Sustainability Strategies of Leading Global Firms and Their Financial Performance: A Comparative Case Based Analysis

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The main focus of this study is to examine the financial performance of a select sample of corporations from around the globe who were repeatedly selected for inclusion in the DJSI for their exemplary sustainable business practices during 2001-2007. We were interested in probing into whether consistently high sustainability performance has come at the cost or in support of positively growing financial performance. While the extant literature on the link between corporate social and financial performance has examined the dynamics involved on both theoretical and empirical grounds, usually as cross-sectional data, our research contributes to the existing literature by focusing on companies that have been recognized for their leading edge sustainability programs over a prolonged period of time (seven years) and how the pursuit of such strategies has affected their financial performance as measured by select conventional measures of profitability and market valuation.

INTRODUCTION

Concerns about sustainable development in terms of realizing economic growth that is enduring and yet socially and environmentally responsible were raised more than 20 years ago by the Brundtland Commission (WCED, 1987, p.xii). In the past decade, the term "triple P" (People, Planet, Profit) or the "triple bottom line" was coined to alert corporate managers to the need to focus concurrently on the social, environmental, and economic dimensions of corporate activities in order to help shape a more sustainable future for societies worldwide. In recent years, corporate social responsibility (CSR) considerations are becoming increasingly strategic in focus by affecting the core business of the firms, their growth, profitability and survival. Indeed some firms are actively searching to link CSR strategies to their core functions in order to manage their operations, domestic and international alike (Kolk and van Tulder, 2010). Corporate sustainability is thus becoming increasingly an important component of business strategies for companies around the world who view sustainability as a means of developing stronger brand and pricing power, greater operational efficiencies, supply chain optimization, enhanced ability to attract and retain employees, greater productivity, improved customer loyalty, more potential sources of revenue, lower risk-cost of capital, increased shareholder value, and broader stakeholder support. (Berns et al, 2009).

Reporting economic, environmental, and social performance is also becoming a standard corporate practice, based on the Global Reporting Initiative's latest report, *Year in Review 2010-2011*. Accordingly,

a 2011 report by KPMG indicates 95% of the 250 biggest corporations in the world now report their sustainability performance, up from 80% in 2008; majority of the top 100 companies in 26 out of the 34 countries surveyed now produce sustainability report. Furthermore, anecdotal evidence shows that the quality of sustainability reporting has improved as companies gain experience with the integration of such practices into the core management and governance of the business and as various stakeholders, internal and external to the company (consumers, investors, civil society organizations, and government organizations) call for, expect, or demand full disclosure and ethical behavior. Regulators from around the world are also starting to talk about sustainability disclosure, much like financial disclosure, and there is a growing list of national policies on such reporting from Denmark, Sweden, Spain, and France to India, S. Africa, China, and Canada (GRI, 2011).

From various theoretical perspectives, sustainability activities may have a positive impact on a firm's financial performance. According to the stakeholder theory, sustainability should play a positive role in firms' financial performance because a firm benefits by addressing and balancing the claims of multiple key stakeholders' groups. Sustainability can also lead to certain reputational benefits by attracting and retaining high quality employees, increased sales by attracting customers sensitive to sustainability issues, and improve the appeal to current and potential investors. Finally, sustainability could lead to higher operational efficiency through technological innovations and best environmental practices as evidenced by resilient pursuit of energy efficiency by Japanese car companies (SAM White Paper, pp. 9-10).

The main focus of this study is to examine the financial performance of a select sample of corporations from around the globe who were repeatedly selected for inclusion in the DJSI for their exemplary sustainable business practices during 2001-2007. More specifically, the objective here is to probe into whether consistently high sustainability performance has come at the cost or in support of positively growing financial performance. While a number of earlier studies have examined the impact of corporate socially motivated activities on their financial performance, our research contributes to the existing literature by focusing on companies that have been recognized for their leading edge sustainability programs over a prolonged period of time (seven years) and how the pursuit of such strategies has affected their financial performance as measured by select conventional measures of profitability and market valuation.

The rest of this paper is organized as follows. Section II provides background information on the methodology and processes followed in preparation of the DJSI. Section III reviews the literature on the connection between firms' social and financial performance. Section IV explains the sources of data used in this study, the statistical procedures followed, and the analysis of the results. Section V offers the concluding remarks.

