

Financial Impact of Green Rankings in Newsweek

Parvez Ahmed
University of North Florida
Coggin College of Business
1 UNF Drive
Jacksonville, FL 32224

Kristine Beck
California State University, Northridge
College of Business and Economics
18111 Nordhoff Street
Northridge, CA 91330

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ABSTRACT

Greening has become a powerful idea in corporate strategy. Firms engaged in greening often seek and cherish external validations such as being an active participant in UN's Global Compact. This paper examines the investment performance of firms who were named in Newsweek's annual survey of most green companies. Results show that there is no direct relationship between a higher Newsweek Green Ranking and performance. However, firms after being named in the Newsweek survey had better return performance than in the year prior to being named although this difference in return was not statistically significant. The results are nonetheless important as it allows investors to separate good external validators of greening from those external validators who may have wide media recognition but are a perhaps a lagging indicator of greening.

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1. Introduction

The idea of greening has become a powerful force in corporate strategy. Typically the greening of a business begins with the creation of a production system that is environmentally friendly, primarily by conserving energy or using energy from non-fossil sources. Shrivastava (1996) asserts that greening is more than energy conservation and also includes the use of environmentally friendly products. In addition, firm's use marketing and communication strategies to amplify a firm's green credence (Buchholz, 1998). Establishing green credentials also include using corporate annual reports to convey a firm's environmental performance (Kolk, 2000). In addition, Utting (2002) suggest that greening includes the formation of partnerships and alliances with non-governmental organizations and industry associations. Finally, Barnett (2004), Clapp and Dauvergne (2005) and Kolk and Mauser (2002) contend that corporate greening reflects the active seeking of external validations such as being an active participant in the UN Global Compact.

In this study we examine the investment performance of firms who are externally validated by being named in *Newsweek's* annual survey of most green companies. *Newsweek* has been producing a green ranking of publicly traded firms since 2009. The *Newsweek* rankings to some extent create a composite measure that takes into account multiple factors in

evaluating the greenness of company. According to *Newsweek*, “Companies are ranked by their overall Green Score, which is derived from three components: Environmental Impact Score (45%), Environmental Management Score (45%), and Disclosure Score (10%).”¹ The Environmental Impact Score includes measurements on greenhouse gas emissions, water usage, waste disposal and any possible contributions to acid rain and smog. Environmental Management Score is based on a company’s environmental policies, supply chain management and conservation programs. Finally, Disclosure Score measures “adequacy, completeness, and quality” of environmental impact reporting involving initiatives such as Global Reporting Initiative and Carbon Disclosure Project.

Research in finance and strategic management shows relationship between a firm’s reputation and its financial performance. *Newsweek*’s green ranking can certainly be viewed as a reputation enhancer, even if one can argue that it is not necessarily an effective measure of a firm’s true environmental stewardship. Perception of a firm’s reputational quality may positively impact its risk return-relationship (Shefrin and Statman, 1994).

2. REVIEW OF RELATED LITERATURE

Corporate social responsibility is not natural to the corporate life as corporate law requires directors to act in the best interest of shareholders. The fiduciary duty of the directors

¹ Green Rankings 2012: Frequently Asked Questions. *Newsweek*. TheDailyBeast.com, October 22, 2012. Web. February 16, 2013. <http://www.thedailybeast.com/newsweek/2012/05/08/green-rankings-2012-frequently-asked-questions.html>

is to maximize shareholder value but within this broad concept directors have some latitude in considering the interest of other stakeholders particularly when doing so also enhances shareholder value. Thus, corporate social responsibility is generally inclusive of shareholder wealth maximization and suggests that businesses have an obligation to interact with society in a socially responsible way (Vogel, 2006). Domestic and international organizations such as the United Nations, the World Business Council on Sustainable Development, and the Business Roundtable embrace corporate social responsibility and provide guidance to businesses on how to establish corporate social responsibility strategies (Barclift, 2012)

