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THE IMPACT OF CORPORATE SUSTAINABILITY ON ORGANIZATIONAL PROCESSES AND PERFORMANCE

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ABSTRACT

We investigate the effect of corporate sustainability on organizational processes and performance. Using a matched sample of 180 US companies, we find that corporations that voluntarily adopted sustainability policies by 1993 – termed as High Sustainability companies – exhibit by 2009 distinct organizational processes compared to a matched sample of companies that adopted almost none of these policies – termed as Low Sustainability companies. The boards of directors of High Sustainability companies are more likely to be formally responsible for sustainability and top executive compensation incentives are more likely to be a function of sustainability metrics. High Sustainability companies are more likely to have established processes for stakeholder engagement, to be more long-term oriented, and to exhibit higher measurement and disclosure of nonfinancial information. Finally, High Sustainability companies significantly outperform their counterparts over the long-term, both in terms of stock market and accounting performance.

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1. Introduction

During the last 20 years, a relatively small but growing number of companies have begun to voluntarily integrate social and environmental issues in their business models and organizational processes (i.e., their strategy) through the adoption of related corporate policies.[1] The integration of such issues into a company's strategy raises a number of fundamental questions for scholars of organizations. Are there organizations that compete by focusing on sustainability? Does the governance structure of this type of companies differ from that of other companies and, if yes, in what ways? Do such companies have distinct stakeholder engagement processes and adopt different time horizons in their decision-making? In what ways are their measurement and reporting systems different? What are the performance implications of integrating social and environmental issues into a company's organizational processes?

Some scholars argue that companies can "do well by doing good" because meeting the needs of non-shareholding stakeholders creates shareholder value (Freeman et al., 2010, Porter and Kramer, 2011). They also assume that by *not* meeting the needs of non-shareholding stakeholders, companies can destroy shareholder value because of consumer boycotts (e.g., Sen et al., 2001), the inability to hire the most talented people (e.g., Greening and Turban 2000), and by paying punitive fines to governments. Conversely, others argue that the integration of environmental and social policies could destroy shareholder wealth (e.g., Friedman 1970; Navarro 1988; Galaskiewicz 1997). Sustainability may be an agency cost: managers receive private benefits from addressing environmental and social issues, but doing so has negative financial implications (e.g. higher cost structure) for their organizations (Balotti & Hanks, 1999; Brown et *al.* (2006). Accordingly, companies that do not operate under such additional constraints will be relatively more competitive and, as a result, more profitable in highly competitive environments (Jensen, 2001).

In this study, we explore the organizational and performance implications for organizations that integrate social and environmental issues into their processes through the adoption of corporate policies. Our overarching thesis is that such organizations represent an alternative and distinct way of competing for the modern corporation, characterized by a governance structure that in addition to financial performance, accounts for the environmental and social impact of the company, a long-term approach towards maximizing inter-temporal profits, an active stakeholder management process, and more developed measurement and reporting systems. Empirically, we identify 90 companies – we term these as *High Sustainability* companies - with a substantial number of environmental and social policies adopted since the early to mid-1990s, reflecting strategic choices that are independent and, in fact, far preceded

[1] During the same period many more companies were active in corporate social responsibility (CSR) as an ancillary activity. However, many of these companies did not necessarily implement or were 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 seven years (Eccles and Krzus, 2010).

the recent hype around sustainability issues (Eccles and Krzus, 2010). We use propensity score matching in 1993 to identify 90 comparable companies that adopted almost none of these policies - the *Low Sustainability* companies.

Consistent with our expectations, we find that *High Sustainability* companies are significantly more likely to assign responsibility to the board of directors for sustainability and to form a separate board committee for sustainability. They are more likely to make executive compensation a function of environmental, social, and external perception metrics. These companies are also significantly more likely to establish a more comprehensive and engaged stakeholder management process while maintaining a longer-term orientation: they are owned by proportionately more long-term oriented investors and they communicate more long-term information in their conference calls with sell-side analysts. We moreover find that *High Sustainability* companies are more likely to measure information related to key stakeholders such as employees, customers[2], and suppliers — and to increase the credibility of these measures by using auditing procedures. *High Sustainability* companies not only measure but also disclose relatively more nonfinancial data. Our findings suggest that, to a large extent, by 2009 the adoption of these sustainability policies reflects their underlying institutionalization within the organization rather than "greenwashing" and "cheap talk".

Importantly, we track corporate performance for 18 years and find that *High Sustainability* companies outperform *Low Sustainability* companies both in stock market as well as accounting performance. 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. We also find that *High Sustainability* companies perform better when considering accounting rates of return, such as return-on-equity (ROE) and return-on-assets (ROA), and that this outperformance is more pronounced for companies that sell products to individuals (i.e., business-to-customer [B2C] companies), compete on the basis of brand and reputation, and make substantial use of natural resources. Finally, using analyst forecasts of annual earnings we find that the market underestimated the future profitability of the *High Sustainability* companies compared to the *Low Sustainability* ones.

Consequently, with this study, we make both empirical and theoretical contributions. We identify and then characterize "sustainable" organizations: a category of modern corporations that compete by integrating social and environmental issues into their strategy and processes. We are able to identify four pillars (i.e., governance, stakeholder engagement, time horizon of decision-making, and measurement/reporting) that are directly affected by a commitment to sustainability and constitute first-order determinants of the ability to build a sustainable organization in the long-run. We suggest that these

[2] Although we find directionally consistent results for customers, our results are not statistically significant.

four pillars are consistent with the "team production" model of the corporation (Blair and Stout, 1999: p.258). An important implication of this is that directors do not face a conflict in supporting the management practices of *High Sustainability* firms. The pillars of the sustainable organization that we identify also point to specific directions that future research may follow to uncover the mechanisms that contribute to the long-term outperformance that we document here. Thus, we contribute towards moving the field beyond the question of *whether* sustainability is linked to financial performance and towards understanding *under what conditions and why* sustainability pays (Margolis and Walsh, 2003).

2. Sample Selection and Summary Statistics

To understand the effects of integrating social and environmental issues in an organization's processes, we first need to identify companies that have explicitly placed a high level of emphasis on non-shareholding stakeholders as part of their strategy. Moreover, we need to find companies that have adopted these policies for a significant number of years prior to corporate social responsibility (CSR) and sustainability becoming widespread, to reduce the possibility of including companies that are "greenwashing." By identifying companies based on policy adoption decisions that were made a sufficiently long time ago - thus introducing a long lag between our independent and dependent variables - we mitigate the likelihood of biases arising from reverse causality.

We identify two groups of companies: those that have and those that have not adopted a comprehensive set of corporate policies related to the environment, employees, community, products, and customers. The complete set of these policies is provided in the Appendix. The Thomson Reuters ASSET4 database, which has already been used in the literature (e.g., Ioannou and Serafeim, 2012; Cheng, Ioannou, and Serafeim, 2013), provides data on the adoption or non-adoption of these policies, for at least one year, for 775 US companies in years 2003 to 2005.[3] Starting with this initial list of 775 US companies, we eliminate 100 financial institutions because many of the environmental and social policies are not likely to be applicable or material to them. Rather, the environmental and social policies of the companies in their loan and investment portfolios are more likely to be significant for their performance (Eccles and Serafeim 2013). 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 every company is committed to in each year.

Moreover, we track (backwards) over time the extent of adoption of these policies for those companies that score at the top quartile of *Sustainability Policies*, and we focus on years prior to 2003, for

[3] Founded in 2003, ASSET4 was a privately held Swiss-based company, acquired by Thomson Reuters in 2009. The company collects data and scores companies on environmental and social dimensions since 2002. Research analysts of ASSET4 collect more than 900 evaluation points per company, where all the primary data used must be objective and publicly available. Typical sources include stock exchange filings, annual financial and sustainability reports, non-governmental organizations' websites, and various news sources. Every year, a company receives a z-score for each of the pillars, benchmarking its performance with the rest of the companies in the database.

which ASSET4 data do not exist. We collect this data 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.[4] The adoption of these sustainability policies prior to 2003 was measured, checked, and validated by the archival research and the interviews conducted by the authors. At the end of this process, we were able to identify 90 organizations that adopted a substantial number of these policies in the early to mid-90s (on average 40% of the policies identified in the Appendix, and by the late 2000s almost 50%). We label this set of companies as the *High Sustainability* group. Of the remaining 78 companies (i.e., 168 companies in the top quartile of 675 companies minus the 90 *High Sustainability* companies), 70 companies had not adopted these policies by the early to mid-90s. For the other eight companies we were unable to identify the historical origins of these policies. Subsequently, we match each *High Sustainability* company with a company that scores in the lowest two quartiles of *Sustainability Policies*. Companies in those two quartiles have, on average, adopted only 10% of the policies, even by the late 2000s and they had adopted almost none of these policies in the mid-90s. Because we require each *High Sustainability* company to be in existence since at least the early 1990s, we impose the same restriction for the pool of possible control companies, resulting in 269 remaining candidate control companies (out of the 336 companies in the two lowest quartiles).

