

Brand Value and Asset Pricing

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We study a sample of U.S. firms with strong brands as defined by inclusion on Interbrand's most valuable brands list between 1994 and 2006. After adjusting for risk with the Fama and French (1993) three-factor model plus a momentum factor, we find that strong-brand firms have statistically and economically significant above-average returns. Motivated by these results and the fact that the finance literature has only a limited understanding of the reasons for the Fama-French methodology's success, we create a new factor based on the return difference between firms with high and low brand value. We find that this new factor does not subsume the Fama-French high-minus-low factor.

Introduction

The idea that brand value creates financial benefits for firms has received a great deal of attention since Aaker's (1991, 1996) work in the area. For example, Dacin and Smith (1994) argue that brand is among the firm's most valuable assets. Keller (2003), who provides a summary of the literature, lists the many derivative financial benefits of creating a strong brand, which include greater customer loyalty, less vulnerability to competitive marketing actions and marketing crises, larger margins, more inelastic consumer response to price increases and more elastic consumer responses to price decreases, greater trade cooperation and support, increased marketing communication effectiveness, increased licensing opportunities, and additional brand extension opportunities. Del Vecchio, Jarvis, Klink, and Dineen (2007) even provide evidence that strong brands help attract better employees. Despite the

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plethora of previous research, however, whether a good brand increases shareholder value remains an open question.

This paper investigates two questions. First, does recognizable brand value increase shareholder wealth? Specifically, do firms with good brands earn abnormal returns after controlling for risk? Second, if so, how can we use this information to explain better the way assets are priced? We are the first to show abnormal stock returns for good brand firms in a robust way. We are also the first to attempt to use this information to better explain how assets are priced.

To examine whether good brands increase shareholder value, we first must define an accepted measure of what constitutes a good brand. Numbers of companies have emerged since the dawn of brand valuation in the early 1980s (e.g., Interbrand's annual list of the World's Most Valuable Brands, Millward Brown's Brand Dynamics, Total Research's EquiTrend, Young & Rubicam's Brand Asset Valuator, Brand Finance's BrandBeta Analysis) that employ analytical methods such as historic costs, replacement costs, market price, and potential earnings. We select the ranking of brand value as defined by Interbrand, the most well-known source of brand values. The Interbrand List of the World's Most Valuable Brands is published annually in the *Financial Times*. The Interbrand methodology is recognized by auditors, tax authorities, and stock exchanges across the world ("What a Good Name Adds Up To," 1999, p. 15). The Interbrand approach treats the brand as an intangible asset:

For each brand, Interbrand uses publicly available financial data to estimate the operating profits likely to be generated over the next five years by products carrying the brand. (A notional 2½ percent growth rate was assumed for subsequent years.) It deducts a capital charge—a notional 8 percent return on the cost of capital employed—and a 35 percent tax charge to arrive at a figure called *economic earnings*. Interbrand then calculates the brand's contribution to those earnings by applying a role of branding index to the earnings figure, based on its own analysis of the role played by brands in different product sectors and geographical markets. Finally, a discount is applied to the earnings to reflect the amount of risk involved. A long-established brand with a strong market position and wide geographic spread, for example, receives a lower discount than a small newcomer in a fast-evolving sector ("What a Good Name Adds Up To," 1999, p. 15).

Several studies attempt to answer the question of whether a good brand increases shareholder wealth. Aaker and Jacobson (1994), using the EquiTrend database created by Total Research, examine the extent to which brand equity provides information about a firm's stock returns above and beyond the information contained in return on investment. They use a brand equity variable that is a measure of perceived product quality obtained from consumer surveys. Using a panel data set of 34 publicly traded firms between 1991 and 1993, Aaker and Jacobson regress annual stock returns on annual return on investment surprises and annual brand equity surprises, which are obtained from a first-order autoregressive panel model.

They find a statistically significant positive relation between their brand equity variable and stock returns, although it is not as significant as the relation between return on investment and stock returns.

Kerin and Sethuraman (1998), who study companies on the 1995 and 1996 Interbrand's list, find a positive relation between market-to-book ratios and brand values. Given that in most cases brand values are not included in book values, this result is expected as long as brands have economic value. Kerin and Sethuraman's findings, however, do provide valuable insight into one of the components of the difference between market value and book value. We test whether this difference simply is subsumed into a difference between high growth and low growth firms in Fama and French's (1993) framework.

Using the Interbrand data, Madden, Fehle, and Fournier (2006) investigate whether strong brands increase shareholder wealth. Controlling for risk using Fama–French methodology, they find that firms on the list earn abnormal returns. Madden et al. also examine return on investment using Aaker and Jacobson's (1994) approach. Although they focus on the marketing implications of their results, in both cases, Madden et al. find evidence of benefits to shareholders for good brands.

We provide evidence that firms with the best brands have value that is not priced fully by conventional asset pricing models. We study the stock market performance of a sample of firms that appear on the Interbrand list between 1994 and 2000. Using monthly return data, the portfolio of sample firms is found to have statistically and economically significant better performance than the overall market, even after adjusting for risk using the Fama–French three-factor model plus a momentum factor. The results are robust to alternative explanations such as differences in firm size, product market share, and the time period of the sample. We also find evidence that the brand values (i.e., dollar values) published by Interbrand contain information beyond the information provided by being a member of the Interbrand list.

We use the information from brand values to understand better how equities are priced. This is interesting because, if successful, it would add theoretical support to the Fama–French three-factor model. Fama–French methodology has become a mainstay within the finance literature due to its empirical success, but it is still without much theoretical support. One possibility for the lack of such support is that, rather than a direct link between the Fama–French factors and a theoretical explanation, these broad factors proxy for a number of other more specific sources of risk. Although the book-to-market (BE/ME)—or high-minus-low (HML)—factor often is explained loosely as a measure of financial distress, we hypothesize that HML is also a measure of intangible assets. Specifically, we examine whether the HML factor is partially a measure of brand value.

Several rationales support the hypothesis that brand value is linked to the market value of a firm's equity. For example, high brand value might smooth earnings in cyclical industries or in general periods of lower sales. During these downturns, con-

sumers tend to spend less. Because of consumer comfort with good brands, sales of these products tend not to drop as much as the industry in general. Brand value also may provide protection from competitors due to increased customer loyalty. In these scenarios, brand value is a more detailed explanation of the HML factor as firms with better brands do not suffer as much from external threats and, therefore, are less likely to experience financial distress.

In support of our hypothesis, we first show that when brand value is included, firms with strong brands move dramatically in terms of their BE/ME ratio decile. We then create a separate factor within the context of the Fama–French framework that attempts to measure return sensitivity to brand value directly. This factor uses a portfolio of firms with high brand value as identified by Interbrand and a matching portfolio of firms that have never appeared on the Interbrand list. We find that this factor does not subsume the Fama–French HML factor.

