

The Value for Service Industry Firms of Environmental Initiatives

August 2008

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ABSTRACT

This study investigates the return performance for service companies that have taken environmental initiatives and are ranked high on a social responsibility index compared with those that are ranked at the bottom from 1997-2006. Results based on separate portfolios of companies indicate that the top and bottom-ranked firms on the Corporate Responsibility Officer's (CRO) Best Corporate Citizens' list produced significantly higher returns than the Russell 1000 benchmark since 2000. These returns are higher when adjusted for risk and suggest superior performance where public investors value environmentally-friendly firms more highly today. Additionally, there is evidence that firms ranked in the Bottom group are more undervalued.

Key words: corporate social responsibility, socially responsibility investment, investment performance

JEL classification: D21, L15, M14

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Abstract

This study investigates the return performance for service companies that have taken environmental initiatives and are ranked high on a social responsibility index compared with those that are ranked at the bottom from 1997-2006. Results based on separate portfolios of companies indicate that the top and bottom-ranked firms on the Corporate Responsibility Officer's (CRO) Best Corporate Citizens' list produced significantly higher returns than the Russell 1000 benchmark since 2000. These returns are higher when adjusted for risk and suggest superior performance where public investors value environmentally-friendly firms more highly today. Additionally, there is evidence that firms ranked in the Bottom group are more undervalued.

I. Introduction

There has been increasing awareness and demand for companies in all industry sectors to make efforts to be environmentally proactive. Manufacturing firms in the US were the original focus of environmental initiatives on financial performance because the impact from production was a tangible asset with visible environmental output and bi-products (Klassen and McLaughlin, 1996). Manufacturing firms' executive managements and corporate boards integrated environmental initiatives under pressure from significant stakeholders – investors, regulators, governmental and conservation groups - to create eco-friendly corporate policies to improve their environmental standing. However, the environmental impact of service firms on financial performance has not been as researched, although these entities comprise a significant part of the US economy. As with manufacturing firms, management is concerned that commitment to green initiatives will reduce profitability at the expense of actual environmental performance (Ahmed, 2003).

As service firms debate whether to make green initiatives, they consider the conflicts of diverse stakeholders, including customers, employees, suppliers, regulators, governmental agencies, and stockholders and their reactions. These groups establish conflicting priorities for management's policies – high return on investments, high quality products and prolonged profitability (Feldman, 1997). Research to date on environmental consciousness and its impact on a company's management policies and financial performance suggests that benefits have been more important recently (Clelland, Dean and Douglass, 2000; Derwall, Gunster, Bauer and Koedijk, 2005; Dowell, Hart and Yeung, (2000); Feldman, 1997; Klassen and McLaughlin, 1996; Porter and Der Linde, 1995). As managers become more “eco-friendly” they must decide at what level these “green” options, whether as new products or as improvements to production,

will produce financial gains at a high level to offset the cost of these new initiatives. Managers' commitment suggests that investments in new greener markets will provide the firm with the innovation to gain a competitive advantage quickly (Ahmed, 2003). Will management's decisions make potential investors more or less secure in terms of return? Is investment less risky for the shareholder after green environmental initiatives have been taken?

While the corporate social responsibility of manufacturing firms on financial performance is widely discussed, little research considers the impact of green initiatives taken by large firms in service industries. The acknowledgment by investors in the US today of the importance of green initiatives has called upon firms to make significant changes in the way business is conducted. This study will use both financial performance and environmental rankings to gauge how these firms have performed over the ten-year period 1997-2006. The main focus is to study the potential correlation between the lengths taken to improve the future of the environment and the financial performance of selected service industry firms.

The paper is organized as follows: in Section II we discuss the previous literature on environmental initiatives. The data and methodology are described in Section III. Section IV discusses our research and hypotheses. Section V reports our results. Section VI concludes.

II. Literature Review

Tradition research suggests that the implementation of environmental initiatives for any company is an expensive cost which trickles down through all levels of the firm (Hussain, 1999). New product designs, development approaches and employee training are part of these initiatives. In addition, the measurement and monitoring of employees' new environmental performance and waste reduction are part of these initiatives. (McAdam and Leonard, 2003).

This study suggests important positive correlations: between environmental concern and company effort; between effort and impact on performance characteristics of operations efficiency, and company image and between environmental effort and revenue. Our study will add to existing research by expanding to consider risk-adjusted returns for firms in service industries.

