

## THE PERFORMANCE OF GLOBAL BRANDS IN THE 2008 FINANCIAL CRISIS

Johny K. Johansson

Georgetown University

Claudiu V. Dimofte\*

Georgetown University

\*Johny K. Johansson (johanssj@georgetown.edu) is the McCrane/Shaker Professor of marketing and international business and Claudiu V. Dimofte (dimofte@msb.edu) is assistant professor of marketing, both in the Department of Marketing and International Business, McDonough School of Business, Georgetown University, Washington DC 20057. The authors thankfully acknowledge the financial support provided by Georgetown University's Capital Markets Research Center. Thanks also to Sanal Mazvancheryl who provided useful insights and to Brata Yudha for data collection and comments.

## THE PERFORMANCE OF GLOBAL BRANDS IN THE 2008 FINANCIAL CRISIS

### ABSTRACT

Previous research has demonstrated that high brand equity helps reduce volatility in the stock market. This suggests that the leading global brands should perform better than other brands in a down market. This research investigates how 58 of the top global brands fared in the stock market downturn in the Fall of 2008. The results are not supportive of the hypothesis. On average, the top global brands performed worse than the market. The 29 global brands with highest equity performed slightly better than the 29 with lower equity – but lagged behind them in four daily upturns. Controlling for fundamental financial factors and industry effects shows that global brands have no advantage over other brands in a down market.

**Keywords:** *International marketing management, Marketing strategy and implementation, Multinational marketing operations, Global branding*

A number of recent studies have attempted to link marketing performance to stock market performance (e.g., Srinivasan and Hanssens 2009; Krasnikov, Misra and Orozco 2009). The studies are part of a wider effort to generate marketing metrics that link marketing expenditures to bottom-line results. Such analyses have consistently shown that a firm's brand assets have a significantly positive impact on stock market performance (Aaker and Jacobson 2001; Mizik and Jacobson 2009). One result emerging is that high brand equity lowers the risk associated with stocks. For example, one recent finding is that high brand equity reduces volatility and thus risk (Rego, Billett and Morgan 2009).

This reduced risk effect should be particularly advantageous in a downturn. When the stock market trends downwards, investors are likely to search for less risky investments, and high equity brands could provide more financial security. If so, strong brands should fare better than other brands during a crisis.

The year 2008 offers a particularly dramatic example of a stock market downturn, especially in the four-month period from early September (Lehman Brothers failed on September 15) through the end of December. With a 38.5% loss, 2008 was the worst year for the Standard & Poor's 500 since 1937 and the worst since 1931 for the Dow Jones Industrials, which dropped 33.8%. The vast majority of stocks (almost 9 out of 10 of those in the S&P 1500 and more than 90% of those in the S&P 500) lost value during the year. On average, these losing stocks dropped more than 40% of their value and almost \$7 trillion in market value was wiped out. Shares of large companies with value-priced stocks, generally considered a safer part of the market, lost 38% of their value as measured by the Vanguard Value exchange traded fund.<sup>1</sup>

---

<sup>1</sup> See [www.vanguard.com](http://www.vanguard.com) for the data quoted here. The numbers come from on-line data readily available also on Google Finance, Yahoo Finance, Bloomberg and other sources.

Every major stock market in the world declined, such that the basic tenets of diversifying a portfolio simply did not apply in 2008.

The Fall 2008 downturn provides a natural setting for testing the effect of brand equity on share prices and volatility further. The current research investigates whether firms with strong global brands really performed better than the market in this critical period.

## THE DATA

The brands selected for the study were all part of the 100 “Top Global Brands” published by *Business Week* on September 18, 2008. These data come from Interbrand, a branding consultancy based in London and New York specializing in calculating global brand value.<sup>2</sup> Since some of the brands are only a part of a firm’s brand portfolio (e.g., Gillette now belongs to Procter & Gamble), and since privately owned firms are not listed in the stock market (e.g., IKEA), not all the 100 brands could be included. For practical reasons, we also limited the data to shares listed on the three American stock exchanges—NYSE, ASE, and NASDAQ. Although this necessarily limited the generalizability of the results, a number of non-American brands were included. The final sample of 58 brands included 10 European and 5 Japanese brands, in addition to 43 North-American brands. The list of brands as well as their Interbrand rankings and scores are presented in Table 1.

-----  
Insert table 1 about here  
-----

---

<sup>2</sup> See [www.interbrand.com](http://www.interbrand.com) for the full list of the 100 brands. The degree of globalness likely varies across these 100 brands, but for our purposes here we simply follow the Interbrand’s choice to label them as “global” (the degree of globalness is discussed by Steenkamp, Batra and Alden 2003).

### *Stock Returns*

The typical measure of a stock's performance in a certain period is its share price "return," usually calculated as the percent by which its share price has either increased or decreased during the period. In this work, we used daily closing prices on the New York Stock Exchanges for the period between September 1 and December 31, 2008. This four-month interval encompassed most of the downturn in the financial crisis of 2008. The daily return is then computed as the share price at the end of day 2 minus the price at the end of day 1, divided by the price at end of day 1. To get percentages, we multiply by 100.<sup>3</sup>

Counting the trading days when the markets were open during the four-month period yielded a time-series of 85 daily returns for each firm. The same calculations using the S&P 500 index yielded the time series for the market returns during this period. Regressing daily returns against the market returns yielded the well known "beta" of the stock (Fama and French 1993).

### *Industry Returns*

Research on marketing effects on share prices typically starts by adjusting the observed returns for financial "fundamentals" (Srinivasan and Hanssens 2008). The basic adjustment is to relate returns to the market as a whole. The first fundamental adjustment is to account for industry effects, typically by using dummy variables for each industry (e.g., Rego et al. 2009). In the present case, where the sample was limited to the top global brands and several industries were represented by only one brand, such a procedure was not feasible.

