An Analysis of the Wealth Effects of Green Marketing Strategies

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Event study methodology is used to examine the wealth effects, or stock price reactions, to corporate announcements of green marketing activities. Two procedures for measuring stock price reactions and two different tests of significance are used in the study. The results for the sample of 73 firms show that the market value for the average firm in the sample declines by 3.14% during the period from 10 days prior to 10 days after the news is announced. Announcements related to green products, recycling efforts, and appointments of environmental policy managers result in insignificant stock price reactions. However, announcements for green promotional efforts produce significantly negative stock price reactions. Sampling by financial and operational characteristics shows that firms with higher growth in earnings, larger firms, and firms with higher advertising-to-sales ratios experience relatively less negative stock price reactions. Managerial implications of the results and directions for future research are also presented.

In recent years, environmentalism, or the green movement, in the United States has grown in relative strength as a mainstream concern (Ottman, 1993). The green movement has been viewed as a significant social movement in recent years (Banerjee, Gulas, and Iyer, 1995). Numerous aspects of everyday life, such as politics, consumerism, technology, product purchases and consumption, marketing, manufacturing, and resources (Zinkhan and Carlson, 1995; Zimmer, Stafford, and Stafford, 1994), are affected by the movement. The effects on everyday life are also widespread, because in a global economy, changes contributing to development of environmental policies and strategies are not limited to national boundaries. Some of the changes in the United States result from Americans’ increasing perceptions of themselves as environmentalists (Carlson, Grove, and Kangun, 1993; Shrum, McCarty, and Lowrey, 1995). As these perceptions have increased, the green movement has received a great degree of attention by the public in such areas as the media, the political arena, special interest groups, and consumers (Vandermerwe and Oliff, 1990; Zimmer, Stafford, and Stafford, 1994).

The movement has also begun to receive more attention by managers who are increasingly moving from defensive and reactive responses to the concern toward pro-active actions (Vandermerwe and Oliff, 1990). Pro-active actions related to environmental issues is a subset of the well-documented area of environmental management (see Clark, Varadarajan, and Pride, 1994), which has been successfully applied to marketing (e.g., the seminal article by Zeithaml and Zeithaml, 1984). Environmental management assumes that firms can, to a degree, create, shape, or manage, operating environments. It attempts to control, change, influence, or adapt firm inputs over which external groups have some amount of control.

Firms’ actions relative to environmental issues should consider the firms’ relationships to numerous stakeholder groups, such as stockholders, employees, customers, suppliers, financial institutions, governments, interest groups, and the general public. Stakeholders may feel that management actions, such as those related to the green movement, reflect the perceptions of various stakeholders (Zinkhan and Carlson, 1995). However, as Zinkhan and Carlson (1995) point out, not all stakeholder groups will concurrently be pleased with management actions. Also, as Clark, Varadarajan, and Pride (1994, p. 35) state, “[t]he extent to which the interests of businesses are compatible with, or opposed to, the interests of other individuals, groups, and organizations is a point of much controversy.”

To ensure that they are not being mislead by firms, stakeholders may use different methods with which to oversee management actions regarding the environment (Coddington, 1993). Government, at all levels, impose new laws, regulations, and proposals on firms in response to increasing environmental concern, and may suggest possibly greater controls.
should firms not modify behaviors. Consumers tend to respond more favorably to firms with environmentally conscious images (Carlson, Grove, and Kangun, 1993), yet an overwhelming percent of the public feels that firms are not sufficiently concerned about important environmental issues (Davis, 1994). Capital markets often demand "green audits" of firms; firms that do not have environmentally sound programs in place may be denied funds.

A significant stakeholder in the publicly-held corporation is the stockholder. Azzon and Bertele (1994) note that stockholders, either directly or through "ethical" funds, may limit their investments to firms with environmental performance. Anecdotal evidence by Ottman (1993) suggests that, by greening their operations, involving their employees, and communicating their goals to all corporate stakeholders, companies may be able to achieve cost savings, gains in employee morale, and happier shareholders.