Several multinational firms in diverse service industries have announced initiatives to going green - in products sold, or in production processes. Beginning in 2005, General Electric launched its *Ecomagination* program that combines both a sales program targeting consumers' interest in energy efficient appliances and a company-wide research initiative to reduce greenhouse emissions and energy consumption for its production (US Government, 2007; GE, 2008). According to GE Chief Executive Jeffrey Immelt, this initiative will “develop tomorrow’s solutions such as solar energy, hybrid locomotives, fuel cells, lower-emission aircraft engines, lighter and stronger durable materials, efficient lighting, and water purification technology” (US Gov, 2007, 2).¹ Green product revenues were 8% of sales for 2007 (\$14 billion of \$180 billion total revenues), above the company’s targets (GE, 2008). The company’s initiative to replace energy efficient fluorescent bulbs in 19 production facilities produced \$6 million in cumulative savings² while reducing carbon emissions and saving energy at those plants (World Resources Institute, 2006). It is unclear that these initiatives, while important as a first step, are cost effective on an adjusted cost of capital basis.

¹ Important GE partners include Air India, for a new airline fleet and governments in Southeast Asia, Africa and Latin America for water filtration technologies (US Gov, 2007).

² Estimates of cost savings are for a cumulative three-year period and do not reflect cost of capital charges.

Wal-Mart and Home Depot, two of the world's largest retailers in their respective sectors have programs to make it easier for consumers to identify each with environmentally-friendly products. The "Live Better Index" created by Wal-Mart and "Eco Options" by Home Depot gives consumers a recognizable name when making their own decisions on what products to buy (Lenihan, 2007). The Wal-Mart index tracks the purchasing decision of five environmentally friendly and cost-conscious products to customers as an alternative to standard products, and shows that customer interest has increased 67% for these green products in one year (Wal-Mart, 2008). Further, Wal-Mart Chief Executive Lee Scott set three primary firm targets in energy: 1) to be supplied by 100% renewable energy, 2) to create zero waste, and 3) to sell sustainable products. (Wal-Mart, 2005). CEO Scott indicates the importance of this environmentally friendly corporate policy in a speech to employees October, 2005. "As one of the largest companies in the world, with an expanding global presence, environmental problems are our problems" (Lenihan, 2007). Mr. Scott's corporate strategy challenges his employees to be the first ones to change the corporate environmental mindset for the company to achieve its goals. Strategy research suggests that changes come not only from the top, but bleed through every aspect of the company, concluding that managers have a duty to the environment (Hussain, 1999).³

Home Depot introduced its Eco-options Program adding 2,500 environmentally friendlier products in five categories of clean air, water conservation, energy efficiency, healthy home and sustainable forestry to show its commitment. The company also committed to reduce its own

³ Critics argue that while Wal-Mart can be a leader in environmental protection and initiatives, the firm must first act more socially responsible at store sites and not be completely dismissive to employees' rights as in the past, (MSNBC, 2005). This conflict of commitment to social responsibility explains why the firm is not in the Domini or Calvert social responsibility indices.

impact on the environment not only in its retail stores, but also in its corporate headquarters Home Depot 2007).

Feldman (1997) in a survey of manufacturing firms suggests the positive benefits of adopting a proactive posture: cost reductions on product sales, global environmental improvements, a favorable impact on the firm's perceived riskiness to investors. These efforts reduce the firm's cost of equity capital and improve its value in the marketplace. "The best firms set and achieve goals that are more stringent than those explicitly required by law. Both improved environmental management and improved environmental performance need to be clearly articulated to the investment community."(Feldman, 90). Our study will examine this strategic policy and test whether service firms that are recognized for publicly voicing a commitment to environmental initiatives will be a less risky investment than those that are not as active, when measured by risk-adjusted returns.

III. Methodology and Data

The primary focus of this study is to examine the risk-adjusted returns of a portfolio of environmentally socially responsible firms in service industries compared with less environmentally responsible firms. To form our portfolio, we define total return for each firm in the portfolio to include dividends, stock splits and adjustments:

$$R_t = \frac{V_{t+1} - V_t + D_t}{V_t}$$

where

R_t = Security return at time t

V_t = Security value at end of holding period

D_t = Dividend payout during period t

Returns were calculated monthly for three different time frames; a 3-year, a 5-year, a 10-year period ending on December 31, 2006.