Data and Methodology

Data

The initial sample universe consists of all stocks in the CRSP database that were listed at any time between December 31, 1993, and December 31, 2000. The final sample contains 13,409 stocks for which monthly returns and market capitalizations are obtained. We then compiled Interbrand's annual list of the World's Most Valuable Brands for 1994 to 2001 with the exception of 1998, for which the Interbrand data are not available.¹ See the appendix for a detailed explanation of Interbrand's approach to establishing brand value.² From 1994 to 1997, Interbrand published a list of individual brand values that are matched to the companies owning the brands. If a company owns several brands on the Interbrand list, the individual brand values are summed to obtain the value of the brand portfolio. Since 1999 Interbrand has distinguished explicitly between brand portfolio companies and companies that derive most brand value from one primary brand. For the brand portfolio companies, Interbrand publishes the aggregated value of the brand portfolio, which is used for this study.

Our base sample of strong brands includes 111 companies that appear on Interbrand's list at least once during the sample period (Table 1). List membership is fairly stable during the sample period with each company appearing on average in 3.6 of seven lists. On average, the brand values estimated by Interbrand constitute 37 percent of a company's market capitalization with a standard deviation of 35 percent.

¹Interbrand did not publish a list during 1998.

²See Kerin and Sethuraman (1998) for a detailed description of the Interbrand methodology for estimating brand values.

Table 1—Companies with Strong Brands

This table shows the ticker symbol, company name, number of appearances, and average brand value divided by market capitalization for all companies that were included at least once on Interbrand's list of the world's strongest brands between 1994 and 2001. Market capitalizations are from CRSP. Brand values are from Interbrand

Ticker	Company	List Years	Brand/Cap (%)
AA	Alcoa	4	4.7
AAPL	Apple Computer	5	56.0
ADBE	Adobe Systems	2	10.6
AHP	American Home Products	4	4.4
AMB	AMB Property	4	36.2
AMZN	Amazon.Com	3	28.1
AOL	AOL Time Warner	5	65.6
AVP	Avon Products	5	57.7
AXP	American Express	5	18.4
BA	Boeing	1	6.6
BDK	Black & Decker	4	65.4
BLS	Bellsouth	1	9.1
BMJ	Bristol Myers Squibb	4	1.8
BOL	Bausch & Lomb	4	65.3
BUD	Anheuser-Busch Cos	7	54.2
C	Citigroup	2	8.4
CA	Computer Associates	3	10.4
CAG	Conagra Foods	2	9.8
CAL	Continental Airls -CI B	2	177.3
CD	Cendant	2	3.9
CL	Colgate-Palmolive Co	7	44.3
CLX	Clorox Co/De	4	31.4
COMS	3Com	2	5.0
CPB	Campbell Soup	4	43.7
CPQ	Compaq Computer	6	32.4
CSCO	Cisco Systems	2	5.8
DAL	Delta Air Lines	2	69.9
DELL	Dell Computer	4	37.4
DIS	Disney (Walt) Company	5	60.2
DJ	Dow Jones & Co	2	58.1
DOW	Dow Chemical	4	1.4
DRI	Darden Restaurants	2	49.4
EK	Eastman Kodak	7	68.6
EL	Lauder Estee Cos -CI A	4	85.8
F	Ford Motor	5	39.2
FDX	Fedex	1	13.8
FON	Sprint Fon Group	1	24.9
G	Gillette	7	57.4
GE	General Electric	7	7.1
GIS	General Mills	4	49.4
GLW	Corning	3	1.0
GPS	Gap	3	33.4
GS	Goldman Sachs	1	21.4
GT	Goodyear	4	67.2
GTW	Gateway	1	27.8
HAS	Hasbro	4	21.2
HDI	Harley-Davidson	1	40.2

Table 1 (cont.)—Companies with Strong Brands

Ticker	Company	List Years	Brand/Cap (%)
HLT	Hilton Hotels	5	34.7
HNZ	Heinz (H J)	5	30.5
HRL	Hormel Foods	2	13.3
HSY	Hershey Foods	3	68.4
HWP	Hewlett-Packard	7	23.8
IBM	IBM	7	28.1
INTC	Intel	6	20.8
INTU	Intuit	2	1.0
ITT	ITT Industries	2	4.6
JNJ	Johnson & Johnson	5	6.0
K	Kellogg	7	67.3
KMB	Kimberly-Clark	7	14.8
KO	Coca-Cola	7	48.9
LIZ	Liz Claiborne	2	49.9
LTR	Loews	4	55.7
LUV	Southwest Airlines	2	10.7
MAR	Marriott	2	8.2
MAT	Mattel	6	50.9
MCD	McDonalds	5	67.8
MER	Merrill Lynch & Co	1	32.2
MKC	McCormick & Co	4	38.2
MMM	3M	2	15.2
MO	Philip Morris Cos	7	65.2
MOT	Motorola	7	22.9
MRK	Merck & Co	1	4.5
MSFT	Microsoft	7	14.8
MYG	Maytag	4	34.9
NKE	Nike -Cl B	7	136.8
NOVL	Novell	3	9.8
NWAC	Northwest Airlines	2	92.1
NWL	Newell Rubbermaid	2	37.8
ORCL	Oracle	4	3.9
PEP	Pepsico	7	40.6
PFE	Pfizer	5	7.8
PG	Procter & Gamble	7	14.2
Q	Qwest	1	21.6
RBK	Reebok	3	114.9
RJR	RJ Reynolds Tobacco	4	195.0
RKY	Coors (Adolph) -Cl B	4	25.5
ROH	Rohm & Haas	4	6.7
SBC	SBC Communications	1	14.0
SBUX	Starbucks	2	15.5
SGP	Schering-Plough	4	1.8
SLE	Sara Lee	4	26.0
SUNW	Sun Microsystems	3	31.4
SYBS	Sybase	2	10.7
SYMC	Symantec	2	6.9
T	AT&T	4	20.6
TIF	Tiffany & Co	1	70.1
TX	Texaco	1	7.3
TXN	Texas Instruments	1	6.3

Table 1 (cont.)—Companies with Strong Brands

Ticker	Company	List Years	Brand/Cap (%)
U	US Airways Group	2	99.2
UAL	UAL	2	113.1
UST	UST	4	50.5
VFC	VF	3	68.8
VIA	Viacom -Cl B	4	14.1
VZ	Verizon	1	27.0
WEN	Wendy's	2	55.0
WHR	Whirlpool	2	36.3
WWY	Wrigley (Wm) Jr	7	50.3
XOM	Exxon Mobil	2	13.8
XRX	Xerox	7	59.1
YHOO	Yahoo	3	15.8
YUM	Tricon Restaurants	1	113.8

Compustat data are used to compute annual BE/ME ratios from 1993 to 2000 following the methodology in Davis, Fama, and French (2000). These data are available for 12,214 of the 13,409 CRSP companies. BE/ME ratios are available for all but one of the strong-brand companies. Compustat data also are used to obtain primary SIC codes, annual net sales, and annual advertising expenses for the 12,214 companies.