We implement a propensity score matching process in 1993, the earliest year in which we can confirm that all *High Sustainability* companies had adopted these sustainability policies[5]. We match each *High Sustainability* company with a control company that is in the same industry classification benchmark subsector (or sector if a company 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,[6] 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.[7] Size and asset turnover load with a positive and highly significant coefficient in the logit regression (untabulated results). The coefficient on MTB is positive and weakly significant. The coefficients on leverage and ROA are both insignificant. We label the set of control companies that are selected through this process as the *Low Sustainability* group. Due to the proprietary nature of the data we

[4] These interviews took place during 2011, were typically 60 minutes long each, mostly over the phone but some in person, and were primarily with C-level executives or business unit heads.

[5] We confirm that the results are not sensitive to the specific matching year by redoing the matching in 1992 and 1994: in any one year only less than 5% of the matched pairs change.

[6] 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.

[7] 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 companies. All our results are unchanged if we use that sample of 176 companies.

use for our independent variables, we do not to disclose the names of the 180 companies in the final sample.[8]

Table 1 Panel A, shows the sector composition of our sample and highlights that a wide range of sectors are represented. [9] Panel B shows the average values of several company metrics (i.e. total assets, ROA, ROE, leverage, turnover and MTB) across the two groups in the year of matching. None of the differences in the averages across the two groups are statistically significant, suggesting that the matching process worked effectively. Moreover, the two groups have very similar risk profiles: both the standard deviation of daily returns and the equity betas are approximately equal.

3. Corporate Governance

The responsibilities of the board of directors and the incentives provided to top management are two fundamental attributes of the corporate governance system. 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. While the common belief is that these objectives must put shareholders' interests first, over the interests of non-shareholding stakeholders, such as employees and customers, Blair and Stout (1999) argue that this is not the case and show that US law does not mandate that boards put shareholders' interests first. In situations requiring "team production," in which team members must make company-specific investments to improve the joint outcome of the corporation as a whole, they show that shareholders (and in fact, all other stakeholders) might prefer relinquishing control over both the team's assets and output to a third party (i.e. a mediating hierarchy). If control is relinquished to a third party, like the board of directors, then by acting as a "hierarch," the board may sometimes subordinate shareholders' interests to those of the other stakeholders for the shareholders' own long-term benefit. In other words, this "team production" theory of corporate governance enables boards to support sustainability objectives if they so choose since sustainability objectives form an integral part of the "joint welfare function" (p.288) that boards are supposed to serve according to the law.

Moreover, compensation systems for top management align managerial incentives with the goals of the organization, as approved by the board, by linking executive compensation to key performance indicators that are used for measuring corporate performance (Govindarajan and Gupta, 1985). In fact, Ittner, Larcker, and Rajan (1997) show that the use of nonfinancial metrics in annual bonus contracts is consistent with an "informativeness" hypothesis, according to which nonfinancial metrics provide incremental information regarding the manager's action choice.

[8] Accordingly, the examples of specific policies or actions by companies that we use in the remainder of this study should not automatically imply that these companies are part of our sample in general or any of the two groups in particular.

[9] Because many companies are industrially diversified, we also restrict our sample to 38 matched pair companies that operate only in one three-digit SIC code industry. All results remained similar when we restricted our sample to these companies.

Therefore, we posit that for organizations that consider environmental and social objectives as core, the board of directors is more likely to have direct responsibility over such issues; it is also more likely that top management compensation will be a function of sustainability metrics in addition to other traditional financial metrics. To test these predictions we analyze proprietary data provided to us by Sustainable Asset Management (SAM). 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 approximately 100 questions on economic, environmental, and social issues, with 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 also submit concrete and relevant information to support the answers they provide to the questionnaire. The SAM Questionnaires are distributed to the CEOs and heads of investor relations.. The completed company questionnaire, signed by a senior company representative, is the most important source of information for the assessment.[10]

Table 2 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 systems. We find results that are consistent with our predictions. Fifty three percent of the companies in the *High Sustainability* group assign formal responsibility around sustainability to the board of directors whereas only 22% of the *Low Sustainability* companies do so. Similarly, 41% (15%) of the *High Sustainability* companies (*Low Sustainability*) form a separate board-level sustainability committee. The responsibilities of such a committee include both assisting the management with strategy formulation and periodically reviewing sustainability performance. For example, at the Ford Corporation the committee assists management in the formulation and implementation of policies, principles, and practices to foster sustainable growth on a global basis and to respond to evolving public sentiment and government regulation in the area of GHG emissions. Other functions include assisting management in setting strategy, establishing goals, and integrating sustainability into daily business activities, and reviewing partnerships and relationships that support the company's sustainable growth.

Another important governance component is the set of metrics that are linked to senior executive compensation. The two groups significantly differ on this dimension as well: of the *High Sustainability* companies, 18%, 35%, and 32% link compensation to environmental, social, and external perception

[10] We also note that to ensure the quality and objectivity of the process, an independent third party (Deloitte) conducts an external audit of the assessment process each year and accordingly provides an assurance statement. More details are available at the following link, last accessed July 4th, 2013: http://www.sustainability-indices.com/sustainability-assessment/corporate-sustainability-assessment.jsp

metrics, respectively. Respectively, and in contrast, only 8%, 22%, and 11% of the *Low Sustainability* companies do so. Companies in the *High Sustainability* group are more likely to use monetary incentives to focus executives' efforts on nonfinancial aspects of corporate performance[11]. For example, Intel has linked executive compensation to environmental metrics since the mid-90s, and since 2008 Intel also links all employees' bonuses to environmental metrics. Although a small portion of the overall employee bonus calculation, the 2010 metrics focused on carbon emission reductions in operations and energy-efficiency goals for new products.

Overall, the results indicate that *High Sustainability* companies are characterized by a distinct governance structure: reflecting the *joint* interests of all stakeholders of the corporation, formal responsibility for sustainability is more likely to be directly assigned to the board of directors and, top management compensation is more likely to be a function of a set of performance metrics that includes sustainability metrics.

4. Stakeholder Engagement

Since *High Sustainability* companies are characterized by a distinct corporate governance model that accounts for a wider range of stakeholders, we predict that such companies are also more likely to adopt a greater range of stakeholder engagement practices. Indeed, to the extent that the board is, according to the team production model, "allowed free rein to consider and make trade-offs between the conflicting interests of different corporate constituencies" (Blair and Stout, (1999): p. 291), then it is imperative that stakeholders' needs and expectations are deeply understood through engagement. Thus, engagement is necessary so as to enable the corporation to make decisions about how best to address them (Freeman, 1984; Berman et al., 1999; Freeman et al., 2007; Barnett, 2007; Laplume et al., 2008) in terms of maximizing what the team production model would term as the "joint welfare function" of the corporation. Nevertheless, stakeholders' interests are not always aligned, and in fact they are often in conflict, at least in the short term. The objectives of an environmental NGO, for example, can interfere with the objectives of a social NGO. It is therefore through stakeholder engagement that the company determines the materiality of each of these stakeholder demands to determine the right balance in meeting all stakeholders' expectations (Eccles and Serafeim, 2013).