DOW JONES SUSTAINABILITY INDEXES

Launched in 1999, the Dow Jones Sustainability Indexes (DJSI) are the first global matrices tracking the financial performance of the leading sustainability-driven companies worldwide to cater to the growing interests among institutional investors for "Sustainability Investing" portfolios. The identification of sustainability leaders is based on a defined set of economic, environmental and social criteria and weightings designed to create long-term shareholder value by tapping opportunities and managing risks deriving from economic, environmental and social developments for the eligible companies. (www.sustainability-index.com)

The identification of sustainability leaders for the DJSI is based on the Corporate Sustainability Assessment of SAM Research. A major source of information is the SAM questionnaire which is sent out to the 2500 largest (measured by their market capitalization) companies worldwide. The number of responding firms has been growing steadily since 1999; the annual survey in 2009 was completed by more than 1200 companies representing 58 sectors. Further sources of information for the assessment of the sustainability efforts include company and third-party documents as well as personal contacts between the analysts and companies. The external assurance report by Deloitte is intended to ensures that the corporate sustainability assessments are completed in accordance with the defined rules.

The Corporate Sustainability Criteria presented below allocates between 50-60 percent of the weights to industry specific issues under each category. The major reason for assigning such a significant weight to the industry is to account for inherent differences among industries. For example, a company operating in the financial services industry faces a totally different set of problems compared to a firm operating in the pharmaceutical industry as far as any damage they cause to the environment through their business operations. Similarly, a bank's management of economic issues may stem from a separate set of conditions compared to a drug manufacturing company. A bank may have to keep a watch on the actions of the Federal Reserve much more closely than a pharmaceutical company.

CORPORATE SUSTAINABILITY ASSESSMENT CRITERIA

Dimension	Criteria	Weighting (%)
Economic	Codes of Conduct/Corruption & Bribery	6.0
	Corporate Governance	6.0
	Risk & Crisis Management	6.0
	Industry Specific Criteria	Depends on Industry
Environment	Environmental Reporting	3.0
	Industry Specific Criteria	Depends on Industry
Social	Corporate Citizenship/Philanthropy	3.0
	Labor Practice Indicators	5.0
	Human Capital Development	5.5
	Social Reporting	3.0
	Talent Attraction & Retention	5.5
	Industry Specific Criteria	Depends on Industry

Once a company is selected as a member of the DJSI family, it is monitored regularly with regard to newly arising critical issues. The monitoring process comprises an assessment of a company's involvement in economic, environmental or social crisis situations and compares its crisis management to its stated principles and policies. The Corporate Sustainability Monitoring could lead to a company's exclusion from the DJSI family regardless of how well it has performed in the yearly assessment, as it happened to BP and the handling of its massive oil spills in Gulf of Mexico recently.

Each year Dow Jones Associates releases its sustainability report, identifying the leaders in various market sectors with individualized report on each of them documenting the scope of their sustainability practices qualifying them for this recognition, as well as listing the companies that are being added or dropped from the Sustainability Indexes. The scores assigned to each company are generally not disclosed to avoid the possibility of companies trying to "manage" the criteria to improve their scores (www.sustainability-index.com).

LITERATURE REVIEW

The concept of corporate social responsibility/social performance (CSP) and its link with firms' financial performance (CFP) has been the subject of extensive debate, theoretical work, and empirical analysis dating back to the 1960s/70s. In this section, we'll review findings of a few meta-analyses of the theoretical and empirical contributions.

In analyzing the relationship between CSP and CFP, Preston and O'Banon (1997) develop a theoretical framework identifying six possible causal (CSP influencing CFP, CFP influencing CSP, a synergistic relationship) and directional (positive, negative, or neutral) hypotheses, namely: managerial opportunism hypothesis, slack resources hypothesis, social impact hypothesis, positive and negative synergy hypotheses, and trade-off hypothesis.

Managerial opportunism hypothesis argues that corporate managers may pursue their own personal objectives to the detriment of shareholders and other stakeholders, reducing social expenditure when financial performance is strong in the interest of maximizing their short-term gains while maintaining social programs to offset disappointing CFP for public relations purposes. *The slack resource hypothesis* postulates that good CFP results in more slack resources that potentially increase a firm's ability to increase its CSP. The *social impact hypothesis* takes off from stakeholders' theory arguing that by meeting the needs of various stakeholders, a company is more likely to experience a favorable financial performance. *The positive and negative synergy hypotheses* propose that higher levels of CSP lead to improved CFP and vice versa, synthesizing the rationale advanced by the social impact and slack resources hypotheses. Finally, the *trade-off hypothesis* draws on Friedman's position (1970) that the primary responsibility of the managers is to maximize profit and that social expenditures committed in the name of CSR will reduce profits and shareholder wealth.