Of special interest is green marketing, or marketing strategies that "appeal to the needs and desires of environmentally concerned consumers" (Zinkhan and Carlson, 1995, p. 1). This article extends the literature to date on green marketing [see, e.g., the articles in the special issue of Journal of Advertising 24(2)(1995)]. The literature on this topic has sought to extend the conceptual and ethical dimensions of environmental marketing, has identified corporate strategies for green marketing, has analyzed environmental advertising claims, and has tried to identify consumer responses to corporate green marketing. While much of this research casts green marketing in a positive light, some researchers have adopted a more cautionary approach. For example, Casey (1992) points out that consumers are unwilling to pay more for green products. Similarly, Easterling, Miller, and Weinberger (1995) point out that, regarding green marketing, there is a gap between consumer intent and consumer action.

The above discussion suggests that there is no clear evidence regarding the effectiveness of corporate green marketing strategies. This article seeks to fill this void in the literature by examining the stock price reactions to corporate announcements related to green marketing, a topic that has not been empirically researched previously. Four categories of green marketing—green products, recycling, green promotions, and appointments of environmental policy managers—are analyzed in detail. The analysis is conducted through the use of event study methodology, which is a causal analytical procedure (see, e.g., Brown and Warner, 1985).

## Research Issues

Environmental issues had previously been primarily viewed by managers as constraints or operating problems and, thus, managers’ approaches in dealing with them had usually been reactive (Azzon and Bertele, 1994). More recently, pro-active changes in management attitudes toward the issues have been taking place with individual firms (Ottman, 1993). Only the strong commitment of senior management, through pro-active changes, can cause the firm’s stakeholders to realize that the firm has sincerely made the green movement a priority (Ottman, 1993). Based on this discussion, the null hypothesis can be stated as:

**H1:** Announcements of green marketing activities will not result in stock price reactions. The alternative hypothesis is that announcements of green marketing strategies will not be viewed favorably by investors.

Within functional areas a firm may approach the green movement at differing degrees, perhaps depending on management’s strength of commitment to the green movement and its dedication of sufficient resources to the relevant activities. For example, Mendleson and Polonsky (1995, p. 4) indicate that green marketing initiatives may range from “re-positioning existing products without changing product composition” to “modifying existing products to be less environmentally harmful” to “modifying the entire corporate culture to ensure that environmental issues are integrated into all operational aspects” to “the formation of new companies that target green consumers and only produce green products.” Bhat (1993, p. 26) indicates that a green product can seldom withstand public scrutiny unless green design was involved, which would affect input materials, manufacturing processes, packaging, and disposal methods. The null hypothesis can be stated as:

**H2:** No stock price reaction will be observed for announcements related to green products.

Consumers may well provide not only opportunities, but also challenges, for firms concerned with environmentalism. While environmental compatibility of products may be a factor in consumer buying behavior (Azzon and Bertele, 1994), consumer interest in “green” products has not strongly and successfully translated into actual purchases of green products (Easterling, Miller, and Weinberger, 1995). Some studies indicate consumers are willing to pay more for environmentally friendly products (Mendleson and Polonsky, 1995), while others report that consumers are unwilling to pay a premium for green products or green packaging (Kangun, Carlson, and Grove, 1991). The discussion here suggests:

**H3:** Significant stock price reactions will not be observed for announcements related to recycling efforts.

Stakeholder interest in firms claiming to be environmentally responsive is affected by information they receive about green products or other business aspects related to the green movement. Complete, balanced, objective, and truthful information on environmental issues is strongly valued by stakeholders (Bennet, Freierman, and George, 1993). Information about firms’ activities related to the movement is sometimes provided by one stakeholder group, such as environmental activists (Gillespie, 1992), to another, such as consumers.
Most consumers, however, find information on the green movement in the mass media (Iyer and Banerjee, 1993), primarily through information provided by firms through their advertising. The volume of green advertising and environmental advertising claims has dramatically increased as consumer interest in the environment has increased (Banerjee, Gulas, and Iyer, 1995; Carlson, Grove, and Kangun, 1993; Kangun, Carlson, and Grove, 1991). Yet, many consumers are becoming more confused by environmental claims in advertising, especially those that are considered misleading, or even deceptive (Carlson, Grove, and Kangun, 1993; Kangun, Carlson, and Grove, 1991), and, thus, they are distrustful of environmental claims in general (Shrum, McCarty, and Lowrey, 1993). This discussion suggests the null hypothesis:

**H4:** That announcements of green promotion will not result in significant stock price reactions. The alternative hypothesis is that the announcements will lead to negative stock price reactions.