Using *Fortune's* rankings of most admired companies, McGuire, Sundgren and Schneeweis (1988) examine the relationship between perceptions of firms' corporate social responsibility and their financial performance. Results show reduction of risk as a benefit of corporate social responsibility. In addition they show that a firm's past financial performance is more closely related to corporate social responsibility than is their performance after being recognized as an admired company. However, Antunovich, Laster and Mitnick (2000) and Filbeck, Gorman, and Preece (1997) find that stocks of most admired firms outperform those of least admired firms. Similarly, Vergin and Qoronfleh (1998) find that stocks of most admired firms exhibit favorable stock market performance. Moskowitz (1972) and Parket and Eibert (1975) suggests that while socially responsible actions are likely to impose costs on a firm, the benefits may be higher so long as the firm is able to leverage its social responsibility into

enhancing employee morale and productivity. Another factor driving the positive relationship between corporate social responsibility and financial performance is related to the stakeholder theory of Cornell and Shapiro (1987), which suggests that the firm must satisfy not only the interests of the shareholders but all stakeholders. Low social responsibility may create doubts about the firm's ability to honor its implicit claims of product quality and this may lead to increases in explicit claims such as product costs. Firms successful in creating a perception of high social responsibility may have lower cost to its implicit claims, which in turn will lead to higher financial performance.

Several studies investigate stock market reaction to inclusions in lists that are indicative of companies' degree of social responsibility. Jones and Murrell (2001) conduct an event study of firms named to *Working Mothers* magazine's list of *Most Family-Friendly Companies* for the first time between 1989 and 1994 and find statistically significant positive abnormal returns for such firms. The authors suggest that exemplary social performance can serve as a positive signal of the firm's business performance to shareholders. Conversely, Filbeck and Preece (2003) find a negative stock market response associated with the announcement.

Several other studies have investigated the relationship between corporate social performance (CSP) and firm financial performance. Ruf, et. al. (2001) finds a positive relationship between the degree of CSP and sales growth in the current and subsequent years. Similarly, Simpson and Kohers (2002) find a positive link between social and financial

performance for banking firms. Cox, Brammer, and Millington (2004) show a positive association between a firm's degree of CSP and long-term institutional investment. Orlitzky and Benjamin (2001) demonstrate an inverse relationship between a firm's degree of CSP and firm risk, which supports the findings of McGuire, Sundgren and Schneeweis (1988). Overall, these studies suggest that a firm exhibiting a higher degree of corporate social performance perform well in a risk/return spectrum.

Much of the work on firm reputation has studied the impact of negative events on stock prices. A number of studies (Jarrell and Peltzman, 1985; Rubin, Murphy and Jarrell, 1988) find stock market losses around negative regulatory events that exceed the direct costs to the firm. The excess loss over the direct costs has been explained as the loss due to decrease in goodwill or firm reputation. Studies on non-regulatory negative events (Dowdell, Govindraj and Jain, 1992) also observe significant losses.

Fombrun and Shanley (1990) provide a model of reputation building under conditions of imperfect information. According to them, firms are in a competitive market for reputational status. Because of informational asymmetries, managers attempt to influence other stakeholders' assessments by signaling firms' salient advantages. Examining a sample of *Fortune's* most admired companies, they conclude that accounting measures of profitability and risk as well as market value most strongly affected judgments of firms.

Black, Carnes and Richardson (2000) find that the ratings in *Fortune's* most admired company survey provide information additional to what can be derived from past financial numbers. Preston and Sapienza (1990), defining reputation using five-year mean values for each stakeholder performance indicator published in *Fortune*, find that sales size, the five-year growth rate divided by the percentage increase in sales, and the ten-year total rate of return are positively related to reputation. Similarly, Roberts and Dowling (2002) find that firms with relatively good reputations are better able to sustain superior profit outcomes over time. Hammond and Slocum (1996) find that management can affect a firm's subsequent reputation by lowering financial risk and controlling costs.