Abnormal Return Methodology

To assess the stock market performance of companies with strong brands, we create different portfolios of strong-brand firms and comparison portfolios. We then examine the average stock market returns after controlling for risk. For example, portfolio 1 is a value-weighted portfolio of all 111 Interbrand companies that is formed with monthly rebalancing.³ The comparison portfolio is a value-weighted portfolio of 13,298 companies listed on the NYSE, AMEX, and Nasdaq that are not on the Interbrand list in any of the seven years. Because the first Interbrand list is available in July 1994, return analyses generally begin in August 1994 and run through December 2000.

As shown in Table 2, the strong-brand portfolio yields an average monthly return of 1.98 percent. During the same time period, the benchmark portfolio, on average, returned 1.34 percent per month, and the one-month Treasury bill rate, which proxies the risk-free rate, averaged 0.42 percent per month. Although this finding provides some evidence that strong-brand firms outperform other firms, it simply could be that Interbrand's list is weighted by risky firms. Basic finance theory suggests that investors will demand higher returns for firms with greater risk. There-

³The weight of each company in a value-weighted portfolio is the company's market capitalization (i.e., market value of all outstanding common stock) relative to the market capitalization of all the companies in the portfolio.

Table 2—Value-Weighted Portfolios

This table shows average monthly returns, coefficient estimates, and adjusted fit for the following regression:

$$R_{i,t} = \alpha_i + \beta_M R_{M,t} + \beta_{Size} SMB_t + \beta_{B/M} HML_t + \beta_{Mom} UMD_t + \varepsilon_{i,t},$$

where $R_{i,t}$ is the monthly excess return on portfolio i in month t , $R_{M,t}$ is the monthly excess return of a value-weighted market index consisting of all CRSP stocks, SMB_t (small minus big) is the average return on the three small Fama–French (1993) portfolios minus the average return on the three big Fama–French portfolios, HML_t (high minus low) is the average return on the two value portfolios minus the average return on the two growth portfolios, UMD_t (up minus down) is the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios, and $\varepsilon_{i,t}$ is an error term. Three portfolios of companies on the annual Interbrand list of the world's strongest brands are considered. Each portfolio is formed using value-weighting based on each company's market capitalization. Portfolio 1 is a portfolio of all companies that made the Interbrand list in at least one of the seven years between 1994 and 1997 and 1999 and 2001. Portfolio 2 is a buy-and-hold portfolio of all companies that made the Interbrand list in 1994. Portfolio 3 is rebalanced annually, and each year contains the companies on the most recent Interbrand list. For each of the three portfolios a value-weighted comparison portfolio is formed containing all NYSE, AMEX, and Nasdaq companies that are not part of the Interbrand portfolio. All returns are monthly for the period from August 1994 to December 2000. All stock returns and market capitalizations are from CRSP. Brand values are from Interbrand. Fama–French factors are from Kenneth French's website. Annual net sales and SIC codes are from Compustat

	Monthly Return	Alpha	Market (Beta)	Size	Book to Market	Momentum	Adj. R ²
Portfolio 1	1.98	0.57**	0.85**	−0.36**	−0.36**	−0.002	91.8
Comparison	1.34	−0.25**	1.07**	0.18**	0.18**	0.013	97.6
Portfolio 2	1.85	0.50**	0.83**	−0.36**	−0.34**	−0.028	90.1
Comparison	1.41	−0.17*	1.07**	0.15**	0.13**	0.015	98.3
Portfolio 3	1.64	0.23	0.85**	−0.46**	−0.52**	−0.010	84.0
Comparison	1.49	−0.05	1.04**	0.11**	0.13**	0.004	98.4

** Statistically significant at the 1 percent level

** Statistically significant at the 5 percent level

fore, we must measure average portfolio returns for both the strong-brand and comparison portfolios after controlling for risk.

To adjust the portfolio returns for risk, we employ Fama and French's (1993) methodology. Although this methodology has little theoretical support, it provides an excellent explanation for the observed variation in equity returns both across firms and across time. Therefore, both finance academicians and practitioners use this model extensively to control for risk. Despite a great deal of testing, the Fama–French methodology has changed little since its introduction more than a decade ago. We do incorporate a momentum factor (Jegadeesh and Titman, 1993; Carhart, 1997).

To implement the Fama–French methodology, excess returns for each portfolio are computed by subtracting the corresponding one-month Treasury bill rate. The monthly excess returns then are regressed on the Fama–French factors and a momentum factor:

$$R_{i,t} = \alpha_i + \beta_M R_{M,t} + \beta_{Size} SMB_t + \beta_{B/M} HML_t + \beta_{Mom} UMD_t + \varepsilon_{i,t}, \quad (1)$$

where:

- $R_{i,t}$ = The monthly excess return on portfolio i in month t ;
 $R_{M,t}$ = The monthly excess return of a value-weighted market index consisting of all CRSP stocks;
 SMB_t (small minus big; SMB) = The average return on the three small Fama–French portfolios minus the average return on the three big Fama–French portfolios;
 HML_t = The average return on the two value portfolios minus the average return on the two growth portfolios;
 UMD_t (up minus down) = The average return on the two high prior return portfolios minus the average return on the two low prior return portfolios; and
 $\varepsilon_{i,t}$ = An error term.

Again keeping in line with the existing literature, we base the risk-adjusted performance comparisons on the portfolio alphas (i.e., the intercepts from each regression). Positive alphas indicate that a particular portfolio outperformed its risk-adjusted benchmark whereas negative alphas indicate underperformance.

Factor Methodology

After finding statistically and economically significant abnormal returns for our strong-brand portfolios, we use brand values to create a Fama–French style factor that better explains equity returns. Although this factor is useful because the pricing model better fits the data, goodness of fit is not the main advantage of such a factor. As discussed previously, the most significant drawback of the Fama–French methodology is its lack of theoretical support. Thus, creating a factor based on brand value would be a first step in providing a theoretical framework for the model.

To test whether the existence of a valuable brand is an unpriced risk factor for which BE/ME (HML) proxies, we construct a factor based on brand. This factor uses the Interbrand list of companies with valuable brands. We form a portfolio consisting of companies with good brand names (i.e., appear on the Interbrand list) and a portfolio of matching stocks (i.e., do not appear on the Interbrand list). Because the Interbrand list is relatively stable over time and because brands tend to change slowly over time, the factor is constructed for each month from 1990 to 2000, and we include in the brand portfolio all firms ever listed by Interbrand. Therefore, any company that is included on any of the Interbrand lists is in our brand portfolio for each year as long as the company existed for the entire year. The no-brand portfolio is made of stocks that match brand companies on both market capitalization and Fama–French or SIC industry codes. Although the brand portfolio changes only because some of the Interbrand companies did not exist over the entire 10-year period, a new no-brand portfolio is selected each year.

We first match firms based on Fama–French industry codes and market capitalization within 25 percent. If a firm is not found that matches on both criteria, we match on 1-digit SIC codes and market capitalization. If we still find no match, then the unmatched firm is eliminated from the brand portfolio for that year. We also eliminate multiple brand firms that only can be matched with the same no-brand firm. A value-weighted portfolio is constructed for both the brand and the no-brand portfolios. Finally, the brand minus no-brand (BMNB) factor is constructed by subtracting the return of the no-brand portfolio from the return of the brand portfolio ($\text{BMNB} = \text{Brand Portfolio} - \text{No-Brand Portfolio}$). The BMNB factor has the obvious limitation that it only includes a small number of companies. These companies, however, account for approximately one-fourth of the overall monthly market capitalization.