To ensure appropriate pro-active focus on environmental issues on local as well as global levels, many firms are creating new, specific positions among board and senior management levels. Some large firms have managers of environmental marketing, who often serve as members on corporate environmental task forces, usually as both screeners of relevant external factors and internal advocates of environmental sensitivity (Coddington, 1993, p. 3). Unfortunately, some firms that employ environmental managers mainly do so for compliance and often do not think in terms of design or process improvement. Thus, the null hypothesis:

**H5:** No stock price reactions for announcements related to appointments of environmental managers can be contrasted with the alternative of negative stock price reactions.

Finally, previous research by Mathur and Mathur (1996) suggests that stock price reactions to marketing strategies are related to a firm’s financial and operational characteristics. In general, a firm with better financial and operational characteristics will experience more positive reactions than a firm with relatively worse financial and operational characteristics. Three corporate characteristics are identified. It is hypothesized (in alternate form):

**H6:** That firms with higher growth in earnings will experience more positive stock price reactions than firms with lower growth in earnings.

The announcement efforts for a larger firm are diffused over a larger base. Thus:

**H7:** For larger firms, less pronounced stock price reactions should be observed.

Finally, firms with higher advertising-to-sales ratios may be able to partially offset negative announcement effects. Thus:

**H8:** We would expect to see more pronounced negative reactions for firms with lower advertising-to-sales ratios.

### Methodology and Data

#### Measurement of Excess Returns

Event study methodology, as introduced by Fama et al. (1969) and further developed by Brown and Warner (1985), has been used by a number of researchers in marketing to examine the market valuation effects associated with marketing strategies (see, for example, Mathur and Mathur, 1995), who studied the effects of advertising slogan changes, and Chaney, Deviney, and Winer (1991), who studied the effects of new product introduction.

Normal returns in the market are assumed to be modeled by the ordinary least squares market model as in Eq. (1):

\[
 r_t = \alpha_i + b_i R_{mt} + e_t
\]

(1)

where \( r_t \) = stock market return for firm \( i \) on day \( t \), \( \alpha_i \) and \( b_i \) are the regression parameters for firm \( i \), \( R_{mt} \) is the return on the market portfolio for day \( t \), and \( e_t \) is the residual term. Excess returns \( R_e \) associated with green marketing announcements are measured as shown in Eq. (2):

\[
 R_e = r_t - (\hat{\alpha}_i + \hat{b}_i R_{mt})
\]

(2)

where \( R_e \) is the excess return for firm \( i \) on day \( t \), and \( \hat{\alpha}_i \) and \( \hat{b}_i \) are parameters estimated from Eq. (1) by using a 100-day estimation period starting 110 days prior to the day on which the green marketing event was announced. The expected value of \( R_e \) is zero if the announcement is viewed by investors as not conveying material information.

The average excess return \( AR_t \) for day \( t \) is calculated by summing \( R_e \) over all N firms in the sample and dividing by N. Cumulative average excess returns (CAERs) over a multi-day interval are obtained by summing the average excess returns for the multi-day interval.