The early study by King (1966) was one of the first to establish industry effects on stock prices. Later research confirmed King's basic argument that in addition to the basic market

---

<sup>3</sup> An alternative measure, also common, is to take the natural log of price at the end of day 2 minus the natural logarithm of price at the end of day 1. The two procedures yield very similar results.

effect there is also a significant industry effect that needs to be accounted for. In our case, in particular, industry variables were necessary since they would include brands with lower equity scores.

The traditional way to classify industries is using the three- or four-digit SIC codes. For example, Fama and French (1997) identify 48 industries based on SIC codes, and others have offered a revised version which yields a more compact set of 14 industries (Barth et al. 2001). However, the SIC codes do not necessarily yield industry groupings which represent the consumer or industrial markets in which the firms operate. For example, in our case, FedEx (SIC 4513) and UPS (SIC 4215) would not be classified together, and neither would Sony (SIC 3651) and Panasonic (SIC 6719). We opted instead for the Google Finance industry groupings, one of the several on-line services which offered slightly more market-oriented groupings. In this way we classified our 58 brands into 33 industries.

To calculate the industry returns for each of the 33 industries, we first identified each of the brands in the industry, which Google Finance also listed. The number of firms in an industry varied considerably, from as few as 4 (air couriers) to as many as 392 (regional banks). We then used the Wharton WRDS data base which draws on Compustat to extract the share prices for each of the brands in the industry from September 1 to December 31, 2008. The percentage returns were then computed for each brand in the industry. A weighted average was used to calculate the mean daily return for the industry in the period, the weights based on the market cap of the firm (its share price multiplied by the number of shares outstanding). The result was 33 time-series, each with 85 observations, of the mean industry returns during the period. We also computed an adjusted set of industry mean returns, where each of the 58 brands was

excluded from the computation. When one firm is a large player in an industry, its returns will dominate the industry average.

### *Financial Variables*

There are several financial variables that need to be accounted for before conclusions can be properly drawn about brand equity effects. Here we again followed standard financial analysis (see Fama and French 1993).

*Total assets.* Larger firms tend to be more stable and provide more security for investors. Their returns typically show less variability and thus less volatility, which should be attractive during a downturn. Following financial analysis, the measure used is natural logarithm of total assets, in order to protect against outliers dominating the results.

*Age.* Much like total assets, older firms tend to be more established and have already proven capable to withstand disruption across time. In a sense, they are “survivors” that will be more likely to attract investors in a downturn. This variable was coded as “1” for firms with less than 25 years since establishment, “2” for those between 25 and 50 years, and “3” for firms established more than 50 years ago.

*Leverage.* Leverage is the degree to which borrowed funds are used to operate a business. The debt/equity ratio should have a negative effect on returns in a crisis, when high leverage is likely to expose investors to more risk.

*Credit rating.* The firm’s credit rating is one signal of how robust the stock is. A stronger credit rating should give confidence to investors in a downturn. It was coded as “10” for an AAA rating, down to “1” for a DDD.

*ROA.* Return-on-assets is a measure of the degree to which the firm is able to utilize its resources efficiently. If historical returns-on-assets have been high, the stock is likely to weather a storm better than other firms.

*Diversification.* The more businesses the firm operates in, the lower its stock's risk, which should be attractive in a downturn. Following Rego et al. (2009), this variable was coded "1" for a single industry firm, and "2" for a firm with more diversification. We also introduced a second measure of diversification – the percentage of revenues generated outside of North-America. The geographically diversified firm should have a better risk profile.

### *The Brand Equity Measure*

The brand equity measure used is already well known among academicians and practitioners.<sup>4</sup> Given that Interbrand scores come from proprietary sources, however, not all the steps in the computations have been published. Here we can only present some of the basic steps.

*Interbrand.*<sup>5</sup> The Interbrand formula first deducts from total company earnings (1) the costs of brand sales, (2) marketing costs, (3) overhead costs, including depreciation, (4) a charge for capital employed (5-10% of capital), and (5) taxes. The result is then adjusted to account for non-brand factors, such as distribution strength, in order to avoid attributing revenues to the brand when in reality other factors are responsible for the earnings. The resulting brand earnings are then further adjusted by brand strength.

Brand strength involves several factors: leadership (25%) or the brand's ability to dominate a market (positive factor); stability (15%) assessing how long the brand has been

---

<sup>4</sup> It should be acknowledged that Interbrand calls the scores "brand value" rather than "brand equity." The latter has, ironically enough, gained a more behavioral than financial slant. In this paper we treat the names as synonymous.

<sup>5</sup> Source: [www.interbrand.com](http://www.interbrand.com).

established (positive factor); market volatility (10%) accounting for the risk of new technology and low entry barriers (negative factor); reach (25%) or the geographic spread of the brand sales (positive factor); trend (10%) capturing the upward (or downward) trajectory of the brand; support (10%) assessing the consistency of marketing support (positive factor); and legal protection (5%) dealing with the firm's problems with protecting the brand name in different markets (negative factor). These factors are combined according to the percentage weights into a brand strength index which is used to derive a discount factor for the projected future earnings. A strong brand with a high index score will be sure to yield strong future earnings, and thus its discount rate is small, around the 5% which is typical of a low-risk investment. A weaker brand will have a higher discount rate, reflecting the higher risk of its future earnings. The resulting net present value for each brand is the number used to derive the list of the top 100 brands.