Empirical Evidence

Stock Market Performance Of Companies With Strong Brands

Using the methodology previously discussed, we make risk-adjusted performance comparisons by calculating portfolio alphas. The results of the Fama–French regressions for both the strong-brand portfolios and the comparison portfolios are shown in Table 2.

Portfolio 1 is made up of all of the firms that made Interbrand’s list during any of the seven years of the sample. It has a positive alpha of 0.57 percent per month, which is statistically significant at the 1 percent level. The comparison portfolio is made of all NYSE, AMEX, and Nasdaq firms that are not on Interbrand’s list in any of the seven years of our study. The comparison portfolio has an alpha of –0.25 percent per month, which is also significant at the 1 percent level. The positive and statistically significant alpha for portfolio 1 supports the hypothesis that the firms on Interbrand’s list have superior risk-adjusted performance. The negative and significant alpha for the comparison portfolio is also of interest. This finding indicates that the companies in the strong-brand portfolio represent a considerable share of the overall market capitalization—which is the case, as the 111 strong-brand companies account, on average, for approximately one-fourth of the monthly market capitalization. Consistent with this result, the strong-brand portfolio loads negatively on the SMB factor, with a below-average market beta of 0.85. The strong-brand portfolio also loads negatively on the HML BE/ME ratio factor. All factor betas, with the exception of the momentum factor, are significant at the 1 percent level.

Although evidence is strong that the firms on Interbrand’s list outperform the rest of the market statistically, we also are interested in whether they outperform in a meaningful economic sense. To gauge the economic significance of the results, consider the following example. A \$1,000 investment placed in August 1994 in the 111 strong-brand companies would have more than quadrupled into \$4,525 by December 2000, whereas the same \$1,000 investment in the overall stock market as represented

by CRSP would be valued at \$3,195 in December 2000. Even though the stock market was strong during this time period, clearly the portfolio of strong-brand companies did much better than the rest of the market in terms of total return.

Although the portfolio of 111 strong-brand companies outperforms both the market and a risk-adjusted benchmark, reverse causality could be a problem. Portfolio 1 includes firms even in years they did not make Interbrand's list. In fact, some firms are included before they ever made Interbrand's list. Therefore, if firms are included by Interbrand precisely because of good financial performance, then these firms would appear in portfolio 1 during the period of abnormal performance but before they were recognized by Interbrand. To deal with this issue, we form two alternative portfolios.

Portfolio 2 is a buy-and-hold portfolio of all of the firms that made the Interbrand list in 1994. Portfolio 3 is rebalanced annually, and each year contains the companies on the most recent Interbrand list. Because the Interbrand list for 1998 is not available, the portfolio of 1997 Interbrand companies is retained for two years. Rebalancing occurs at the end of August each year because the Interbrand lists usually are published during that month. Both portfolios are value weighted.⁴

As shown in Table 2, both portfolio 2 and portfolio 3 have higher average monthly returns than their benchmark portfolios. The return difference is 44 basis points for portfolio 2 and 15 basis points for portfolio 3, indicating outperformance by the Interbrand companies using either of the tradable strategies. Portfolio 2 has a positive alpha, which is different from zero at the 1 percent significance level. Similar to the comparison group for portfolio 1, the comparison group for portfolio 2 has an alpha that is negative and statistically significant at the 1 percent level. Portfolio 3 has a positive alpha, while its comparison has a negative alpha; however, they are not statistically significant. Thus, portfolios 1 and 2 provide strong evidence that strong-brand firms as identified by Interbrand outperform the market.

Brand Values and BE/ME Ratios

We assess whether the brand values published by Interbrand hold additional information beyond the information already contained in a company's membership on the Interbrand list. For this analysis, the strong-brand portfolio is reformed using the published brand values as weights. Specifically, for each annual Interbrand list, all published brand values are summed. Each company's brand value is divided by the total brand value to obtain a relative brand value for the given year. The relative

⁴Although both portfolios 1 and 2 constitute potential trading strategies, we use them to check the robustness of the results from portfolio 1. Specifically, we are interested in whether firms with strong brands outperform the market on a risk-adjusted basis. We are not attempting to test whether these trading strategies would be profitable and, therefore, we ignore transaction costs.

brand values are averaged across years to obtain each company's weight in the portfolio.

The results of the Fama–French regression for the brand-value-weighted portfolio are shown in Table 3. The average monthly return of the strong-brand portfolio increases from 1.98 percent to 2.07 percent per month. The alpha, which is significant at the 1 percent level in the value-weighted analysis, increases to 1.32 percent when using brand weights, indicating that the Interbrand brand values contain additional information that may be useful to investors.

Table 3—Brand-Weighted Portfolios

This table shows average monthly returns, coefficient estimates, and adjusted fit for the following regression:

$$R_{i,t} = \alpha_i + \beta_M R_{M,t} + \beta_{Size} SMB_t + \beta_{B/M} HML_t + \beta_{Mom} UMD_t + \varepsilon_{i,t},$$

where $R_{i,t}$ is the monthly excess return on portfolio i in month t , $R_{M,t}$ is the monthly excess return of a value-weighted market index consisting of all CRSP stocks, SMB_t (small minus big) is the average return on the three small Fama–French (1993) portfolios minus the average return on the three big Fama–French portfolios, HML_t (high minus low) is the average return on the two value portfolios minus the average return on the two growth portfolios, UMD_t (up minus down) is the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios, and $\varepsilon_{i,t}$ is an error term. Three portfolios of companies on the annual Interbrand list of the world's strongest brands are considered. Each portfolio is formed using value-weighting based on each company's market capitalization. Portfolio 1 is a portfolio of all companies that made the Interbrand list in at least one of the seven years between 1994 and 1997 and 1999 and 2001. Portfolio 2 is a buy-and-hold portfolio of all companies that made the Interbrand list in 1994. Portfolio 3 is rebalanced annually and each year contains the companies on the most recent Interbrand list. For each of the three portfolios a value-weighted comparison portfolio is formed containing all NYSE, AMEX, and Nasdaq companies that are not part of the Interbrand portfolio. All returns are monthly for the period from August 1994 to December 2000. All stock returns and market capitalizations are from CRSP. Brand values are from Interbrand. Fama–French factors are from Kenneth French's website. Annual net sales and SIC codes are from Compustat

	Monthly Return	Alpha	Market (Beta)	Size	Book to Market	Momentum	Adj. R ²
Portfolio 1	2.07	1.32**	0.84**	−0.26**	−0.09	−0.166**	81.3
Comparison	1.34	−0.25**	1.07**	0.18**	0.18**	0.013	97.6
Portfolio 2	2.21	1.18**	0.78**	−0.19*	0.09	−0.220**	67.3
Comparison	1.41	−0.17*	1.07**	0.15**	0.13**	0.015	98.3
Portfolio 3	1.41	0.34	0.78**	−0.33**	−0.26*	−0.194*	73.3
Comparison	1.49	−0.05	1.04**	0.11**	0.13**	0.004	98.4

** Statistically significant at the 1 percent level

** Statistically significant at the 5 percent level

We also test brand-value-weighting with portfolios 2 and 3 to examine further the issue of reverse causality. As with portfolio 1, we evaluate both portfolios 2 and 3 using Interbrand brand values instead of market capitalizations as portfolio weights. Relative brand values are obtained according to the methodology previously outlined. For portfolio 2, the relative brand values from 1994 are used as weights. Portfolio 3 is rebalanced annually (with the exception of the 1997 portfolio, which is retained for two years) based on each year's relative brand values.