Salzmann et al, in their study titled "The Business Case for Corporate Sustainability, Literature Review and Research Options" (2005), use the framework developed by Preston and O'Bannon, noted above. They review15 studies done on the relationship between CSP and CFP and conclude that "all in all, results are largely inconclusive". They attribute the mixed findings to several methodological shortcomings such as poor measurement of CSP, lack of significance testing and control for interaction with other variables and lack of empirical testing definitions and concepts (p. 30).

In the same vein, Pieter van Beurden and Tobias Gossling's article titled 'The Worth of Values - A Literature Review on the Relation Between Corporate Social and Financial Performance' (2008) provides an exhaustive and methodologically rigorous review of the post 1990 contributions to the subject, noting 23 studies that found a significant positive relationship ("CSR pays"), six studies that found no significant relationship ("CSR does not matter"), and two studies that found a negative relationship ("CSR costs"). Other literature reviews exploring the relationship between corporate financial and social performance include Margolis and Walsh (2003), and Orlitzky et al (2003), both of which largely attest to a positive relationship.

Finally the two most recent empirical contributions to this area include studies by Makni et al (2008) and Sustainability Asset Management (2010). The former conducted an empirical analysis of 179 publicly held Canadian firms during 2004-2005 and found no significant relationship between a composite measure of firms' CSP and CFP, except for market return, and a negative impact of the environmental dimension of CSP and ROA, ROE and market return (p. 409). SAM study, on the other hand, examined the relationship between corporate sustainability and share price performance, controlling for firm size, sector, and region, and found that investing in the top 20% of the most sustainable companies in each business sector outperformed the comparison group by an average annual rate of 1.48%; similarly, the share price of the bottom 20% of companies with the poorest sustainability ratings underperformed the comparison group by -1.46% per year. (SAM Sustainability Investing, 2010, pp.12-15).

It should be noted that there are also several studies who have examined the link between corporations' environmental practices and their financial performance as reflected in shareholders wealth (e.g., Hart & Ahuja, 1996; Porter and van der Linde, 1995; Konar & Cohen, 2001; Bosworth and Clemens, 2011), with various results. In one of the most recent such empirical studies, Bosworth and

Clemens found evidence of a positive relationship between financial performance as measured by Tobin's q ratio and environmental performance as measured by the USEtox weighting system for 563 companies whose toxic release reports were available in EPA's Toxic Release Inventory database (2011, pp. 115-117).

In summary, the review of literature provides mixed evidence on the relationship between CSP and CFP. Our study attempts to revisit this link and make a contribution to this field by drawing on a well regarded worldwide database on corporate sustainability programs of firms from various nationalities and industries (i.e., DJSI). By focusing on the *same group* of firms that made the DJSI list for *several consecutive years*, based on the *same methodology* and using the standard and *widely used financial performance indicators*, this study aims to shed further light on whether sustainable business practices compromise firms' profitability and market valuation as some critics maintain, or support and improve firms' market share and financial performance in the long run as the advocates contend.

DATA & ANALYSIS

Our information comes from two sources. We were provided access to DJSI by the SAM group and we extracted the aggregate sustainability scores (economic, environmental, and social combined). We used Reuters Thompson One for compilation of financial performance data. We were unable to find some data (such as number of shares outstanding) for certain companies in our initial dataset. Our final sample consists of 59 firms.

For each company in our sample, we collected data on three conventionally used ratios of profitability (return on assets-ROA, return on equity-ROE, and net profit margin-NPM) and two proxies for market valuation (book value to market value-BV/MV and earnings per share-EPS). We decided to look at both three and five year averages for these indicators, except for EPS that is averaged for 5 years of continuing operations.

The list of the companies which were selected for inclusion in the DJSIs was first published in 1999. The main aim of our paper is to examine if the firms belonging to such an elite group year after year can still manage their bottom line as reflected in their profitability ratios. We began with the year 2001 to identify companies that had been included in the index three years in a row. We continued to examine subsequent years, with the idea of creating a dataset that included companies which were members of the index for 3, 4, 5, 6 and 7 years in a row. Our final dataset started with 82 companies which had stayed in the index for seven years in a row (i.e. from year 2001 through the year 2007).

