Green Brands: An Avenue to the Creation of Economic Value?

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Abstract

The research undertaken here attempts to test what in some quarters has become “conventional wisdom” — that investment in green or sustainability branding necessarily leads to the creation of shareholder value, even though statistical evidence of such a relationship has proven elusive. Here GreenBiz/Interbrand’s 2012-2013 “best global green brands” data base was used to conduct a step-wise multiple regression analysis, where the rankings and selected financial metrics of Interbrand’s top 50 global green brands were regressed on the market-to-book multiples of each brand in order to determine whether being a leading global green brand is indeed a statistically significant avenue to the creation of shareholder value. This is important research because of the attention GreenBiz/Interbrand’s Best Global Green Brands attract and because of the potential such findings have for influencing the actions of private sector management, investors, government officials and researchers engaged in the study of branding.

Keywords: causality gap, macro-value drivers, micro-value drivers, triple bottom line, green performance elements, green perception elements, dynamic capabilities
Introduction

The purpose and efficacy of green branding has been broadly researched and is well understood (Belz and Peattie, 2009; Harris and de Chernatony, 2001; Rauch and Lepp, 2010; and Ottman, 2010). Ultimately, however, money invested in branding must be converted to economic value and it is here, in association with this conversion process, where skeptics have been most outspoken and where direct, measurable evidence of success more difficult to come by. This “causality gap” has proven to be an especially challenging obstacle for companies intent on demonstrating in unambiguous terms that their investment in branding leads to the creation of economic value and, as it turns out, the challenge would appear to be every bit as daunting where it involves demonstrating that investment in green branding and enhanced shareholder value are inextricably linked. In fact, Reed (1999) clearly articulated the underlying nature of the challenge facing both researchers and management as they wrestle with the issues of measurability and cause and effect:

There is a wealth of literature giving anecdotes of positive financial outcomes from corporate environmental activities. While this literature may be useful in building the business case for improved environmental performance, it does not clarify the value of any specific strategy at a particular company…all this begs the question of causality. Can anyone demonstrate statistically that good environmental performance causes good financial performance? Not yet, but this is the next area for new research. The closest anyone has come is to note that there appears to be a lag between improved environmental performance and improved financial performance.

Reflecting on the “anecdotes of positive financial outcomes from corporate environmental activities alluded to by Reed (1999), one can’t help but be struck by the highly anecdotal nature of recent evidence presented by Millward Brown Optimor (2013) linking investment in branding with business performance:

According to Millward Brown Optimor, “strong brands have the power to create business value. They impact much more than revenues and profit margins. Strong brands create competitive advantages by commanding a price premium and decrease the cost of entry into new markets and categories. They reduce business risk and help attract and retain talented staff.”

It would seem that not much progress has been made during the intervening period between Reed’s 1999 assessment and the Millward Brown Optimore 2013 assessment where closing the “causality gap” alluded to above is concerned.
The research undertaken here attempts to definitively address this “gap” by subjecting the proposition that “green brands” are necessarily an avenue to the creation of shareholder value to close scrutiny. GreenBiz/Interbrand’s 2012-2013 “best global green brands” database was used to conduct a step-wise multiple regression analysis, where the rankings and selected financial metrics of Interbrand’s top 50 global green brands were regressed on the market-to-book multiples of each brand in order to determine whether being a leading global green brand is indeed a statistically significant avenue to the creation of shareholder value. This is significant research because of the attention GreenBiz/Interbrand’s Best Global Green Brands attract and because of the potential such findings have for influencing the actions of private sector management, government officials and researchers engaged in the study of branding. Put more formally, the research presented here tests the following null hypothesis:

\[ H_0: \text{There is not a statistically significant relationship between a firm’s investment in green branding (i.e. sustainability branding) and its subsequent ability to grow shareholder value.} \]

Here, green or sustainability brands are products and services that are branded to signify a special added value in terms of environmental and social benefits to the customer and thus enable the differentiation from competitors (Belz and Peattie, 2009; Meffert, Rauch and Lepp, 2010). Following is a discussion of the anatomy of the process by which such investment is presumably parlayed into incremental shareholder value.

