presents the sample selection and summary statistics. Sections 3, 4, 5, and 6 show the differences in governance, stakeholder engagement, time horizon, and nonfinancial measurement and disclosure respectively, between the group of sustainable and the group of traditional firms. Section 7 presents the performance differences across the two groups. Finally, Section 8 discusses our findings, concludes, and suggests avenues for future research.

2. Sample Selection and Summary Statistics

To understand the corporate behavior and performance effects of a culture of sustainability, we need to identify companies that have explicitly put a high level of emphasis on employees, customers, products, the community, and the environment as part of their business model. Moreover, we need to find firms that have adopted these policies for a significant number of years prior to the present to allow for such policies, in turn, to reinforce the norms and values upon which a sustainability culture is based. In other words, we are looking for firms that have instituted a reinforcing loop between the underlying organizational norms and values, and formal corporate policies, as well as operating procedures, and performance and management systems, all geared towards a culture of sustainability. In addition, by identifying firms that adopted such policies prior to CSR becoming widespread[7], we are less likely to have measurement error by including firms that are either 'green-washing' or adopting these policies purely for public relations and communications reasons. Finally, by identifying sustainable firms based on policy adoption decisions that were made a sufficiently long time ago - and as a result introducing a long lag between our independent and dependent variables - we mitigate the likelihood of biases that could arise from reverse causality.

We identify two groups of firms: those that have and those that have not embraced a culture of sustainability by considering and accounting for a coherent set of corporate policies related to the environment, employees, community, products, and customers. The complete set of policies is provided

[7] Eccles and Krzus (2010) document that media mentions of corporate social responsibility, stakeholders, or sustainability, in the business press, are nearly non-existent before 1994.

in the Appendix. Examples of policies related to the environment include whether the company has a policy to reduce emissions, uses environmental criteria in selecting members of its supply chain, and whether the company seeks to improve its energy or water efficiency. Policies related to employees include whether the company has a policy for diversity and equal opportunity, work-life balance, health and safety improvement, and favoring internal promotion. Policies related to community include corporate citizenship commitments, business ethics, and human rights criteria. Policies related to products and customers include product and services quality, product risk, and customer health and safety. The Thomson Reuters ASSET4 database provides data on the adoption or non-adoption of these policies, for at least one year, for 775 US companies, with complete data for fiscal years 2003 to 2005.[8] We eliminate 100 financial institutions, such as banks, insurance companies, and finance firms, because their business model is fundamentally different and many of the environmental and social policies are not likely to be applicable or material to them. For the remaining 675 companies we construct an equal-weighted index of all policies (*Sustainability Policies*) that measures the percentage of the full set of identified policies that a firm is committed to in each year.

To ensure that the policies are embedded in the corporate culture, we track the extent of adoption of these policies for those organizations that score at the top quartile of *Sustainability Policies*. We do so by reading published reports, such as annual and sustainability reports, and visiting corporate websites to understand the historical origins of the adopted policies. Furthermore, we conducted more than 200 interviews with corporate executives to validate the historical adoption of these policies. At the end of this process, we were able to identify 90 organizations that adopted a substantial number of these policies in

[8] Founded in 2003, ASSET4 was a privately held Swiss-based firm, acquired by Thomson Reuters in 2009. The firm collects data and scores firms on environmental and social dimensions since 2002. Research analysts of ASSET4 collect more than 900 evaluation points per firm, where all the primary data used must be objective and publically available. Typical sources include stock exchange filings, annual financial and sustainability reports, non-governmental organizations' websites, and various news sources. Subsequently, these 900 data points are used as inputs to a default equal-weighted framework to calculate 250 key performance indicators (KPIs) that they further organize into 18 categories within 3 pillars: a) environmental performance score, b) social performance score and c) corporate governance score. Every year, a firm receives a z-score for each of the pillars, benchmarking its performance with the rest of the firms in the database.

the early to mid-90s.[9] We label this set of firms as the *High Sustainability* group. This group had adopted by the mid-90s on average 40% of the policies identified in the Appendix, and by the late 2000s almost 50%. Subsequently, we match each of the firms in the *High Sustainability* group with a firm that scores in the lowest two quartiles of *Sustainability Policies.* Firms in those two quartiles have, on average, adopted only 10% of the policies, even by the late 2000s. These same firms had adopted almost none of these policies in the mid-90s. Because we require each firm in the *High Sustainability* group to be in existence since at least the early 1990s, we impose the same restriction for the pool of possible control firms. After this filter, the available pool of control firms is 269.

We implement a matching methodology – in our case a propensity score matching process – to produce a group of control firms that looks as similar as possible to our *High Sustainability* group. The match is performed in 1993 because this is the earliest year that we can confirm any one of the firms included in the *High Sustainability* group has adopted these policies. To ensure that our results are not particularly sensitive to the year we choose for the matching procedure, we redo the matching in 1992 and 1994. In any one year less than 5% of the matched pairs change, suggesting that the year we choose for matching does not affect our final sample set. We match each sustainable firm with another traditional firm that is in the same industry classification benchmark subsector (or sector if a firm in the same subsector is not available), by requiring exact matching for the sector membership. We use as covariates in the logit regression the natural logarithm of total assets, as a proxy for size, ROA,[10] asset turnover (measured as sales over total assets), market value of equity over book value of equity (MTB), as a proxy for growth opportunities, and leverage (measured as total liabilities over total assets). We use propensity score matching without replacement and closest neighbor matching.[11] Size and asset turnover load with a positive and highly significant coefficient in the logit regression (untabulated results). The coefficient on

[9] Of the remaining 78 firms, 70 firms adopted these policies gradually over time mostly after 1999. For 8 firms we were unable to identify the historical origins of these policies.

[10] We also used ROE as a measure of performance and all the results were very similar to the results reported in this paper. We also included other variables such as stock returns over the past one, two or three years but none of them was significant.

[11] Using a caliper of 0.01 to ensure that none of the matched pairs is materially different reduces our sample by two pairs or four firms. All our results are unchanged if we use that sample of 176 firms.

MTB is positive and weakly significant. The coefficients on leverage and ROA are both insignificant. We label the set of control firms that are selected through this process as the *Low Sustainability* group.

Table 1 Panel A, shows the sector composition of our sample and highlights that a wide range of sectors is represented. Panel B shows the average values of several firm metrics across the two groups in the year of matching. The *High Sustainability* group has, on average, total assets of $8.6 billion, 7.86% ROA, 11.17% ROE, 56% leverage, 1.02 turnover, and 3.44 MTB. Similarly, the matched firms (i.e. the *Low Sustainability* group) have, on average, total assets of $8.2 billion, 7.54% ROA, 10.89% ROE, 57% leverage, 1.05 turnover, and 3.41 MTB. None of the differences in the averages across the two groups are statistically significant, suggesting that the matching process worked effectively. The two groups are nearly identical in terms of sector membership, size, operating performance, capital structure, and growth opportunities. Moreover, the two groups have very similar risk profiles. Both standard deviation of daily returns and equity betas are approximately equal.

3. The Governance Structure of Sustainable Corporations

The responsibilities of the board of directors and the incentives provided to top management are two fundamental attributes of the corporate governance system of every organization. Boards of directors perform a monitoring and advising role and ensure that management is making decisions in a way that is consistent with organizational objectives. Top management compensation plans align managerial incentives with the goals of the organization by linking executive compensation to key performance indicators that are used for measuring corporate performance (Govindarajan and Gupta, 1985). Ittner, Larcker, and Rajan (1997) showed that the use of nonfinancial metrics in annual bonus contracts is consistent with an informativeness hypothesis, where nonfinancial metrics provide incremental information regarding the manager's action choice.

Therefore, for organizations that consider environmental and social objectives as core issues for their strategy and operations, the board of directors is more likely to have responsibility over such issues;

it is also more likely that top management compensation would be a function of sustainability metrics in addition to other traditional financial performance metrics. We expect that the board of directors of *High Sustainability* firms will be more actively engaged and more likely to be held accountable for reviewing the environmental and social performance of the organization. Moreover, *High Sustainability* firms will be more likely to adopt top management incentive structures based on the organization's sustainability performance.

To better understand the differences in the governance structure across the two groups of firms, we analyze proprietary data provided to us by Sustainable Asset Management (SAM).[12] SAM collects the relevant data and constructs the Dow Jones Sustainability Index. Once a year, SAM initiates and leads an independent sustainability assessment of approximately 2,250 of the largest corporations around the world. The SAM Corporate Sustainability Assessment is based on the annual SAM Questionnaire, which consists of an in-depth analysis based on around 100 questions on economic, environmental, and social issues, and a particular focus on companies' potential for long-term value creation. The questionnaire is designed to ensure objectivity by limiting qualitative answers through predefined multiple-choice questions. In addition, companies must submit relevant information to support the answers provided. The SAM Questionnaires are distributed to the CEOs and heads of investor relations of all the companies in the starting universe. The completed company questionnaire, signed by a senior company representative, is the most important source of information for the assessment.[13]

Table 2, Panel A shows the governance data items that SAM provided to us for fiscal year 2009, as they relate to the board of directors and the executives' incentive structures. We find results that are

[12] SAM is an international investment company with a specialized focus on sustainable investments (i.e. investment decisions based not only on traditional financial metrics of performance but also accounting for environmental, social and governance performance. The company is based in Zurich, Switzerland and considers economic, environmental and social criteria in its investment strategies. In addition to asset management, the company constructs stock market indexes and is active in private equity.

[13] In addition to the SAM Questionnaire, the SAM Corporate Sustainability Assessment is supplemented with a Media and Stakeholder Analysis (MSA). The Media and Stakeholder Analysis allows SAM to identify and assess issues that may represent financial, reputational, and compliance risks to the companies under evaluation. For the MSA analysis, SAM utilizes media coverage, stakeholder commentaries, and other publicly available sources. This information is provided by environmental and social dynamic data supplier RepRisk. Finally, SAM analysts personally contact companies to clarify any issues that may arise from the analysis of the MSA, the questionnaire, and the company documents.

consistent with our predictions. Fifty three percent of the firms in the *High Sustainability* group assign formal responsibility around sustainability to the board of directors. In contrast, only 22% of the firms in the *Low Sustainability* group hold the board accountable for sustainability. Similarly, 41% (15%) of the firms in the *High Sustainability* group (*Low Sustainability* group) form a separate board committee that deals with sustainability issues. The responsibilities and duties of a sustainability committee include both assisting the management with strategy formulation and reviewing periodically the sustainability performance. For example, the principal functions of the sustainability committee of the Ford Corporation include assisting management in the formulation and implementation of policies, principles, and practices to foster the sustainable growth[14] of the company in a global basis and to respond to evolving public sentiment and government regulation in the area of GHG emissions and fuel economy and CO2 regulation. Other functions include assisting management in setting strategy, establishing goals, and integrating sustainability into the daily business activities, reviewing new and innovative technologies that will permit the company to achieve sustainable growth, reviewing partnerships and relationships that support the company's sustainable growth, and reviewing the communication and marketing strategies relating to sustainable growth.