The results of these regressions are shown in Table 3. Average monthly returns increase for portfolio 2, but decrease for portfolio 3 when using the brand weights. The decrease for portfolio 3 when compared with value-weighting may be due to differences in risk. The alphas from both portfolios are not only positive, but even larger when using brand weights rather than value weights. As in the value-weighted regression, the alpha from portfolio 2 is statistically significant at the 1 percent level.

Robustness Checks

Firm Size

As previously shown, the strong-brand companies are considerably larger than the typical company in the data set. Although the SMB factor can be expected to pick up performance differences due to company size, additional robustness checks are useful to confirm that the outperformance for strong-brand companies is not due simply to outperformance by large companies in general.

We use value-weighted portfolio 2 for this robustness check because it is an actual trading strategy and allows easy matching based on company size. The average market capitalization at the end of 1993 for companies in portfolio 2 is \$13.6 billion, whereas the average market capitalization in the comparison portfolio is \$0.5 billion. Therefore, we form an alternative comparison portfolio that contains the 93 largest (as measured by market capitalization at the end of 1993) companies that do not appear on any of the Interbrand lists. Because the 1994 Interbrand list contains 93 companies, each company is matched with another company of similar size. The companies in the size-comparison portfolio have an average market capitalization of \$13.3 billion.

As shown in Table 4, the size-comparison portfolio has an average monthly return of 1.16 percent, which is less than portfolio 2's return of 1.85 percent. The results of the Fama–French regression for the size-comparison portfolio show a statistically insignificant negative alpha, thus confirming that the results for the strong-brand companies are not due to their size characteristics.

Market Share

Some marketing literature (Ehrenberg, 1994) suggests that market share provides an adequate description of market-based asset brand equity. To assess whether the return performance of the strong-brand companies is due to market share characteristics, we perform the following analysis. All 12,214 companies in the Compustat sample are grouped in industries based on two-digit SIC codes. For each of the 28 industries that contain at least one strong-brand company, we compute annual market size by summing annual net sales of all companies in the respective industry. For each company in the 28 industries, we compute annual market share by dividing the company's annual net sales by industry annual net sales. We then average the annual market shares across the sample period 1993 through 2000.

Table 4—Robustness Checks

This table shows average monthly returns, coefficient estimates, and adjusted fit for the following regression:

$$R_{i,t} = \alpha_i + \beta_M R_{M,t} + \beta_{Size} SMB_t + \beta_{B/M} HML_t + \beta_{Mom} UMD_t + \varepsilon_{i,t},$$

where $R_{i,t}$ is the monthly excess return on portfolio i in month t , $R_{M,t}$ is the monthly excess return of a value-weighted market index consisting of all CRSP stocks, SMB_t (small minus big) is the average return on the three small Fama–French (1993) portfolios minus the average return on the three big Fama–French portfolios, HML_t (high minus low) is the average return on the two value portfolios minus the average return on the two growth portfolios, UMD_t (up minus down) is the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios, and $\varepsilon_{i,t}$ is an error term. The firm size check includes portfolio 2 and a comparison portfolio. Portfolio 2 is a value-weighted buy-and-hold portfolio of all companies that made the Interbrand list in 1994. For portfolio 2, a comparison portfolio is formed by choosing the companies with the largest market capitalization in July 1994 to match the number of companies in portfolio 2. The market share check includes portfolio 1 and a comparison portfolio. Portfolio 1 is a portfolio of all companies that made the Interbrand list in at least one of the seven years between 1994 and 1997 and 1999 and 2001. For portfolio 1, a comparison portfolio is formed by sorting the companies in portfolio 1 into industries based on two-digit SIC codes. For all companies in an industry that includes at least one strong-brand firm, average annual market share is computed for the period 1993 through 2000. Annual market share is defined as a company's annual net sales divided by the industries net sales. For each firm in portfolio 1, the company from the same industry with the largest average annual market share that is not included on any Interbrand list is selected as the market share match. The group of market share match firms is the comparison market share portfolio. The time period check uses Portfolio 1 but extends the sample back to 1980. Therefore, the period shown for this test is from January 1980 to December 2000. Portfolio 3 is rebalanced annually, and each year contains the companies on the most recent Interbrand list; portfolio 3 runs from 1994 to 2006 and uses updated Interbrand lists for the additional years. All stock returns and market capitalizations are from CRSP. Brand values are from Interbrand. Fama–French factors are from Kenneth French's website. Annual net sales and SIC codes are from Compustat

	Monthly Return	Alpha	Market (Beta)	Size	Book to Market	Momentum	Adj. R ²
Firm Size Check							
Portfolio 2 Value	1.85	0.50**	0.83**	−0.36**	−0.34**	−0.028	90.1
Comparison Size	1.16	−0.03	1.01**	−0.21**	0.37**	−0.004	91.9
Market Share Check							
Portfolio 1 Value	1.98	0.57**	0.85**	−0.36**	−0.36**	−0.002	91.8
Comparison Mkt Shr	1.65	0.12	0.99**	−0.23**	0.13	−0.03	89.9
Time Period Check							
Portfolio 1 Value (1980–2000)	1.57	0.44**	0.89**	−0.28**	−0.20**	−0.033	91.0
Out-of-Sample Check							
Portfolio 3 Value (1994–2006)	1.78	0.32*	0.87**	−0.39**	−0.48**	−0.013	88.0

** Statistically significant at the 1 percent level

** Statistically significant at the 5 percent level

Table 5 shows that the strong-brand companies account, on average, for 29 percent of their respective industry's annual net sales. To match the strong-brand companies with other companies that have high market shares but do not appear on the Interbrand list, we rank companies that do not appear on the Interbrand list in each industry based on market share. We then select the companies with the highest market shares until the number of matching companies is equal to the number of

strong-brand companies in the industry. Table 5 shows that the matching companies account, on average, for 21 percent of the industry's annual net sales.