Sharpe ratios were used to standardize returns for stock performance and to adjust for risk. The Sharpe ratio is the excess portfolio returns over the risk-free rate of return per unit of portfolio risk:

$$S_i = \frac{r_p - r_f}{\sigma_p}$$

Since the Sharpe formula uses the standard deviation as a measure of risk, it does not assume the portfolio is well diversified. In effect, the index standardizes the returns in excess of the risk-free rate by the variability of the return.

We collect the data on stock prices from the Center for Research for Securities Prices (CRSP) using cumulative returns including dividends and stock splits. Prices were for the ten-year period from January 1, 1997 to December 31, 2006 based on closing prices of each security at the end of the month.

We create two portfolios of ten firms each: those with high environmental initiatives and those with low rankings.⁴ We select ten US firms in the service industry randomly from Corporate Responsibility Officer (CRO) and IW Financial 2007 rankings of Best Corporate Citizens, which annually ranks 300 firms by multiple variables of social responsibility, including

⁴ A list of firms is available upon request.

environmental initiatives.⁵ All of the firms selected for the study are large-cap, US headquartered public companies from the Russell 1000.

IV. Hypotheses

The major question we are studying is: To what extent does the environmental impact of a firm have on financial performance for service industry firms, based on adjustments for risk? The greater this social concern of the firm, the greater the impact will be on its returns, when adjusted for risk. Both managerial knowledge of environmental issues and investor confidence in the company have a direct effect on the performance of the firm. Based on these statements, we will test these hypotheses:

Hypothesis 1: A portfolio of service industry firms listed in the Top 150 of CROs environmental ranking will produce a lower return and risk-adjusted performance compared with a portfolio of firms that are not ranked as high environmentally.

Hypothesis 2: Portfolios of firms that are listed in the CRO environmental rankings will outperform the Russell benchmark.

As CSR grows in popularity in the environment, investors in public firms shop for higher socially responsible firms. They increase the stock prices of these firms, reduce the excess return and reduce the cost of capital for socially responsible firms with well-known rankings.

V. Results

⁵ CRO with IW Financial annually ranks companies in eight categories: climate change, employee relations, environment, financial, governance, human rights, lobbying and philanthropy. Climate change and environment are weighted more heavily by CRO which perceives these categories as more influential to global responsibility.

Table 1 shows the components of portfolio returns for the Top, Bottom and Russell 1000 Index by year. Also shown are measures of annual risk (standard deviation) and Sharpe ratios.

[Insert Table I here]

The portfolio of service firms ranked in the Top 150 of the CRO list had lower annual excess returns for the ten years of the study than those in the Bottom group. The Top and Bottom firm portfolios also had excess returns that were better overall than the Russell index. During the ten years, Top firms had an average portfolio excess return of 11% as compared to the Bottom companies with an average portfolio excess return of 21% and with the Russell 1000 benchmark's excess annual return of 7%. While average excess returns over the ten-year period were better for the Bottom firm portfolio than the Top portfolio, these results reflect four years of very good performance for the Bottom firms (1999, 2000, 2003 and 2004). Since 2000, the returns of the Bottom firms were higher than the Top group.

Table I indicates that portfolio risk for both the Top and Bottom portfolios were comparable, but higher than the market index for the ten-year period. Standard deviations of the Top portfolio were 6%, compared with 4% for the Russell 1000.

Sharpe ratios in Table I suggest that the risk/return performance ratio is higher over the period studied for the Bottom portfolio group than either than the Top portfolio or the market index. Greater ratios generally imply better performance for the Bottom portfolio on a risk-adjusted basis. During the declining market years for 2000-2003, we find that the Bottom portfolio had better excess returns and risk-adjusted performance compared with either the Top portfolio or the market benchmark.

Table II reports the results regarding whether the mean monthly returns are different between the groups.

[Insert Table II here].

Over the ten-year period, there was no significant difference in the mean excess returns for any of the group (Top v Bottom; Top v Russell; or Bottom v Russell). However the returns were different and important for recent sub-periods. For five-year return periods, the Top portfolio returns were significantly higher than the Russell 1000 beginning in 2000 to 2005, at the 1% and 5% levels of significance. Further, the Bottom portfolio returns over the five-year periods for 2001 to 2006 were also higher than the index at the 1% level of significance. We also see similar findings for the most recent three year sub-periods. The Top portfolio returns were higher than the index in all periods for 2000 to 2006, at 1% and 5% statistical significance. During that recent time period, the Bottom portfolio return beat the index return with statistical significance, except for the one year of 2002. In sum, we find support that recent Top returns and Bottom returns are statistically different than the Benchmark.