Nanda, Schneeweis, and Eneroth (1995) show that for British firms, high market return and low risk are highly correlated with subsequent measures of firm image across several criteria. Conversely, variables providing evidence of growth in a firm's revenue had little impact on future evaluations of management quality. They also find that the quality of management is an important variable in explaining or predicting future market-based financial performance measures, and the ability of qualitative factors to forecast return and risk performance is related to firm size. Ahmed, Nanda and Schnusenberg (2010) investigate relationship between a firm's degree of social responsibility and its performance. They find significant positive excess returns, which indicate that being included on major publication list (such as *Fortune's* Best Companies to Work For) is viewed positively by the stock market.

While qualitative measures of performance may suggest future financial performance, external evaluators' measures of firms' qualitative performance may also react to previous periods' financial performance. Previous studies have shown that perceptions of firms' qualitative attributes are related to financial performance measures (McGuire, Sundgren, and Schneeweis, 1988; McGuire, Schneeweis, and Branch, 1990; Shefrin and Statman, 1995; Nanda, Schneeweis and Eneroth, 1995). The literature suggests that when analyzing managerial performance, investors review both qualitative factors (i.e., the ability of management to maintain a competitive position, foster employee relations, behave socially responsible), as well as financial factors such as expanding profit margins and financial soundness (Amling, 1989). Overall, the literature on firm reputation suggests that firms enjoying a better reputation perform better and are rewarded by stock market participants.

3. DATA AND METHODOLOGY

This paper uses the list of leading green companies in the U.S. as provided by *Newsweek*, working in collaboration with *KLD Research & Analytics*, which tracks environmental, social and governance data on companies worldwide, *Trucost*, which specializes in quantitative environmental performance measurement, and *CorporateRegister.com*, the world's largest online directory of social responsibility, sustainability and environmental reporting. The ranking of the 500 largest U.S. companies were based on their environmental performance, policies, and reputation. The companies included by *Newsweek* are the largest

U.S. companies as measured by revenue, market capitalization and number of employees. According to Newsweek, the green score given to a company uses three components: Environmental Impact Score (EIS), Environmental Management Score (EMS), and Disclosure Score (DS). EIS uses over 700 variables to capture the total cost of all environmental impacts of a corporation's global operations. The resultant score is normalized against a company's annual revenues to facilitate comparison across firm sizes. EMS reflects an analytical assessment of a company's environmental policies and performance that looked into best-in-class policies, programs and initiatives, regulatory infractions, lawsuits, community impacts and more. Finally, DS is based on an opinion survey of corporate social responsibility professionals, academics and other environmental experts. The final score is 45 percent weighted to each of EIS and EMS with the final 10 percent weighting given to DS.

The sample consists of all 500 firms listed in the 2009 and 2010 Newsweek Green Rankings. In 2010 only 18 firms had missing returns and were excluded from the final sample. Daily return data was generated using Yahoo! Finance. In the 2009 Green Rankings 30 firms did not have return data on Yahoo!, mostly due to mergers and acquisitions. All firms were ranked by size and grouped into deciles. The sample of firms in both 2009 and 2010 were subjected to an event study to detect if being named as America's most green companies caused any increase in shareholder value. The event date in this study is the day Newsweek Green Rankings are published. In 2009 it is September 21 and in 2010 the list was published on October 22. In

addition, the sample of firms was tracked over a post-event window to detect if the sample Newsweek's green firms performed any different from a broad market index.

Abnormal return is defined using a single index model. Jensen's (1968) Alpha is defined as $\alpha = \bar{r} - [\bar{r}_f + \beta(\bar{r}_m - \bar{r}_f)]$ where \bar{r} is the expected return on the fund, \bar{r}_f is the return on the riskless asset, \bar{r}_m is the expected return on the market portfolio (S&P 500), and β is the estimate of the fund's systematic risk. Ahern (2009) shows that a characteristic-based benchmark model produces the least biased returns. Significant statistical errors were found in the newer methods, including the Fama-French (1993) 3 Factor Models and the Carhart (1997) 4-Factor Models. The methodology for computing the abnormal return adjusted for both volatility and cross-correlation as suggested in Kolari and Pynnonen (2010). A basic assumption in traditional event study methodology is that the abnormal returns are cross-sectionally uncorrelated. This assumption is valid when the event day is not common to the firms. However, in this study the event day is the publication of the Newsweek's Green Firm list, which happens on a common day for all firms in our sample. Thus, according to Kolari and Pynnonen (2010), "it is well known that, if the firms are from the same industry or have some other commonalities, extraction of the market factor may not reduce the cross-sectional residual correlation. Consequently, use of test statistics relying on independence understate(s) the standard errors and lead to severe over-rejection of the null hypothesis of no event effect when it is true." The Kolari and Pynnonen (2010) method corrects the original Boehmer,