#### Tests of Significance

Two tests of significance are used in this article. For the time series standard deviation (TSSD) procedure (see Brown and Warner, 1985), a portfolio of observations is formed and the variance of \( AR_t \) for the portfolio is calculated as shown in Eq. (3):

\[
 \sigma_{AR} = (D - 2)^{-1} \sum_{t=0}^{D} (AR_t - \overline{AR})^2
\]

(3)

where \( D \) = estimation length in days for estimating \( \hat{\alpha}_i \) and \( \hat{b}_i \), and \( \overline{AR} \) is the average for \( AR_t \) over the D days. The \( t \) statistic for day \( t \) is shown in Eq. (4):

\[
 t = AR_t / \sigma_{AR}
\]

(4)

The \( t \) statistic for a multi-day time interval is calculated as shown in Eq. (5):
The second test procedure used is the standardized excess return (SER) method (see, e.g., Mathur and Mathur, 1995, 1996), which allows adjustment for heteroskedasticity. The standardized excess return SERt is defined as in Eq.(6):

$$SER_t = \frac{R_t}{S_0}$$

where, as shown in Eq.(7):

$$S_0 = \left[ \frac{1}{D} \sum_{j=1}^{D} \frac{(R_{i,j} - \bar{R}_m)^2}{\sum_{j=1}^{D} (R_{i,j} - \bar{R}_m)} \right]^{1/2}$$

$$V_i = \text{variance of the residual term in firm } i\text{'s market model OLS,}$$

$$D = \text{number of days in the estimation period for the market model, and}$$

$$\bar{R}_m = \text{mean market return.}$$

The average of the sum of the standardized excess returns over the multi-day interval $T$ from day $t_1$ to day $t_2$ for each firm is computed as in Eq.(8):

$$\text{CSER}_t = \frac{1}{N} \sum_{i=1}^{N} \sum_{t_1=t_2}^{t} \text{SER}_t$$

The Z-statistic for testing the significance of CAERs is defined as shown in Eq.(9):

$$Z = \frac{\text{CER}_t}{S(\text{CER}_t)}$$

where, as shown in Eq.(10):

$$S(\text{CER}_t) = T^{1/2}[D - 2/N(D - 4)]^{1/2}.$$  

**Scholes-Williams Betas**

Nonsynchronous stock trading introduces bias in the estimation of the parameters in Eq.(1). This bias is corrected by computing Scholes-Williams (Scholes and Williams, 1977) betas $\hat{\beta}_r$ for the sample firms:

$$\hat{\beta}_r = (\hat{\beta}_t^{-1} + \hat{\beta}_t + \hat{\beta}_t^+)/(1 + 2\rho_m)$$

where $\hat{\beta}_t^{-1}$ is the OLS estimate from regressing $R_t$ on $R_{it-1}$, $\hat{\beta}_t^1$ is the OLS estimate from regressing $R_t$ on $R_{it+1}$, and $\rho_m$ is the first-order autocorrelation of $R_m$.

**Data**

Announcements of green marketing activities by firms were identified from the Wall Street Journal, and from the newswire and newspaper files from LEXIS/NEXIS. Event day 0 is the day that the announcement was published in the Wall Street Journal or was reported by LEXIS/NEXIS. To be included in the sample, firms had to meet two screening criteria. First, their stocks had to trade on the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX), or the National Association of Security Dealers Automated Quotation (Nasdaq) system. Second, their daily stock market returns had to be available from the NYSE/AMEX/Nasdaq Daily Returns database from the Center for Research on Security Prices (CRSP) at the University of Chicago. Data on the CRSP equally weighted (EW) stock market index were obtained from the CRSP Indices database. Financial data related to growth in earnings per share (GEPS), sales, and the advertising-to-sales ratio (ASR) were obtained from the 1996 edition of COMPU-STAT Plus. Seventy-three announcements related to green marketing, by firms that met the screening criteria, over the time period from January 1, 1989 to December 31, 1995 were identified.

**Overall Sample**

The cumulative average excess returns (CAERs) for the overall sample for the $(-10, +10), (-10, -6), (-5, -2), (-1, 0), (+1, +5),$ and $ (+6, +10)$ windows are reported in Table 1. The OLSEW results for the $(-10, +10)$ window are $-2.46\%$. Based on both the TSSD procedure and the SER procedure, these CAERs are statistically different from 0 at the 1% significance level, thus leading to the rejection of null hypothesis H1 of no reaction and the acceptance of the alternative hypothesis of negative stock price reactions. The CAERs for the $(-1, +5)$ window are $-0.84\%$ and are significantly different from 0 at the 5% level.