The Interbrand data are typically collected and analyzed annually. For the 2008 year, Interbrand published its top 100 rankings in the *Business Week* issue of September 18. Thus, at the very beginning of the time period selected here, September 1, the 2008 Interbrand rankings were not yet available. We considered whether the 2007 Interbrand data should be used. But the rankings show considerable stability over time, with 54 of the selected 58 brands appearing in both years, and a correlation of .996 between the 2007 and 2008 brand value scores. Although the analysis could have been done using the 2007 data, we deemed it more appropriate to use the 2008 data since the customer data would come from 2008.<sup>6</sup>

---

<sup>6</sup> According to *Business Week*'s September 18 issue, the brand values were based on data collected during the 12 months prior to June 30, 2008. This meant that the later developments were not factored into the brand valuations.

## METHODOLOGY

How one should relate annual brand value data to daily share prices is not obvious. The explanatory factor, annual scores of brand equity, is basically constant over the days analyzed, making any assessment of its impact on any one individual brand impossible. It is thus necessary to compare daily returns across brands. Such cross-sectional analysis forces one to use summary measures of the swings in the daily share prices for each brand. While the raw data offers 85 observations of daily returns over the four months, in the actual analysis of brand effects, we have only one summary measure. Clearly, a lot of information gets lost.

To try to alleviate this problem, we have chosen to test several possible summary measures. First, we used the percentage difference between share prices at the end of the period and the beginning of the period—*Sep-Dec*—to capture the cumulative effect of the downturn, expecting the difference to be lower for these strong global brands (Barber and Lyon 1997). We also used the *Mean* of the daily returns over the four-month period, but since results are virtually identical, we do not report them here. A second measure is the standard deviation of the returns, a common way to capture *Volatility* in finance. Volatility can be interpreted as a measure of risk, and based on previous research (e.g., Rego et al. 2009) we expected high brand values to help reduce volatility.

We also used the *beta* as a summary measure, computing a four-month brand beta by regressing daily returns against S&P 500 daily returns for the period. A firm that showed less impact from the downturn should have a beta below 1.0. If its beta is high (over 1.0), the impact from the crisis is exacerbated. Given earlier findings, we would expect global brands with higher equity scores to do better, meaning that their betas should be lower.

To incorporate industry effects on the share prices, we introduced industry averages for each measure – Sep-Dec drop and Volatility – as explanatory factors. In the case of the betas, we regressed each of the 33 industries’ four-month returns (with the focal brand’s contribution eliminated) against the S&P returns, to derive 33 “industry betas.” An industry beta—like the firm’s own beta—should be less than 1.0 for industries less affected by the market downturn, and above 1.0 for industries influenced more. We expected each high equity global brands to show less of an impact than its industry, which includes also low equity global brands as well as more local brands.

The analysis was done with gradually more complex specifications. First, the average performance of the 58 global brands was compared to the market’s performance as measured by the S&P 500. Then we compared the average performance to the respective industry performance, to assess the extent to which industry effects could account for some of the results. We also performed a median split of the 58-firm sample into high and low scorers, and compared their average performance to the market and the industry.

We then introduced financial variables to evaluate whether the results could be due not to brand equity scores but financial fundamentals instead. These models consisted of regressing each summary measure first against the financial variables alone, and then with the brand equity measures included. This made it possible to test whether the addition of the brand equity measures was significant.

We also decided to go deeper into the analysis of the daily prices during the four month period. We wanted to test whether whatever results we could uncover with the summary measures would hold up in particularly extreme situations. Consequently, using the S&P 500 index, we selected the four largest daily market drops and the four largest daily market gains

during the four month period. We then used the percentage daily returns during these eight occasions as a measure of performance. Since this measure pivots at 0, we ran the analysis separately for gains and for losses, again using the gradual procedure – first basic averages, then regression models with financial variables only, then adding the brand measures - to test the significance of the high equity of the global brands.

## THE FOUR-MONTH PERFORMANCE

### *Share Price Performance*

The initial analysis compared the average drop for the 58 brands over the four-month period to that of the market and the rest of the respective industry over the same timeframe. The results were not in line with our hypothesis that these brands would beat the market.

The S&P 500 index, the standard market index in financial analysis, dropped 30.27% between September 1 and December 31, 2008.<sup>7</sup> The average drop during the same period for the 58 firms in our sample was 34.80%. A t-test confirms the difference to be significant ( $p < .04$ ). Selecting out the 12 brands representing institutions from the hard hit financial sector showed slightly better results, with a drop of 31.36% for the remaining 46 brands (still worse than the market, although not significantly so— $p = .56$ ). The global brands did not do better than the market, and if anything they did worse.

The next step was to analyze the possible industry effect. The selected brands may have come from particularly exposed industries. The analysis first involved comparing the average industry performance of the 33 industries against the market. The mean drop for the industries (with the focal brand excluded) was 30.36%, virtually identical to the market. Remarkably,

---

<sup>7</sup> The perhaps more popular index, Dow-Jones Industrial Average, only covers 50 firms. It dropped 22.3% in the four-month period, somewhat less than the S&P 500.

looking at the previous results, the global brands dropped significantly more ( $p < .04$ ) than their respective industries. The correlation between the firms' returns and the industry returns was a significantly positive ( $p < .03$ ) but relatively low  $r = .29$ . These global brands are not following their industries very closely.<sup>8</sup>

We next split the 58 brands into high and low scorers, using a cutoff of the median Interbrand score. Here, the global brand equity had slightly more positive impact in accordance with our basic hypothesis, as can be seen in Table 2.