Prior literature has suggested and empirically shown that stakeholder engagement is directly linked to superior financial performance by enabling companies to develop intangible assets in the form of strong long-term relationships, which can then become sources of competitive advantage (e.g., Hillman

[11] We also construct a variable that summarizes all the mechanisms discussed in table 2 by calculating the percentage of processes and practices that the focal company has adopted. Because companies might look considerably different in terms of size, growth opportunities, and performance by 2009, we control for these factors by measuring them at the end of 2009. Consistent with the results above, in unreported results we find that High Sustainability companies adopt significantly more of these processes and practices: the coefficient is positive and significant (0.144, p-value=0.006). Larger companies and more profitable companies adopt more of these processes, whereas growth opportunities are not related to their adoption.

and Keim, 2001). Thus, superior stakeholder engagement is based on a company's ability to establish long-term relationships with key stakeholders. 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, then the corporation "will experience reduced agency costs, transactions costs, and costs associated with team production" (Jones, 1995; Foo, 2007; Cheng et al., 2013). We argue, therefore, that companies that have embedded the elements of mutual trust and cooperation and the building of long-term relationships with key stakeholders through the integration of social and environmental issues in their strategy will be better positioned to benefit from these more efficient forms of contracting (Jones, 1995). This argument is also consistent with a central notion of the Blair and Stout (1999) model: resolving problems of horizontal coordination across stakeholders is more critical in a team production setting than problems of vertical coordination (i.e. the principal-agent model) (p. 265). Conversely, companies that have not integrated such issues (or companies that predominantly focus only on internal vertical problems of coordination) are more likely to incur agency and transactions costs, and therefore they are more likely to contract on the basis of curbing opportunistic behavior. This type of relatively less efficient contracting then impedes their ability to adopt a broader range of stakeholder engagement practices.

We use the proprietary data for fiscal year 2009 obtained from SAM to explore stakeholder engagement across the two groups. Table 3 compares the *High* and *Low Sustainability* companies across several data items that relate to actions prior to, during, and after the stakeholder engagement process. In particular, each item in Table 3 measures the frequency of adoption of the focal practice within each group, and the last column presents a significance test of the differences between them. We find that *High Sustainability* companies are more likely to adopt practices of stakeholder engagement for all three phases of the process compared to the *Low Sustainability* ones.

Specifically, prior to the stakeholder engagement process, *High Sustainability* companies are more likely to train their local managers in stakeholder management practices (14.9% vs. 0%, *Training*), and to perform their due diligence by undertaking an examination of costs, opportunities, and risks (31.1% vs. 2.7%, *Opportunities Risks Examination*). Moreover, *High Sustainability* companies are more likely to identify issues and stakeholders that are important for their long-term success (45.9% vs. 10.8%, *Stakeholder Identification*). During the stakeholder engagement process itself, our analysis shows that *High Sustainability* companies are more likely to ensure that all stakeholders raise their concerns (32.4% vs. 2.7%, *Concerns*) and 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*). 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* companies are more likely to pursue a mutual agreement on the type of engagement with their stakeholders (36.5% vs. 8.1%, *Scope Agreement*).

Finally, we find that after the completion of the stakeholder engagement process, *High Sustainability* companies 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*). In sum, *High Sustainability* companies appear to be more proactive, more transparent, and more accountable in the way they engage with their stakeholders[12].

In general, the results confirm our predictions: *High Sustainability* companies are distinct in their stakeholder engagement model in that, compared to the *Low Sustainability* companies, they are more focused on understanding the needs of their stakeholders, making investments in managing these relationships, and reporting internally as well as externally on the quality of their stakeholder relationships.

5. Time Horizon

In assessing the impact of stakeholder engagement, previous literature has argued that the effective management of stakeholder relationships can generate persistence of superior financial performance over the longer-term or a faster recovery of poorly performing companies (Choi and Wang, 2009). This occurs because building good stakeholder relations is not only idiosyncratic to each company, but it is also based on mutual respect, trust, and cooperation that require significant time to develop. Furthermore, stakeholder engagement leads to the adoption of a longer-term time horizon because typically there are short-term trade-offs in meeting the needs of different stakeholder groups. To build and maintain mutual respect, trust, and cooperation with stakeholders, the company must, over time, demonstrate a commitment to balancing these different stakeholders' interests. Certainly, this requires that stakeholders have a long-term perspective as well. This is fostered by the company itself demonstrating its willingness to make the necessary investments in the relationship, thus giving stakeholders an incentive to adopt a long-term orientation as well. In other words, effective stakeholder engagement necessitates the adoption of a longer-term time horizon.

Relatedly, the extant literature on "short-termism" (e.g., Laverty, 1996) shows that executive compensation incentives that are based on short-term metrics may push managers to make decisions that deliver short-term performance at the expense of long-term value creation. Consequently, a short-term focus may result in a failure to make the necessary strategic investments to ensure future profitability.

[12] Similar to section 3 and footnote 11, we construct a variable summarizing the stakeholder engagement mechanisms discussed in table 3 by calculating the percentage of practices that a company adopted. Consistent with table 3, in unreported results of a multivariate analysis we find that High Sustainability companies adopt significantly more of these practices.

Importantly, such a short-term focus often implies a negative externality being imposed on various other non-shareholding stakeholders. Thus, short-termism is incompatible with superior stakeholder engagement and a long-term focus on stakeholder relationships. This argument is also consistent with another key idea of the mediating hierarchy model by Blair and Stout (1999): "that treating directors as trustees charged with serving interests above and beyond those of shareholders in fact can be in shareholders' "long-run interests". This is because yielding control rights over the corporation to the board *ex ante* limits opportunistic and short-term rent-seeking behaviors and thus, enables other stakeholders to make firm-specific investments that are necessary to generate a surplus from team production in the long-run, (p.305). It follows then, that corporations with a solid and credible commitment to multiple stakeholders are less likely to suffer the pathologies associated with short-termism. Given the documented commitment of *High Sustainability* companies to stakeholder engagement, we further predict that they will be more likely to adopt a longer-term approach, and that this approach will also be reflected in the type of investors that invest in their stock.[13]

Importantly, the company communicates its norms and values both internally and externally, and since a long-term time horizon is a key element of integrating social and environmental issues, we would expect *High Sustainability* companies to put in their communications a greater emphasis on the long-term. Investors that are interested in generating short-term results by selling their stock after it appreciates will avoid investing in long-term-oriented companies since these companies are willing to sacrifice such short-term results if doing so will produce higher long-term gains. In contrast, investors who plan on holding a stock for a longer period of time will be attracted to companies that are optimizing financial performance over a longer time horizon and are less interested in short-term performance fluctuations. For example, after Paul Polman became the CEO of Unilever and announced the implementation of the "Sustainable Living Plan" while abolishing quarterly earnings forecasts, ownership of Unilever's stock by hedge funds dropped from 15% to 5% in three years, leading to reduced fluctuations in the company's share price.

To test our predictions, in Table 4 we use data from Thomson Reuters Street Events to first measure the extent to which the content of the conversations between a focal corporation and sell-side analysts is comprised of long-term vs. short-term keywords. We construct this measure following the methodology in Brochet, Loumioti, and Serafeim (2012) as the ratio of the number of keywords used in conference calls that characterize time periods of more than one year over the number of keywords that characterize time periods of less than one year. Second, we measure the time horizon of the investor base

[13] We acknowledge that under some conditions the reverse may be true: investor behavior 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 large enough shareholder base retaining ownership for a sufficiently long amount of time in order to institute a radical corporate change towards sustainability seems low. This line of argument would also require investors to themselves 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.

of a corporation following Bushee (2001) by calculating the percentage of shares outstanding held by "dedicated" vs. "transient" investors. Bushee (2001) classifies institutional investors using a factor and a cluster analysis approach. Transient investors have high portfolio turnover and highly diversified portfolios. In contrast, dedicated investors have low turnover and more concentrated holdings. We measure how long-term oriented the investor base of a company 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 are consistent with our predictions. We find that *High Sustainability* companies are more likely to have conference call discussions whose content is relatively more long-term as opposed to short-term focused (1.08 vs. 0.96, *Long-term vs. Short-term Discussion*). In addition, *High Sustainability* companies are significantly more likely to attract dedicated rather than transient investors (-2.29 vs. -5.31, *Long-term vs. Short-term Investors*)[14].

In sum, our findings suggest that *High Sustainability* companies are effective communicators of their long-term approach: not only do they speak in terms of the long-run but in fact, they are persuading long-term investors to invest in their stock.

6. Measurement and Disclosure

Measurement

Performance measurement is essential for management to determine how well it is executing on its strategy and to make any necessary corrections (Kaplan and Norton, 2008). Companies that regard shareholders as their only stakeholder have a relatively simpler measurement challenge since they can simply focus on the financial results affecting its stock price. Companies that focus on multiple stakeholders, on the other hand, have a more complex management challenge; financial metrics alone will not inform them or their stakeholders sufficiently regarding how well they are meeting their expectations. Instead, they must measure results that are directly relevant to the stakeholder group (e.g. career opportunities for employees) by taking a "Balanced Scorecard" approach to measuring performance. Further complicating their measurement challenge is that the metrics across stakeholders are not directly comparable and their relationship to financial performance is rather difficult to characterize. Despite these limitations, the quality, comparability, and credibility of information are enhanced by internal and external audit procedures that verify its accuracy and/or the extent to which certain reporting practices are being followed.