The framework for analysis developed in association with the research undertaken here relies on the format advanced by Rappaport (1998), whereby a micro-value driver map (see Figure 1) is derived that identifies a set of variables (value drivers) generally accepted as determinant with respect to shareholder value and an abbreviated set of micro-value drivers, including the set of micro-value drivers used to specify the multiple regression model employed in the associated data analysis. As the following map suggests, the effectiveness with which a firm is able to meet the environmental, social, and economic demands it faces through sound environmental management practices, environmental disclosure and reporting, the more likely it is that the firm will generate a more robust triple bottom line. Correspondingly, a more robust triple bottom line is more likely to result in a more competitive set of value drivers, which is the mechanism by which a firm’s investment in sustainability branding can ultimately impact its market value.

The fully specified regression model, which incorporates Interbrand’s best global green brand rankings, is described below. The dependent variable \( V_0 \), a firm’s most recent (2013) market-to-book multiple, was treated as a function of a firm’s (1) green brand ranking, (2) sales five-year growth rate, (3) earnings per-share five year growth rate, (4) operating return on sales or EBIT margin, (5) operating return on assets, and (6) after-tax return on equity. By using a firm’s market-to-book multiple as a proxy for market value, one achieves both normalization relative to
the equity investment in a business and a measure of the extent to which a business has enjoyed success in growing market value relative to the historical value of the equity in the business.

A firm’s green brand ranking is accounted for by way of a composite score derived from what Interbrand defines as green performance elements and green perception elements, and is equivalent to a firm’s triple bottom line. Performance elements are distilled from an assessment of 82 metrics pertaining to the “greenness” of a firm’s (1) corporate governance, (2) stakeholder engagement, (3) operations, (4) supply chain performance, (5) transportation and logistics, and (6) products and services. Perception elements are generated from survey based assessments of a firm’s “greenness” expressed in terms of (1) authenticity, (2) relevance, (3) differentiation, (4) consistency, (5) presence, and (6) understanding. The composite nature of Interbrand’s green brand ranking tends to give the variable an uncommon level of explanatory significance and represents an important contribution to the power of the resulting regression model.

Remaining faithful to Rappaport’s (1998) shareholder value algorithm, the model accounts for both top and bottom-line growth by including a firm’s five-year growth rates in sales (revenue) and after-tax earnings per-share. With respect to profitability, both operating and after-tax perspectives were accounted for by including a firm’s EBIT margin and after-tax return on equity; and asset utilization was accounted for through inclusion of a firm’s operating return on
assets. Here, historical precedent and anecdotal evidence would seem to suggest that the mix and underlying nature of the assets management elects to invest in might well be determinant with respect to a firm’s green brand strategy. In fact, John Stuart, former Chairman of Quaker Oats Company long ago lent credibility to this notion by way of his now frequently cited observation regarding assets that are worth having: “If this business were split up. I would give you the land and bricks and mortar, and I would take the brands and trademarks, and I would fare better than you” (Circa 1900). Put otherwise, a business that derives a higher percentage of its returns from intangibles (i.e. branding and trademarks) should, everything else held equal, generate a higher operating return on its assets.

Following in standardized form is the study’s fully specified step-wise regression model:

\[ V_0 = a \pm b_i(x_{in}) \pm b_j(x_{jn}) \pm b_k(x_{kn}) \pm b_l(x_{ln}) \pm b_m(x_{mn}) \pm b_n(x_{nn}) + e \]

where:

- \( b_i = \text{beta coefficient for composite green ranking} \)
- \( b_j = \text{beta coefficient for revenue growth} \)
- \( b_k = \text{beta coefficient for after-tax earnings per-share growth} \)
- \( b_l = \text{beta coefficient for operating return on sales} \)
- \( b_m = \text{beta coefficient for after-tax return on equity} \)
- \( b_n = \text{beta coefficient for operating return on assets} \)

and:

- \( x_{in} = \text{predictor for composite green ranking} \)
- \( x_{jn} = \text{predictor for revenue growth} \)
- \( x_{kn} = \text{predictor for after-tax earnings growth} \)
- \( x_{ln} = \text{predictor for operating return on sales} \)
- \( x_{mn} = \text{predictor for after-tax return on equity} \)
- \( x_{nn} = \text{predictor for operating return on assets} \)
- \( e = \text{unexplained variance} \)
Review of the Literature

While the literature is replete with research pertaining to the relationship between corporate social responsibility and the creation of shareholder value, and with research focused on the impact of being green on profit, far less has been written that specifically links a commitment to green with the creation of shareholder value. Nevertheless, the shareholder value and green correlation is frequently alluded to in the sustainability literature with very mixed results. It is this practice of what appears to be a largely unfounded allusion that has prompted the research undertaken here; research committed to discovering whether green and shareholder value do indeed share a "special bond."