-----  
Insert table 2 about here  
-----

The 29 brands above the median show non-significant differences when compared with the market and their industries. By contrast, the 29 brands with below-median values from Interbrand scored significantly worse than both the market and their respective industries (see Table 2). The stronger among the global brands did not suffer quite as much as the weaker of the top global brands. The difference between the above and below median brand returns was significant ( $p = .05$ ).

We next introduced the financial fundamentals to help explain the results. In addition to the financial variables already described, we also introduced two additional dummy variables. One captured the 15 *Foreign* brands from Europe and Japan, and another identified the *Financial* brands, combining investment services, insurance companies, and banks to capture the strong financial character of the crisis. We ran regression models in two steps, first with the financial

---

<sup>8</sup> A natural question here is the degree to which the brands correlate with the market. We will cover the betas in what follows. Here, where the analysis is cross-sectional with summary measures, the S&P 500 market drop is essentially a constant for all the brands.

variables only and then with the Interbrand scores added, to identify their incremental contribution. The results are given in Table 3.

-----  
Insert table 3 about here  
-----

As can be seen in the Table, these regression models are not very strong. None of the financial fundamentals enter significantly to help explain the share price performance over the period. There is clearly a possibility of multicollinearity obscuring single variables' impact, but since the emphasis here is upon the incremental impact from the brand value scores, we will not discuss the estimates in detail, but instead make sure that the standard fundamental factors are accounted for. It is clear that the marginal improvement from high equity scores is very small.<sup>9</sup>

We did attempt one improved specification of the model, testing whether the foreign brand or the portion of revenues coming from the North-American market could significantly affect firm performance. Neither of the two variables entered the models significantly (all *p*-values above .10). The data are very limited, but for these brands the diversification of the revenue stream does not seem to matter much—the crisis was of course quite global in any case.

### *The Impact on Volatility*

The next step in the analysis was to assess whether the top global brands showed less volatility than the market. Volatility, as measured by the standard deviation in the daily price changes, is a common measure of risk in financial markets. The hypothesis here was that the global brands with brand equity would show less volatility and thus be less risky.

---

<sup>9</sup> It is important to note that because the included 58 brands all have relatively high scores on the Interbrand measure, this does not mean that Interbrand scores overall have no impact on share prices. This is not an analysis of the complete range of Interbrand scores, and thus is not an assessment of the scores' validity.

The volatility in the market, measured as the standard deviation of S&P 500 of the daily returns across the four months from September 1 to December 31, 2008, was 4.07%. The average volatility of the 33 industries (again without the focal brand included) in that period was 4.58%, significantly higher ( $p < .01$ ). The selected 58 brands, remarkably, had an even higher degree of volatility, at 5.61%, significantly higher than either the market ( $p < .001$ ) or the respective industries ( $p < .01$ ). Selecting out the financial brands yielded some improvement, with average volatility for 42 brands at 4.76%, still significantly higher than the market ( $p < .001$ ), but not from their industry ( $p = .29$ ). These results suggest that global brands with high brand values not only dropped further during the crisis, but actually showed higher risk than the other brands in the market and in their industry.

We again split the data into brands above and below the median. The results were in line with the previous analysis, but strikingly different from the initial hypothesis (see Table 4).

-----  
Insert table 4 about here  
-----

As can be seen in the Table, the higher equity global brands show somewhat lower volatility than lower equity brands—but these top global brands are still showing higher risk than their industries and the market.

We then replicated the two regression runs with the financial variables, one with and one without the Interbrand values. The results are presented in Table 5.

-----  
Insert table 5 about here  
-----

Again, the results are not very strong. The adjusted R-squares are improved, and the dummy variable capturing the financial institutions is clearly significant, showing the greater risk

associated with them. But the brand equity scores do not lower risk significantly, although the negative effect is in the hypothesized direction of lower risk. Strikingly, the association with the industry (calculated with the focal brand excluded) is again weak.

### *Analyzing the Betas*

We next examined the market betas of the firms and the related industry betas. As discussed earlier, the betas are the regression coefficients of the share price changes against the market changes, and basically measure the degree to which a firm's shares co-vary with the market. They can be computed for various time horizons, such as a year, using different change periods, such as daily or weekly. Here, we calculated the four-month betas for the firms and the industries using the 85 daily price changes.

The average beta for the 58 firms over the four months was equal to 1.07. A firm that follows the market exactly would have a beta of 1.0. The difference is not significant ( $p = .19$ ), suggesting that these firms on average tend to follow the market. Similarly, the 33 industry-to-market betas averaged 1.03, also not significantly different from the market. A beta above 1.0 indicates higher risk, and a beta below 1.0 indicates less risky shares. In terms of the betas, therefore, these firms were not more or less risky than the market.

The average difference of .035 between the firm and the industry beta is not significantly different from zero ( $p = .55$ ). Still, the difference is in the direction opposite to our expectations. These 58 brands are, if anything, riskier than their respective industries.

Splitting the sample into the above-median and below-median halves did produce some positive results for the high scorers. The average betas are shown in Table 6.

-----  
Insert table 6 about here

-----

None of the average betas in the Table are different from the market. However, the beta for the above-median brands is significantly lower ( $p < .04$ ) than that of the below-median brands. Thus, within the 58 brands, those with higher equity scores show less riskiness than the brands with lower scores.

We next re-ran the two regressions with financial fundamentals included. The results are given in Table 7.

-----  
Insert table 7 about here  
-----

Again, the results are not impressive. The *Financial* dummy variable is the only significant variable, although the total assets estimate weakly suggests that firms with larger assets were generally riskier. The Interbrand values do not make a significant difference.