Another important governance feature is the set of metrics that are linked to senior executive compensation. The two groups differ significantly in that dimension as well: *High Sustainability* firms are more likely to align senior executive incentives with environmental, social, and external perception performance metrics, in addition to financial metrics. Of the firms in the *High Sustainability* group, 18%, 35%, and 32% link compensation to environmental, social, and external perception metrics, respectively. In contrast, only 8%, 22%, and 11% of the firms in the *Low Sustainability* group link compensation to environmental, social, and external perception metrics. Firms in the *High Sustainability* group are more likely to use monetary incentives to help executives focus on aspects of corporate performance that are

[14] Sustainable growth means the ability to meet the needs of present customers while taking into account the needs of future generations. Sustainable growth encompasses a business model that creates value consistently with the long-term preservation and enhancement of financial, environmental, and social capital. For more information see: http://corporate.ford.com/doc/corpgov_sustainability_committee_charter.pdf.

important to the firm. For example, Intel has linked executive compensation to environmental metrics since the mid-90s, and since 2008 Intel links all employees' bonuses to environmental metrics. The 2010 metrics focused on carbon emission reductions in Intel's operations and energy-efficiency goals for new products. While the environmental component represented a relatively small portion of the overall employee bonus calculation, Intel believes that it helps focus employees on the importance of achieving its environmental objectives.

Moreover, in Panel B we present results from a multivariate analysis of these governance mechanisms. To avoid results overload we construct a variable that summarizes all the mechanisms discussed in Panel A by calculating the percentage of mechanisms that a firm has adopted. Because the firms might look considerably different in terms of size, growth opportunities, and performance at 2009, we control for these factors in our models by measuring them at the end of 2009. Consistent with the results above, we find that firms in the *High Sustainability* group adopt significantly more of the mechanisms described in Panel A: the coefficient on *High Sustainability* is positive and significant (0.144, p-value=0.006). Larger firms and more profitable firms also adopt more of these mechanisms whereas growth opportunities are not related to their adoption. Overall, the results suggest that firms included in the *High Sustainability* group are characterized by a distinct governance structure: responsibility over sustainability is more likely to be directly assigned to the board of directors and also top management compensation is more likely to be a function of a set of performance metrics that critically includes sustainability metrics.

4. Stakeholder Engagement in Sustainable Corporations

Since, as shown in the previous section, *High Sustainability* firms are characterized by a distinct corporate governance model that focuses on a wider range of stakeholders as part of their corporate strategy and business model, we predict that such firms are also more likely to adopt a greater range of stakeholder engagement practices. This is because engagement is necessary for understanding these stakeholders' needs and expectations in order to make decisions about how best to address them (Freeman, 1984;

Freeman, Harrison, and Wicks, 2007).[15] Therefore, we argue that the adoption and implementation of sustainability policies – which reinforced a distinct type of corporate culture over the years – will also result in a fundamentally distinct stakeholder engagement profile for *High Sustainability* firms. With regards to stakeholder management, prior literature has suggested and empirically shown that it is directly linked to superior shareholder wealth by enabling firms to develop intangible, valuable, and often tacit assets in the form of strong long-term relationships, which can become sources of competitive advantage (e.g., Hillman and Keim, 2001). In other words, superior stakeholder engagement is fundamentally based on the firm's ability to establish such relationships with key stakeholders over time. Similarly, it has been argued that when a corporation is able to credibly commit to contracting with its stakeholders on the basis of mutual trust and cooperation and a longer-term horizon – as opposed to contracting on the basis of curbing opportunistic behavior (i.e., on the basis of a priori assumed agency) – then the corporation "will experience reduced agency costs, transactions costs, and costs associated with team production" (Jones, 1995; Foo, 2007; Cheng, Ioannou, and Serafeim, 2011) – i.e., a superior form of stakeholder engagement.

We argue therefore, that firms that have instituted a culture of sustainability, which critically embeds the elements of mutual trust and cooperation and the building of long-term relationships with key stakeholders, will be better positioned to pursue these more efficient forms of contracting (Jones, 1995) and it will be relatively easier for them to engage their stakeholders in a superior way. On the other hand, firms that are not characterized by a sustainability culture are more likely to contract on the basis of curbing opportunistic behavior and this will impede their ability to adopt a broad range of stakeholder engagement practices since they will lack the foundation to pursue a superior engagement model (i.e. a culture that integrates mutual trust, cooperation, and a long-term horizon).

To get a better understanding of the differences in the stakeholder engagement model across the two groups of firms in our sample, we again use proprietary data obtained through SAM. Panel A of

[15] For example, Timberland uses a social media platform where stakeholders and interested parties can engage in a direct dialogue with employees. In addition, the company has a customized engagement strategy for different stakeholders. This strategy involves initiatives such as the Global Employee Survey and the Integrity Line for employees, survey and focus groups for customers and Nutritional label and Green Index, factory assessments and capacity building for suppliers etc. (Eccles and Krzus, 2010).

Table 3 presents a comparison between the *High* and *Low Sustainability* firms across several data items that relate to actions prior, during and after stakeholder engagement. In particular, each item in Table 3 measures the frequency of adoption of the focal practice within each of the two groups, and the last column presents a significance test of the difference between them. As before, the data are for the fiscal year of 2009. We find that *High Sustainability* corporations are more likely to adopt practices of stakeholder engagement for all three phases of the process (prior, during and after) compared to *Low Sustainability* ones.

Prior to the stakeholder engagement process, *High Sustainability* firms are more likely to train their local managers in stakeholder management practices (14.9% vs. 0%, *Training*), and are more likely to perform their due diligence by undertaking an examination of costs, opportunities, and risks (31.1% vs. 2.7%, *Opportunities Risks Examination*). In addition, they are more likely to mutually agree upon a grievance mechanism with the stakeholders involved (18.9% vs. 2.7%, *Grievance Mechanism*) and to agree on the targets of the engagement process (16.2% vs. 0%, *Targets).*Moreover, *High Sustainability* firms, are more likely to pursue a mutual agreement on the type of engagement with their stakeholders (36.5% vs. 8.1%, *Scope Agreement*).

During the stakeholder engagement process itself, , our analysis shows that *High Sustainability* firms are not only more likely to identify issues and stakeholders that are important for their long-term success (45.9% vs. 10.8%, *Stakeholder Identification*), but also they are more likely to ensure that all stakeholders raise their concerns (32.4% vs. 2.7%, *Concerns*). We also find that *High Sustainability* firms are more likely to develop with their stakeholders a common understanding of the issues relevant to the underlying issue at hand (36.5% vs. 13.5%, *Common Understanding*).

Finally, we find that after the completion of the stakeholder engagement process, *High Sustainability* firms are more likely to provide feedback from their stakeholders directly to the board or other key departments within the corporation (32.4% vs. 5.4%, *Board Feedback*), and are more likely to make the results of the engagement process available to the stakeholders involved (31.1% vs. 0%, *Result Reporting)* and the broader public (20.3% vs. 0%, *Public Reports*). Therefore, firms with a culture of

sustainability appear to be more proactive, more transparent, and more accountable in the way they interact with their stakeholders.

Moreover, in Panel B we present results from a multivariate analysis of these stakeholder engagement mechanisms. Similar to section 3, we construct a variable that summarizes all the mechanisms discussed in Panel A by calculating the percentage of mechanisms that a firm has adopted. Consistent with the results above, we find that firms in the *High Sustainability* group adopt significantly more of the stakeholder engagement mechanisms described in Panel A: the coefficient on *High Sustainability* is positive and significant (0.245, p-value<0.001). Larger firms also adopt more of these mechanisms whereas growth opportunities and profitability are not related to their adoption. In general, therefore, the results of this section confirm our predictions: *High Sustainability* firms are distinct in their stakeholder engagement model in that, compared to the *Low Sustainability* firms, they are more focused on understanding the needs of their stakeholders, making investments in managing these relationships, and reporting internally and externally on the quality of their stakeholder relationships. The latter requires the ability to measure these relationships and we discuss this in more detail in Section 6 below.

5. Time Horizon of Sustainable Corporations

The previous section shows a distinct stakeholder management model for sustainable organizations and provides evidence for the adoption of a wider range of stakeholder engagement practices. While assessing the impact of stakeholder engagement, previous literature has argued that the effective management of stakeholder relationships can result in the persistence of superior performance over the longer-term, or even the speedier recovery of poorly performing firms (Choi and Wang, 2009). This occurs because, the argument continues, building good stakeholder relations as part of a corporation's strategy takes time to materialize, is idiosyncratic to each corporation, and depends on its history; such relationships are based on mutual respect, trust, and cooperation and such ties take time to develop. In other words, effective stakeholder engagement necessitates the adoption of a longer-term time horizon.

Moreover, the extant literature on "short-termism" (e.g., Laverty, 1996) has shown that executive compensation incentives that are based on short-term metrics may push managers towards making decisions that deliver short-term performance at the expense of long-term value creation. Consequently, a short-term focus on creating value for shareholders alone may result in a failure to make the necessary strategic investments to ensure future profitability. Importantly, such a short-term approach to decision-making often implies a negative externality being imposed on various other key stakeholders. In other words, short-termism is incompatible with extensive stakeholder engagement and a focus on stakeholder relationships. It is also true then that the pathologies of short-termism are less likely to be suffered by corporations with a clear focus and commitment to multiple stakeholders. Given the documented commitment of *High Sustainability* firms to stakeholder engagement, we predict that they are more likely to adopt such a longer-term approach as part of their corporate culture, and that this approach will also be reflected in the type of investors that are attracted to such corporations.

On the other hand, we acknowledge that under some conditions the reverse may be true: investor behavior and the composition of the investor base may be driving managerial decision-making. However, in the case of sustainability policies, we argue that this is rather unlikely. Since stakeholder relations take several years to build, the probability of a larger shareholder base retaining ownership for a sufficiently long amount of time so as to institute a radical corporate change towards sustainability seems very low. This rather implausible line of argument would also require investors to engage with the company over a long period of time in such a way as to establish a culture of more long-term thinking which in turn, would push the corporation towards better shareholder and other stakeholder engagement. In short, although clearly an empirical question, it seems to us more likely that sustainable organizations attract long-term investors rather than long-term investors making traditional firms more sustainable.