To assess the performance of the market-share matches, we form them into a value-weighted portfolio. This portfolio has an average monthly return of 1.65 percent, compared with an average monthly return of 1.98 percent for portfolio 1's strong-brand companies. The Fama–French regressions in Table 4 show that—unlike the strong-brand portfolio—the market-share-matched portfolio does not outperform

Table 5—Market Shares for Companies with Strong Brands

This table shows two-digit SIC codes, number of strong-brand companies, market share of strong-brand companies, and market share of matching companies. Strong-brand companies are included at least once on Interbrand's list of the world's strongest brands between 1994 and 2001. Annual market size is computed by summing up annual net sales of all companies in the respective industry. For each company annual market share is computed by dividing the company's annual net sales by industry annual net sales. The annual market shares are then averaged across the data years 1993 through 2000. In each industry, companies that do not appear on the Interbrand list are ranked on market share; and then the companies with the highest market shares are selected until the number of matching companies is equal to the number of strong-brand companies in the industry. Annual net sales and SIC codes are from Compustat

Two-Digit SIC Code	SIC Code Description	No. Strong- Brand Companies	Market Share Strong-Brand Companies (%)	Market Share Matching Companies (%)
20	Food and kindred products	15	51	36
21	Tobacco manufactures	3	66	33
23	Apparel and other textile products	2	24	12
26	Paper and allied products	2	19	25
27	Printing and publishing	1	3	8
28	Chemicals and allied products	14	37	31
29	Petroleum and coal products	2	28	24
30	Rubber and misc. plastic products	4	50	15
33	Primary metal industries	2	15	12
34	Fabricated metal products	1	13	10
35	Industrial machinery and equipment	10	39	23
36	Electrical & electronic equipment	5	16	38
37	Transportation equipment	3	26	34
38	Instruments & related products	1	15	7
39	Misc. manufacturing	2	35	19
45	Air transportation	7	59	33
48	Communications	8	42	28
56	Apparel & accessory stores	1	11	14
58	Eating & drinking places	4	45	13
59	Misc. retail	2	1	21
61	Nondepository credit institutions	2	40	29
62	Security, commodity brokers, & services	2	33	30
63	Insurance carriers	1	5	7
67	Holding & other investment offices	2	10	8
70	Hotels, camps, & other lodging places	1	21	18
73	Business services	11	38	21
78	Motion pictures	1	5	43
99	Non-operating establishments	1	65	9
Average			29	21

a risk-adjusted benchmark as its alpha is not significantly different from zero, indicating that the performance of the strong-brand portfolio is not solely due to market share characteristics.

Time Period

As a further robustness check, the performance of the strong-brand portfolio also is assessed for an extended time period using monthly CRSP returns and market capitalizations from January 1980 through December 2000. As shown in Table 4, during the extended time period, the strong-brand portfolio yields an average monthly return of 1.57 percent. During the same time period, the overall CRSP market portfolio, on average, returned only 1.30 percent per month, and the one-month Treasury bill rate averaged 0.55 percent per month.

The Fama–French regressions for the extended time period also shown in Table 4 confirm the previous findings: The strong-brand portfolio has an alpha of 0.44 percent month, which is statistically significant at the 1 percent level. The factor loadings are all statistically significant at the 1 percent level and are generally close in magnitude to the loadings found in the base sample period.

Out-of-sample

Subsequent to the completion of the initial research, we collect data for additional Interbrand lists from 2002 to 2006. We then apply our methodology for portfolio 3 for the extended sample period from August 1994 through December 2006. The results are shown in Table 4 and, as the previous findings, support our hypothesis. The monthly alpha for portfolio 3 is 32 basis points, which is statistically significant in the extended sample ($p = 0.03$) The remaining coefficients in the regression are similar to the previous results.

Is Brand Value Priced?

Two important findings stand out from the results previously discussed and reported in Tables 2 through 4. First, the Fama–French three-factor model with the added momentum factor does not fully price portfolios of firms identified by Interbrand as firms with the most valuable brands. Portfolios with positive alphas over time suggest that these portfolios outperform other assets on a risk-adjusted basis. If markets are efficient, however, then we would expect investors to buy these portfolios and eliminate the abnormal returns. The other possibility is that our asset pricing model does not perfectly adjust for risk. If so, then we might be able to use the differences between the stocks on the Interbrand list and the rest of the market to create a factor that improves the Fama–French model.

Second, when we create portfolios that are brand-value weighted, the magnitude of the BE/ME factor is reduced. Brand-weighting using Interbrand's brand values as weights causes the coefficient on the BE/ME factor to become statistically insignifi-

cant for portfolios 1 and 2. These results indicate that research into the components of the difference between a company's book value and its market value may be useful to gain further understanding about the cross-sectional and time-series variation in stock returns. It is possible that different components, which are lumped together in standard BE/ME ratios, affect stock returns differently. We further investigate this using two techniques: We examine how BE/ME ratios change with the inclusion of brand value, and we create a new Fama–French factor based on brand value.

Clearly, brand values are one component of BE/ME differences. To explore the relation between brand values and BE/ME ratios further, we compute standard BE/ME ratios as outlined by Davis et al. (2000). We then calculate brand-value-adjusted BE/ME ratios by adding book equity and the published Interbrand brand value whenever available. We divide the result by the market value of equity. This adjustment represents BE/ME ratios in a hypothetical accounting treatment that allows a brand to be capitalized on the balance sheet. Brand-value-adjusted BE/ME ratios are calculated for those data years in which a company has a brand value on the Interbrand list. We then average the BE/ME ratios across data years for each company.

Book-to-market ratios are not calculated for 2001 because the necessary data are not available from Compustat. Therefore 15 strong-brand companies, which make the Interbrand list only in 2001, are dropped from the sample for this analysis. Across the remaining 96 companies, the average standard BE/ME ratio is 0.28; however, based on the Interbrand brand values, adjusted BE/ME ratios average 0.68 across all 96 companies. The increase in BE/ME ratios ranges from 0.01 to 2.03 with a standard deviation of 0.36. BE/ME and adjusted BE/ME ratios for individual firms are shown in Table 6.

To assess the importance of the difference between standard and adjusted BE/ME ratios, we perform the following analysis. For each available data year, we place companies in BE/ME deciles (following Fama and French, 1993), which are averaged across data years for each company (Table 6). Based on standard BE/ME ratios, the cross-company average decile placement is in the third decile (26 percent); based on brand-value-adjusted BE/ME ratios, the average decile placement is almost three deciles higher at 55 percent. These results suggest that the Fama–French HML factor might change considerably if adjusted BE/ME ratios are used to construct the factor.