#### FOUR DAILY UPTURNS AND FOUR DOWNTURNS

These results clearly do not support our expectations of superior stock market performance for high equity brands. Therefore, to investigate in more depth the events during the four-month period, we selected the market's four largest daily upturns and the four largest daily downturns according to the S&P 500. The hypothesis was that by looking at less aggregated events, we might be better able to identify the brand equity effect. Again, given published findings by Rego et al. (2009) and others, we expected in particular the dramatic daily downturns to show the resilience of strong brands.

As before, we first analyze how the 58 brands performed on average, then how the above and below median equity brands performed, and then estimate the incremental impact of equity

scores once financial fundamentals have been accounted for. The data matrix here was “stacked” to make up a 4x58 (thus  $N = 232$ ) data set, separately for the four loss dates and the four gain dates.

#### *Four Large Losses*

The S&P 500 mean return during the four drops was -8.60%. The mean drop for the 33 industries involved was -8.35%. The mean drop for the shares of the 58 brands was -8.58%, close to the market overall, but worse than their respective industries (although not statistically significant:  $p = .46$ ). The median split revealed more positive findings for Interbrand scores, however (see Table 8).

-----  
Insert table 8 about here  
-----

As can be seen from the high and low scorers, the Interbrand measures successfully separated brands that lost less than the market from those that lost more than the market. Nevertheless, in either case the differences with the market and the industry performance are not statistically significant. Again, the average for these 58 top global brands is not different from the market or their industries—although the very high equity brands do better than the relatively lower equity brands.

Again we introduced the financial fundamentals in order to try to explain the performance returns over the four drops, and to identify any brand equity impact. We also included the S&P 500 drops for each of the four loss occasions. The regression results are shown in Table 9.

-----  
Insert table 9 about here  
-----

-----

The results are very similar to earlier results in terms of brand equity impact—it is virtually absent. On the other hand, these results show a closer connection between the 58 brands and their industries than earlier results. They also show how both industry and market affect these brands, and also the role of size and age, in addition to the powerful impact on the financial institutions.<sup>10</sup>

#### *Four Large Gains*

Turning to the four largest one-day gains in the Fall of 2008 reveals an even gloomier picture for the high equity brands. The market as a whole and the 33 industries climbed higher than the average of the 58 brands. The S&P 500 index gained 8.90%, whereas the top global brands rose only 7.62% ( $p < .02$ ). Industry gains were at 8.82%, with the difference between industry and firms also significant ( $p < .02$ ).

Comparing brands above and below the median brand equity score showed a remarkable result (see Table 10).

-----  
Insert table 10 about here  
-----

As the Table shows, the global brands with particularly high equity gained significantly less in the four upturns. They did worse than the market, worse than their industries, and worse than the brands with lower equity levels. Clearly, the strongest global brands did not get to participate very much in these four large upward swings in the market.

---

<sup>10</sup> The correlation between the industry and the market for the eight daily instances was a high  $r = .83$ , indicating possible multicollinearity. However, since both enter with significant estimates, we kept both variables in the equation. In any case, our focus is on the brand equity contribution.

Finally, we ran the two regressions again with the financial fundamentals in place. The results confirm the worst (see Table 11).

-----  
Insert table 11 about here  
-----

The adjusted R-squares are very small, suggesting that the four upturns are difficult to explain on a fundamentals basis. The only real impact comes from the market itself, with some possible negative impact from diversification. Brand equity surely seems to have very little impact here, and if anything high equity serves as a brake on the upswing.

#### SUMMARY OF RESULTS

The results can be summarized quite briefly. First, in the Fall 2008 stock market crisis the global brands with high Interbrand value scores did not do better than the market,—if anything, they did worse. They also did consistently worse than the rest of the industries they were in, where less prominent global brands and local brands were included. The average drop in the share prices of the top-ranked global brands was greater than the loss in the market or in their respective industries.

Separating out the higher brand equity scorers among these top brands, the result is somewhat more in line with our hypotheses. The global brands with above-median scores performed about the same as the market and their industries. The global brands with below-median Interbrand values did significantly worse than either the market or the industry.

In terms of volatility, similar results hold. The 58 brands were more volatile than both market and their industries, against expectations that high brand equity would reduce risk. Splitting the sample into above- and below-median equity scorers showed a somewhat

attenuating effect, with high scorers showing less risk than low scorers, but still significantly worse than the market and slightly worse than their industries.

As for betas, another risk measure, the 58 brands did not do significantly worse than the market, or their industries, but they did not do better either. The above average equity scorers did do significantly better, with lower betas, than the low scorers, but neither group beat the market or their respective industries.

Investigating the largest four upturns and largest four downturns during the period does little to improve this picture. The average share returns during the four losses are not significantly different from the negative market returns or the respective industry returns. When split into above average equity scorers, the top global brands almost did beat the market, but not quite. They did beat the lower equity scorers significantly, however.

This is the good news. The bad news is that in the four upturns, the high brand equity seemed to have slowed the rise in the share prices. The 58 brands gained significantly less than either the market or their respective industries. Furthermore, the above-median brand equity scorers encountered a significantly lower rise in their share prices than the below-median scorers, who were close to both market and their industries.

Finally, the regressions attempting to clarify the incremental impact of brand equity over and above financial fundamentals, showed consistently insignificant contributions from the Interbrand scores. The regressions were uniformly weak, with consistent impact only from the financial institutions indicator variable.

## DISCUSSION

Given all the previous findings about positive branding effects on stock markets, a first natural discussion point is whether these results might be spurious. The data are obviously all publicly available, and although the compilation is a tiresome task, especially for the industry averages, we have checked them for reliability. The share price data for the 58 firms are relatively simple to compile, and the other financial variables are not particularly difficult, even though some judgment is required. This is offset by using fairly simple and standard cutoffs, such as was used for the diversification dummy, the foreign ownership dummy, and others such as the age variable.