In Panel A of Table 4 we empirically test whether *High Sustainability* firms are focused more on a longer-term horizon in their communications with key capital market participants. A company communicates its norms and values both internally and externally, and since a long-term time horizon is one essential element of a culture of sustainability, we would expect *High Sustainability* firms to put

greater emphasis on the long-term than the *Low Sustainability* ones do. Investors that are interested in generating short-term results by selling their stock after it has (hopefully) appreciated will avoid long-term-oriented firms since these firms are willing to sacrifice such short-term results. In contrast, investors who plan to hold a stock for a long period of time will be attracted to firms that are optimizing financial performance over a longer time horizon and are less interested in short-term fluctuations. First, to test our predictions, we use data from Thomson Reuters Street Events to measure the extent to which the content of the conversations between a focal corporation and sell-side and buy-side analysts is comprised of long-term vs. short-term keywords. We construct this measure following the methodology in Brochet, Loumioti, and Serafeim (2011), as the ratio of the number of keywords that characterize time periods of more than one year over the number of keywords that characterize time periods of less than one year, mentioned during conference calls. Second, we measure the time horizon of the investor base of a corporation as in Bushee (2001) and Bushee and Noe (2000), by calculating the percentage of shares outstanding held by "dedicated" and "transient" investors. Bushee (2001) classifies institutional investors using a factor and a cluster analysis approach. Transient investors are defined as the ones that have a high portfolio turnover and their portfolios are diversified. In contrast, dedicated investors have low turnover and more concentrated holdings. We measure how long-term oriented the investor base of a firm is by calculating the difference between the percentage of shares held by dedicated investors minus the percentage of shares held by transient investors.

The results presented in Table 4 are consistent with our predictions: we find that firms with a corporate culture of sustainability are more likely to have conversations with analysts and conference call discussions whose content is relatively more long-term focused as opposed to short-term (1.08 vs. 0.96, *Long-term vs. Short-term discussion*). In addition, *High Sustainability* firms are significantly more likely to attract dedicated rather than transient investors (-2.29 vs. -5.31, *Dedicated minus transient Investors*). Moreover, in Panel B of Table 4 we present results from a multivariate analysis of these long-term oriented mechanisms. Consistent with our findings in Panel A, we find that firms in the *High Sustainability* group have more long-term investors in their investor base (3.012, p-value=0.0040) and

focus on more long-term (rather than short-term) content in their communications (0.038, p-value=0.07). Larger firms appear more likely to have an investor base comprised of more long-term investors, whereas firms with significant growth opportunities are more likely to be long-term focused in their communications. In sum, our findings suggest that *High Sustainability* firms are effective communicators of their culture, their strategies, and their long-term approach: not only do they speak in those terms but, in fact, they are convincing long-term investors to invest in their equity.

6. Measurement and Disclosure

Measurement

Performance measurement is essential for management to determine how well it is executing on its strategy and to make whatever corrections are necessary (Kaplan and Norton, 2008). Reporting on performance measures, which are often nonfinancial regarding sustainability topics, to the board is an essential element of corporate governance, so that the board can form an opinion about whether the management is executing the strategy of the organization well. Quality, comparability, and credibility of information and whether a company has adhered to a set of measurement or behavioral standards is enhanced by internal and external audit procedures which verify the accuracy of this information or the extent to which practices are being followed. Finally, external reporting of performance is how the company communicates to shareholders and other stakeholders how productively it is using the capital and other resources they have provided to the corporation.

Given that *High Sustainability* firms place a greater emphasis on stakeholder engagement than the *Low Sustainability* firms, we would expect the same to be true for particular key stakeholder groups including employees, customers and suppliers. In particular, we would expect the *High Sustainability* firms to place significantly more emphasis on measuring and monitoring performance, auditing adherence to standards, and reporting on performance. Using the proprietary SAM data described in Section 4, we test for differences in the extent to which the two groups of firms measure their performance as it relates to these three stakeholder groups. Table 5 presents a comparison between the *High* and *Low Sustainability*

firms for Employees (Panel A), Customers (Panel B), and Suppliers (Panel C). Similar to the results of previous sections, each of these three panels measures the frequency of adoption of the focal practice within each of the two groups, and the last column presents a significance test of the differences between them.

First, for Employees, we find dramatic differences on three of the four metrics. Sustainable firms are significantly more likely to measure execution of skill mapping and development strategy (54.1% vs. 16.2%, *HR Performance Indicators/Nonfinancial*), the number of fatalities in company facilities (77.4% vs. 26.3%, *KPI Labor/EHS Fatalities Tracking*), and the number of "near misses" on serious accidents in company facilities (64.5% vs. 26.3%, *KPI Labor/EHS Near Miss Tracking*). Clearly, *High Sustainability* firms are relatively more concerned about the skills of and ensuring safe working conditions for their employees. We find no significant difference between the two groups for the percentage of companies that use health and safety performance tracking to follow labor relations issues. This may be due to laws and regulations requiring all firms to perform such measures (e.g. as required by the Occupational Health and Safety Administration (OSHA)), leveling the field and eliminating any potential differences that could have been in place under conditions where such laws and regulations did not exist; the high percentages for both groups indicate that this might be the case (95.2% vs. 89.5%, *KPI Labor / EHS Performance Tracking*). These results therefore, reflect the greater commitment *High Sustainability* firms have to the employee stakeholder group.

Second, Panel B focuses on Customers and shows the frequency of adoption of seven relevant practices. Contrary to our expectations and in contrast to our findings regarding employees there is virtually no difference between sustainable and traditional firms on any one of these metrics, although across all metrics more firms in the *High Sustainability* group measure customer related data. We note that across both groups overall, a very small percentage of firms have adopted these metrics. If anything, one could argue that the relationship between effective engagement and the creation of shareholder value is even more direct for Customers than it is for Employees; yet even in the *High Sustainability* group,

very few are measuring the quality[16] of this relationship. We suggest that one possible reason for this could be the rather primitive state of customer relationship management processes. Moreover, our data seem to suggest that these results are linked to the ease with which these practices can be measured. For example, variables like *Cost of Service* and *Potential Lifetime Value* are very difficult to measure with only 6.8% and 8.1%, respectively, of even the *High Sustainability* firms measuring this variable. The highest percentages for this group are for *Geographical Segmentation* (18.9%), *Customer Generated Revenues* (18.9%), and *Historical Sales Trends* (16.2%) which are relatively easier to measure[17].

In contrast to customers, there are some significant differences between the two groups of firms in terms of Suppliers. In particular, here we are looking at standards used to select and manage relationships with suppliers, which can determine the quality of the relationship they have with the firm. Panel C shows the frequency of adoption of 11 related practices: six of these are strongly and significantly different across the two groups with p-values of <0.001 and the rest are significantly different at p-values <0.06. These standards fall into either environmental or social issues or a combination of the two. In terms of environmental issues, significantly more *High Sustainability* firms use environmental monitoring systems in the certification/audit/ verification process (50.0% vs. 18.2%, *Environmental Management Systems*), environmental data availability by the supplier (12.3% vs. 0.0%, *Environmental Data Availability*), the supplier's environmental policies (17.4% vs. 0.0%, *Environmental Policy*), and the supplier's environmental production standards (45.6% vs. 25.7%, *Environmental Production Standards*) in selecting and evaluating suppliers than do *Low Sustainability* firms. Similarly, on social issues for selecting and evaluating suppliers, significantly more *High Sustainability* firms use

[16] This is particularly surprising with some of the focal metrics, such as Cost of Service and Potential Lifetime Value, since there is a direct relationship between the measures and firm profitability.

[17] Two important comparisons can be drawn between the findings on employees vs. customers. First, as noted, is that the percentage of both types of firms measuring a variable is much higher for employees than for customers, even though there are measurement challenges in the former just as there are for the latter. Second, the metrics for employees are of direct interest to this stakeholder group and will affect the quality of a company's engagement. In contrast, the metrics for customers are more relevant for the company determining the value customers are creating for the firm than vice versa. Inferences can be made about the company's value proposition for a particular customer market segment by comparing how well the company is doing here compared to other customer market segments (e.g., in different geographies) but more direct data would be needed to determine how to better serve underperforming segments.

human rights standards such as forced labor, slave labor, and child labor (17.4% vs. 5.7%, *Human Rights Standards*), labor standards/requirements (18.6% vs. 8.1%, *Labor Standards*), and occupational, health, and safety standards (62.9% vs. 25.7%, *OHS Standards*). Finally, *High Sustainability Firms* make a greater use of compliance to general standards, both international (12.3% vs. 0.0%, *International Standards Compliance*) and domestic (14.9% vs. 8.1%, *National Standards Compliance*), in selecting and evaluating suppliers.

The reliability and credibility of performance measurement is enhanced when it is subject to some form of objective, third-party audit or assurance. The purpose of an audit is to ensure that the appropriate measurement standards have been applied and that the internal control and measurement systems producing information according to these standards are robust. Companies can also perform internal audits where a separate department is responsible for verifying the numbers produced by another department. With rare exceptions, an external or internal audit or assurance opinion is not required for reported nonfinancial information on a company's environmental and social performance. However, given the greater importance that *High Sustainability* firms accord to nonfinancial metrics (e.g. linking executive compensation to such metrics), we expect them to have a relatively greater commitment to having a third-party verify the accuracy of this information. Therefore, we predict a greater use of audits by *High Sustainability* firms than *Low Sustainability* firms.

Panel D shows the frequency of adoption of 13 focal practices regarding the use of internal and external audit and assurance procedures. For the most part, our hypothesis is not supported. The one case where our hypothesis does get clear support is having an external third-party conduct an audit of the company's corporate sustainability report which reports on its environmental, social, and governance performance (11.1% vs. 1.4%, *Sustainability report external audit*), with a p-value of 0.017. The only other item that has any degree of statistical significance is when the company bases its performance measurement on relevant external standards and programs, such as AccountAbility's AA 1000 standard and the Global Reporting Initiative's G3 Guidelines. 16.2% of the *High Sustainability* firms do this in contrast to only 2.7% of the *Low Sustainability* ones.