The results from two slightly different CAER estimation procedures, and two different tests to examine whether the observed CAERs are significantly different from 0 lead to similar conclusions. Namely, that investors react negatively to firms’ announcements of green marketing activities. The negative reactions are observed in days just prior to and just after the announcement. The average firms suffers a decline equal to $2.46\%$ of its total market value. All remaining tests are based on the SW estimation procedure and the TSSD testing procedure.

**Subsampling by Marketing Strategy**

Sixty-three of the announcements were classified into four major categories: product, recycling, promotion, and hiring an environmental policy manager. The remaining 10 announcements were related to miscellaneous marketing strate-
Table 1. Cumulative Average Excess Returns: Overall Sample, n = 73

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>CAERs for Event Windows (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(−10, +10)</td>
</tr>
<tr>
<td>OLSEW</td>
<td>−2.46</td>
</tr>
<tr>
<td>TSSD</td>
<td>(−2.96)***</td>
</tr>
<tr>
<td>SER</td>
<td>(−2.93)***</td>
</tr>
<tr>
<td>SW</td>
<td>(−3.14)</td>
</tr>
<tr>
<td>TSSD</td>
<td>(−3.77)***</td>
</tr>
<tr>
<td>SER</td>
<td>(−3.30)***</td>
</tr>
</tbody>
</table>

a CAERs (cumulative average excess returns) indicate the average market-adjusted change over the event window in the market values of the sample firms. Test statistics are given in parentheses.

b OLSEW refers to ordinary least squares regression with the CRSP equally weighted index as the market index.

c TSSD refers to the time series standard deviation testing procedure. t-statistics are reported.

d SER refers to the standardized excess return testing procedure. Z-statistics are reported.

SW refers to regressions with Scholes-Williams (1977) beta with the CRSP equally weighted index as the market index.

***, ** Significant at the .01 and .05 levels, respectively.

Examples of green promotion include an announcement of a green promotional effort. The CAERs for the (−10, +10) window are significantly negative, thus leading to the rejection of null hypothesis H2 of no stock price reactions to green promotional activities. The results indicate that green promotional efforts are not well-received by investors.

The third subsample of 15 announcements is related to the rejection of null hypothesis H5 of no stock price reactions to announcements of recycling efforts cannot be rejected.

The third subsample of 15 announcements is related to green promotional efforts. The CAERs for the (−10, +10), and the (−10, −6) windows are significantly negative, thus leading to the rejection of null hypothesis of no stock price reactions to green promotional activities. The results indicate that green promotional efforts are not well-received by investors.

Category 4 deals with announcements of appointments of environmental policy managers. The CAERs for the (−10, +10) window are −6.71%, but are not statistically different from zero, primarily due to the small sample size of 5. Similarly, the CAERs for the other windows are not significantly different from zero. These results do not lead to the rejection of null hypothesis H5 of no stock price reactions to announcements of appointments of environmental policy managers.

Subsampling by Firm Characteristics

Three measures of a firm’s financial performance are used in this study: growth in earnings per share (GEPS), firm size (SIZE),

Table 2. Market Value Effects for Subsampling by Marketing Strategies

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>CAERs for Event Windows (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(−10, +10)</td>
</tr>
<tr>
<td>Product</td>
<td>−2.44</td>
</tr>
<tr>
<td>n = 28</td>
<td>(−1.50)</td>
</tr>
<tr>
<td>Recycling</td>
<td>−2.16</td>
</tr>
<tr>
<td>n = 15</td>
<td>(−1.02)</td>
</tr>
<tr>
<td>Promotion</td>
<td>−3.40</td>
</tr>
<tr>
<td>n = 15</td>
<td>(−2.14)***</td>
</tr>
<tr>
<td>Manager</td>
<td>−6.71</td>
</tr>
<tr>
<td>n = 5</td>
<td>(−1.58)</td>
</tr>
</tbody>
</table>

a CAERs (cumulative average excess returns) indicate the average market-adjusted change over the event window in the market values of the sample firms. Test statistics are given in parentheses.

b The CAERs are from the SW procedure, and the t-statistics in parentheses are from the TSSD procedure (see Table 1).