We focused on the four-month period from September 1 to December 31, 2008. This was the most critical period of the 2008 year, but several things did develop earlier in the year, so the starting point is somewhat arbitrary. We used the September 15, 2008, bankruptcy filing by Lehman Brothers as a natural starting point, backing up two weeks to the beginning of the month. As for the cutoff date of December 31, 2008, this seemed also quite natural, although some indices did start going up even before that date. On the whole, we think we captured the main crisis period.

There are difficult problems in weighing together the firms to get the industry data. Following standard financial procedures, we used the market capitalization of the firms (share price times outstanding shares) as the basis, and this number of course varies across the four months forcing us to use averages. But any weighting scheme (book value, total assets, or total revenues) has its own advantages and drawbacks. Also, the industry identification using the Google Finance categories can be criticized, although other alternatives (SIC codes, Bloomberg, and others) have their own strengths and weaknesses. We also ran the industries without the

focal brands' contributions—the correct approach so as not to confound the measure, but one which undoubtedly lowers the estimated industry impact.

Selecting the Interbrand Top 100 Global Brands as the sample frame is of course a clear deficiency in terms of representativeness. These are certainly not all the global brands in the world's marketplace—they were simply the ones for which equity data were available. Thus, it would not be correct to extend the findings to the larger universe of global brands but limit them only to those with high Interbrand scores. Even though we compare these brands to their industries, it is not clear whether this is the correct comparison. The industries include not only other global brands but also local brands. Thus, when the industry seems to perform better than the selected global brands (as we have shown in some cases above), it might be due either to the weaker global brands or local brands (or both). Thus our results cannot be interpreted cleanly when it comes to the underlying explanation. However, the fact that high equity global brands do not perform as well as one might expect, given past research, still stands.

One can also question whether the consequent choice of the 58 brands somehow distorted the results. Some strong brands belong to conglomerate companies (P&G is an obvious example) and in that sense our sample is not representative of all type of brands. Global brands from foreign countries were clearly under-represented (e.g., BMW, Mercedes, Samsung and others) because of the limitation to American stock exchanges. We might have over-represented the financial brands, and even though we tried to control for that (with the relevant industry averages and with the *Financial* dummy variable) it is possible, albeit unlikely, that some financial-based bias still persists.

We used the Interbrand 2008 brand equity measures even though they did not actually get published until September 18 that year. Here we think the effect is very minimal, as these scores

show very little movement over any two years, and as noted, the correlation with 2007 scores is a very high .996. The median split we used might seem—and is, in fact—arbitrary, but it is difficult to find a good rationale for any other split here.

If the data are not a problem (except, perhaps, for a noisy industry variable), can the methodology be faulty? The measures used to summarize the four-month data clearly ignore a lot of variation, but it is hard to see how to avoid this when the brand equity scores are annual and not varying over the period. This is of course also why we decided to check a few critical incidents over the four months, picking four very highs and four very low shifts in the stock market. One might question whether averaging over the four gains and the four losses makes sense, but we think just picking one daily shift for each could be quite misleading simply by chance. In the analysis we have used very simple statistical tools, relying only on simple t-tests and linear regression models. It is of course possible that one might find some new information by using more advanced tools, but it is not clear that the basic research question posed in this study requires that.

## CONCLUSION

There is no evidence that these top global brands in their respective industries performed better than global or local competitors with lower brand equity. In fact, the evidence seems to suggest the opposite—brands which were not ranked among the top in their industries (and not among the top on a global basis) did not perform any worse and might in fact have performed better. The industries' average performance during the four months was close to the market (thus not very good) but still slightly better than the average of the selected top firms.

The lack of a significant industry effect in the four-month performance of the selected brands suggests that the firms are not very closely linked to their respective industries. This is perhaps an artifact of the particular industry classification used, but nevertheless raises a question. Is it possible that in a downturn, it is the large and well-known brands that take most of the beating?<sup>11</sup>

On the theoretical side, this study questions whether a strong brand is in fact a positive asset for share prices. Lower profile brands may do as well or better, because the leading brands may be more at risk than the anonymous also-rans. However, a more radical interpretation is possible. The consistent impact of the financial indicator variable in the regressions estimated here, coupled with the lack of any clear impact of other financial fundamentals, suggests that the stock market crisis in the Fall of 2008 was in fact an abnormal event in all respects. The “normal” market rules no longer applied. If so, the lack of positive impact from the top global brands’ high equity scores on the stock market is simply a reflection of what happens when markets fail, and the results offered here should not be used to generalize beyond the crisis.

---

<sup>11</sup> A run on the shares of a smaller brand is not likely to create the same downward momentum as a run on a large brand. In a similar vein, the largest global brands are the ones singled out by anti-globalization activists.