To better understand the link between financial performance and environmental performance, Reed (1999) developed a framework that categorizes environmental strategies employed by corporations into four different levels. Franchise protection strategies protect a business’s right to operate. These necessary costs often involve complying with environmental laws and regulations. Process change strategies involve transforming goods and services related processes to create less waste and pollution. The third set of strategies, product change strategies, focus on altering a product to have less impact on the environment, starting with suppliers all the way through to customers. The last environmental category, new market development strategies, requires the most effort by corporations. These strategies involve completely revolutionizing how a company does business for the sole purpose of environmental improvement. Reed (1999) explains that the research to date has been inconclusive and ineffective, largely due to the low quality of environmental data, much of which is self-reported by individual corporations. While some previous research has shown a link between environmental performance and financial performance, there has not been any proof that superior environmental management actually causes better financial performance.

Schaltegger and Figge (2000) demonstrate that more environmental protection does not necessarily increase or decrease the shareholder value of a corporation. Instead, the individual components of a corporation’s environmental policy determine if shareholder value is increased. Environmental management policies must be focused on eco-efficiency in order to increase shareholder value. To determine what environmental policies will increase shareholder value, it is important to analyze the value drivers that determine shareholder value. The shareholder value concept favors environmental management policies that are not capital intensive, that increase efficiency, that improve the competitive position of a company, and that decrease a company’s cost of capital.

Klassen and McLaughlin (1996) examined the link between strong environmental management and future financial performance. An environmental announcement, either an award or a crisis, by an independent third party was used as an objective indicator of environmental performance. According to the Efficient Market theory, all public information about a company is reflected in
its stock price, therefore, the stock price reflects the net present value of expected future cash flows. Klassen and McLaughlin (1996) chose a sample of 110 positive environmental announcements and observed the stock price of the selected company for three days, including the day before the announcement, the day of, and the day after the announcement. The relationship between a positive environmental announcement and an increase in the stock price of the company involved was statistically significant. The average market valuation of the environmental awards was $0.37 per share. The effect of weak environmental management was investigated by analyzing the stock price of a company in the three days following a negative environmental event. The average negative environmental event had a market valuation of - $0.70 per share. This research supports the hypothesis that environmental management affects a firm’s perceived future financial performance.

One component of environmental performance that is tangentially related to the effectiveness of sustainability branding and green strategy is green supply chain management. This involves choosing environment-friendly options from the beginning of a product’s life cycle all the way through to when a consumer discards the product. This concept often involves large capital investments but this risk is purportedly justified by increased long run performance. Subir Sen (2009) demonstrates the link between green supply chain management and increased shareholder value with an analysis of Reliance Industries. Throughout its 50 year history, Reliance Industries has continuously placed great importance on environmental management when planning its supply chain. Sen (2009) carried out a decomposition study that included a regression analysis with the price-earnings ratio of Reliance treated as a function of earnings growth, growth in dividends per share, and investment in green supply chain management over a 19 year period. The results showed that green supply chain management has a small but significant effect on the price-earnings ratio of a company.

Based on the resource-based view of the firm, Russo and Fouts (1997) argue that better environmental performance leads to better economic performance. The resource-based view of the firm is centered around the idea that a firm’s success is based on developing internal competitive advantages and using them in the most appropriate external environment. This is a proper medium to use to analyze the relationship between environmental performance and profitability because the resource-based view considers the importance of intangible aspects of performance. To test their hypothesis, Russo and Fouts (1997) chose a sample of 243 firms and performed a regression analysis with the dependent variable being a company’s return on assets and the control variables being industry concentration, firm growth rate, firm size, capital intensity, research and development intensity, advertising intensity, industry growth rate, and environmental performance. The environmental variable was based on independent environmental ratings (i.e., not unlike the Interbrand rankings utilized in this analysis) developed by the Franklin Research and Development Corporation. The analysis included data from 1991 and 1992. The resulting environmental coefficient was positive and significant at the p < .004.
level, indicating that better environmental performance tends to be positively related to better financial performance.