** Significant at the .05 level.
and the advertising-to-sales ratio (ASR). GEPS is the compounded growth in earnings per share for the three-year period immediately prior to an announcement. SIZE is measured as the firm’s sales for the year immediately prior to the announcement. Similarly, ASR is also measured for the prior year.

Due to a variety of factors such as issuance of new stocks and bonds, and changes in accounting methods, and information provided by firms, complete, fully adjusted, year-by-year financial information on firms may not be compiled and reported by COMPSTAT. Such is the case with the present green marketing sample also. Lack of some data preclude the possibility of including all firms in the analysis in the subsection. The results are provided in Table 3.

GEPS could be computed for 58 of the 63 firms. The median GEPS was identified and the firms were classified based on their GEPS being higher or lower than the median GEPS. For the 31 firms with higher GEPS, the CAERs for none of the windows are statistically different from 0. The CAERs for the firms with lower GEPS are negative for all of the six windows, with the results for the (−10, +10) and (−1, +5) windows being statistically significant. The CAERs for the (−10, +10) window for the higher GEPS firms are less negative than those for the lower GEPS firms. These results lead to the rejection of null hypothesis H6 of no difference in stock price reactions and acceptance of the alternate hypothesis that firms with higher GEPS will exhibit relatively more positive stock price reactions.

Sales data were available for all 63 firms. The CAERs for larger firms for the various windows in general are negative, but not statistically significant. The CAERs for the smaller firms for the (−10, +10), (−1, +5), and (−6, +10) windows are significantly negative. The results support the rejection of null hypothesis H7 of no difference in stock price reactions because the (−10, +10) window CAERs for the smaller firms are more negative than the comparative CAERs for the larger firms.

Data on ASR were available for 49 of the 63 firms. The CAERs for the various windows for firms with higher ASRs are generally negative, but not significantly different from 0. In contrast, CAERs for firms with lower ASRs are negative for all windows, with those for the (−10, +10) window being significantly negative. The CAERs for firms with lower ASRs are more negative than the comparable CAERs for firms with larger ASRs, thus leading to the rejection of null hypothesis H8 of no differences in stock price reactions due to ASR levels.

### Conclusion

The overall results of this study indicate that, in general, corporate news regarding green marketing activities is not well received by investors. The average firm in the sample loses a statistically significant 3.14% of its market value in the 20 days surrounding the announcement date.

Four subsamples of announcements, classified by major marketing strategies, showed slightly different results. For three subsamples, those related to announcements of new products, recycling efforts, and appointments of environmental policy managers, the null hypotheses of no significant stock price reactions could not be rejected. These results suggest that, in general, announcements related to these three categories of green marketing strategies are viewed neither positively nor negatively by investors. In contrast, announcements related to green promotions produce significantly negative stock price reactions. These results suggest that investors consider green promotional strategies to be value-destroying in nature.

### Table 3. Wealth Effects for Subsampling by Firm Characteristics

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>CAERs for Event Windows (%)&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(−10, +10)</td>
</tr>
<tr>
<td>Firms with higher growth in earnings, n = 31&lt;sup&gt;c&lt;/sup&gt;</td>
<td>−2.19</td>
</tr>
<tr>
<td></td>
<td>(−1.69)</td>
</tr>
<tr>
<td>Firms with lower growth in earnings, n = 27&lt;sup&gt;c&lt;/sup&gt;</td>
<td>−3.45</td>
</tr>
<tr>
<td></td>
<td>(−2.41)**</td>
</tr>
<tr>
<td>Larger firms (sales), n = 30&lt;sup&gt;d&lt;/sup&gt;</td>
<td>−2.19</td>
</tr>
<tr>
<td></td>
<td>(−1.57)</td>
</tr>
<tr>
<td>Smaller firms (sales), n = 33&lt;sup&gt;d&lt;/sup&gt;</td>
<td>−3.62</td>
</tr>
<tr>
<td></td>
<td>(−3.02)**</td>
</tr>
<tr>
<td>Firms with higher advertising/sales ratio, n = 25&lt;sup&gt;e&lt;/sup&gt;</td>
<td>−1.83</td>
</tr>
<tr>
<td></td>
<td>(−1.35)</td>
</tr>
<tr>
<td>Firms with lower advertising/sales ratio, n = 24&lt;sup&gt;e&lt;/sup&gt;</td>
<td>−4.02</td>
</tr>
<tr>
<td></td>
<td>(−2.39)**</td>
</tr>
</tbody>
</table>