Musumeci, and Poulsen (1991) *t*-statistic for cross-sectional correlations. The correlation adjustment factor is inversely related to average cross-sectional correlation. BMP Test Statistic:

$t_{BMP} = \frac{\bar{A}\sqrt{n}}{s}$ where \bar{A} is the mean scaled abnormal return, n is the number of firms, and s is the

cross-sectional standard deviation of the event day scaled abnormal returns. KP Test Statistic:

$t_{KP} = \frac{\bar{A}\sqrt{n}}{s} \sqrt{\frac{(1-\rho)}{(1+(n-1)\rho)}}$ where ρ is the average of the sample cross correlations of the

estimation period residuals. With the Kolari and Pynnonen (2010) adjustments for cross-sectional correlations, the single index model and the Fama-French 3-Factor model yield similar results. For the sake of parsimony, this paper uses Ahern's characteristic-based benchmark single index model. The event window is -5 to +5 days around the publication of Newsweek's Green Firm list. The post-event window was +6 to +244 days from the event date.

4. RESULTS

Table I shows average daily returns and standard deviation for each decile portfolio for one-year prior to and one-year after the event day of September 21, 2009. There is no noticeable pattern across deciles i.e. small cap and large firms have similar means and standard deviations in returns. Mean and standard deviations in the post-event periods are higher but the differences in mean are statistically insignificant.

Table II addresses the question of whether the stock price of the firms on Newsweek's list of Green firms had any significant reaction to such an announcement. Abnormal returns are

given for 1-day and 10-day windows (-5 to +5) around the event. After correcting for cross correlation, none of the decile portfolio abnormal returns are statistically significant. Neither the full sample nor any of the deciles exhibit a significant reaction to the publication in the Newsweek Green Rankings around the event windows. It appears that inclusion on the list did not provide sufficient information to significantly impact stock price. The market may have factored into its information content that the firms listed had made concerted efforts to be green. Table III shows the results of a similar event study on portfolios based on firm size rather than Green Ranking deciles. The results are similar for portfolios based on market capitalization; there is not a significant market reaction to the publication of the Newsweek list.

The remaining tables address whether post-event returns of the Newsweek firms exceed market returns. Table IV includes results by deciles and Table V by firm size for the one tail paired t-test and Jensen's alpha. Table IV shows that the null hypothesis of equal returns is rejected for the full sample and decile portfolios 2 and 5, indicating that those decile returns exceed benchmark returns. To consider the possibility that the previous result is due to an inappropriate benchmark, returns of decile portfolios are tested against each other with a single factor ANOVA test. This test indicates that post-event returns are not significantly different across the decile portfolios. The last two columns of Table IV indicate that only the full sample and deciles 2 and 5 have a significant and positive Jensen alpha, which is inconsistent with higher Green Rankings generating higher than market returns.

Table V shows the results for the paired t-test and Jensen alpha for portfolios based on firm size rather than Green Ranking. Only the firms with the largest market capitalization have post-event returns which exceed the market as well as a significant and positive Jensen alpha. The ANOVA test, however, does not indicate a significant difference across firm size. A small number of firms are affecting the significance as only 48 of the firms have a significant and positive Jensen alpha.

5. CONCLUSIONS

Based on paired t-test and Jensen's alpha, only two of the 10 decile portfolios, the full sample, and the portfolio of large firms have returns significantly higher than the benchmark in the two years after the 2009 Newsweek Green Ranking. The ANOVA test, however, indicates insignificant differences across portfolios and the event study does not indicate a significant market reaction.