We note that even very few of the *High Sustainability* firms have implemented this practice: of the 11 focal items in Panel D, the highest percentage for the *High Sustainability* firms is 16.2%. There are a number of reasons for why audit and assurance procedures are so uncommon. These are based on the fact that technologies for measuring and auditing nonfinancial information are still in their infancy and remain at a relatively primitive state of development compared to financial information (Simnett, Vantraelen, and Chua, 2009). This is not surprising given that external reporting of such information only started about 10 years ago, has only received a significant level of interest in the past five years, and even today only a small percentage of companies are reporting this information. One of the most important and difficult to overcome barriers to auditing nonfinancial information includes the lack of an agreed-upon set of measurement standards. This, in turn, makes it very difficult to create auditing standards. Another barrier is the lack of sophisticated information technology systems for measuring nonfinancial performance, especially compared to the sophisticated and robust systems developed for financial reporting. Three other barriers are important to note. First, traditional audit firms are in the early stages of developing the capabilities to audit nonfinancial information. This, combined with the lack of standards and IT systems, creates the second barrier, which is a concern that performing this function will increase their legal risk beyond the large amount they already face for performing financial audits. Third, firms which do have capabilities for auditing nonfinancial information, such as engineering firms for environmental information and human resource supply chain consultants for social information, lack the global scale and full range of capabilities that would be required to serve a large corporation that wants a single group to do this audit. While a large number of boutique firms could be hired to do this, the aggregate transaction and coordination costs would be high.

Finally, in Panel E we present results from a multivariate analysis of nonfinancial measurement and assurance mechanisms across these stakeholder groups (panels A through D). Similar to prior sections, we construct a variable that summarizes all the mechanisms discussed in Panels A through D by calculating the percentage of mechanisms that a firm has adopted within each of the stakeholder groups, and with regards to assurance. Consistent with the results above, we find that firms in the *High*

Sustainability group adopt significantly more of the nonfinancial measurement practices described in Panels A-D: the coefficients on *High Sustainability* are positive and significant for Employees and Suppliers (but not for Customers), and the same is true for the assurance dimension. Larger firms also adopt more of these mechanisms with regards to Employees and Suppliers, whereas growth opportunities do not seem to affect any of these categories.

Disclosure

Another important element of a corporate culture of sustainability is the extent to which a company is willing to be transparent in its external reporting about its performance, both good and bad, and the relative emphasis it gives to traditional financial information compared to information on nonfinancial performance which could affect financial performance over the longer term. Therefore, we expect *High Sustainability* firms to be more transparent and to achieve more balance between financial and nonfinancial information in their external reporting. We test this prediction in Panel A of Table 6 based on four focal metrics. First, we use *ESG Disclosure scores*, calculated by both Bloomberg and Thomson Reuters; it is a measure of how complete the company's reporting is on a range of environmental and social disclosure topics based on a scale of 100%. Table 6 compares the (average) percentages of *High* and *Low Sustainability* firms. The average Bloomberg ESG Disclosure score for *High Sustainability* firms is 29.90%, compared to 17.86% for the *Low Sustainability* ones. The corresponding percentages for the Thomson Reuters ESG Disclosure score are 46.38% and 36.91%, respectively. The Thomson Reuters ESG disclosure score screens fewer data points for the presence of disclosure, and that is why firms tend to have better disclosure under this score. Both of these differences are statistically significant across the two groups.

Next, we tested the difference in the balance between financial and nonfinancial discussion in conference calls, using the Thomson Reuters Street Events conference call database described in Section 4. We classified all words referring to items captured by the accounting system and the stock market system as financial. We classified words that would typically be found in a balanced scorecard (Kaplan

and Norton, 1996), except for financial keywords, as nonfinancial.[18] Then we constructed a ratio that measures the number of nonfinancial keywords over financial keywords. The average ratio for the *High Sustainability* firms is 0.96 suggesting that on average these firms are using an equal number of financial and nonfinancial keywords in their discussion with the investment community. In contrast, the average ratio for the *Low Sustainability* firms is 0.68, suggesting that on average these firms are discussing less frequently about nonfinancial aspects of the business such as employees, customers, and products. We also compared the two groups in terms of the percentage of firms whose sustainability reports cover the entire global activities. A more global report represents a higher level of transparency and accountability than one focused only on a company's home country. We again find a statistically significant difference: 41.1% of the *High Sustainability* firms have a global sustainability report compared to only 8.31% of the *Low Sustainability* firms.

We also tested whether *High Sustainability* firms are more likely to integrate environmental and social information with their financial reporting. Integration of environmental and social information in financial reports is advocated increasingly as a way to ensure that corporations are held accountable for their impact on the environment and society (Eccles and Krzus, 2010) and was recently mandated in South Africa and France. 25.7% of the *High Sustainability* firms integrate social information and 32.4% integrate environmental information. In contrast, 5.4% of the *Low Sustainability* firms integrate social information and 10.8% integrate environmental information.

Finally, in Panel B of Table 6 we present results from a multivariate analysis (OLS and logistic models as appropriate) of these nonfinancial disclosure mechanisms. We use the variables from Panel A as our dependent variables and we control for firm size, growth opportunities, and performance measured at the end of 2009 as before. Consistent with the results above, we find that firms in the *High Sustainability* group adopt significantly more of the nonfinancial mechanisms described in Panel A: the coefficients on *High Sustainability* are positive and highly significant for all our specifications. Larger

[18] We identified 38 keywords as nonfinancial. Examples include customer, employee, supplier, risk management, reputation, leadership, strategy, and brand. We identified 155 keywords as financial. Examples include sales, earnings, gross margin, and cash flow.

firms also adopt more of most these mechanisms whereas growth opportunities do not appear to be related to their adoption.

7. The Performance of Sustainable Corporations

A critical question that remains unanswered up to this point in our study is whether firms in the *High Sustainability* group would under or outperform their counterparts in the *Low Sustainability* group. On the one hand, firms in the *High Sustainability* group might underperform because they experience high labor costs by providing excessive benefits to their employees,[19] pass valuable business opportunities that do not fit their values and norms, such as selling products with adverse environmental consequences, and denying to pay bribes to gain business in corrupt countries where bribe payments are the norm.[20] In other words, companies with a culture of sustainability face tighter constraints in how they can behave. Since firms are trying to maximize profits subject to capacity constraints, tightening those constraints can lead to lower profits.

On the other hand, firms in the *High Sustainability* group might outperform traditional firms because they are able to attract better human capital, establish more reliable supply chains, avoid conflicts and costly controversies with nearby communities, and engage in more product and process innovations in order to be competitive under the constraints that the corporate culture places on the organization. For example, Philips has translated its environmental commitments to product innovation around energy efficient light-bulbs and developing solar-power lighting in sub-Saharan Africa. Similarly, Siemens as of 2010 had over €20 billion in revenues coming from its environmental portfolio. Another example is the Caesars Entertainment's sustainability program, which has managed to create excitement and a stronger employee engagement.

[19] That would be consistent with a standard principal-agent model where employees should be paid an amount equal to the reservation wage (Edmans, 2011).

[20] For example, Healy and Serafeim (2011) find that firms with weak anti-corruption systems tend to grow their sales much faster in corrupt countries, relative to firms with strong anti-corruption systems. In contrast, the sales growth of the two groups is very similar in countries with little corruption.

Empirical examinations of the link between CSR or sustainability and corporate financial performance have resulted in contradictory findings, ranging from a positive to a negative relation, to a U-shaped or even to an inverse-U shaped relation (Margolis and Walsh, 2003). According to McWilliams and Siegel (2001), conflicting results were due to "several important theoretical and empirical limitations" (p.603) of prior studies; others have argued that prior work suffered from "stakeholder mismatching" (Wood and Jones, 1995), the neglect of "contingency factors" (e.g. Ullmann, 1985), "measurement errors" (e.g. Waddock and Graves, 1997) and, omitted variable bias (Aupperle et al.,, 1985; Cochran and Wood, 1984; Ullman, 1985). Moreover, and maybe even more importantly, none of these studies has measured financial performance over a long-enough period of time to allow for superior sustainability performance to impact either positively or negatively financial performance.

To delve into the crucial performance implications of a corporate culture of sustainability we track the performance of firms in both groups from 1993 to 2010. We construct both value and equal-weighted portfolios and we examine stock market as well as accounting performance. Examining both measures increases our confidence in the validity of our inferences. The use of stock returns addresses concerns over reverse causality in the absence of private information. In the presence of private information, reverse causality is a concern. For example, if managers with private information that their firms are going to outperform in the future adopt environmental and social policies then the expectation of higher stock returns is causing the adoption of these policies. However, we believe that this explanation is unlikely for a number of reasons. First, we are aware of no theory suggesting that managers expecting to outperform market expectations in the future would be more likely to adopt environmental and social policies today. Second, and perhaps more importantly, empirical evidence suggests that managers are unable to forecast returns past 100 days (Jenter, Lewellen, and Warner, 2011). Therefore, accurately forecasting returns over the next 3, 5, or 10 years is rather unlikely or even infeasible. The use of accounting measures addresses concerns over stock price as a performance measure in the presence of market inefficiencies that can prevent operating performance from being reflected in stock prices.

Figure 1 (2) shows the cumulative stock market performance of value-weighted (equal-weighted) portfolios for the two groups. Both figures document that firms in the *High Sustainability* group significantly outperform firms in the *Low Sustainability* group. Investing $1 in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of sustainable firms would have grown to $22.6 ($14.3) by the end of 2010, based on market prices. In contrast, investing $1 in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of traditional firms would have only grown to $15.4 ($11.7) by the end of 2010.

Table 7 presents estimates from a four-factor model that controls for the market, size, book-to-market, and momentum factors. We find that both portfolios exhibit statistically significant positive abnormal performance. However, we note that this might be because for both samples we have chosen companies that survive and operate throughout the early 90s and until the late 2000s. The better performance of the firms in both samples compared to the rest of the market may be attributed, to a considerable extent, to this survivorship bias. However, the *relative* performance difference between the two groups is not affected by this bias since both groups are equally likely to survive, by construction. Accordingly, we find that annual abnormal performance is higher for the *High Sustainability* group compared to the *Low Sustainability* group by 4.8% (significant at less than 5% level) on a value-weighted base and by 2.3% (significant at less than 10% level) on an equal weighted-base. In addition, the *High Sustainability* group not only exhibits higher abnormal performance, but also it exhibits lower volatility. Whereas the standard deviation of monthly abnormal returns is 1.43 and 1.72% on a value-weighted and equal-weighted base respectively, for the *High Sustainability* group, the corresponding estimates for the *Low Sustainability* group are 1.72 and 1.79% on a value-weighted and equal-weighted base, respectively.