Table 1 below provides summary statistics on various financial ratios and aggregate sustainability scores classified by industry for the firms selected. All together, the 59 selected represented 10 industries at the 4-digit SIC groupings, namely: commercial banks, semi-conductor and related services, medical equipments, telecommunications, life insurance, pharmaceuticals, electric services, metal mining, construction machinery and equipments, and crude petroleum and natural gas.

TABLE 1
COMPARISON OF AGGREGATE SUSTAINABILITY SCORES AND PROFITABILITY-VALUATION RATIOS BY INDUSTRY

Industry	Aggregate Sustainability Score	ROA 5yr avg.	ROA 3 yr avg.	ROE 5 yr avg.	ROE 3 yr avg.	PM 5yr avg.	PM 3 yr avg.	EPS 5 yr avg.
Commercial Banks								
Mean	**75.92**	**1.48%**	**1.47%**	**20.94%**	**21.37%**	**13.24%**	**12.74%**	**1.06**
Stand. Dev.	**4.31**	**0.75%**	**0.89%**	**4.67%**	**4.61%**	**2.10%**	**2.53%**	**1.07**
Max.	**85.61**	**3.35%**	**3.97%**	**30.07%**	**30.51%**	**15.51%**	**15.96%**	**3.20**

Industry	Aggregate Sustainability Score	ROA 5yr avg.	ROA 3 yr avg.	ROE 5 yr avg.	ROE 3 yr avg.	PM 5yr avg.	PM 3 yr avg.	EPS 5 yr avg.
Min.	**69.79**	**0.75%**	**0.72%**	**4.67%**	**4.61%**	**2.10%**	**2.53%**	**(0.65)**
Semi-Conductors & Related Services								
Mean	**71.66**	**8.18%**	**9.01%**	**12.19%**	**14.90%**	**8.84%**	**9.26%**	**0.25**
Stand. Dev.	**6.73**	**7.83%**	**9.07%**	**13.50%**	**18.44%**	**12.69%**	**14.66%**	**0.57**
Max.	**82.41**	**18.87%**	**20.50%**	**32.14%**	**38.58%**	**33.62%**	**36.32%**	**1.00**
Min.	**61.49**	**-4.84%**	**-7.73%**	**-16.66%**	**-25.15%**	**-12.4%**	**-18.77%**	**(0.82)**
Medical Equipments								
Mean	**67.52**	**11.47%**	**15.11%**	**22.47%**	**28.37%**	**12.28%**	**16.88%**	**0.70**
Stand. Dev.	**7.13**	**3.15%**	**3.55%**	**6.78%**	**7.00%**	**1.99%**	**5.54%**	**0.24**
Max.	**76.58**	**16.90%**	**20.59%**	**34.84%**	**37.55%**	**15.35%**	**28.21%**	**1.09**
Min.	**58.25**	**7.59%**	**10.72%**	**13.67%**	**16.28%**	**10.12%**	**10.69%**	**0.48**
Telecommunications								
Mean	**73.49**	**7.82%**	**7.89%**	**141.75%**	**95.84%**	**5.39%**	**6.40%**	**0.52**
Stand. Dev.	**7.70**	**6.41%**	**5.98%**	**306.65%**	**174.03%**	**13.61%**	**14.33%**	**0.83**
Max.	**81.67**	**15.82%**	**12.73%**	**833.73%**	**480.92%**	**16.52%**	**18.66%**	**1.56**
Min.	**61.95**	**-4.48%**	**-4.20%**	**-6.81%**	**-6.49%**	**-24.37%**	**-24.31%**	**(0.95)**
Life Insurance								
Mean	**61.42**	**3.49%**	**3.36%**	**21.41%**	**21.76%**	**5.69%**	**6.13%**	**0.77**
Stand. Dev.	**10.39**	**4.83%**	**4.44%**	**6.35%**	**4.55%**	**1.47%**	**1.47%**	**0.66**
Max.	**69.83**	**10.72%**	**10.00%**	**28.08%**	**27.66%**	**6.51%**	**7.52%**	**1.75**
Min.	**46.68**	**0.78%**	**0.89%**	**14.84%**	**17.01%**	**3.49%**	**4.05%**	**0.39**
Pharmaceuticals								
Mean	**77.56**	**13.96%**	**14.73%**	**28.93%**	**28.90%**	**17.32%**	**97.36%**	**0.53**
Stand. Dev.	**4.64**	**5.52%**	**5.20%**	**19.54%**	**15.71%**	**5.79%**	**223.93%**	**0.23**
Max.	**83.65**	**22.49%**	**22.25%**	**74.08%**	**64.30%**	**22.18%**	**651.43%**	**0.75**
Min.	**70.62**	**5.07%**	**7.97%**	**11.21%**	**17.44%**	**4.80%**	**8.91%**	**0.15**
Electric Services								
Mean	**72.37**	**5.38%**	**5.62%**	**14.13%**	**15.77%**	**9.98%**	**10.89%**	**0.31**
Stand. Dev.	**6.32**	**1.20%**	**1.63%**	**7.29%**	**9.88%**	**2.88%**	**4.95%**	**0.32**
Max.	**76.37**	**6.76%**	**7.50%**	**22.20%**	**26.75%**	**12.96%**	**16.29%**	**0.68**