<sup>a</sup> See Footnote a, Table 1.
<sup>b</sup> See Footnote b, Table 2.
<sup>c</sup> Growth in earnings per share (GEPS) was identified for 58 announcements. Firms with higher (lower) GEPS are those with growth rates in earnings per share that are higher (lower) than the median growth in earnings per share for the 58 observations.
<sup>d</sup> Sales were identified for all 63 announcements. Larger (smaller) firms had sales higher (lower) than the median sales for the 63 observations.
<sup>e</sup> The advertising/sales ratio (ASR) was calculated for 49 announcements. Firms with higher (lower) ASR are those whose AST is higher (lower) than the median ASR for the 49 observations.

***, ** Significant at the .01 and .05 levels, respectively.
Three measures of a firm’s financial performance—growth in earnings per share, firm size, and the advertising-to-sales ratio—were also used in the analysis. The results show that stock price reactions are more positive for firms with relatively higher growth in earnings per share, for relatively larger firms, and for firms with relatively higher advertising-to-sales ratios. These results have important managerial implications.

Managerial Implications

The results of this study indicate that, in general, investors have reservations about corporate green marketing activities. However, investors seem to feel more comfortable with green marketing activities by firms that have relatively better financial performance, as measured by growth in earnings per share, by firm size, and by the advertising-to-sales ratio. Firms with relatively better financial performance may enjoy credibility with investors. Thus, their green marketing activities may be viewed more positively. On the other hand, it is possible that green marketing activities by firms with relatively weaker financial performance may be viewed by investors as opportunistic, thus resulting in more negative stock price reactions.

As has been noted previously in literature, the results suggest that green marketing activities should have as their genesis a corporate orientation to green issues. Firms whose operations are designed with environmentally sensitive issues in mind may find that their green marketing strategies are expected to be better received by consumers, thus resulting in positive stock price reactions.

The results provide clear indications that, in general, green promotional activities are not well received by investors. Some of the previous studies on green advertising have pointed to certain problem areas associated with green advertising. The results suggest that perhaps items such as claims of environmental benefits of products, or advertising to enhance a firm’s environmental image, should be moderated in favor of imparting environmental facts (Carlson, Grove, and Kangun, 1993).

Limitations and Future Research

This is, to our knowledge, the first study to examine the wealth effects of green marketing activities. As such, many research issues that would enrich our understanding of the interplay between corporate marketing strategies and their impact on stock prices are not covered in the present analysis. For example, research by Chaney, Devinney, and Winer (1991) indicates a positive stock price reaction to new product announcements. Similarly, Mathur and Mathur (1996) observe a positive stock price reaction to a joint announcement of a new advertising agency–client relation associated with a new product. It is possible that announcements of green products may have additional factors associated with them. Is the green product an adaptation of an existing product or a totally new product? Is the green product a response to competitive pressures? Is it in a declining or saturated market? Answers to questions such as these may enrich our understanding of green marketing activities.

Similar types of questions can be posed in the recycling area. It is possible that stock price reactions to recycling of products designed specifically for recycling may be different from those where the recycling efforts were an afterthought. It may also be relevant to examine the recycling mechanism as it relates to channels of distribution.

Green advertising literature has examined different facets of green advertising, and pointed to a variety of influencing factors. It is possible that the results of this study may be affected by factors such as the specific environmental claims made, advertising media, and ad depth and focus. Future research, by focusing on these types of factors, may provide additional managerial guidelines for marketing strategies in an area that is clearly going to be of interest to managers, workers, consumers, regulators, and investors for some time to come.

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