Moreover, we find that sustainable firms outperform traditional ones when we consider accounting rates of return. Figure 3 shows the cumulative performance of $1 of assets based on ROA. Investing $1 of assets in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of sustainable firms would have grown to $7.1 ($3.5) by the end of 2010. In contrast, investing $1 of assets in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of traditional firms would have grown to $4.4 ($3.3) by

the end of 2010. Figure 4 shows the cumulative performance of $1 of equity based on ROE. Investing $1 in book value of equity in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of sustainable firms would have grown to $31.7 ($15.8) by the end of 2010, based on Return-on-Equity (ROE). In contrast, investing $1 in book value of equity in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of traditional firms would have grown to $25.7 ($9.3) by the end of 2010.[21]

To ensure that our results are not driven by long-run mean reversion in equity prices (Poterba and Summers, 1988) or accounting profitability (Fama and French, 2000) we examine the performance of the two groups for the three years before 1993. We find that the two groups exhibit very similar performance throughout these three years: cumulative stock returns are higher for the *High Sustainability* group by only 1%. Similarly, cumulative ROA is higher for the *Low Sustainability* group by only 0.04%, and cumulative ROE is higher for the *High Sustainability* group by 0.03%. This result is consistent with our previous finding that matching in any one of the years between 1990 and1993 had little impact on the composition of the pairs.

Overall, we find evidence that firms in the *High Sustainability* group are able to significantly outperform their counterparts in the *Low Sustainability* group. This finding suggests that companies can adopt environmentally and socially responsible policies without sacrificing shareholder wealth. In fact, the opposite appears to be true: sustainable firms generate significantly higher profits and stock returns, suggesting that developing a corporate culture of sustainability may be a source of competitive advantage for a company in the long-run. A more engaged workforce, a secure license to operate, a more loyal and satisfied customer base, better relationships with stakeholders, greater transparency, a more collaborative community, and a better ability to innovate may all be contributing factors to this potentially persistent superior performance,[22] even in the very long term.

[21] It is worth noting that a substantial number of firms in the Low Sustainability group adopted a few environmental and social policies throughout the 2000s. If this is not purely due to greenwashing then this might bias our results against finding performance differences across the two groups.

[22] The superior financial performance of the sustainable firms based on these three different measures shows that a corporate culture of sustainability codified in policies regarding a company's commitment to environmental and social performance does not hurt shareholders. However, since we measured this performance over a very long

A potential alternative explanation would be that adopting environmental and social policies is a luxury that firms can afford when they are performing well, and as a result including in the sample of *Low Sustainability* companies that throughout the years did not adopt these policies, we have selected firms that will underperform.[23] However, this argument is inconsistent with the fact that in the early 90s the two sets of firms have very similar performance, but very different policies. It is also inconsistent with operating performance and leverage not being significant at the logit model of propensity score matching, and with the fact that Low Sustainability firms have positive alphas in the future. Moreover, when we test if past profitability is correlated with future adoption of policies (changes in *Sustainability Policies*) we do not find a significant and positive association. The coefficient on past performance (e.g. three-year cumulative ROA, ROE, or stock returns) is slightly negative and highly insignificant. Finally, the luxury asset argument would predict that companies would drop these policies in times of emergency, such as during the financial crisis of 2008 and 2009. In contrast to this argument, we find that companies' actually slightly increased the number of policies during the financial crisis. *Sustainability Policies*, the equal-weighted policy index, increased from 0.28 in 2007 to 0.33, 0.34, and 0.36 in 2008, 2009, and 2010 respectively.

8. Discussion

In this article we studied a matched sample of 180 companies; 90 of which we classified as *High Sustainability* firms because they adopted long ago policies regarding solid commitments to environmental and social performance while another 90 we classified as *Low Sustainability* firms because they had not. The *Low Sustainability* firms correspond to the traditional model of corporate profit maximization in which social and environmental issues are predominantly regarded as externalities created by firm actions. Often enough, responsibility for forcing corporations to account for such

period of time, 18 years, the question then shifts to the performance of the sustainable firm over shorter time periods since few investors today hold a stock for anything close to this long.

[23] More generally, a bias would arise if an unidentified characteristic is correlated with the sustainability policies, is uncorrelated with performance in the early 90s, and it is correlated with performance post 1993.

externalities, whether positive or negative, rests with governments and various laws and regulations that mandate certain kind of actions (e.g., environmental regulations). The *High Sustainability* firms, in contrast, pay attention to externalities and this is manifested in their relationships with stakeholders such as employees, customers, and NGOs representing civil society. In particular, *High Sustainability* firms are characterized by distinct governance mechanisms which directly involve the board in sustainability issues and link executive compensation to sustainability objectives; a much higher level of and deeper stakeholder engagement, coupled with mechanisms for making it as effective as possible, including reporting; a longer-term time horizon in their external communications which is matched by a larger proportion of long-term investors; greater attention to nonfinancial measures regarding employees; a greater emphasis on external environmental and social standards for selecting, monitoring and measuring the performance of their suppliers; and a higher level of transparency in their disclosure of nonfinancial information.

Given changing societal expectations it is likely that more firms will adopt a culture of sustainability (Paine, 2004). Societal concern about sustainability, at both the level of the firm and society as a whole, has been growing from almost nothing in the early 1990s to rapidly increasing awareness in the early 2000s to being a dominant theme today. But even in the 18-year period we studied, the *High Sustainability* firms dramatically outperformed the *Low Sustainability* ones in terms of both stock market and accounting measures. However, the results suggest that this outperformance occurs only in the long-term. Managers and investors that are hoping to gain a competitive advantage in the short-term are unlikely to succeed by embedding sustainability in the organization's strategy.

Moreover, we note that as with any quasi-experiment that lacks random assignment of treatment in a laboratory setting, causality, rather than correlation, between the independent variable and the dependent variable of interest is up for debate. While we believe that our research design has many appealing characteristics that allows us to make causal claims we acknowledge the possibility that confounding factors might exist. Future research can examine the robustness and generalizability of our results to other settings, such as in other countries or within the financial sector, and firm types, such as in

private and smaller firms. More specifically we suggest four areas for future research. The first area is to develop a better understanding of the conditions under which companies adopt a culture of sustainability. The second area is the mechanisms by which such cultures get created. Two firms in the same conditions favoring the development of a culture of sustainability could differ in the extent and speed with which they are able to do so. The third area for research is understanding how the results presented in this paper vary across countries. In the presence of different legal, cultural and political institutions that affect corporate behavior with regards to sustainability (Ioannou and Serafeim, 2010), one might expect sustainable firms to outperform even more than we have documented here the traditional firms, or to even underperform. Fourth, it would be useful to have deeper insights into how differences in internal resource allocation resulting from the different characteristics of these firms lead to the superior performance of the *High Sustainability* ones. For example, are these firms less likely to cut back on R&D investments, lay off employees, and consolidate suppliers in down economic cycles? Are they less likely to provide quarterly earnings guidance? Do they make more of an effort to understand the information needs of long-term investors and provide corporate communications that encourage them to hold onto the company's stock?

We note that, for the most part, even on those characteristics where the *High Sustainability* firms were significantly different than their counterparts, the absolute percentages are relatively low. This raises another interesting and important question, albeit one difficult to address through empirical methods, which is "What is the optimal degree of a culture of sustainability under various circumstances?" Since sustainability involves tradeoffs, both across financial and nonfinancial objectives, and between nonfinancial objectives themselves, the firm cannot optimize across all of them. Choices need to be made. Therefore, is the number of policies that support and enhance a culture of sustainability a type of asymptotic function with a certain number being necessary but too many actually hurting financial performance because the firm is focused too much on nonfinancial performance? Finally, since the choices a firm makes are dependent on the overall societal context, how will a culture of sustainability evolve as society evolves?

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Table 1 Summary statistics for two groups

Panel A: Sector composition of the sample

Sector	% of sample
Oil & Gas Producers	4.4%
Oil Equipment, Services & Distribution	3.3%
Chemicals	5.6%
Industrial Metals	1.1%
Mining	1.1%
Construction & Materials	1.1%
Aerospace & Defense	1.1%
General Industrials	4.4%
Electronic & Electrical Equipment	2.2%
Industrial Engineering	3.3%
Industrial Transportation	1.1%
Support Services	1.1%
Automobiles & Parts	3.3%
Beverages	1.1%
Food Producers	4.4%
Household Goods & Home Construction	3.3%
Leisure Goods	3.3%
Personal Goods	2.2%
Health Care Equipment & Services	7.8%
Pharmaceuticals & Biotechnology	4.4%
Retailers	5.6%
Media	3.3%
Travel & Leisure	3.3%
Fixed Line Telecommunications	2.2%
Mobile Telecommunications	1.1%
Electricity	6.7%
Gas, Water & Multi-utilities	3.3%
Software & Computer Services	5.6%
Technology Hardware & Equipment	8.9%
Total	100.0%

Panel B: Firm characteristics across two groups at the year of matching (1993)

		Total assets		ROA		ROE		Leverage		Turnover		MTB	
Sustainability	N	Average	St. Dev.	Average	St. Dev.	Average	St. Dev.	Average	St. Dev.	Average	St. Dev.	Average	St. Dev.
Low	90	8,182	28,213	7.54	8.02	10.89	20.61	0.57	0.19	1.05	0.62	3.41	2.18
High	90	8,591	22,230	7.86	7.54	11.17	16.15	0.56	0.18	1.02	0.57	3.44	1.88
p-value diff		0.914		0.781		0.919		0.726		0.703		0.927	

Panel A: Frequency tabulation of sector membership for the 180 firms in the sample.

Panel B: All measures are calculated at the end of fiscal year in 1993. Averages and standard deviations across the *High Sustainability* and the *Low Sustainability* group are presented. Each group includes 90 firms. ROA is net income plus net interest expense after tax over total assets. ROE is net income over shareholder's equity. Leverage is total liabilities over total assets. Turnover is sales over assets. MTB is stock price over book value of equity per share. p-value is derived from a test of the equality of the means across the two groups.

Table 2

Governance

Panel A: Frequency Analysis of Governance

	Sustainability		Difference
Governance	Low	High	p-value
Formal Board Responsibility / Sustainability	21.6%	52.7%	<0.001
Sustainability committee	14.7%	40.9%	<0.001
Variable Compensation Metrics / Social Metrics	21.6%	35.1%	0.022
Variable Compensation Metrics / Environmental Metrics	8.1%	17.6%	0.011
Variable Compensation Metrics / External Perception Metrics	10.8%	32.4%	0.004

This panel reports the frequency of stakeholder engagement practices across the two groups, low and high sustainability. p-value is derived from a test of the equality of the frequencies across the two groups. "*Formal Board Responsibility / Sustainability*" is the percentage of companies that the board of directors explicitly assumes formal responsibility over corporate social responsibility or sustainability. "*Sustainability committee*" is the percentage of companies with a separate sustainability committee. "*Variable Compensation Metrics / Social Metrics*" is the percentage of companies with pre-defined corporate social indicators (e.g. corporate Health & Safety figure) relevant for the variable compensation of Executive / Top Management. **"***Variable Compensation Metrics / Environmental Metrics***"** is the percentage of companies with pre-defined corporate environmental indicators (e.g. corporate Emission reduction) relevant for the variable compensation of Executive / Top Management. **"***Variable Compensation Metrics / External Perception Metrics***"** is the percentage of companies with pre-defined corporate external perception indicators (e.g. reputational risks, customer satisfaction, feedback from stakeholder engagement) relevant for the variable compensation of Executive / Top Management.