Industry	Aggregate Sustainability Score	ROA 5yr avg.	ROA 3 yr avg.	ROE 5 yr avg.	ROE 3 yr avg.	PM 5yr avg.	PM 3 yr avg.	EPS 5 yr avg.
Min.	**65.08**	**4.55%**	**4.57%**	**8.03%**	**7.61%**	**7.20%**	**6.58%**	**0.12**
Metal Mining								
Mean	**83.33**	**18.98%**	**22.04%**	**40.11%**	**46.33%**	**26.54%**	**30.60%**	**NA**
Stand. Dev.	**3.14**	**0.76%**	**3.21%**	**1.64%**	**1.62%**	**1.47%**	**0.26%**	**NA**
Max.	**85.55**	**19.51%**	**24.31%**	**41.27%**	**47.48%**	**27.58%**	**30.78%**	**NA**
Min.	**81.11**	**18.44%**	**19.77%**	**38.95%**	**45.18%**	**25.50%**	**30.42%**	**NA**
Construction Machinery & Equipment's								
Mean	**74.72**	**7.85%**	**8.26%**	**32.57%**	**37.49%**	**4.76%**	**5.13%**	**0.69**
Stand. Dev.	**4.87**	**6.14%**	**5.54%**	**22.59%**	**24.22%**	**3.12%**	**3.27%**	**0.52**
Max.	**78.97**	**14.22%**	**13.63%**	**53.69%**	**58.89%**	**7.16%**	**8.08%**	**1.06**
Min.	**69.39**	**1.98%**	**2.57%**	**8.76%**	**11.19%**	**1.23%**	**1.61%**	**0.32**
Crude Petroleum & Natural Gas								
Mean	**67.98**	**10.56%**	**12.18%**	**24.35%**	**27.24%**	**16.51%**	**18.29%**	**0.54**
Stand. Dev.	**11.01**	**3.18%**	**5.26%**	**4.82%**	**7.93%**	**5.60%**	**4.96%**	**0.47**
Max.	**81.03**	**13.53%**	**18.22%**	**28.30%**	**38.14%**	**23.36%**	**24.41%**	**1.16**
Min.	**54.08**	**7.68%**	**6.72%**	**17.40%**	**20.13%**	**10.32%**	**12.38%**	**0.08**

The mean aggregate sustainability scores of the companies during the study period ranged from 61.42 in the life insurance firms to 83.33 among metal mining companies, with most of the companies scoring in the 67-75 range. Metal mining companies were most similar in their sustainability scores, as evidenced by the standard deviation of 3.14 and firms in the crude petroleum and natural gas sector displayed the largest variation in their sustainability performance as reflected in the standard deviation of 11.01.

As for the profitability ratios, the means for all three ratios (ROA, ROE, PM) were positive across all industries, measured over 3- or 5-years period, albeit with significant variations across industries and ratios examined. In terms of ROA (3- and 5-year), metal mining and pharmaceutical firms showed higher performance (around 20% and 14%, respectively) compared to those in financial services (commercial banks life insurance) which recorded the lowest numbers (approximately 1.5% and 3.4% in that order). Measured by ROE, telecommunication firms showed significantly higher results (approximately 96% to 142%), though with high variations amongst them, followed by those in construction machinery and equipments (33% to 38%); companies in the semiconductor/electric and related services that saw 12% to 15% returns were at the lower end. In terms of PM, pharmaceutical and metal mining firms enjoyed higher returns compared to construction and life insurance companies. Lastly, commercial banks recorded the highest EPS figures and semi-conductor and related services companies saw the lowest numbers.