Given that *High Sustainability* companies place a greater emphasis on stakeholder engagement than the *Low Sustainability* ones, we expect that they would also place more emphasis on performance metrics that are relevant to non-shareholding stakeholder groups. In particular, we expect *High*

[14] Similar to previous sections, in unreported results from a multivariate analysis of these long-term oriented behaviors we find consistent results.

Sustainability companies to put more emphasis on measuring and monitoring performance, auditing performance measures, adherence to standards, and reporting on performance. Using the proprietary SAM data described in Section 4, we are able to test for differences along these dimensions across the two groups. Table 5 presents comparisons 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, and the last column presents a significance test of the differences between the two groups.

For Employees, we find significant differences on three of the four metrics. *High Sustainability* companies 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*). We find no significant difference 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 companies to collect such measures (e.g., as required by the Occupational Health and Safety Administration [OSHA]), thereby eliminating any potential differences; the high adoption percentages for both groups indicate that this might well be the case (95.2% vs. 89.5%, *KPI Labor / EHS Performance Tracking*). These results reflect the greater commitment that *High Sustainability* companies make to the employee stakeholder group.

Panel B focuses on Customers and shows the frequency of adoption of seven relevant practices. Contrary to our expectations and our findings regarding Employees, there is virtually no difference between *High and Low Sustainability* companies on any one of these metrics, although across all metrics more companies in the *High Sustainability* group measure customer-related data. If anything, one would 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 we note that for both groups, a very small percentage of companies are measuring the quality of this relationship. One possible reason could be the rather nascent state of customer relationship management practices. Moreover, our data seem to indicate 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 and only 6.8% and 8.1%, respectively, of the *High Sustainability* companies measure it. 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 arguably easier to measure.[15]

Nevertheless, there are some significant differences between the two groups in terms of Suppliers. We examine the standards used to select and manage relationships with Suppliers, which can determine the quality of the relationship they have with the company. 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* companies 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* companies. Similarly, on social issues for selecting and evaluating suppliers, significantly more *High Sustainability* companies use 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* companies 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 whereby 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* companies accord to nonfinancial metrics (e.g., linking executive compensation to such metrics), we predict a greater use of assurance by *High Sustainability* companies than *Low Sustainability* companies.

[15] Because some of the customer metrics are more likely to be relevant to business-to-consumer (B2C) rather than business-to-business business (B2B) models, we restricted the sample to B2C paired companies. However, the results were very similar with no significant differences across the two groups, although the absolute level of measurement was slightly higher for both groups.

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, the results are marginally significant but the one case where our hypothesis does get strong support is the practice of having an external third-party conduct an audit of the company's corporate sustainability report (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 a company bases its performance measurement on relevant external standards and programs, such as the Global Reporting Initiative's G3 Guidelines; 16.2% of the *High Sustainability* companies do this, in contrast to only 2.7% of the *Low Sustainability* ones.

We note that very few of the *High Sustainability* companies implement assurance practices: of the 11 focal items in Panel D the highest percentage for the *High Sustainability* companies is 16.2%. There are a number of reasons why assurance procedures are so uncommon. Technologies for measuring and auditing nonfinancial information are still in a relatively nascent 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 is 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. Three other barriers are important to mention. First, 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 amount they already face for performing financial audits. Third, firms which do have capabilities for auditing nonfinancial information (e.g. engineering firms for environmental information), lack the global scale and full range of capabilities that would be required to serve large corporations. While a large number of boutique companies could be hired, the aggregate transaction and coordination costs can often be prohibitively high[16].

Disclosure

Shareholders are informed about a company's performance through required financial disclosures. Similarly, for non-shareholding stakeholders to know how well a company is meeting their expectations, credible and accurate information on the relevant performance metrics must be disclosed. Thus, another important element is the extent to which a company is willing to be holistically transparent in its external

[16] Similar to prior sections, we construct a variable that summarizes all the measurement and assurance practices discussed in Panels A through D by calculating the percentage of practices that a focal company adopted. We then run a multivariate specification and in unreported results we confirm the main findings of table 5: High Sustainability companies adopt significantly more of the nonfinancial measurement (except Customers) and assurance practices.

reporting about its nonfinancial performance. Just as reporting of nonfinancial information to the company's board is an important part of corporate governance, external reporting of performance improves managerial accountability to shareholders and other non-shareholding stakeholders. Therefore, we expect *High Sustainability* companies to be more transparent and to exhibit a better balance between financial and nonfinancial information in their external disclosures.

We test this prediction in Panel A of Table 6 based on four 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, social, and governance topics based on a scale of 0% to 100%. The average Bloomberg ESG Disclosure score for *High Sustainability* companies is 29.90%, compared to 17.86% for the *Low Sustainability* ones. Respectively, the Thomson Reuters ESG Disclosure scores are 46.38% and 36.91%.[17] Both of these differences are statistically significant across the two groups. We also compare the two groups in terms of the percentage of companies whose sustainability reports cover their entire global activities, using Thomson Reuters ASSET4 data. All else equal, 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* companies have a global report compared to only 8.31% of the *Low Sustainability* companies.

Using data provided by SAM, we also test whether *High Sustainability* companies are more likely to integrate environmental and social information with their financial reporting. This type of integration is increasingly being advocated as a way to ensure that corporations are held accountable for their impact on the environment and society (Eccles and Krzus, 2010) and, in fact, it was recently mandated in South Africa. We find that 25.7% of the *High Sustainability* companies integrate social information and 32.4% integrate environmental information. Correspondingly, only 5.4% and 10.8% of the *Low Sustainability* companies do so. Moreover, we analyzed 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* companies is 0.96, suggesting that, on average, these companies

[17] The Thomson Reuters ESG disclosure score screens fewer data points for the presence of disclosure and that is why companies tend to have higher disclosure scores.

[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.

are using an equal number of financial and nonfinancial keywords in their discussion with the investment community. For *Low Sustainability* companies, the ratio is 0.68, suggesting that they discuss less frequently nonfinancial aspects of the business.[19]

7. Corporate Performance

Our analysis shows that the *High Sustainability* companies behave in ways that are more consistent with a team production model of the firm (Blair and Stout, 1999) rather than the "principal/agent" model. This former model emphasizes the importance of constructive horizontal relationships among stakeholders, rather than the vertical relationships between a principal (shareholders) and an agent (executives). In the former, the role of the board is seen as representing the interests of a dispersed group of shareholders. In the latter, the role of the board is seen as representing the interests of the corporation itself. The board acts as a "mediating hierarch" in order to give all stakeholders the necessary confidence to make company-specific investments which will create a "pie" larger than the one they can create for themselves and ensure that they are rewarded, at least above what they can otherwise earn. From this model, the elements of the *High Sustainability* companies follow and are internally consistent. The board will explicitly take responsibility for non-shareholding stakeholders' interests (e.g. sustainability committee), and will reward executives for performance measures broader than shareholder return. For management to execute on a strategy that takes account of non-shareholding stakeholders' interest, as discussed earlier, engagement is essential. Maintaining these relationships requires a long-term commitment by both the company and its stakeholders in order for sacrifices in the short-term by one group for another to be rewarded over the long-term. This process requires a broad set of performance metrics, including nonfinancial ones, which must be credibly reported externally so that stakeholders have a way to monitor the extent to which their needs are being met.

This argument generates the question of whether *High Sustainability* companies under or outperform the *Low Sustainability* ones. On the one hand, *High Sustainability* companies might underperform because, for example, they experience higher labor costs by providing more benefits to their employees, and forego valuable business opportunities that do not fit their values and norms. On the other hand, *High Sustainability* companies might outperform 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 to remain competitive given the additional environmental and social constraints. For example, Philips has translated its environmental commitments to product innovation around energy-efficient light bulbs and into developing solar-power lighting in sub-Saharan Africa.

[19] In unreported results from a multivariate analysis (OLS and logistic models as appropriate) we control for company size, growth opportunities, and performance measured at the end of 2009. Consistent with the main results, we find that High Sustainability companies adopt significantly more of the nonfinancial disclosure mechanisms.