Panel B: Multivariate Analysis of Governance

Parameter	Estimate	p-value
Intercept	-0.773	0.003
High Sustainability	0.144	0.006
Size	0.084	0.002
MTB	-0.006	0.563
ROA	0.011	0.055
Sector f.e.	Yes	
N	180	
Adj R-squared	37.9%	

This panel reports coefficient estimates and the statistical significance of these coefficients from an OLS model where the dependent variable is the percentage of governance mechanisms in Panel A that a firm has adopted. "*High Sustainability*" is an indicator variable that takes the value of one if a firm is included in the High Sustainability group. "*Size*" is the natural logarithm of market capitalization at the end of 2009. "*MTB*" is stock price over book value of equity per share at the end of 2009. "*ROA*" is net income plus net interest expense after tax over total assets at the end of 2009. Standard errors are robust to heteroscedasticity.

Table 3

Stakeholder Engagement

Panel A: Frequency Analysis of Stakeholder Engagement

	Sustainability		Difference
Stakeholder Engagement	Low	High	p-value
Concerns	2.7%	32.4%	<0.001
Result Reporting	0.0%	31.1%	<0.001
Stakeholder Identification	10.8%	45.9%	<0.001
Training	0.0%	14.9%	<0.001
Grievance Mechanism	2.7%	18.9%	<0.001
Public Reports	0.0%	20.3%	<0.001
Targets	0.0%	16.2%	<0.001
Board Feedback	5.4%	32.4%	<0.001
Opportunities Risks Examination	2.7%	31.1%	<0.001
Scope Agreement	8.1%	36.5%	<0.001
Common Understanding	13.5%	36.5%	<0.001

This panel reports the frequency of stakeholder engagement practices across the two groups, low and high sustainability. p-value is derived from a test of the equality of the frequencies across the two groups. "*Concerns*" is the percentage of companies for which the process of engagement ensures that all stakeholders can rise their concerns. "*Result Reporting*" is the percentage of companies with results of the engagement process being reported to the stakeholders involved. "*Stakeholder Identification*" is the percentage of companies that identify issues and stakeholders that appear to be most important for long-term success. "*Training*" is the percentage of companies with local managers getting training in stakeholder engagement. "*Grievance Mechanism*" is the percentage of companies where grievance mechanisms are agreed upon by all involved parties. "*Public Reports*" is the percentage of companies that make the results of the engagement process publicly available. "*Targets*" is the percentage of companies with stakeholder engagement that targets are set and agreed upon by all involved parties. "*Board Feedback*" is the percentage of companies for which feedback from stakeholders is provided to board/supervisory board and/or senior directors and/or compliance and/or communication department. "*Opportunities Risks Examination*" is the percentage of companies that undertake an examination of costs, opportunities and risks prior to a particular stakeholder engagement. "*Scope Agreement*" is the percentage of companies that pursue mutual agreement on the type of engagement (type of meetings such as group meetings, one-on-ones, frequency of meetings, exchange of information, roles of each party etc.) "*Common Understanding*" is the percentage of companies which formally pursue a development of a common understanding of issues relevant to the underlying problem, such as technical terms.

Panel B: Multivariate Analysis of Stakeholder Engagement

Parameter	Estimate	p-value
Intercept	-0.428	0.167
High Sustainability	0.245	<.0001
Size	0.073	0.013
MTB	-0.011	0.255
ROA	0.003	0.661
Sector f.e.	Yes	
N	180	
Adj R-squared	37.9%	

This panel reports coefficient estimates and the statistical significance of these coefficients from an OLS model where the dependent variable is the percentage of stakeholder engagement mechanisms in Panel A that a firm has adopted. "*High Sustainability*" is an indicator variable that takes the value of one if a firm is included in the High Sustainability group. "*Size*" is the natural logarithm of market capitalization at the end of 2009. "*MTB*" is stock price over book value of equity per share at the end of 2009. "*ROA*" is net income plus net interest expense after tax over total assets at the end of 2009. Standard errors are robust to heteroscedasticity.

Table 4

Long-term Orientation

Panel A: Univariate Analysis of Long-term Orientation

	Sustainability		Difference
Measures of long-term orientation	Low	High	p-value
Long-term vs. Short-term Investors	-5.31	-2.29	<0.001
Long-term vs. Short-term Discussion	0.96	1.08	0.030

This table reports the average long-term orientation of the two groups, low and high sustainability. p-value is derived from a test of the equality of the means across the two groups. "*Long-term vs. Short-term Investors*" is the percentage of shares outstanding held by dedicated investors minus the percentage of shares held by transient investors. This investor classification is based on the one used in Bushee (2001) and Bushee and Noe (2000). "*Long-term vs. Short-term Discussion*" is the ratio of long-term over short-term keywords included in transcripts of discussions between the management and sell-side analysts in conference calls.

Panel B: Multivariate Analysis of Long-term Orientation

Dependent variable	Long-term vs. Short-term Investors		Long-term vs. Short-term Discussion	
Parameter	Estimate	p-value	Estimate	p-value
Intercept	-39.348	<.0001	1.897	0.000
High Sustainability	3.012	0.004	0.038	0.070
Size	2.158	<.0001	-0.053	0.093
MTB	0.014	0.810	0.004	0.017
ROA	2.277	0.740	-0.018	0.971
Sector f.e.	Yes		Yes	
Year f.e.	Yes		Yes	
N	830		980	
Adj R-squared	8.8%		10.4%	

This panel reports coefficient estimates and the statistical significance of these coefficients from an OLS model where the dependent variable is Long-term vs. Short-term Investors or Long-term vs. Short-term Discussion in Panel A. "*High Sustainability*" is an indicator variable that takes the value of one if a firm is included in the High Sustainability group. "*Size*" is the natural logarithm of market capitalization at fiscal year-end. "*MTB*" is stock price over book value of equity per share at fiscal year-end. "*ROA*" is net income plus net interest expense after tax over total assets at fiscal year-end. The data cover years 2002-2008. Standard errors are robust to heteroscedasticity and clustered at the firm level.

Table 5

Measurement of Nonfinancial Information

Panel A: Employees

	Sustainability		Difference
Employees	Low	High	p-value
HR Performance Indicators / Nonfinancial	16.2%	54.1%	<0.001
KPI Labor / EHS Fatalities Tracking	26.3%	77.4%	<0.001
KPI Labor / EHS Near Miss Tracking	26.3%	64.5%	<0.001
KPI Labor / EHS Performance Tracking	89.5%	95.2%	0.871

This table reports the frequency of stakeholder engagement practices across the two groups, low and high sustainability. p-value is derived from a test of the equality of the frequencies across the two groups. "*HR Performance Indicators/Nonfinancial*" is the percentage of companies that use HR Performance Indicators / Nonfinancial (e.g. number of hours spent in trainings, company-specific skills categorization) to measure execution of skill mapping and development strategy. "*KPI Labor/EHS Fatalities Tracking*" is the percentage of companies that use fatalities tracking to follow labor relations issues. "*KPI Labor/EHS Near Miss Tracking*" is the percentage of companies that use near miss tracking to follow labor relations issues. "*KPI Labor/EHS Performance Tracking*" is the percentage of companies that use health and safety performance tracking to follow labor relations issues.

Panel B: Customer

	Sustainability		Difference
Customer Value Analysis	Low	High	p-value
Customer Lifestyle	2.7%	5.4%	0.461
Geographical Segmentation	10.8%	18.9%	0.101
Potential Lifetime Value	2.7%	8.1%	0.164
Customer Generated Revenues	8.1%	18.9%	0.041
Historical Sales Trends	8.1%	16.2%	0.100
Products Bought	8.1%	14.9%	0.194
Cost Of Service	2.7%	6.8%	0.279

This table reports the frequency of stakeholder engagement practices across the two groups, low and high sustainability. p-value is derived from a test of the equality of the frequencies across the two groups. "*Customer Lifestyle*" is the percentage of companies that use customer lifestyle to segment customers in the company's CRM database. "*Geographic Segmentation*" is the percentage of companies that use geographic segmentation to segment customers in the company's CRM database. "*Potential Lifetime Value*" is the percentage of companies that use the potential lifetime value to business to segment customers in the company's CRM database. "*Customer Generated Revenues*" is the percentage of companies that use the revenues generated by customers to segment customers in the company's CRM database. "*Historical Sales Trends*" is the percentage of companies that use historical sales trends to segment customers in the company's CRM database. "*Products Bought*" is the percentage of companies that use products/services bought to segment customers in the company's CRM database. "*Cost of Service*" is the percentage of companies that use the costs of services to segment customers in the company's CRM database.

Panel C: Suppliers

	Sustainability		Difference
Supplier Standards	Low	High	p-value
Product LCA	0.0%	6.6%	0.052
Human Rights Standards	5.7%	17.4%	<0.001
International Standards Compliance	0.0%	12.3%	<0.001
National Standards Compliance	8.1%	14.9%	0.057
EMS	18.2%	50.0%	<0.001
Environmental Data Availability	0.0%	12.3%	0.018
Environmental Policy	0.0%	17.4%	<0.001
Grievance Process	0.0%	8.1%	0.039
Labor Standards	8.1%	18.6%	0.020
Environmental Production Standards	25.7%	45.6%	<0.001
OHS Standards	25.7%	62.9%	<0.001

This table reports the frequency of stakeholder engagement practices across the two groups, low and high sustainability. p-value is derived from a test of the equality of the frequencies across the two groups. "*Product LCA*" is the percentage of companies that use product lifecycle impact assessment to select and evaluate the company's key suppliers and services providers. "*Human Rights Standards*" is the percentage of companies that use human rights standards (such as forced, slave labor, child labor) to select and evaluate the company's key suppliers and services providers. "*International Standards Compliance*" is the percentage of companies that use international standards compliance to select and evaluate the company's key suppliers and services providers. "*National Standards Compliance*" is the percentage of companies that use national standards compliance to select and evaluate the company's key suppliers and services providers. "*EMS*" is the percentage of companies that use EMS in their certification/audit/verification process. "*Environmental Data Availability*" is the percentage of companies that use environmental data availability to select and evaluate the company's key suppliers and services providers. "*Environmental Policy*" is the percentage of companies that use environmental policy to select and evaluate the company's key suppliers and services providers. "*Grievance Process*" is the percentage of companies that use grievance process implementation to select and evaluate the company's key suppliers and services providers. "*Labor Standards*" is the percentage of companies that use labor standards/requirements to select and evaluate the company's key suppliers and services providers. "*Environmental Production Standards*" is the percentage of companies that use environmental production standards to select and evaluate the company's key suppliers and services providers. "*OHS Standards*" is the percentage of companies that use occupational health & safety to select and evaluate the company's key suppliers and services providers.