The adjusted decile placement, as previously discussed, is not the decile placement that would be obtained if all companies capitalized brand values on their balance sheets because the inclusion of brand values would affect the distribution of BE/ME ratios and the resulting decile breakpoints. The results do indicate that decile placements may change considerably between standard and brand-value-adjusted BE/ME ratios. An adjusted Fama–French factor possibly would perform better in

Table 6—Book-to-Market Ratios for Companies with Strong Brands

This table shows ticker symbol, company name, average book-to-market ratio (BE/ME), average adjusted BE/ME ratio, average BE/ME decile, and average adjusted BE/ME decile for companies that were included at least once on Interbrand's list of the world's strongest brands between 1994 and 2000. Annual BE/ME ratios are calculated as book equity divided by market capitalization following Davis, Fama, and French (2000). Annual adjusted BE/ME ratios are calculated as the ratio of book equity plus brand value to market capitalization. Companies are sorted into annual deciles using breakpoints as in Fama and French (1993). Market capitalizations are from CRSP. Book equity is from Compustat data. Brand values are from Interbrand. Breakpoints are obtained from Kenneth French's website

Ticker	Company	BE/ME	Adj. BE/ME	Decile	Adj. Decile
AA	Alcoa	0.52	0.57	0.48	0.55
AAPL	Apple Computer	0.54	1.02	0.53	0.83
ADBE	Adobe Systems	0.21	0.35	0.15	0.30
AHP	American Home Products	0.20	0.25	0.10	0.18
AMZN	Amazon.Com	0.01	0.16	0.10	0.10
AOL	AOL Time Warner	0.06	1.19	0.10	0.38
AVP	Avon Products	0.06	0.76	0.10	0.65
AXP	American Express	0.33	0.56	0.28	0.50
BDK	Black & Decker	0.50	1.32	0.45	0.90
BLS	Bellsouth	0.62	0.70	0.60	0.70
BMJ	Bristol Myers Squibb	0.16	0.18	0.10	0.13
BOL	Bausch & Lomb	0.41	1.00	0.35	0.85
BUD	Anheuser-Busch Cos	0.30	0.91	0.23	0.75
C	Citigroup	0.26	0.37	0.20	0.30
CA	Computer Associates	0.18	0.32	0.10	0.23
CAG	Conagra Foods	0.30	0.41	0.20	0.35
CAL	Continental Airls -CI B	1.03	3.07	0.60	1.00
CD	Cendant	0.06	0.11	0.10	0.10
CL	Colgate-Palmolive Co	0.16	0.68	0.12	0.60
CLX	Clorox Co/De	0.29	0.68	0.20	0.63
COMS	3Com	0.16	0.29	0.15	0.25
CPB	Campbell Soup	0.18	0.70	0.10	0.63
CPQ	Compaq Computer	0.38	0.84	0.32	0.72
CSCO	Cisco Systems	0.04	0.11	0.10	0.10
DAL	Delta Air Lines	0.62	1.33	0.55	0.90
DELL	Dell Computer	0.13	0.67	0.17	0.40
DIS	Disney (Walt) Company	0.32	0.97	0.28	0.83
DJ	Dow Jones & Co	0.13	0.66	0.10	0.60
DOW	Dow Chemical	0.48	0.49	0.43	0.43
EK	Eastman Kodak	0.20	0.82	0.15	0.75
EL	Lauder Estee Cos -CI A	0.14	1.05	0.10	0.90
F	Ford Motor	0.70	1.02	0.63	0.83
FON	Sprint Fon Group	0.46	0.69	0.40	0.70
G	Gillette	0.11	0.80	0.10	0.67
GE	General Electric	0.27	0.36	0.22	0.30
GIS	General Mills	0.13	0.64	0.10	0.60
GLW	Corning	0.32	0.33	0.20	0.20
GPS	Gap	0.05	0.32	0.10	0.30
GT	Goodyear	0.46	1.18	0.40	0.93
HAS	Hasbro	0.49	0.72	0.45	0.68
HLT	Hilton Hotels	0.47	0.81	0.40	0.60
HNZ	Heinz (H J)	0.25	0.60	0.20	0.58
HRL	Hormel Foods	0.34	0.48	0.25	0.40

Table 6 (cont.)—Book-to-Market Ratios for Companies with Strong Brands

Ticker	Company	BE/ME	Adj. BE/ME	Decile	Adj. Decile
HSY	Hershey Foods	0.39	1.17	0.30	0.93
HWP	Hewlett-Packard	0.30	0.60	0.25	0.55
IBM	IBM	0.37	0.72	0.32	0.57
INTC	Intel	0.22	0.48	0.16	0.44
INTU	Intuit	0.13	0.16	0.10	0.10
ITT	ITT Industries	0.66	0.71	0.60	0.60
JNJ	Johnson & Johnson	0.18	0.26	0.10	0.20
K	Kellogg	0.11	0.78	0.10	0.72
KMB	Kimberly-Clark	0.27	0.46	0.20	0.42
KO	Coca-Cola	0.06	0.64	0.10	0.57
LIZ	Liz Claiborne	0.53	1.06	0.50	0.90
LTR	Loews	0.96	1.61	0.85	1.00
LUV	Southwest Airlines	0.37	0.47	0.30	0.35
MAT	Mattel	0.24	0.94	0.16	0.70
MCD	McDonalds	0.27	1.00	0.20	0.80
MKC	McCormick & Co	0.33	0.73	0.25	0.70
MMM	3M	0.30	0.46	0.20	0.40
MO	Philip Morris Cos	0.26	1.01	0.20	0.77
MOT	Motorola	0.32	0.57	0.27	0.52
MSFT	Microsoft	0.09	0.30	0.10	0.25
MYG	Maytag	0.36	0.71	0.30	0.60
NKE	Nike -Cl B	0.46	2.26	0.40	0.92
NOVL	Novell	0.22	0.29	0.13	0.20
NWAC	Northwest Airlines	-0.47	0.87	0.10	0.70
NWL	Newell Rubbermaid	0.32	0.76	0.20	0.70
ORCL	Oracle	0.06	0.12	0.10	0.10
PEP	Pepsico	0.21	0.67	0.13	0.55
PFE	Pfizer	0.16	0.27	0.10	0.20
PG	Procter & Gamble	0.16	0.33	0.10	0.30
RBK	Reebok	0.37	1.42	0.27	0.93
RKY	Coors (Adolph) -Cl B	1.11	1.40	0.90	1.00
ROH	Rohm & Haas	0.39	0.46	0.33	0.43
SBC	SBC Communications	0.41	0.55	0.30	0.50
SBUX	Starbucks	0.20	0.48	0.20	0.40
SGP	Schering-Plough	0.11	0.13	0.10	0.10
SLE	Sara Lee	0.29	0.59	0.20	0.55
SUNW	Sun Microsystems	0.58	1.04	0.50	0.85
SYBS	Sybase	0.15	0.21	0.10	0.15
SYMC	Symantec	0.13	0.19	0.10	0.10
T	AT&T	0.35	0.52	0.27	0.47
TX	Texaco	0.62	0.69	0.60	0.70
U	US Airways Group	-2.17	-1.75	0.10	0.10
UAL	UAL	0.03	0.95	0.15	0.80
UST	UST	0.06	0.57	0.10	0.50
VFC	VF	0.57	1.36	0.50	1.00
VIA	Viacom -Cl B	0.42	0.71	0.37	0.60
VZ	Verizon	0.44	0.67	0.40	0.60
WEN	Wendy's	0.46	1.07	0.35	0.90
WHR	Whirlpool	0.48	0.85	0.40	0.75
WWY	Wrigley (Wm) Jr	0.14	0.67	0.10	0.63
XOM	Exxon Mobil	0.59	0.72	0.50	0.70

Table 6 (cont.)—Book-to-Market Ratios for Companies with Strong Brands

Ticker	Company	BE/ME	Adj. BE/ME	Decile	Adj. Decile
XRX	Xerox	0.30	0.62	0.23	0.57
YHOO	Yahoo	0.03	0.13	0.10	0.10

explaining variation in stock returns. Therefore, we create a French–Fama factor to determine whether expected returns are related to brand value.