CORRELATION ANALYSIS

Table 2 below shows the Pearson correlation coefficients results. They measure the strength of associations between the aggregate sustainability scores and the profitability/valuation ratios for all 59 companies. In general and across most indicators, very low positive correlations seem to exist with two exceptions: 5 year profit margin ratio was the only ratio that showed statistically positive association with aggregate sustainability scores; the ROE ratios actually displayed an inverse relationship with sustainability, albeit statistically insignificant.

TABLE 2
CORRELATION COEFFICIENTS BETWEEN AGGREGATE SUSTAINABILITY SCORES AND PROFITABILITY VALUATION RATIOS

3yr ROA	5yr ROA	3 yr ROE	5 yr ROE	3 yr PM	5 yr PM	3 yr MV	5 yr MV	5 yr EPS
.1	.095	-.127	-.161	.190	.311*	.062	.117	.072

*Significant at .05 level

Regression Analysis

We also conducted regression analyses of possible causal relations between various profitability ratios and aggregate sustainability scores. As reflected in Table 3 below, and consistent with the correlation coefficients reported above, only the 5 year profit margin record seemed to be statistically significant predictor of the sampled companies' sustainability scores. Similar to the correlation coefficients again, ROA and 3 year PM ratios had a positive co-variation sign with the average aggregate sustainability scores, though not statistically significant. In similar vein, we checked for possible industry differences that may have existed but the fairly small number of firms (between 4 to 10) across the various industry clusters did not yield meaningful results.

TABLE 3
TOTAL SUSTAINABILITY SCORES AND PROFITABILITY RATIOS REGRESSIONS

Model 1: OLS, using observations 1-60 (n = 53); missing or incomplete observations dropped: 7
Dependent variable: ROA 5yr avg.

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
Constant	0.0274559	0.0831298	0.3303	0.74254
Total Score	0.000770011	0.00113309	0.6796	0.49985

Model 2: OLS, using observations 1-60 (n = 55); missing or incomplete observations dropped: 5
Dependent variable: ROA 3 yr avg.

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
Constant	0.0216222	0.0930193	0.2324	0.81709
Total Score	0.000931501	0.00126903	0.7340	0.46617

Model 3: OLS, using observations 1-60 (n = 56); missing or incomplete observations dropped: 4
Dependent variable: ROE 5 yr avg.

	Coefficient	***Std. Error***	***t-ratio***	***p-value***
Constant	1.99997	1.3714	1.4583	0.15054
Total Score	-0.0223519	0.018712	-1.1945	0.23749

Model 4: OLS, using observations 1-60 (n = 56); missing or incomplete observations dropped: 4
Dependent variable: ROE 3 yr avg.

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
Constant	1.0902	0.800207	1.3624	0.17873
Total Score	-0.0104079	0.0109184	-0.9532	0.34471

Model 5: OLS, using observations 1-60 (n = 55); missing or incomplete observations dropped: 5
Dependent variable: PM 5yr avg.

	Coefficient	***Std. Error***	***t-ratio***	***p-value***
Constant	-0.139369	0.107625	-1.2950	0.20095
Total Score	0.00349465	0.00146844	2.3798	0.02095

Model 6: OLS, using observations 1-60 (n = 55); missing or incomplete observations dropped: 5
Dependent variable: PM 3 yr avg.

	Coefficient	***Std. Error***	***t-ratio***	***p-value***
Constant	-1.27203	1.08005	-1.1778	0.24416
Total Score	0.0207578	0.0147363	1.4086	0.16479

Finally, we looked into the relationship between various profitability measures as independent variable and sustainability scores as dependent variable while controlling for the size (book value of assets) adjusted by market valuation, using OLS regression analysis.