## REFERENCES

- Aaker, David A. and Robert Jacobson (2001), "The Value Relevance of Brand Attitudes in High-Technology Markets," *Journal of Marketing Research*, 38, (4), 485-93.
- Fama, Eugene F. and Kenneth R. French (1993), "Common Risk Factors in the Returns on Stocks and Bonds," *Journal of Financial Economics*, 33, (1), 3-56.
- and ----- (1997), "Industry Costs of Equity," *Journal of Financial Economics*, 43, (2), 153-93.
- Barber, Brad M. and John D. Lyon (1997) "Detecting long-run abnormal stock returns: The empirical power and specification of test statistics," *Journal of Financial Economics*, 43, (3), 341-372.
- Barth, Mary, Donald P. Cram and Karen K. Nelson (2001), "Accruals and the Prediction of Future Cash Flows," *The Accounting Review*, 76, (1), 27-58.
- King, Benjamin F. (1966), "Market and Industry Factors in Stock Price Behavior," *The Journal of Business*, 39, (1), 139-90.
- Krasnikov, Alexander, Saurabh Misra and David Orozco (2009), "Evaluating the Financial Impact of Branding Using Trademarks: A Framework and Empirical Evidence," *Journal of Marketing*, 73, (1), 154-66.
- Mizik, Natalie and Robert Jacobson (2009), "Valuing Branded Businesses," *Journal of Marketing*, Vol. 73, (1), 137-53.
- Rego, Lopo L., Matthew T. Billett and Neil A. Morgan (2009), "Consumer-Based Brand Equity and Firm Risk," *Journal of Marketing*, 73, (1), 47-60.
- Srinivasan Shuba and Dominique M. Hanssens (2009), "Marketing and Firm Value: Metrics, Methods, Findings, and Future Directions," *Journal of Marketing Research*, 73, (2), 293-312.
- Steenkamp, Jan-Benedict E.M., Rajeev Batra, and Dana L. Alden (2003), "How Perceived Brand Globalness Creates Brand Value," *Journal of International Business Studies*, 34 (1), 53-65.

TABLES

**TABLE 1: Sample of 58 of Interbrand's 2008 Top 100 Global Brands**

<b>Brand</b>	<b>Value*</b>	<b>Rank</b>	<b>Brand</b>	<b>Value*</b>	<b>Rank</b>
Coca Cola	66667	1	Morgan Stanley	8696	42
IBM	59031	2	Philips	8325	43
Microsoft	59007	3	Thomson	8313	44
GE	53086	4	eBay	7991	46
Nokia	35942	5	Accenture	7948	47
Toyota	34050	6	Siemens	7943	48
Intel	31261	7	Ford	7896	49
McDonalds	31049	8	Harley Davidson	7609	50
Disney	29251	9	AIG	7022	54
Google	25590	10	AXA	7001	55
HP	23509	12	Heinz	6646	56
American Express	21940	15	Colgate	6437	57
Cisco	21306	17	amazon.com	6434	58
Citibank	20174	19	Xerox	6393	59
Honda	19079	20	Yahoo!	5496	65
Oracle	13831	23	Caterpillar	5288	68
Apple	13724	24	Avon Products	5264	60
Sony	13583	25	Gap	4357	77
Pepsi	13249	26	Panasonic	4281	78
HSBC	13143	27	Tiffany	4208	80
Nike	12672	29	Allianz	4033	82
UPS	12621	30	BP	3911	84
SAP	12228	31	Starbucks	3879	85
Dell	11695	32	ING	3768	86
Canon	10876	36	Motorola	3721	87
J.P.Morgan	10773	37	Johnson & Johnson	3582	92
Goldman	10331	38	Marriott	3502	96
Kellogg's	9710	39	Fed EX	3359	99
UBS	8740	41	Visa	3338	100

\*Brand Values in Millions of U.S. Dollars.

---

**TABLE 2: Percent Share Price Drop for High and Low Equity Brands Sep-Dec 2008**

---

<b>Interbrand Values</b>	<b>Share Price % change</b>	<b>Industry % change</b>	<b>S&amp;P 500 % change</b>
Above median: ( <i>N</i> = 29)	-31.55%	-31.95%	-30.27%
Below median: ( <i>N</i> = 29)	-38.05%*	-28.76%	-30.27%

---

\*Significantly worse than both the market ( $p < .03$ ), and the industry ( $p < .01$ ).

---

**TABLE 3: Two Regression Models of Share Price Changes**

---

**Dependent variable: Percent share price change, Sep. 1 - Dec. 31, 2008**

<b>Independent Variables</b>	<b>Estimated coefficients (sig. levels in parentheses)</b>	
	<b>MODEL 1</b>	<b>MODEL 2</b>
Intercept	-34.940 (.134)	-32.120 (.182)
Industry change	.004 (.973)	.008 (.952)
Ln(Total assets)	-.544 (.771)	-.893 (.654)
Age	5.700 (.058)	5.617 (.064)
Leverage	-.053 (.652)	-.058 (.624)
Credit rating	3.335 (.167)	3.010 (.229)
Return-on-assets	.702 (.985)	-1.920 (.959)
Diversification		
Number of Industries	-7.482 (.088)	-7.373 (.096)
North-American %	.041 (.736)	.047 (.706)
Financial	-16.540 (.070)	-14.798 (.129)
Foreign	-1.637 (.679)	-1.047 (.800)
Interbrand		.085 (.596)
Adj. R <sup>2</sup>	.163	.150
N	58	58

---

---

**TABLE 4: Volatility among High and Low Equity Brands**

---

<b>Interbrand Values</b>	<b>Firm Volatility</b>	<b>Industry Volatility</b>	<b>S&amp;P 500 Volatility</b>
Above median: ( <i>N</i> = 29)	5.15%**	4.51%*	4.07%
Below median: ( <i>N</i> = 29)	6.10%***	4.65%*	4.07%

---

\* Not significantly different from the market.

\*\* Significantly worse than the market ( $p < .01$ ) but not worse than the industry ( $p = .10$ ).

\*\*\* Significantly worse than both the market ( $p < .001$ ) and the industry ( $p < .02$ ).