The performance question can also be framed in terms of the specific processes and practices distinguishing the *High Sustainability* companies from the *Low Sustainability* ones. Such processes and practices could actually hurt performance for three reasons: (1) additional costs or inefficient resource allocation, (2) distraction of the board's and management's attention from creating value for shareholders, and perhaps confusing the market as well, (3) creating expectations that cannot be met, leading to increased risk. Some of the processes and practices in which the *High Sustainability* companies are engaged, such as stakeholder engagement and measuring, reporting, auditing of nonfinancial performance metrics, are either additional costs or they are resource commitments which could be spent in alternative ways. Time spent by the board on sustainability issues is time not spent on other issues. When the board is considering the interests of non-shareholding stakeholders and top management is partially rewarded for related performance metrics, both may inadvertently fail to focus on issues that are important for creating shareholder value. The same can be true by placing more emphasis on nonfinancial metrics in conversations with analysts who, in turn, may begin to doubt the company's commitment to shareholder value, putting pressure on the company's stock price. Similarly, an emphasis on the longer term may reduce discipline for achieving short-term results, raising market concerns or perhaps maybe even causing the market to think that this emphasis on the long-term is because management knows it will not be able to deliver performance in the short term.

Engaging stakeholders, having the board consider their interests, measuring (and reporting) on performance for non-shareholding stakeholders, and rewarding management for delivering on it can increase stakeholders' expectations. Satisfying such expectations might then lead to stakeholders raising their demands even more to try and extract higher value from their relationship with the company. These demands can further weaken a company's ability to deliver value to its shareholders. Moreover, higher expectations can create an "expectation/performance" gap (Eccles, Newquist, and Schatz, 2007) which can have negative repercussions on the part of non-shareholding stakeholders and shareholders as well.

A counterargument can be presented for each of the three reasons cited above. In all cases, the counterargument is consistent with the team production model of the corporation with stakeholder engagement being the mechanism for securing the company-specific investments which are necessary. First, by engaging with its stakeholders, the company has the opportunity to help them understand that their interests ultimately depend upon the company's ability to satisfy the interests of all other stakeholders, including shareholders. As a result, the company can generate with stakeholders "win/win" situations through innovative solutions that benefit a particular stakeholder group while, increasing the pie for all stakeholders. These solutions are more likely if stakeholders have made the necessary company-specific investments, another core element of the team production model. Furthermore, the costs of engaging with stakeholders may be lower than those resulting from failure to engage (e.g. consumer

boycotts). Similarly, gathering, reporting, and auditing nonfinancial information enables management to make better resource allocation decisions vis-à-vis the different stakeholder groups to optimize the team production model. Reporting and auditing is also important for establishing credibility and trust in stakeholder relations, increasing the probability that innovative "win/win" solutions will unravel.

Second is the distraction argument. We suggest that stakeholder engagement will be most effective when taken seriously by top management. Having the board focused on sustainability and paying top management for sustainability performance are two powerful mechanisms for making this happen. Making investments to improve nonfinancial performance in the short term that will pay off in the form of improved financial performance in the long term requires that investors believe management has a strong "business case" for these investments. More robust analyst calls that discuss financial and nonfinancial performance in an integrated way and from a long-term perspective, backed up by the reporting and auditing of nonfinancial performance metrics, give investors the confidence that management does indeed have such a case.

Third is the increasing expectations argument. In a well-managed team production model approach, this is unlikely to happen. Stakeholders, all of whom have made company-specific investments, understand that the value for them depends upon value being created for others, even accepting that tradeoffs often exist, at least in the short term. A board focused on sustainability in its role as a "mediating hierarch" gives stakeholders confidence that this will take place. In fact, we would argue that the risk of increasing expectations is actually greater when engagement is less. In this case, stakeholders do not have the benefit of a broader and deeper understanding of how their objectives are related to those of other stakeholders. Consequently, they only focus on their own, "raising the bar" every time their demands have been met until management can no longer do so, perhaps resulting in campaigns that impose additional costs on the company.

Empirical examinations of the link between sustainability and financial performance to date have resulted in contradictory findings, ranging from a positive to a negative to a U-shaped, or even to an inverse-U shaped relation (Margolis and Walsh, 2003; Peloza, 2009; Aguinis and Glavas, 2012). Importantly, none of these studies has measured financial performance over long enough periods of time to allow for superior sustainability performance to impact either positively or negatively financial performance. To delve into the performance implications we track the stock market performance of companies in both groups from 1993 to 2010. The use of stock returns addresses concerns over reverse causality in the absence of private information[20]. Accordingly, we find that *High Sustainability* companies

[20] In the presence of private information, reverse causality is a concern. For example, if managers with private information that their companies are going to outperform in the future adopt environmental and social policies today, then the expectation of higher stock returns is causing the adoption of these policies. However, we believe that this explanation is unlikely to obtain for a number of reasons. First, we are not aware of a theory suggesting that managers expecting to outperform market expectations in

significantly outperform *Low Sustainability* companies. Investing $1 in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of *High Sustainability* companies would have grown to $22.6 ($14.3) by the end of 2010. In contrast, investing $1 in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of control companies 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 relative to the market that may be attributed, to a considerable extent, to the way we selected our sample (i.e. survivorship bias). However, the *relative* performance difference is not affected since, by construction of our sample, both groups are equally likely to have survived. Accordingly, we find that the 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 fact, when we examine the performance of the two portfolios, we find that the *High Sustainability* portfolio significantly outperforms the control portfolio in 11 out of the 18 years, and 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%.[21]

Because in our sample selection process we identify firms that were included in the ASSET4 dataset until 2003 we also examine the stock price performance of the two groups after 2003. We find that the annual abnormal performance is higher for the *High Sustainability* group compared to the *Low Sustainability* group by 3.0% (significant at less than 5% level) on a value-weighted base and by 2.5% (significant at less than 10% level) on an equal-weighted base. This result suggests that survivorship bias and selection in the ASSET4 dataset arising from our research design is unlikely to account for the estimated performance differences.

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 also examine the performance of the two groups for the three years before 1993 (untabulated). We find that the two groups exhibit very

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the future would be more likely to adopt environmental and social policies today. 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.

[21] We performed an additional analysis where for each pair of matched companies we construct a portfolio that buys the *High Sustainability* companies and sells short the *Low Sustainability* companies. For each one of those 90 pairs we run a four-factor model and estimate 90 alphas. If an alpha is positive it means that the *High Sustainability* company has outperformed the *Low Sustainability* company after taking into account exposure to systematic risk factors, and vice versa. In untabulated results, 78% of the estimated alphas are positive, suggesting that for 78% of the pairs, the *High Sustainability* company has a higher performance than the *Low Sustainability* company. Thirty-eight percent of the alphas are positive and significant. We note that only 3.5% of the pairs have negative and significant alphas. The parametric test that alphas are significantly different from zero has a p-value of 0.0123 and the non-parametric test has a p-value of 0.0235

similar performance throughout these three years: cumulative stock returns are higher for the *High Sustainability* group by only 1%. These results are consistent with our previous finding that matching in any one of the years between 1990 and1993 has little impact on the composition of the pairs.

Sector Analysis

To shed light on the mechanisms that generate this outperformance, we construct a cross-sectional model where the dependent variable is the alpha for each company from the four-factor model and the independent variable is an indicator variable for whether a company is a member of the *High Sustainability* group. We interact this variable with three additional indicator variables, each representing sectors where we expect this outperformance to be more pronounced. The first takes the value of one for companies that are in business-to-consumer (B2C) sectors and zero for companies that are in business-to-business (B2B) sectors. We expect that *High Sustainability* companies will outperform their counterparts more in B2C businesses. In B2C businesses, individual consumers are the customers, in contrast to B2B businesses where companies and governments are the customers. Arguably, the sensitivity of individual consumers to the company's public perception is higher (e.g., Corey, 1991; Du, Bhattacharya, and Sen 2007; Lev, Petrovits, and Radhakrishnan, 2010) and, as a result, the link between sustainability and greater customer satisfaction, loyalty, and buying decisions should be stronger in B2C businesses. In fact, several articles in marketing find that social responsibility initiatives have a significant influence on multiple customer-related outcomes (Bhattacharya and Sen, 2004). For example, based on results from laboratory experiments, sustainability practices (in their context termed as CSR) are reported to affect, either directly or indirectly, consumer product responses (Brown 1998; Brown and Dacin 1997), customer–company identification (Sen and Bhattacharya, 2001), customer donations to nonprofit organizations (Lichtenstein, Drumwright, and Bridgette 2004), and customers' product attitude (Berens, Van Riel, and Van Bruggen 2005). More recently, Tian et al. (2011) find that Chinese consumers, who show a high level of awareness and trust of sustainability (in their context termed as CSR), are more likely to provide a positive corporate evaluation, product association, and purchase intention for companies with a good sustainability record.