Panel D: Audit

	Sustainability		Difference
Assurance/ audit	Low	High	p-value
Sustainability report external audit	1.4%	11.1%	0.017
Assurance Provision Process / Information Collection Review	5.4%	14.9%	0.058
Assurance Provision Process / Data Aggregation Review	5.4%	14.9%	0.058
Assurance Provision Process / Document Review	5.4%	14.9%	0.058
Assurance Provision Process / Relevant Management Interviews	5.4%	12.2%	0.089
Assurance Provision Process / Mapping against Standards	2.7%	16.2%	0.021
Assurance Provision Process / Auditor Competency Disclosure	2.7%	5.4%	0.689
Assurance Provision Process / Relevant Management Discussions	5.4%	14.9%	0.058
Assurance Provision Process / Sample Site Visits	2.7%	12.2%	0.052
Assurance Provision Process / Stakeholder Consultation	0.0%	5.4%	0.131
Distribution Network Quality / External Audits	8.1%	12.2%	0.221
Distribution Network Quality / Standardized External Audits	5.4%	12.2%	0.088
Distribution Network Quality / Internal Audits	5.4%	13.5%	0.046

This table reports the frequency of stakeholder engagement practices across the two groups, low and high sustainability. p-value is derived from a test of the equality of the frequencies across the two groups. "*Sustainability report external audit*" is the percentage of companies with a public sustainability report that is assured by a third party. "*Information Collection Review*" is the percentage of companies that use a review of internal processes of information generation and collection as an element in the company's assurance provision process. "*Data Aggregation Review*" is the percentage of companies that use a review of data aggregation processes as an element in the company's assurance provision process. "*Document Review*" is the percentage of companies that use a review of documents as an element in the company's assurance provision process. "*Relevant Management Interviews*" is the percentage of companies that conduct interviews with management responsible for the information gather process at the corporate level as an element in the company's assurance provision process. "*Mapping Against Standards*" is the percentage of companies that map against relevant external standards and programs, including AA1000 and the Global Reporting Initiative, as an element in the company's assurance provision process. "*Auditor Competency Disclosure*" is the percentage of companies that use disclosure of competencies of assurance providers as an element in the company's assurance provision process. "*Relevant Management Discussions*" is the percentage of companies that incorporate relevant management discussions as an element in the company's assurance provision process. "*Sample Site Visits*" is the percentage of companies that conduct use sample site visits as an element in the company's assurance provision process. "*Stakeholder Consultation*" is the percentage of companies that consultations with stakeholders as an element in the company's assurance provision process. "*External Audits*" is the percentage of companies that use external audits as an element in the company's assurance provision process. "*Internal Audits*" is the percentage of companies that use internal audits as an element in the company's assurance provision process.

Panel E: Multivariate Analysis of Nonfinancial Measurement

	Employees		Customers		Suppliers		Assurance	
Parameter	Estimate	p-value	Estimate	p-value	Estimate	p-value	Estimate	p-value
Intercept	-0.206	0.394	0.222	0.154	-0.266	0.060	0.272	0.329
High Sustainability	0.174	0.000	0.013	0.681	0.089	0.001	0.115	0.020
Size	0.045	0.040	0.014	0.388	0.041	0.002	0.035	0.122
MTB	0.008	0.331	0.002	0.843	0.007	0.176	-0.001	0.887
ROA	-0.005	0.257	-0.008	0.046	-0.003	0.343	-0.016	0.007
Sector f.e.	Yes		Yes		Yes		Yes	
N	180		180		180		180	
Adj R-squared	30.3%		41.9%		45.1%		49.0%	

This panel reports coefficient estimates and the statistical significance of these coefficients from an OLS model where the dependent variable is the percentage of employee, customer, supplier, and assurance procedure in Panels A-D that each firm adopted. "*High Sustainability*" is an indicator variable that takes the value of one if a firm is included in the High Sustainability group. "*Size*" is the natural logarithm of market capitalization at the end of 2009. "*MTB*" is stock price over book value of equity per share at the end of 2009. "*ROA*" is net income plus net interest expense after tax over total assets at the end of 2009. Standard errors are robust to heteroscedasticity.

Table 6

Disclosure of Nonfinancial Information

Panel A: Univariate Analysis of Nonfinancial Disclosure

	Sustainability		Difference
Nonfinancial disclosure	Low	High	p-value
ESG Disclosure - Bloomberg	17.86	29.90	<0.001
ESG Disclosure - Thomson Reuters	36.91	46.38	<0.001
Nonfinancial vs. Financial Discussion	0.68	0.96	<0.001
Sustainability Report Covers Global Activities	8.3%	41.4%	<0.001
Social Data Integrated in Financial Reports	5.4%	25.7%	0.008
Environmental Data Integrated in Financial Reports	10.8%	32.4%	0.011

"*ESG Disclosure – Bloomberg*" is the average disclosure score across the two groups, low and high sustainability. Bloomberg calculates this score based on the percentage of sustainability datapoints each company discloses. The measure ranges from 0 to 100. "*ESG Disclosure – Thomson Reuters*" is the average disclosure score across the two groups, low and high sustainability. We calculated this score based on the percentage of sustainability datapoints each company discloses, using Thomson Reuters ASSET4 data. The measure ranges from 0 to 100. "*Nonfinancial vs. Financial Discussion*" is the ratio of nonfinancial over financial keywords included in transcripts of discussions between the management and sell-side analysts in conference calls. The higher this number the more emphasis on nonfinancial topics a management places. "*Sustainability report covers global activities*" is the percentage of companies in each group that publishes a sustainability report that covers the global operations of the firm. "*Social Data Integrated in Financial Reports*" is the percentage of companies in each group that integrated social KPIs and narrative information in their financial reporting. "*Environmental Data Integrated in Financial Reports*" is the percentage of companies in each group that integrated environmental KPIs and narrative information in their financial reporting.

Panel B: Multivariate Analysis of Nonfinancial Disclosure

Dependent variable	ESG Disclosure - Bloomberg		ESG Disclosure - Thomson Reuters		Nonfinancial vs. Financial Discussion		Sustainability report covers global activities		Social Data Integrated in Financial Reports		Environmental Data Integrated in Financial Reports	
Parameter	Estimate	p-value	Estimate	p-value	Estimate	p-value	Odds ratio	p-value	Odds ratio	p-value	Odds ratio	p-value
Intercept	-49.201	<.0001	-38.002	<.0001	-2.864	<.0001						
High Sustainability	8.618	<.0001	9.759	<.0001	0.180	0.043	4.279	<0.001	5.395	0.031	4.143	0.028
Size	4.502	<.0001	2.236	<.0001	0.231	<.0001	2.158	<0.001	1.325	0.238	1.270	0.275
MTB	0.222	0.095	0.238	0.095	0.000	0.841	0.972	0.069	1.030	0.744	1.160	0.070
ROA	-45.407	<.0001	-12.070	<.0001	-0.597	0.243	0.004	<0.001	1.014	0.722	0.969	0.461
Sector f.e.	Yes		Yes		Yes		Yes		Yes		Yes	
Year f.e.	Yes		Yes		Yes		Yes		No		No	
N	464		1314		980		2072		180		180	
Adj R-squared	32.1%		30.8%		11.0%		22.9%		13.2%		12.5%	

This panel reports coefficient estimates and the statistical significance of these coefficients from OLS and logistic models where the dependent variable is one of the variables reported in Panel A. Data for years 2005-2010 are used for the "ESG Disclosure – Bloomberg" analysis. Data for years 2002-2010 are used for the "ESG Disclosure - Thomson Reuters" and "Sustainability report covers global activities" analyses. Data for years 2002-2008 are used for the "Nonfinancial vs. Financial Discussion" analysis. For the last two analyses data from year 2009 are used. "*High Sustainability*" is an indicator variable that takes the value of one if a firm is included in the High Sustainability group. "*Size*" is the natural logarithm of market capitalization at the end of 2009. "*MTB*" is stock price over book value of equity per share at the end of 2009. "*ROA*" is net income plus net interest expense after tax over total assets at the end of 2009. Standard errors are robust to heteroscedasticity and clustered at the firm level (first four columns).

Table 7

Stock Market Performance

	Value-weighted				Equal-weighted			
	Sustainability							
	Low		High		Low		High	
Parameter	Estimate	p-value	Estimate	p-value	Estimate	p-value	Estimate	p-value
Intercept	0.0059	<.0001	0.0096	<.0001	0.0039	0.004	0.0057	<.0001
MKTRF	0.9839	<.0001	0.9360	<.0001	0.9977	<.0001	0.9557	<.0001
SMB	-0.2076	<.0001	-0.1776	0.002	0.1598	0.001	0.0366	0.367
HML	0.1982	0.001	-0.2727	<.0001	0.4053	<.0001	0.2204	<.0001
UMD	-0.0156	0.642	-0.0266	0.427	-0.1436	<.0001	-0.1239	<.0001
N	216	216	216	216	216	216	216	216
Adj R-squared	85.6%		86.6%		88.9%		91.0%	

This table provides the estimates from a Fama-French four-factor model augmented by the Carhart momentum factor. The dependent variable is the monthly portfolio stock return for low or high sustainability minus the risk-free rate for that month. MKTRF is the value-weighted market return minus the risk-free rate for that month. SMB is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. HML is the monthly return on a hedge portfolio that mimics the stock returns of low MTB minus high MTB firms. UMD is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. The intercept represents the abnormal stock return for the average month. We estimate the model for the period 1993-2010.