**TABLE 5: Two Regression Models of Share Price Volatility**

**Dependent variable: Standard deviation of share price changes, Sep. 1 - Dec. 31, 2008**

Independent Variables	Estimated coefficients (sig. levels in parentheses)	
	MODEL 1	MODEL 2
Intercept	2.088 (.435)	1.236 (.648)
Industry volatility	.254 (.151)	.249 (.155)
Ln(Total assets)	.366 (.132)	.484 (.058)
Age	-.350 (.329)	-.324 (.360)
Leverage	-.010 (.490)	-.008 (.561)
Credit rating	-.567 (.063)	-.467 (.128)
Return-on-assets	2.529 (.574)	3.338 (.457)
Diversification		
Number of Industries	.522 (.317)	.483 (.350)
North-American %	-.008 (.595)	-.010 (.521)
Financial	3.643 (.002)	3.082 (.009)
Foreign	-.432 (.437)	-.615 (.278)
Interbrand		-.027 (.152)
Adj. R <sup>2</sup>	.493	.505
N	58	58

---

**TABLE 6: The Average Betas for High and Low Equity Brands**

---

<b>Interbrand Values</b>	<b>Firm Betas</b>	<b>Industry Betas</b>	<b>S&amp;P 500 Baseline</b>
Above median: ( <i>N</i> = 29)	1.005*	0.994	1.0
Below median: ( <i>N</i> = 29)	1.130	1.071	1.0

---

\* Significantly different from the betas of firms below the median ( $p < .04$ ).

---

**TABLE 7: Two Regression Models of the Firm Betas**

---

**Dependent variable: The firm-to-market betas, Sep. 1 - Dec. 31, 2008**

<b>Independent Variables</b>	<b>Estimated coefficients (sig. levels in parentheses)</b>	
	<b>MODEL 1</b>	<b>MODEL 2</b>
Intercept	.218 (.594)	.121 (.772)
Industry betas	.172 (.138)	.165 (.155)
Ln(Total assets)	.064 (.091)	.078 (.052)
Age	-.051 (.355)	-.048 (.384)
Leverage	-.002 (.427)	-.002 (.480)
Credit rating	-.567 (.063)	-.467 (.128)
Return-on-assets	.161 (.820)	.246 (.729)
Diversification		
Number of Industries	.052 (.264)	.047 (.551)
North-American %	-.001 (.655)	-.001 (.604)
Financial	.516 (.003)	.451 (.014)
Foreign	-.032 (.684)	-.053 (.518)
Interbrand		-.003 (.278)
Adj. R <sup>2</sup>	.514	.516
N	58	58

---

---

**TABLE 8: Mean Share Loss among High and Low Equity Brands**

---

<b>Interbrand Values</b>	<b>Firm Loss</b>	<b>Industry Loss</b>	<b>S&amp;P 500 Loss</b>
Above median: ( <i>N</i> = 116)	-7.93% *	-7.96% **	-8.60%
Below median: ( <i>N</i> = 116)	-9.22%	-8.73%	-8.60%

---

\* Marginally different from the market ( $p = .09$ ) but significantly different from below-median brands ( $p < .001$ ).

\*\* Not significantly different from the market ( $p = .16$ ) but significantly different from below-median industries ( $p = .09$ ).

---

**TABLE 9: Two Regression Models of the Four Loss Occasions**

---

**Dependent variable: Percentage share loss for the firm**

<b>Independent Variables</b>	<b>Estimated coefficients (sig. levels in parentheses)</b>	
	<b>MODEL 1</b>	<b>MODEL 2</b>
Intercept	10.725 (.026)	11.084 (.022)
S & P 500 change	1.347 (.004)	1.347 (.004)
Industry change	.175 (.026)	.175 (.026)
Ln(Total assets)	-.782 (.002)	-.798 (.001)
Age	.880 (.028)	.848 (.035)
Leverage	.007 (.642)	.006 (.711)
Credit rating	.519 (.115)	.443 (.193)
Return-on-assets	-3.092 (.516)	-3.789 (.433)
Diversification		
Number of Industries	.645 (.273)	.623 (.291)
North-American %	-1.143 (.486)	-.953 (.565)
Financial	-4.087 (.001)	-3.900 (.001)
Foreign	.192 (.729)	.285 (.614)
Interbrand		.017 (.377)
Adj. R <sup>2</sup>	.373	.372
N	232	232

---

---

**TABLE 10: Mean Share Gain among High and Low Equity Brands**

---

<b>Interbrand Values</b>	<b>Firm Gain</b>	<b>Industry Gain</b>	<b>S&amp;P 500 Gain</b>
Above median: ( <i>N</i> = 116)	6.24%*	10.14%**	8.90%
Below median: ( <i>N</i> = 116)	8.99%	9.19%	8.90%

---

\* Significantly different from the market and industry ( $p < .001$  in each case) and significantly different from below-median brands ( $p < .001$ ).

\*\* Not significantly different from the market ( $p = .17$ ) and not different from below-median industries ( $p = .30$ ).

**TABLE 11: Two Regression Models of the Four Gain Occasions**

Dependent variable: Percentage share gain for the firm		
Independent Variables	Estimated coefficients (sig. levels in parentheses)	
	MODEL 1	MODEL 2
Intercept	-2.551 (.666)	-3.229 (.588)
S & P 500 change	1.165 (.000)	1.159 (.000)
Industry change	-.088 (.210)	-.083 (.242)
Ln(Total assets)	.685 (.156)	.712 (.142)
Age	.013 (.987)	.078 (.922)
Leverage	-.101 (.737)	-.008 (.801)
Credit rating	-.578 (.366)	-.419 (.528)
Return-on-assets	1.408 (.880)	2.825 (.764)
Diversification		
Number of Industries	-2.813 (.016)	-2.771 (.018)
North-American %	2.605 (.413)	2.191 (.496)
Financial	.168 (.943)	-.179 (.940)
Foreign	.816 (.438)	.614 (.569)
Interbrand		-.034 (.372)
Adj. R <sup>2</sup>	.098	.097
N	232	232