The second moderator is an indicator variable that takes the value of one for companies that are in sectors where competition is predominantly driven by brand and reputation. Competing in such industries usually requires employing high quality human capital for developing new products and sophisticated marketing campaigns, and investment in continuous and rapid innovation. In these sectors, we expect that the link between sustainability and attracting better employees, attaining higher levels of innovation, and the management of reputational risk will be stronger. We proxy for sectors where brands and reputation are relatively more important by constructing an indicator variable taking the value of one for sectors that score at the fourth quartile of the market-to-book ratio in 1993 across all companies.

Finally, the third moderator is an indicator variable that takes the value of one for sectors where companies' products significantly depend upon extracting large amounts of natural resources (e.g., oil and gas, chemicals, industrial metals, and mining). Particularly in recent years, companies in these sectors have been subject to intense public scrutiny and many times have been in conflict with their local communities. Moreover, environmental impact and resource scarcity are increasingly pressing social issues that have increased regulation and put pressure on companies to minimize their environmental impact by becoming more resource efficient. Therefore, we expect the link between sustainability and a more secure license to operate, better community relations, and commercial benefits from and resource efficiency to be stronger in these sectors.

Table 8 presents the results from the cross-sectional model. In all specifications we include sector fixed effects. In the first column, the model includes as an independent variable only the indicator variable for *High Sustainability* companies. As expected, the coefficient is positive and significant. In the second column we introduce the interaction terms with the moderator variables. All three coefficients on the interaction terms are positive, as predicted. The coefficients on *High Sustainability x B2C* and *High Sustainability x Brand* are significant at the 5% level. The coefficient on *High Sustainability x Natural Resources* is significant at the 10% level. *High Sustainability* companies in B2C or Brand sectors outperform their counterparts in 13 out of 18 calendar years whereas *High Sustainability* companies in the Natural Resources sector outperform their counterparts in 11 out of 18 years. [22] Overall, these results support our predictions that companies that integrate social and environmental issues in their organizational processes and practices have benefited relatively more in B2C sectors, in sectors where companies compete on the basis of brands and human capital, and where companies' products depend on extracting large amounts of natural resources.[23]

Alternative Explanations

Alternative Explanation I: Price Pressure from SRI funds

[22] We studied the outperformance of *High Sustainability* firms over time in the three sectors. We did not observe any similarity across sectors in terms of when the outperformance starts. Outperformance in natural resources started later than outperformance in the brand and B2C sectors.

[23] We also explored policy adoption within the *Natural Resources*, *B2C*, and *Brand* sectors. In untabulated results, we find that the *Natural Resources* sector has significantly lower adoption of social policies and significantly higher adoption of environmental policies. Firms in the *B2C* category exhibit the opposite pattern: a higher adoption of social policies and a lower adoption of environmental policies. Firms in the *Brand* category have a higher adoption of policies across almost all issues. Through cluster analysis, we also check for any specific configurations of policies appearing more often within the *High Sustainability* group, but do not find any strong evidence of such clusters. The only clustering that somewhat appears in the data is a division between environmental and social policies. We therefore create three categories: the environmental cluster which accounts for 21% of the *High Sustainability* firms, the social cluster (26%) and the no policy cluster (53%). We note that these clusters are not tight and their statistical significance is moderate, at best. Nevertheless, in untabulated results we reproduce Table 8 by including indicators for firms that appear to be members of an environmental policy cluster or a social policy cluster (no policy is the omitted category). The results suggest that the coefficient on the social policy cluster has a significant positive coefficient whereas the coefficient on the environmental policy cluster is also positive but its significance is moderate.

One potential alternative explanation for the higher stock returns for *High Sustainability* companies is price pressure from the emergence of Socially Responsible Investing (SRI). According to the Social Investment Forum, institutional investors that claim to incorporate ESG data into their investment decisions had $162 billion in assets under management in 1995 and $2.5 trillion in 2010. However, the number of SRI funds that actually practice ESG integration in a systematic way is lower, with most SRI funds practicing "negative screening" (i.e., excluding from their investment universe specific sectors, such as tobacco and weapons manufacturers), an investment strategy that does not affect our results since the two groups have exactly the same industry composition. Nonetheless, to better understand whether our results are driven by price pressure, and to mitigate concerns around the inefficiency of stock prices as a performance metric, we examine the accounting performance of the two groups of companies, which should not be affected by price pressure in stock markets. Moreover, 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.

We find that *High Sustainability* companies outperform the *Low Sustainability* ones when we consider accounting rates of return. Based on ROA, investing $1 in assets in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of *High Sustainability* companies would have grown to $7.1 ($3.5) by the end of 2010. In contrast, investing $1 in assets in a value-weighted (equal-weighted) portfolio of control companies would have grown to $4.4 ($3.3). Based on ROE, investing $1 in book value of equity in the beginning of 1993 in a value-weighted (equal-weighted) portfolio of *High Sustainability* companies would have grown to $31.7 ($15.8) by the end of 2010. In contrast, investing $1 in book value of equity in a value-weighted (equal-weighted) portfolio of control companies would have grown to $25.7 ($9.3).[24] The portfolio of *High Sustainability* companies outperforms the portfolio of control companies in 14 out of 18 years.

Alternative Explanation II: Sustainability as a Luxury Good

Another alternative explanation is that the adoption of environmental and social policies is a luxury good that companies can afford when they are performing well. Therefore to include in the *Low Sustainability* group companies that throughout the years did not adopt these policies is equivalent to selecting companies that will underperform. Econometrically, a bias in our results would only arise if an unidentified characteristic is correlated with the adoption of sustainability policies, is uncorrelated with performance in the early 90s, and it is correlated with performance after 1993. However, the argument is inconsistent with the fact that in the early 1990s the two groups of companies had statistically identical performance but had adopted very different policies. It is also inconsistent with operating performance

[24] 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.

and leverage not being significant in the logit model of propensity score matching, and with the fact that *Low Sustainability* companies have positive alphas in the future. Moreover, when we test if past profitability is correlated with future adoption of policies (i.e. changes in *Sustainability Policies*) we do not find a significant association. The coefficient on past performance (e.g., three-year cumulative ROA, ROE, or stock returns) is slightly negative and insignificant. Finally, the luxury good argument would predict that companies would drop sustainability policies in challenging times, such as during the financial crisis of 2008 and 2009. Yet, contrary to this argument, we find that companies increased the number of policies during the financial crisis. *Sustainability Policies*, our equal-weighted policy index, increased from 0.28 in 2007 to 0.33, 0.34, and 0.36 in years 2008, 2009, and 2010 respectively.

Alternative Explanation III: Omitted Risk Factor

The stock market outperformance documented here might be driven by an omitted risk factor that we have been unable to identify and account for. Accordingly, we examine analyst surprises to annual earnings announcements to differentiate between the omitted risk factor explanation and the market not fully incorporating in stock prices the future profitability of *High Sustainability* companies. Table 9 shows the results of analyzing forecast errors for the two groups. We report results using as dependent variables forecast errors (i.e., actual earnings minus the consensus forecasts) deflated by both the standard deviation of analyst forecasts (SUE) and the absolute consensus forecast (%FE). Consistent with previous research, we use the most recent consensus forecast error before the earnings announcement (Edmans, 2011). The coefficient on *High Sustainability* is positive and significant, suggesting that *High Sustainability* companies have higher positive forecast errors and analysts being more positively surprised by the future earnings of these companies.

Alternative Explanation IV: Survivorship Bias and Future Default Rates

For our main sample we identified companies that had survived until the late 2000s since we were interested in studying companies that have adopted environmental and social policies for multiple consecutive years. Because we have imposed the survivorship criterion for both groups of companies, it should not affect the relative performance of the two groups. However, one remaining concern is that being a *High Sustainability* company may be a high risk-high return strategy, linked to a higher probability of default. In untabulated results, we calculate the index of *Sustainability Policies* for all US companies with available data in 2003. Then we calculate the probability of default and liquidation for each company between 2004 and 2010. We do not observe any systematic relation between *Sustainability Policies* and probability of default. Controlling for other determinants of default, we find that the coefficient on *Sustainability Policies* is negative and insignificant, suggesting that companies that have adopted more such policies have a lower probability of default, even though this estimate is not reliably different than zero.