There does not appear to be a direct relationship between a higher Newsweek Green Ranking and performance. The level of green ranking does not affect returns. This does not necessarily imply that green practices are not value enhancing. It is likely that the information contained in Newsweek's Green Ranking has already been factored into by the market. Thus the naming of the firms in Newsweek is not a new event. Future research should look at other similar lists, such as the inclusion in the UN Global Compact. However, caution should be applied in interpreting these results. The markets may have used other sources of information

to conclude that firms on the Newsweek list are socially responsible and their market values at the time of their inclusion in the Newsweek list already reflects their higher net worth to shareholders. The Newsweek list rather than being a new source of information may very well be a lagging indicator about a firm's social responsibility.

6. REFERENCES

Ahmed, Parvez, Sudhir Nanda, and Oliver Schnusenberg, 2010, Can Firms Do Well While Doing Good? *Applied Financial Economics* 20, 845-860.

Ahern, Kenneth R., 2009, Sample Selection and Event Study Estimation, *Journal of Empirical Finance* 16(3), 466-482.

Amling, Frederick, 1989, An introduction to analysis and management, 6th ed. (Prentice Hall, Inc., Englewood Cliffs, N.J.)

Antunovich, Peter, David S. Laster, and Scott Mitnick, 2000, Are high-quality firms also high - quality investments? *Current Issues in Economics and Finance*, Federal Reserve Bank of New York, 6(1).

Barclift, Jill Z., 2012, Corporate Social Responsibility and Financial Institutions: Beyond Dodd-Frank, Banking & Financial Services Policy Report, 31(1).

Barnett, Michael, 2004, Are Globalization and Sustainability Compatible? Review of the Debate Between the World Business Council for Sustainable Development and the International Forum on Globalization, *Organization & Environment* 17, 523–532.

Black, Erwin L., Thomas A. Carnes, and Vernon J. Richardson, 2000, The Market Valuation of Firm Reputation, *Corporate Reputation Review* 3, 31-42.

Boehmer, Ekkehart, Jim Musumeci, and Annette B. Poulsen, 1992, Event study methodology under conditions of event induced variance, *Journal of Risk and Insurance* 59(2) 329-330.

Buchholz, Rogene A., 1998, Principles of Environmental Management: The Greening of Business (Prentice Hall, Upper Saddle River, NJ).

Carhart, Mark M., 1997, On persistence in mutual fund performance, *The Journal of Finance* 52(1), 57-82.

Clapp, Jennifer and Peter Dauvergne, 2005, Paths to a Green World: The Political Economy of the Global Environment (MIT Press, Cambridge, MA).

Cornell, Bradford and Alan Shapiro, 1987, Corporate stakeholders and corporate finance. *Financial Management* 16(1), 5-14.

Cox, Paul, Stephen B. Brammer, and Andrew Millington, 2004, An empirical examination of institutional investor preferences for corporate social performance, *Journal of Business Ethics* 52(1), 27-43.

Dowdell, Thomas D., Suresh Govindraj, and Prem C. Jain, 1992, The Tylenol incident, ensuing regulation, and stock prices, *Journal of Financial and Quantitative Analysis* 27(2), 283-301.

Fama, Eugene F., and Kenneth R. French, 1993, Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics* 33, 3–56

Filbeck, Michael, G., Raymond Gorman, and Dianna Preece, 1997, Fortune's Most Admired Firms: An Investor's Perspective, *Studies in Economics and Finance* 18(1),74-93.

Filbeck, Michael, and Dianna Preece, 2003, Announcement Effects of Working Mother Annual Survey of Family-Friendly Firms, *The Journal of Investing* 12(3), 87-95.

Fombrun Charles and Mark Shanley, 1990, What's in a name? Reputation building and corporate strategy, *Academy of Management Journal* 33(2), 233-258.

Hammond, Sue A., and John Slocum, 1996, The impact of prior firm financial performance on subsequent corporate reputation, *Journal of Business Ethics* 15(2), 159-165.

Jarrell, Greg and Sam Peltzman, 1985, The impact of product recalls on the wealth of sellers, *Journal of Political Economy* 93(3), 512-536.