To determine the sensitivity of returns to the brand factor or brand beta, we include the BMNB factor as an explanatory variable in a multiple regression along with the Fama–French factors, market beta, HML, SMB, and the momentum factor, UMD. We form decile portfolios based on the predicted value for the brand betas at the end of each calendar year. We create a time series of returns across all ten years in the sample period for each of the ten portfolios by linking the post-formation returns over the following 12 months for each portfolio. Finally, we regress the excess returns for each portfolio on the brand factor and the factors from the Fama–French three-factor model plus the momentum factor. Table 7 shows the regression results for the factor developed from the Interbrand list. The post-ranking brand betas are not statistically significant for the first nine portfolios; only portfolio 10 and the final portfolio (i.e., long portfolio 10 and short portfolio 1) are statistically significant.

Table 7—Properties of Decile Portfolios Sorted on Predicted Brand Beta

This table reports the results for a Fama–French type factor based on the Interbrand rankings. For each year all stocks in the CRSP universe are sorted into decile portfolios based on their brand betas. The excess return for each of the 10 value-weighted portfolios is regressed on the brand factor, market beta, a size factor (small minus big; SMB), a market-to-book factor (high minus low; HML), and a momentum factor (up minus down; UMD). The post ranking betas shown in the table are coefficients from this regression. t-statistics are in parentheses

BMNB Factor–Post-Ranking Betas											
	1	2	3	4	5	6	7	8	9	10	10–1
Brand	0.004 (1.02)	0.004 (1.64)	0.002 (0.93)	0.000 (0.02)	–0.001 (–0.44)	0.001 (0.84)	–0.001 (–0.39)	0.002 (0.99)	0.003 (0.91)	–0.01 (–2.79)	–0.01 (2.72)
Market Beta	1.23 (12.40)	1.12 (17.43)	0.97 (17.63)	0.97 (23.75)	0.94 (22.82)	0.91 (18.76)	0.98 (23.04)	1.06 (17.81)	1.16 (12.42)	1.42 (13.51)	0.19 (1.32)
SMB	0.27 (2.78)	0.08 (1.20)	0.07 (1.31)	–0.06 (–1.57)	–0.08 (–1.95)	–0.16 (–3.39)	–0.21 (–4.95)	–0.11 (–1.92)	0.28 (3.03)	0.98 (9.52)	0.71 (4.99)
HML	–0.77 (–6.28)	–0.17 (–2.14)	0.08 (1.12)	0.23 (4.45)	0.05 (0.91)	0.29 (4.77)	0.04 (0.75)	0.07 (0.88)	–0.51 (–4.36)	–0.44 (–3.33)	0.34 (1.87)
UMD	–0.10 (–1.52)	–0.02 (–0.59)	0.00 (0.02)	0.06 (2.24)	0.00 (–0.03)	–0.07 (–2.35)	–0.01 (–0.25)	–0.22 (–5.71)	–0.17 (–2.78)	–0.09 (–1.26)	0.01 (0.12)

One of the possible problems regarding the first factor is that Interbrand only lists the companies with the most valuable brands. Ideally, we would be able to match this list with a group of firms that are similar in all ways except that they have low brand value. Unfortunately, our method simply matches each firm on the brand

list with one of similar size and in a similar industry that is not on the list. It is possible that many of the firms on our no-brand list actually have a relatively good brand but are not included on the Interbrand list.

Summary

Although it long has been argued that strong brands cause stock values to differ from those with weak brands, little empirical evidence exists that supports this suggested relation. Using monthly return data, we find the portfolio of Interbrand firms has statistically and economically significant better performance than the overall market before and after adjusting for risk. Thus, during our sample period, the Interbrand companies have an element of their return that is not measured by traditional asset pricing models.

Although we show that brand values estimated by Interbrand appear to contain additional information about stock market performance beyond the information already contained in a company's membership on the Interbrand list, the brand factor we construct does not explain how brand is related to stock price across a broader group of equities. Although we show that BE/ME ratios adjusted for brand value are significantly different from traditional BE/ME ratios, in many cases our measure does not significantly improve the Fama–French methodology.

Because our results indicate that brand values may be useful for fundamental stock analysis, it would be in the interest of shareholders for firms to disclose estimates of brand value in a company's annual report. With better information about brand values across a larger group of firms than the Interbrand list, future research could examine adjusted BE/ME ratios for a larger group of stocks thereby furthering our understanding of how brand value affects asset pricing.

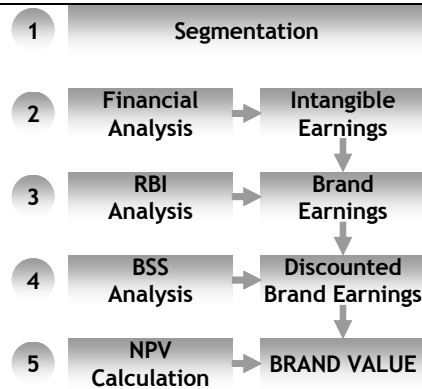
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Appendix

The Five-Step Interbrand Approach to Brand Value (Lindemann, 2003)



1. **Market Segmentation**—Brands influence customer choice; however, their influence differs depending on the market in which they operate. We split the brand's markets into non-overlapping and homogenous groups of consumers according to applicable criteria such as product or service, distribution channels, consumption patterns, purchase sophistication, geography, existing and new customers, et cetera. The brand is valued in each segment, and the sum of the segment valuations constitutes the total value of the brand.
2. **Role of Branding Analysis**—Revenues and intangible earnings generated by the brand for each of the distinct segments determined in Step 1 are identified and forecasted. Intangible earnings are defined as branded revenues less operating costs, applicable taxes, and a charge for the capital employed. The concept is similar to the notion of economic profit.
3. **Brand Strength Analysis**—This step assesses the role that the brand plays in driving demand for products and services in the markets in which it operates and, hence, determines what proportion of intangible earnings are attributable to the brand measured by an indicator referred to as the *role of branding index*. This index is calculated by first identifying the various drivers of demand for the branded business and then determining the degree to which each driver is directly influenced by the brand. The role of branding index represents the percentage of intangible earnings that are generated by the brand. Brand earnings are derived as $\text{role of branding} \times \text{intangible earnings}$.
4. **Competitive Benchmarking**—The competitive strengths and weaknesses of the brand are determined to derive the specific brand discount rate that reflects the risk profile of its expected future earnings, which is measured

by an indicator referred to as the *brand strength score*. This score comprises extensive competitive benchmarking and a structured evaluation of the brand's market, stability, leadership position, growth trend, support, geographic footprint, and legal protectability.

5. **Brand Value Calculation**—Brand value is the net present value of the forecast brand earnings, discounted by the brand discount rate. The net present earnings calculation comprises both the forecast period and the period beyond, reflecting the ability of brands to continue generating future earnings.

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