Alternative Explanation V: Corporate Governance as a Correlated Omitted Variable

Correlated omitted variables could be causing both the adoption of sustainability policies and future performance. Our matching procedure attempted to create two statistically identical groups of companies, but other characteristics that were not included could still be influencing the results. One important such variable is corporate governance. Gompers et al. (2003) show that companies with more shareholder-friendly governance provisions (G-index) outperformed their competitors in the 1990s. If *High Sustainability* companies have a lower G-index, then our results might be driven by governance differences. However, we find that companies classified as *High Sustainability* have a higher G-index (average is 9.6) compared to *Low Sustainability* companies (average is 8.2), suggesting that *High Sustainability* companies have more powerful boards and less shareholder-friendly provisions, consistent with a team-production model of governance. Moreover, we analyzed the board characteristics of the two groups of companies in terms of independence and size and did not find any differences across the two groups.

8. Discussion

In this article, we study a matched sample of 180 US companies, 90 of which we classify as *High Sustainability* companies while another 90 we classify as *Low Sustainability* companies The *Low Sustainability* companies largely correspond to the traditional model of corporate profit maximization in which social and environmental issues are typically regarded as externalities. Often enough, responsibility for forcing corporations to account for such externalities, whether positive or negative, rests with governments and various laws and regulations that postulate remedial actions. The *High Sustainability* companies, in contrast, not only pay attention to externalities but, in fact, they 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. In addition, during the 18-year period we study, the *High Sustainability* companies outperform the *Low Sustainability* ones in terms of both stock market and accounting measures while the market did not actually expect this outperformance. The processes, practices and performance of the *High Sustainability* companies are consistent with a team production theory of the firm according to which the corporation represents a “nexus of firm-specific investments” by stakeholders rather than a “nexus of contracts” and constitutes a solution to team production problems (Blair and Stout, 1999: p.258).

We note that as with any study that lacks random assignment of treatment in a laboratory setting, causality rather than correlation between the independent and dependent variables of interest is up for debate. While we believe that our research design has many appealing characteristics, we acknowledge the possibility that confounding factors might still exist. Future research can examine the robustness and generalizability of our results to other settings, in other countries, and across alternative company types, such as private or smaller companies.

We suggest several areas for future research. The first area is to develop a better understanding of the conditions under which companies decide to incorporate social and environmental issues into their organizational processes and practices. In this study, we do not observe the transition of any company from the *Low Sustainability* to the *High Sustainability* group. This finding raises the question of why managers of *Low Sustainability* firms do not adopt more sustainability policies given that in the long-term, these policies are not costly in terms of sacrificing financial performance. We speculate that they do not because of three main reasons. First, an argument based on agency could partially explain the non-adoption of these policies. We find that *High Sustainability* firms exhibit significantly lower stock return volatility, which in turn implies a lower valuation of executive stock options, thus directly impacting the wealth of senior executives. Indeed, a rich literature documents how managers influence stock return volatility to increase their executive compensation (Bebchuck, Fried and Walker, 2002). Second, a long literature within strategy suggests that typically managers suffer from (cognitive) inertia (or path-dependency) and in many cases they are slow (or "boundedly rational") when it comes to adapting business models, operating conditions, and making strategic decisions, even when all these actions could be financially beneficial (e.g. Henderson and Clark, 1990; Christensen, 1997; Tripsas and Gavetti, 2000). Third, according to our findings, numerous organizational processes and structures are consistent with a commitment to sustainability in terms of governance, stakeholder engagement, long-term orientation and reporting and disclosure. Yet existing literature suggests that even if managers know that they should be adopting such sustainability policies, they might not know exactly what to do with each one of them, how to effectively integrate them, and how to reconfigure the entire organization towards sustainability since the required knowledge can be tacit and/or complex (Winter, 1987; Winter, 1988), or may involves building complementarities (Rivkin, 2000). We note, though, that this paper should not be taken to imply that firms permanently cannot switch from the *Low* to the *High Sustainability* group. Indeed, what our analysis does seem to point to is a sufficient persistence, over many years, of those organizational processes and practices that may be linked to performance differentials. Therefore, future studies can build on the literature that explores persistence in fundamental organizational traits, but concurrently seeks to understand processes of change over time via the adoption of organizational practices that are consistent with the given organizational trait. A useful starting point could be Zollo and Winter (2002)

who develop a conceptual model to discuss mechanisms of deliberate organizational learning that co-evolve over time and enable organizations to develop dynamic capabilities (Teece, Pisano and Shuen, 1997).

The second area is the mechanisms by which sustainability issues get integrated. Two companies under the same conditions favoring the integration of sustainability issues could differ in the extent, speed, and sequence with which they are able to do so. Do the elements of corporate governance, stakeholder engagement, long-term time horizon, and broader metrics for measurement and reporting evolve simultaneously and to the same extent? Interestingly, even on those characteristics where the *High Sustainability* companies are significantly different than the *Low Sustainability* ones, the absolute levels of adoption are relatively low in most instances. This suggests that adoption of these practices within an existing organizational configuration is costly and that frictions may impede the creation of sustainable organizations. Therefore, understanding the choice amongst the range of available sustainability policies constitutes a promising area for future research based on the findings of this study. It also raises another interesting question, which is "What is the optimal degree of adoption of sustainability policies and practices?" Is optimality defined in terms of equal attention to all of the elements within some constraints or can a company practice one element to a very strong degree and pay less attention to others? Since sustainability involves tradeoffs, both across financial and nonfinancial objectives, and between nonfinancial objectives themselves, such choices need to be well understood in order to inform decision-making.

Moreover, our study contributes to the literature that focuses on the team production model of the corporation (e.g. Blair and Stout, 1999) by providing empirical evidence of the criticality of social and environmental actors as key corporate stakeholders. Our findings also hint towards the possibility that organizational structures that reinforce the team production model may be associated with long-term outperformance. Therefore, we lend preliminary support to the idea that conceptualizing the public organization as a solution to team production problems might be a superior conceptualization vis-à-vis the principal-agent model. Importantly, our work contributes towards a more nuanced understanding of the shifting perceptions surrounding the shareholder-primacy model. Blair and Stout (1999) indicate that the historical redirection of wealth towards shareholders, and thus the indirect reinforcement of the shareholder primacy model, may have been the result of a shift in market forces. To the extent that global social and environmental challenges are currently re-shuffling market forces in a way that steeply increases the cost of remaining in the productive coalition for non-shareholding stakeholders (e.g. carbon pricing), the evidence for long-term outperformance that we document here may lead us to expect in the future a rebalancing of the allocation of corporate surplus away from shareholders and towards non-

shareholding stakeholders. This will undoubtedly have important implications for the notion of shareholder primacy.

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Table 1 Summary statistics for two groups

Panel A: Sector composition of the sample

Sector	% of sample		Sector	% of sample
Oil & Gas Producers	4.40%		Household Goods & Home Construction	3.30%
Oil Equipment, Services & Distribution	3.30%		Leisure Goods	3.30%
Chemicals	5.60%		Personal Goods	2.20%
Industrial Metals	1.10%		Health Care Equipment & Services	7.80%
Mining	1.10%		Pharmaceuticals & Biotechnology	4.40%
Construction & Materials	1.10%		Retailers	5.60%
Aerospace & Defense	1.10%		Media	3.30%
General Industrials	4.40%		Travel & Leisure	3.30%
Electronic & Electrical Equipment	2.20%		Fixed Line Telecommunications	2.20%
Industrial Engineering	3.30%		Mobile Telecommunications	1.10%
Industrial Transportation	1.10%		Electricity	6.70%
Support Services	1.10%		Gas, Water & Multi-utilities	3.30%
Automobiles & Parts	3.30%		Software & Computer Services	5.60%
Beverages	1.10%		Technology Hardware & Equipment	8.90%
Food Producers	4.40%		**Total**	**100.00%**

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

		Total assets		ROA		ROE	
Sustainability	N	Average	St. Dev.	Average	St. Dev.	Average	St. Dev.
Low	90	8,182	28,213	7.54	8.02	10.89	20.61
High	90	8,591	22,230	7.86	7.54	11.17	16.15
p-value diff		0.914		0.781		0.919	

		Leverage		Turnover		MTB	
Sustainability	N	Average	St. Dev.	Average	St. Dev.	Average	St. Dev.
Low	90	0.57	0.19	1.05	0.62	3.41	2.18
High	90	0.56	0.18	1.02	0.57	3.44	1.88

p-value diff	0.726	0.703	0.927

Panel A: Frequency tabulation of sector membership for the 180 companies 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 companies. 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: Corporate Governance

	Sustainability		Difference
Governance	Low	High	p-value
Board			
Formal Board Responsibility / Corporate Citizenship	21.6%	52.7%	<0.001
Sustainability committee	14.7%	40.9%	<0.001
Compensation			
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 governance 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 board 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.