Jensen, Michael C., 1968, The Performance of Mutual Funds in the Period 1945-1964, *Journal of Finance* 23(2), 389-416.

Jones, Ray and Audrey Murrell, 2001, Signaling positive corporate social performance. *Business and Society* 40(1), 59-78.

Kolari, James W., and Seppo Pynnonen, 2010, Event study testing with cross-sectional correlations of abnormal returns, *Review of Financial Studies* 23(11), 3996-4025.

Kolk, Anns, and Anniek Mauser, 2002, The evolution of environmental management: from stage models to performance evaluation, *Business Strategy and the Environment* 11(1), 14–31.

Kolk, Anns, 2000, *Economics of Environmental Management*. (Prentice Hall, Harlow, England).

McGuire, Jean B., Alison Sundgren and Thomas Schneeweis, 1988, Corporate social responsibility and firm financial performance, *The Academy of Management Journal* 31(4), 854-872.

McGuire, Jean B., Tom Schneeweis, and Ben Branch , 1990, Perceptions of firm quality, *Journal of Management* 16, 167-180.

Moskowitz, Milton, 1972, Choosing socially responsible stocks, *Business and Society Review* 1, 71-75.

Nanda, Sudhir, Thomas Schneeweis, and Kristina Eneroth, 1996, Corporate performance and firm perception: The British experience, *European Financial Management* 2(2), 197-221.

Orlitzky, Marc and John D. Benjamin, 2001, Corporate social performance and firm risk: A meta-analytic review, *Business and Society* 40(4), 369-396.

Parke, Robert, and Henry Eibert, 1975, Social responsibility: The underlying factors, *Business Horizons* 18(4), 5-10.

Preston, Lee E., and Harry J. Sapienza, 1990, Stakeholder management and corporate performance, *Journal of Behavioral Economics* 19(4), 361-375.

Roberts, Peter W., and Grahame R. Dowling, 2002, Corporate reputation and sustained superior financial performance, *Strategic Management Journal* 23(12), 1077-1093.

Rubin, Paul H., Dennis Murphy, and Greg Jarrell, 1988, Risky products, risky stocks, *Regulation* 12, 35-39.

Ruf, Bernadette M., Muralidhar Krishnamurthy, Robert Brown, Jay J. Janney, and Karen Paul, 2001, An empirical investigation of the relationship between change in corporate social performance and financial performance: A stakeholder theory perspective, *Journal of Business Ethics* 32, 143-156.

Shefrin, Hersh, and Meir Statman, 1994, Behavioral capital asset pricing theory, *Journal of Financial and Quantitative Analysis* 29, 323-349.

Shefrin, Hersh, and Meir Statman, 1995, Making sense of beta, size, and book-to-market, *The Journal of Portfolio Management* 21(2), 26-34.

Shrivastava, Paul, 1996, *Greening Business*. (Thompson Executive Press, Cincinnati, OH).

Simpson, Gary W., and Theodor Kohers, 2002, The link between corporate social and financial performance: Evidence from the banking industry, *Journal of Business Ethics* 35(2), 97-109.

Utting, Peter, (ed.), 2002, *The Greening of Business in Developing Countries*. (Zed Books, London).

Vergin, Roger C., and M.W. Qoronfleh, 1998 Corporate reputation and the stock market, *Business Horizons* 4(1), 19-26.

Vogel, David, 2006, *The Market for Virtue: The Potential And Limits of Corporate Social Responsibility*. (Brookings Institution Press).

Table I: Average Daily Returns and Standard Deviation for Pre and Post Event

This table shows the average daily returns one year prior to and one year after the publication of the firm name in Newsweek's Green Rankings, September 21, 2009. The data is stratified by firm's market size.