Hassel, Nilsson, and Nyquist (2005) studied the value relevance of environmental performance on the market values of listed Swedish companies. The market value of equity was expressed as a function of the book value of equity, accounting earnings, and environmental performance. The environmental performance of the individual companies was determined using an index provided by the Swedish firm, CaringCompany Research. Hassel, Nilsson, and Nyquist (2005) relied on a sample of 71 Swedish listed firms, focusing on their book value, market value, and environmental performance ratings during the period from June 30, 1998 to September 30, 2000. Regression analysis indicated that environmental performance shares a statistically significant inverse relationship with market value. This result supports the hypothesis that environmental performance is of interest to investors, but not the notion that better environmental performance necessarily equates with higher market value. However, it is fair to suggest that this research should be analyzed with some caution because the sample size was relatively small and the time period was fairly short.

Tom Konrad (2010) also analyzed the effect of Newsweek’s Green Rankings on stock performance. Konrad (2010) postulated that the outperformance of Newsweek’s 100 greenest companies might not be due to their superior environmental management but instead to some other factor. Konrad’s (2010) research was focused on the effect a company’s industry classification might have on its stock performance. Newsweek’s 2009 companies were sorted into fourteen different industry sectors and these sectors were ranked in order of greenness. Subsequently, each company’s stock performance was analyzed from September 16, 2009 until October 21, 2010. Konrad’s research produced surprising and, what for some might be viewed as counter intuitive results. The greenest industry sectors significantly underperformed the less green sectors. Additionally, in the greenest industries, the less green companies outperformed the greener companies, while in the less green industries greener companies outperformed less green companies.

Research Design and Methodology

Again, this research is based on a step-wise multiple regression analysis of the Interbrand 50 best global green brands for 2013. As described earlier, each firm’s market-to-book multiple ($V_0$) was treated as a function of its (1) Interbrand global green brand ranking, (2) sales five-year growth rate, (3) earnings per-share five-year growth rate, (4) operating return on sales (i.e. EBIT margin), (5) operating return on assets, and (6) after-tax return on equity. The resulting regression model was derived from total variance, with the predictor variables entered progressively based initially on the amount of total variance explained and, in subsequent steps, on the maximum amount of residual variance accounted for. The resulting multivariate F-ratio
was used to judge the model’s predictive power and individual t statistics were used to evaluate the statistical significance of each predictor variable. The relative explanatory power of each variable was evaluated using the standardized beta coefficients.

This research design makes it possible to test the proposition that pursuit of a green branding strategy is a statistically significant avenue to the creation of higher shareholder value, where a firm’s “greenness” is measured by its overall Interbrand green score, a robust measure of a firm’s green profile that combines what Interbrand defines as “green performance elements” and “green perception elements.” If green branding makes a significant contribution to the creation of shareholder value one would expect to see a statistically significant relationship between a firm’s green score and its market value. This would occur because such relationships contribute to the enhancement of free cash flow to the firm, making it possible for the firm to earn a return on invested capital that exceeds its cost of capital and that is sufficient to create enough economic value to attract investment. Economic value, in turn, obtains from a firm’s ability to maximize the present value of free cash flow through the enterprise wide efforts of the various functional areas of the business by simultaneously combining revenue growth with higher levels of operating profit, lower marginal tax rates, lower reinvestment rates for both working capital and plant and equipment, and a lower cost of capital. Given the logic of this paradigm, it is easy to see why a rational investor might be persuaded that being greener equates with being more valuable; an enticing proposition that as the review of the literature clearly suggests, remains largely an article of faith that the regression analysis undertaken here tests.

Table 1 displays the descriptive statistics produced as a byproduct of the regression analysis.