Figure 1

Evolution of $1 invested in the stock market in value-weighted portfolios

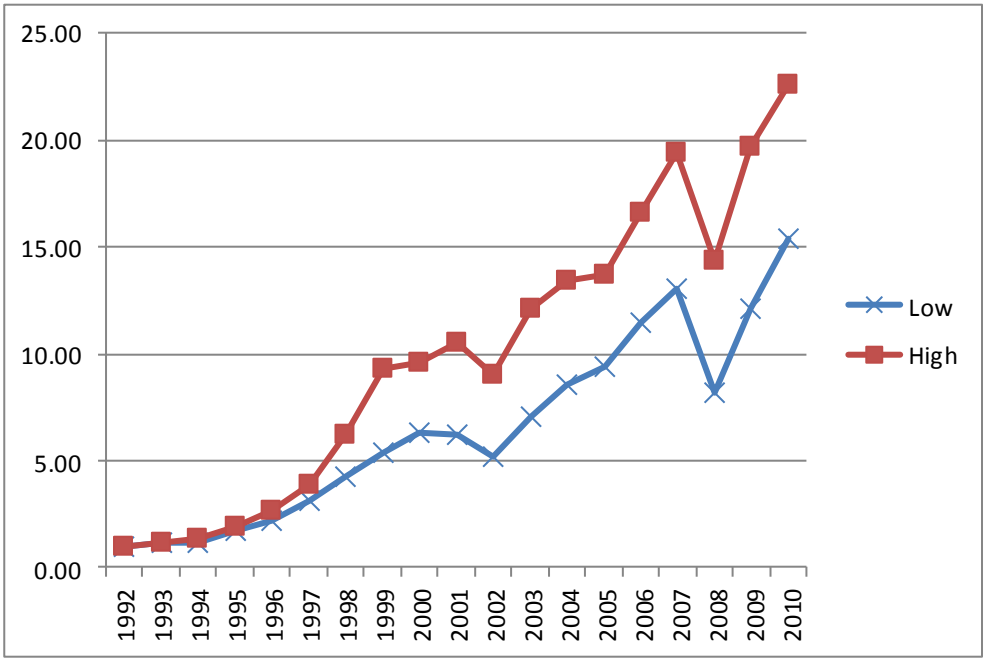


Figure 2

Evolution of $1 invested in the stock market in equal-weighted portfolios

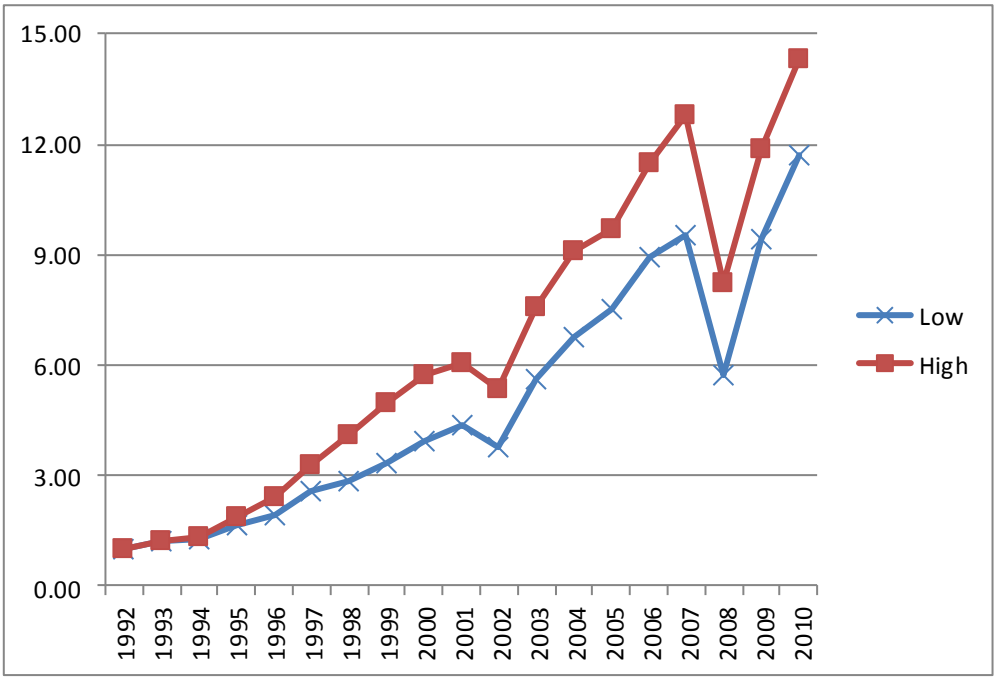


Figure 3

Evolution of $1 of assets based on Return-on-Assets

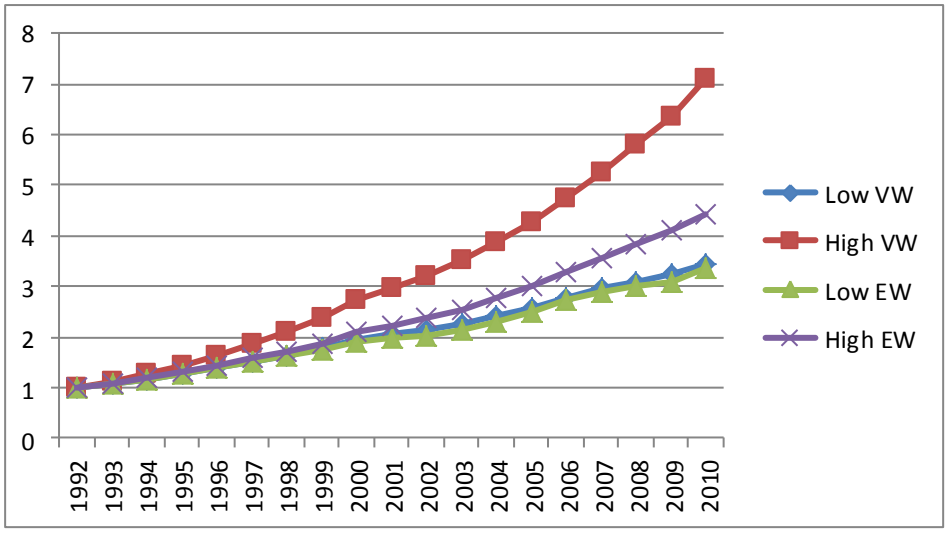
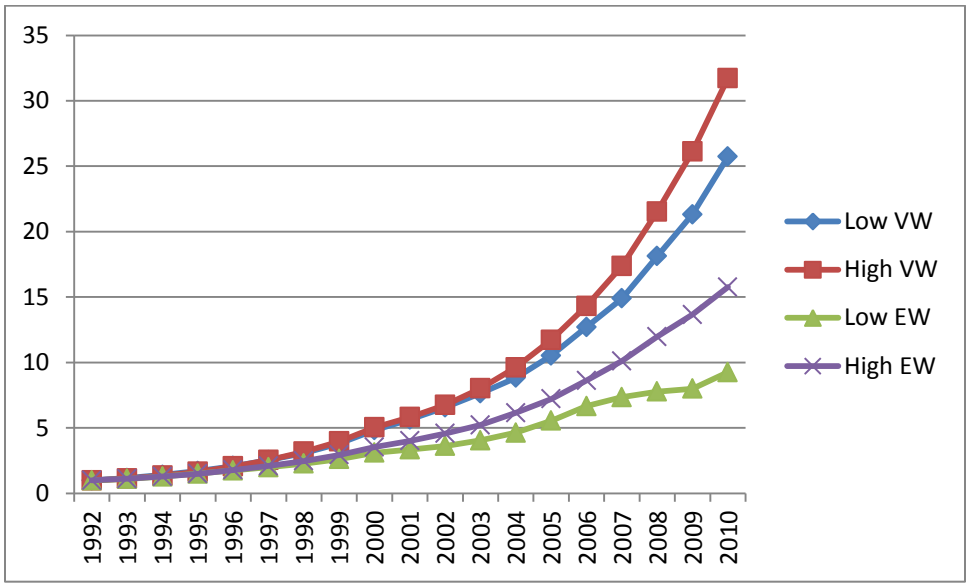


Figure 4

Evolution of $1 of equity based on Return-on-Equity



Appendix

Name	Description
Bonus Plan for Employees/Employees	Does the company provide a bonus plan to most employees?
Community/Policy I	Does the company have a policy to strive to be a good corporate citizen or endorse the Global Sullivan Principles?
Community/Policy II	Does the company have a policy to respect business ethics or has the company signed the UN Global Compact or follow the OECD guidelines?
Diversity and Opportunity/Policy	Does the company have a diversity and equal opportunity policy?
Emission Reduction Policy Elements/Emissions	Does the company have a policy to reduce emissions?
Emission Reduction/CO2 Reduction	Does the company shows an initiative to reduce, reuse, recycle, substitute, phased out or compensate CO2 equivalents in the production process?
Emission Reduction/Transportation Impact Reduction	Does the company have initiatives to reduce the environmental impact of transportation of its products or its staff?
Employee welfare	Does the company have a work-life balance policy?
Employment Quality/Policy I	Does the company have a competitive employee benefits policy or ensuring good employee relations within its supply chain?
Employment Quality/Policy II	Does the company have a policy for maintaining long term employment growth and stability?
Environmental Supply Chain Management	Does the company use environmental criteria (ISO 14000, energy consumption, etc.) in the selection process of its suppliers or sourcing partners?
Generous Fringe Benefits	Does the company claim to provide its employees with a pension fund, health care or other insurances?
Health & Safety /Policy	Does the company have a policy to improve employee health & safety within the company and its supply chain?
Human Rights Contractor	Does the company show to use human rights criteria in the selection or monitoring process of its suppliers or sourcing partners?
Human Rights/Policy I	Does the company have a policy to guarantee the freedom of association universally applied independent of local laws?
Human Rights/Policy II	Does the company have a policy for the exclusion of child, forced or compulsory labor?
Internal Promotion	Does the company claim to favor promotion from within?
Management Training	Does the company claim to provide regular staff and business management training for its managers?
Positive Discrimination	Does the company promote positive discrimination?
Product Impact Minimization	Does the company design product features and applications/services that promote responsible, efficient, cost-effective and environmentally preferable use?
Product Innovation	Does the company have take-back procedures and recycling programs to reduce the potential risks of products entering the environment?
Product Responsibility/Policy I	Does the company have a policy to protect customer health & safety?
Product Responsibility/Policy II	Does the company have a products and services quality policy?
Resource Efficiency/Energy Efficiency Policy	Does the company have a policy to improve its energy efficiency?
Resource Efficiency/Water Efficiency Policy	Does the company have a policy to improve its water efficiency?
Training and Development/Policy	Does the company have a policy to support the skills training or career development of its employees?
Waste Reduction Total	Does the company have initiatives to recycle, reduce, reuse, substitute, treat or phase out total waste?