Table 4 shows the results of the relationship between sustainability scores and book to market values as predictor variables, and the 3- and 5-years profitability ratios as dependent variables. Addition of the size/valuation proxy did not fundamentally alter the previous picture. Again, only in the case of the 5-year profit margin, a statistically significant causal relationship seems to exist with companies' sustainability record. Interestingly, the sign of the size/valuation proxy and the profitability ratios turned out to be negative and statistically significant in the case of ROA ratios and 5 year PM. In this regard, it is noted that capital markets have become increasingly aware of the value of intangible assets to the firm in that the average ratio of book value to overall market value has dropped significantly over the past decades implying that a firm's ability to grow earnings increasingly depends on intangible assets such as the quality of management, branding power, human capital development, and intellectual capital among others; comprehensive cataloguing of sustainability related criteria could act as a suitable proxy for quantifying the value of a firm's intangible assets (SAM White Paper, p.4).

TABLE 4
SUSTAINABILITY SCORES AND PROFITABILITY/VALUATION RATIOS REGRESSIONS

Model 1: OLS (n = 52); missing or incomplete observations dropped: 8
Dependent variable: ROA 3 yr avg.

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	0.0165143	0.0922604	0.1790	0.85868	
Total Score	0.00128393	0.00127462	1.0073	0.31874	
BV/MV 3 yr avg.	-6.90831e-07	3.32215e-07	-2.0795	0.04283	**

Model 2: OLS (n = 53); missing or incomplete observations dropped: 7
Dependent variable: ROE 3 yr avg.

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
Constant	1.06838	0.833767	1.2814	0.20597
Total Score	-0.00842515	0.0115125	-0.7318	0.46769
BV/MV 3 yr avg.	-4.1129e-06	2.80944e-06	-1.4640	0.14946

Model 3: OLS (n = 52); missing or incomplete observations dropped: 8
Dependent variable: PM 3 yr avg.

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
Constant	-1.40096	1.1471	-1.2213	0.22781
Total Score	0.022709	0.0158412	1.4335	0.15805
BV/MV 3 yr avg.	1.30743e-07	3.86771e-06	0.0338	0.97317

Model 4: OLS (n = 50); missing or incomplete observations dropped: 10
Dependent variable: ROA 5yr avg.

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	0.0336513	0.0809415	0.4157	0.67949	
Total Score	0.000947639	0.00111075	0.8531	0.39790	
BV/MV 5 yr avg.	-7.33394e-07	3.11602e-07	-2.3536	0.02282	**

Model 5: OLS, (n = 53); missing or incomplete observations dropped: 7
Dependent variable: ROE 5 yr avg.

	Coefficient	*Std. Error*	*t-ratio*	*p-value*
Constant	2.08338	1.44129	1.4455	0.15456
Total Score	-0.0213545	0.0197955	-1.0788	0.28587
BV/MV 5 yr avg.	-5.92602e-06	5.11586e-06	-1.1584	0.25222

Model 6: OLS, (n = 52); missing or incomplete observations dropped: 8
Dependent variable: PM 5yr avg.

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Constant	-0.133881	0.106282	-1.2597	0.21375	
Total Score	0.00378343	0.00145988	2.5916	0.01255	**
BV/MV 5 yr avg.	-9.26321e-07	3.77407e-07	-2.4544	0.01771	**

CONCLUSION

This study was undertaken to investigate the financial performance of the leading global firms in various industries that have been consistently recognized for their business sustainability efforts and explore impact of such programs on those companies' profitability or market valuation. Overall, the findings of this study, corroborated by many others in this area, indicate that pursuing "triple" bottom line does not seem to have adversely affected the profitability of the sampled companies that come from different industry sectors and nationalities, in turn, validating that firms adhering to sustainability are not violating their primary function which is to improve shareholder's value which is determined by return (profit) and risk.

The descriptive parts of this study (Table 1) clearly demonstrated that the sampled firms operated in black, regardless of the profitability or valuation measures chosen, while continuing to remain among the sustainability leaders in their respective sectors for several consecutive years.

The bivariate and multivariate analyses components of this study (Tables 2-4), however, while showing positive relationship between various proxies of profitability or market valuation indicated a statistically valid relationship only in the case of one profitability ratio (profit margin) and over a longer period (5 years). Adjusting for size/market valuation did not alter the findings.

This study examined the possible impact of sustainability measures on corporate profitability using DJSI methodology for assessment of corporate sustainable management. For future research, it would be instructive to explore how financial performance of these companies had influenced the scope of their sustainability programs over time through providing more or less resources, especially over a longer time frame. Similarly, replicating this investigation for a sample size large enough to perform the analysis by geographical regions across the world would advance the literature as the current state of knowledge is largely derived from the experience of the US and to a much lesser extent Canadian firms.

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