### Table 1
**Descriptive Statistics**

<table>
<thead>
<tr>
<th>Statistics</th>
<th>( V_0 )</th>
<th>( R )</th>
<th>( g_s )</th>
<th>( g_{EPS} )</th>
<th>( \text{OPM}_{AVG} )</th>
<th>( \text{ROE}_{AVG} )</th>
<th>( \text{ROA}_{AVG} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.11</td>
<td>25.50</td>
<td>4.49</td>
<td>4.44</td>
<td>12.44</td>
<td>25.02</td>
<td>7.34</td>
</tr>
<tr>
<td>Std. Error</td>
<td>.78</td>
<td>2.06</td>
<td>1.14</td>
<td>2.73</td>
<td>1.24</td>
<td>7.29</td>
<td>1.13</td>
</tr>
<tr>
<td>Median</td>
<td>16.44</td>
<td>25.50</td>
<td>4.10</td>
<td>4.38</td>
<td>10.47</td>
<td>16.02</td>
<td>5.67</td>
</tr>
<tr>
<td>Percentiles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>14.80B</td>
<td>51.30</td>
<td>45.95</td>
<td>53.07</td>
<td>20.73</td>
<td>3.25</td>
<td>2.26</td>
</tr>
<tr>
<td>50</td>
<td>28.34B</td>
<td>56.90</td>
<td>55.50</td>
<td>61.10</td>
<td>54.15</td>
<td>4.00</td>
<td>5.67</td>
</tr>
<tr>
<td>75</td>
<td>49.57B</td>
<td>63.95</td>
<td>70.70</td>
<td>67.67</td>
<td>74.43</td>
<td>7.00</td>
<td>12.37</td>
</tr>
</tbody>
</table>

The mean market-to-book multiple (\( V_0 \)) was 4.11, ranging from a low of .43 to a high of 33.91. Average revenue growth (\( g_s \)) was 4.49 percent, ranging from a low of -10.90 percent to a high of 35.45 percent, while growth in earnings per-share (\( g_{EPS} \)) averaged 4.44 percent and ranged from a low of -42.87 percent to a high of 42.43 percent. The average operating return on sales (\( \text{OPM}_{AVG} \)) was 12.44 percent and ranged from a high of 34.39 percent to a low of -2.76 percent.
Average return on equity (ROE<sub>AVG</sub>) was 25.02 percent and ranged from a high of 320.09 percent to a low of -40.23 percent. Finally, the average return on assets (ROA<sub>AVG</sub>) was 7.34 percent and the range extended from a high of 30.87 percent to a low of -11.53 percent. Table 2 presents the results of the stepwise multiple regression analysis.

Table 2
Stepwise Multiple Regression Results

<table>
<thead>
<tr>
<th>Correlations</th>
<th>V&lt;sub&gt;0&lt;/sub&gt;</th>
<th>R</th>
<th>g&lt;sub&gt;s&lt;/sub&gt;</th>
<th>g&lt;sub&gt;EPS&lt;/sub&gt;</th>
<th>OPM&lt;sub&gt;AVG&lt;/sub&gt;</th>
<th>ROE&lt;sub&gt;AVG&lt;/sub&gt;</th>
<th>ROA&lt;sub&gt;AVG&lt;/sub&gt;</th>
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</thead>
<tbody>
<tr>
<td>V&lt;sub&gt;0&lt;/sub&gt;</td>
<td>1.000</td>
<td>.407</td>
<td>.120</td>
<td>.190</td>
<td>.351</td>
<td>.327</td>
<td>.529</td>
</tr>
<tr>
<td>R</td>
<td>.103</td>
<td>1.000</td>
<td>.129</td>
<td>.590</td>
<td>.435</td>
<td>.235</td>
<td>.393</td>
</tr>
<tr>
<td>g&lt;sub&gt;s&lt;/sub&gt;</td>
<td>.000</td>
<td>.129</td>
<td>1.000</td>
<td>.594</td>
<td>.399</td>
<td>.145</td>
<td>.546</td>
</tr>
<tr>
<td>g&lt;sub&gt;EPS&lt;/sub&gt;</td>
<td>.171</td>
<td>.009</td>
<td>.594</td>
<td>1.000</td>
<td>.291</td>
<td>.150</td>
<td>.452</td>
</tr>
<tr>
<td>OPM&lt;sub&gt;AVG&lt;/sub&gt;</td>
<td>.024</td>
<td>.435</td>
<td>.399</td>
<td>.291</td>
<td>1.000</td>
<td>.558</td>
<td>.704</td>
</tr>
<tr>
<td>ROE&lt;sub&gt;AVG&lt;/sub&gt;</td>
<td>.327</td>
<td>.235</td>
<td>.145</td>
<td>.150</td>
<td>.558</td>
<td>1.000</td>
<td>.474</td>
</tr>
<tr>
<td>ROA&lt;sub&gt;AVG&lt;/sub&gt;</td>
<td>.529</td>
<td>.393</td>
<td>.546</td>
<td>.452</td>
<td>.704</td>
<td>.474</td>
<td>1.000</td>
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</table>