The mean difference tests in Table II suggest that investors today may prefer service firms with independently ranked environmental commitment to green initiatives. If demand for Top ranked firms is higher than these in the Bottom group, we would expect that demand for the Top group securities would increase the stock price and reduce its excess returns. As for firms that do make a commitment to green initiatives, but have lower rankings in the Bottoms group, the investor is not demanding these securities as much as those in the Top group. The Bottom group stock prices may not be priced fully to reflect its commitment to environmental initiatives

and could suggest potential value to the investor. The implication is that for lesser ranked firms, investors maybe underestimating the benefits of green initiatives or overestimating its cost.

Our study on the service industry supports recent research on the importance of commitment. Klaussen and McLaughlin (1996) find for significant positive abnormal returns after a firm receives environmental performance awards. Further, Dowell, Hart and Young (2000) and Konar and Cohen (2001) suggest that firms that adapt strong global environmental standards have higher market values.

VI. Conclusions

The results of our pilot study should be interpreted with caution as limited portfolios were constructed. Care should be taken as the results cannot be generalized to any larger group. However, noting the limitations, the research is important in discussing the increasing importance of social responsibility for a firm's financial performance. This research suggests that service firms that are well-recognized for taking environmental initiatives in production and marketing will have lower risk adjusted returns and performance for the public investor. We find that since 2000, firms recognized in the top 150 in the environmental category of the CRO list provided a lower risk-adjusted return compared with the market benchmark. Additionally, service firms with lower rankings of commitment to the environment, but still ranked as environmentally friendly have higher risk-adjusted returns. These bottom ranked firms have potential value to the investor. In sum, our study suggests that a company's commitment to environmental initiatives and the recognition of its commitment is an important signal today for investor's return and performance.

Future research could investigate portfolio construction of all service industry firms using matched samples with other performance measures, i.e. Treynor ratios, Jensen's alpha and four-factor models. This will further validate the trends of the current study and confirm the growing importance of environmentally friendly initiatives by service corporations today.

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Table I: Summary Statistics of the Portfolio Returns for Service Firms

Year	Top 150 Firms Annual Excess Returns	Std Dev	Sharpe Ratio	Bottom 150 Firms Annual Excess Returns	Std Dev	Sharpe Ratio	Russell 1000 Annual Excess Returns	Std Dev	Sharpe Ratio
1997	25%	6%	4.0	16%	8%	2.0	25%	4%	5.62
1998	28%	10%	2.8	21%	9%	2.3	20%	6%	3.17
1999	8%	6%	1.2	33%	11%	2.9	15%	4%	3.86
2000	-4%	6%	-0.6	29%	13%	2.2	-15%	5%	-2.90
2001	4%	6%	0.6	0%	5%	-0.1	-17%	6%	-2.98
2002	-15%	6%	-2.5	-16%	10%	-1.6	-25%	6%	-4.22
2003	34%	4%	9.0	57%	24%	2.4	27%	3%	8.18
2004	21%	4%	5.4	9%	4%	2.5	8%	2%	3.78
2005	7%	3%	2.5	41%	13%	3.1	1%	2%	0.60
2006	11%	3%	4.1	17%	7%	2.5	9%	2%	5.00
10 Year Average	11%	6%	1.9	21%	6%	3.5	3%	4%	0.76

Annual excess returns, annual risk and Sharpe ratios for different portfolios of 10 service firms randomly selected from CRO list of top 300 firms. These firms were listed as environmentally responsible in 2007.

Table II: Mean Difference Tests

Period	Top v Bottom	Top v Russell	Bottom v Russell
3 years: 97-99			
98-00			
99-01			
00-02		*	
01-03		**	*
02-04		*	
03-05	*	*	***
04-06			**
5 years: 97-01			
98-02			
99-03			
00-04		**	
01-05		***	***
02-06		**	***
10 years: 97-06			

This table presents the difference in mean returns for selected portfolios of service firms in the top half of CRO's list of 300 most socially responsible in the environment category for 2007. The results were based on t-tests using monthly returns during the periods noted.

*, **, *** indicates 1%, 5% and 10% significance levels, respectively.