Market Size of Firm	Year Prior to Announcement		Year After to Announcement		Differences in Mean	t-statistics
	Average Daily Return	Standard Deviation	Average Daily Return	Standard Deviation		
Decile 1	0.031%	1.34%	0.097%	3.27%	0.066%	0.128
Decile 2	0.054	1.32	0.087	3.16	0.033	0.660
Decile 3	0.060	1.32	0.099	3.19	0.039	0.077
Decile 4	0.034	1.39	0.082	3.04	0.048	0.098
Decile 5	0.055	1.46	0.102	3.30	0.047	0.892
Decile 6	0.015	1.43	0.113	3.45	0.098	0.179
Decile 7	0.064	1.39	0.095	3.31	0.031	0.059
Decile 8	0.040	1.34	0.090	3.09	0.050	0.101
Decile 9	0.046	1.37	0.092	2.99	0.046	0.098
Decile 10	0.047	1.17	0.073	2.65	0.026	0.061
S&P500	0.021	1.20	0.022	2.75	0.001	0.002

Table II: Event Study with Single Index Model

This table reports the results from the event study using a single index model. S&P 500 is used as index returns.

	Mean Abnormal Returns	KP Test Statistics One Day	Mean Scaled Cumulative Abnormal Returns	KP Test Statistics Days -5 to +5
Full Sample	-0.02	-0.15	-0.08	-0.21
Decile 1	-0.20	-1.56	-0.14	-0.37
Decile 2	-0.10	-0.81	0.10	0.23
Decile 3	-0.09	-0.55	0.24	0.68
Decile 4	0.02	0.06	-0.32	-0.25
Decile 5	0.05	0.14	0.38	0.32
Decile 6	-0.08	-0.13	-0.15	-0.09
Decile 7	0.03	0.05	-0.03	-0.02
Decile 8	-0.14	-0.30	-0.54	-0.31
Decile 9	-0.03	-0.06	-0.21	-0.13
Decile 10	0.34	0.83	-0.18	-0.14

Table III: Event Study with Single Index Data Segmented by Market Size

This table reports the results from the event study using a single index model. S&P 500 is used as index returns. The data is stratified as Large Cap, Mid Cap and Small Cap based on market size.

	# of Firms	Mean Abnormal Returns	One Day Event Window KP Test Stat	Mean Scaled Cumulative Abnormal Returns	Event Window Day -5 to +5 KP Test Stat
Large Cap Firms	246	-0.06	-0.61	0.08	0.25
Mid-Cap Firms	215	0.03	0.18	-0.26	-0.40
Small-Cap Firms	21	0.22	0.62	-0.49	-0.47

Table IV: Post Event Returns for Firms Listed in Newsweek’s Green Rankings

Portfolio returns are tested for the period spanning September 2009 to September 2011 using paired t-tests and single factor ANOVA; returns are tested against the benchmark individually with the paired t-test and collectively with ANOVA. Decile portfolios are equally-weighted.

Decile	Paired t-test test statistic	p-value (1 tail)	Jensen Alpha	p-value (1 tail)
1	0.24	0.41	0.003	0.41
2	0.03 **	0.03 **	0.018 **	0.03 **
3	1.02	0.15	0.011	0.16
4	0.91	0.18	0.016	0.18
5	0.03 **	0.03 **	0.039 **	0.01 **
6	0.79	0.21	0.010	0.22
7	0.03	0.08	0.023	0.08
8	1.33	0.09	0.017	0.09
9	0.95	0.17	0.014	0.17
10	1.14	0.13	0.017	0.13
All firms	1.87 **	0.03 **	0.017 **	0.03 **
ANOVA	F test statistic	p-value		
	0.02	.99		

** significant at 5% level

Table V: Post Event Returns for Firms Data Segmented by Market Size

Portfolio returns are tested for the period spanning September 2009 to September 2011 using paired t-tests and single factor ANOVA; returns are tested against the benchmark individually with the paired t-test and collectively with ANOVA.

Size	Paired t-test test statistic	p-value (1 tail)	Jensen Alpha	p-value (1 tail)
Large Cap Firms	5.94 **	0.00 **	0.03 **	0.00 **
Mid Cap Firms	-0.61	0.27	-0.01	0.27
Small Cap Firms	-1.42	0.08	-0.03	0.08
ANOVA	F test statistic	p-value		
	0.25	0.78		

** significant at 5% level