Stepwise Model Summary

<table>
<thead>
<tr>
<th>Step</th>
<th>R</th>
<th>R&lt;sup&gt;2&lt;/sup&gt;</th>
<th>SE</th>
<th>DW</th>
<th>df</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.529</td>
<td>.279</td>
<td>4.444</td>
<td></td>
<td>48</td>
<td>18.610</td>
<td>.000</td>
</tr>
<tr>
<td>2</td>
<td>.571</td>
<td>.327</td>
<td>4.342</td>
<td>1.479</td>
<td>47</td>
<td>11.395</td>
<td>.000</td>
</tr>
</tbody>
</table>

Coefficients

<table>
<thead>
<tr>
<th></th>
<th>β&lt;sub&gt;U&lt;/sub&gt;</th>
<th>SE</th>
<th>β&lt;sub&gt;S&lt;/sub&gt;</th>
<th>t</th>
<th>Sig.</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-.281</td>
<td>1.264</td>
<td>-.223</td>
<td>.825</td>
<td>.845</td>
<td>1.183</td>
<td></td>
</tr>
<tr>
<td>ROA&lt;sub&gt;AVG&lt;/sub&gt;</td>
<td>.307</td>
<td>.092</td>
<td>.436</td>
<td>3.347</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>.084</td>
<td>.046</td>
<td>.236</td>
<td>1.814</td>
<td>.076</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Here the predictor variables described above were regressed on market value (V<sub>0</sub>) using SPSS Stepwise. While a variety of statistical tests are available to evaluate the explanatory power of the predictor variables, this analysis relied on an F ratio to enter of .10. Given this criterion, only those variables with a partial F ratio of .10 or above were selected for inclusion in the model. Under the step-wise regime, the first predictor variable is selected for inclusion based on total variance while the second and subsequent variables are selected for inclusion based on the amount of residual variance explained. Two variables were selected for inclusion in the model, a green brand’s rank (R) and a green brand’s average operating return on assets (ROA<sub>AVG</sub>), while sales growth (g<sub>s</sub>), earnings per-share growth (g<sub>EPS</sub>), average return on sales (OPM<sub>AVG</sub>), average return on equity (ROE<sub>AVG</sub>), and average return on assets (ROA<sub>AVG</sub>) were excluded. An overall F ratio of .05 was used to judge the statistical significance of the model and the assumption of linearity was tested for and satisfied through scatter diagramming. The sample size was adequate to produce a ratio of observations to variables well beyond the minimum of at least 10 established by Hair, Andersen and Tatham (1987) and well beyond the minimum suggested by Tabachnick and Fidell (2001) for a step-wise model comprised of two predictor variables. The resulting Durbin-Watson statistic of 1.479 was significant at a .05 level of confidence, suggesting
an absence of significant autocorrelation. Tolerance tests the extent to which excluded variables at each step are independent of the included variables. As the level of correlation among the independent variables rises, tolerance tends to converge on zero. As a rule of thumb, a tolerance measure under .20 on a scale of 0 to 1.0 indicates the presence of significant multicollinearity. Here a tolerance level of .845 at both steps in the analysis suggested an absence of serious multicollinearity. Correspondingly, while there is no comparable rule of thumb for judging the significance of the VIF statistic, it is generally believed that if the VIF measure exceeds 10, there is reason for at least some concern. Here the VIF result provides strong confirmation of the integrity of the tolerance test and, consequently, of the absence of any multicollinearity. Of importance in evaluating the regression results is the fact that the analysis undertaken here actually utilizes what might best be described as population data (i.e., all of the Interbrand best global green brands were included in the analysis) and its purpose was to explore the characteristics of that population and to better understand the potential consequences of a green branding strategy, not extrapolation.