Table 3: Stakeholder Engagement

	Sustainability		Difference
Stakeholder Engagement	Low	High	p-value
Prior			
Opportunities Risks Examination	2.7%	31.1%	<0.001
Stakeholder Identification	10.8%	45.9%	<0.001
Training	0.0%	14.9%	<0.001
During			
Concerns	2.7%	32.4%	<0.001
Grievance Mechanism	2.7%	18.9%	<0.001
Common Understanding	13.5%	36.5%	<0.001
Scope Agreement	8.1%	36.5%	<0.001
Targets	0.0%	16.2%	<0.001
After			
Board Feedback	5.4%	32.4%	<0.001
Result Reporting	0.0%	31.1%	<0.001
Public Reports	0.0%	20.3%	<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. "*Opportunities Risks Examination*" is the percentage of companies that undertake an examination of costs, opportunities and risks prior to a particular stakeholder engagement. "*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. "*Concerns*" is the percentage of companies for which the process of engagement ensures that all stakeholders can rise their concerns. "*Grievance Mechanism*" is the percentage of companies where grievance mechanisms are agreed upon by all involved parties. "*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. "*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.) "*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. "*Result Reporting*" is the percentage of companies with results of the engagement process being reported to the stakeholders involved. "*Public Reports*" is the percentage of companies that make the results of the engagement process publicly available.

Table 4: 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). "*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.

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: Customers

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

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. "*EMS*" is the percentage of companies that use EMS in their certification/audit/verification process. "*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. "*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. "*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. "*OHS Standards*" is the percentage of companies that use occupational health & safety 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. "*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.

Panel D: Assurance

	Sustainability		Difference
Assurance	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
Data Aggregation Review	5.4%	14.9%	0.058
Document Review	5.4%	14.9%	0.058
Relevant Management Interviews	5.4%	12.2%	0.089
Mapping against Standards	2.7%	16.2%	0.031
Auditor Competency Disclosure	2.7%	5.4%	0.589
Relevant Management Discussions	5.4%	14.9%	0.058
Sample Site Visits	2.7%	12.2%	0.058
Stakeholder Consultation	0.0%	5.4%	0.131
Distribution Network Quality			
External Audits	8.1%	12.2%	0.221
Standardized External Audits	5.4%	12.2%	0.058
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.

Table 6: Nonfinancial Disclosure

Nonfinancial disclosure	Low Sustain.	High Sustain.	Diff. (p-value)
Quantity			
ESG Disclosure – Bloomberg	17.86	29.90	<0.001
ESG Disclosure - Thomson Reuters	36.91	46.38	<0.001
Coverage			
Sustainability report covers global activities	8.3%	41.4%	<0.001
Integration			
Nonfinancial vs. Financial Discussion	0.68	0.96	<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. "*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 company. "*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. "*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.

Table 7: Stock Market Performance

	Value-weighted				Equal-weighted			
	Low Sustainability		High Sustainability		Low Sustainability		High Sustainability	
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 companies. HML is the monthly return on a hedge portfolio that mimics the stock returns of low MTB

minus high MTB companies. UMD is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns companies. The intercept represents the abnormal stock return for the average month. We estimate the model for the period 1993-2010.

Table 8: Stock Market Performance and Sector Membership

Parameter	Estimate	p-value	Estimate	p-value
Intercept	0.0118	<.0001	0.0124	<.0001
High Sustainability	0.0019	0.014	-0.0008	0.584
High Sustainability x B2C			0.0040	0.031
High Sustainability x Brand			0.0038	0.044
High Sustainability x Natural Resources			0.0018	0.100
Sector fixed effects	Yes		Yes	
Adj R-squared	32.5%		35.9%	
N	180		180	

This table presents estimates from OLS models where the dependent variable is the alpha for each company from a Fama-French four-factor model augmented by the Carhart momentum factor. "*High Sustainability*" is an indicator variable that takes the value of one if a company is included in the High Sustainability group. "B2C" is an indicator variable that takes the value of one for companies that operate in sectors where the customers are individual people instead of companies or governments. "Brand" is an indicator variable that takes the value of one for companies that operate in sectors that rank at the fourth quartile of market-to-book ratios in 1993. "Natural resources" is an indicator variable that takes the value of one for companies that operate in sectors that require the extraction of large amounts of natural resources. Standard errors are robust to heteroscedasticity.

Table 9: Forecast Errors

	SUE		%FE	
Parameter	Estimate	p-value	Estimate	p-value
Intercept	0.860	0.008	0.082	0.000
High Sustainability	0.245	0.007	0.008	0.068
Size	-0.022	0.526	-0.006	0.006
MTB	0.899	0.003	0.011	0.429
Sector f.e.	Yes		Yes	
Year f.e.	Yes		Yes	
N	2406		2680	
Adj R-squared	2.8%		3.7%	

This panel reports coefficient estimates and the statistical significance of these coefficients from OLS models where the dependent variable is the difference between actual earnings and the mean estimate over the standard deviation of the estimates (SUE) or the difference between actual earnings and the mean estimate over the mean estimate (%FE). "*High Sustainability*" is an indicator variable that takes the value of one if a company 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. Standard errors are robust to heteroscedasticity and clustered at the company level.

Appendix

Name	Description	High Sustainability	Low Sustainability
Bonus Plan for Employees/Employees	Does the company provide a bonus plan to most employees?	21%	3%
Community/Policy I	Does the company have a policy to strive to be a good corporate citizen or endorse the Global Sullivan Principles?	76%	20%
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	81%	34%
Diversity and Opportunity/Policy	Does the company have a diversity and equal opportunity policy?	44%	9%
Emission Reduction Policy Elements/Emissions	Does the company have a policy to reduce emissions?	65%	11%
Emission Reduction/CO2 Reduction	Does the company show an initiative to reduce, reuse, recycle, substitute, phased out or compensate CO2 equivalents in the production	33%	2%
Emission Reduction/Transportation Impact Reduction	Does the company have initiatives to reduce the environmental impact of transportation of its products or its staff?	25%	1%
Employee welfare	Does the company have a work-life balance policy?	44%	9%
Employment Quality/Policy I	Does the company have a competitive employee benefits policy or ensuring good employee relations within its supply chain?	20%	3%
Employment Quality/Policy II	Does the company have a policy for maintaining long term employment growth and stability?	26%	6%
Environmental Supply Chain Management	Does the company use environmental criteria (ISO 14000, energy consumption, etc.) in the selection process of its suppliers or	26%	3%
Generous Fringe Benefits	Does the company claim to provide its employees with a pension fund, health care or other insurances?	17%	2%
Health & Safety /Policy	Does the company have a policy to improve employee health & safety within the company and its supply chain?	92%	46%
Human Rights Contractor	Does the company show to use human rights criteria in the selection or monitoring process of its suppliers or sourcing partners?	24%	2%
Human Rights/Policy I	Does the company have a policy to guarantee the freedom of association universally applied independent of local laws?	29%	7%
Human Rights/Policy II	Does the company have a policy for the exclusion of child, forced or compulsory labour?	33%	11%
Internal Promotion	Does the company claim to favour promotion from within?	13%	3%
Management Training	Does the company claim to provide regular staff and business management training for its managers?	23%	0%
Positive Discrimination	Does the company promote positive discrimination?	30%	2%
Product Impact Minimization	Does the company design product features and applications/services that promote responsible, efficient, cost-effective and	18%	1%
Product Innovation/	Does the company have take-back procedures and recycling programmes to reduce the potential risks of products entering the	20%	3%
Product Responsibility/Policy I	Does the company have a policy to protect customer health & safety?	66%	27%
Product Responsibility/Policy II	Does the company have a products and services quality policy?	66%	27%
Resource Efficiency/Energy Efficiency Policy	Does the company have a policy to improve its energy efficiency?	60%	7%
Resource Efficiency/Water Efficiency Policy	Does the company have a policy to improve its water efficiency?	50%	3%
Training and Development/Policy	Does the company have a policy to support the skills training or career development of its employees?	73%	20%
Waste Reduction Total	Does the company have initiatives to recycle, reduce, reuse, substitute, treat or phase out total waste?	50%	3%

This Appendix includes all environmental and social policies that are used to construct the *Sustainability Policies* index. Moreover, it shows the frequency of adoption of each policy in the early 1990s by each group.