The resulting coefficient of multiple determination ($R^2$), a measure of the percentage of the variance in market value ($V_0$) explained by the regression equation was .327, a result accompanied by an F-ratio of 11.395, which, with two degrees of freedom, was statistically significant beyond the .01 level. These results are also an affirmative response to Reed’s (1999) question as to whether it can be demonstrated statistically that good environmental performance causes good financial performance.

Because of the parsimonious nature of the regression equation, $R^2$ rather than adjusted $R^2$ was used to assess the model’s explanatory power. The results of the regression analysis verified the presence of a statistically significant relationship between the effectiveness of a firm’s green branding strategy and its ability to grow shareholder value, calling for rejection of the null hypothesis ($H_0$) and leading to adoption of the following alternative hypothesis ($H_1$):

An effective green brand strategy, especially when accompanied by an ability to generate a consistently high operating return on assets, is an avenue to the creation of shareholder value.
Conclusions

The results of the research conducted here clearly support Krosinsky’s (2012) assertions regarding the existence of a positive relationship between a firm’s “greenness” and the value of its stock. Put more formally, the results of this analysis support rejection of the study’s null hypothesis:

\[ H_0: \text{There is not a statistically significant relationship between a firm’s investment in green branding (i.e. sustainability branding) and its subsequent ability to grow shareholder value.} \]

and adoption of the study’s alternative hypothesis:

\[ H_1: \text{An effective green brand strategy, especially when accompanied by an ability to generate a consistently high operating return on assets, is an avenue to the creation of shareholder value.} \]

Though a clear and statistically significant relationship between the contributions that sustainability branding can make to the creation of shareholder value was established by this research, a significant percentage of the total variance remained unexplained. What, among other things, this result causes one to ponder is just why a robust composite predictor variable like Interbrand’s global green brand ranking, combined with a selectively chosen portfolio of financial metrics that are commonly associated with higher levels of free cash flow, the primary driver of economic value, would not account for more of that total variance in shareholder value. To some extent, the answer to this question may well lie in the work and findings of those engaged in studying and understanding what is referred to in the strategic literature as a firm’s “dynamic capabilities.” Researchers in the field of dynamic capabilities would be inclined to argue that the answer may well lie in the complex interaction of the variables used to specify the regression model and with unique and difficult to replicate dynamic capabilities that ultimately limit or expand a firm’s ability to achieve sustained superior enterprise performance. The anatomy of dynamic capabilities and its consequences for the firm are characterized by Teech (2010), as follows:

These capabilities can be harnessed to continuously create, extend, upgrade, protect, and keep relevant the enterprise’s unique asset base. For analytical purposes, dynamic capabilities can be disaggregated into the capacity (1) to sense and shape opportunities and threats, (2) to seize opportunities, and (3) to maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise’s intangible and tangible assets. Dynamic capabilities include difficult-to-replicate enterprise capabilities required to adapt
to changing customer and technological opportunities. They also embrace the enterprise’s capacity to shape the ecosystem it occupies, develop new products and processes, and design and implement viable business models. It is hypothesized that excellence in these ‘orchestration’ 2 capacities undergirds an enterprise’s capacity to successfully innovate and capture sufficient value to deliver superior long-term financial performance. The traditional elements of business success—maintaining incentive alignment, owning tangible assets, controlling costs, maintaining quality, ‘optimizing’ inventories—are necessary but they are unlikely to be sufficient for sustained superior enterprise performance.

When viewed in conjunction with the work of Reed (1999), Schaltegger and Figge (2000), and Klassen and McLaughlin (2001), one derives an even more complete appreciation for the indirect, varied and complex paths by which policy and strategy, created around an enhanced commitment to being a “greener” company, might meaningfully impact a firm’s market value (see earlier discussion of a firm’s micro-value driver map-Figure 1). It appears that the potency of “green effects” may be so idiosyncratic as to make generalization an impossible venture, having to settle instead for a “dynamic capabilities” based understanding of how, when and where a green strategy pays off for a firm. While the set of sustainability based micro-value drivers underpinning the Interbrand’s Global Green Brands Rankings may be intuitively appealing as predictors of a firm’s market value, it is entirely possible that second or third order effects might well be at work or that treated as a time-series problem, statistically significant results might obtain. In either case, such analyses would require different research designs and, with respect to a time-series analysis, a method for coping with what would amount to a constantly changing data base.
References


