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Value-Based Brand Exploitation Strategy to Grow Firm Value

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Report Summary

Recent meta-analysis suggests that, on average, improving brand equity by 10% translates to an increase of firm value of 3.3%. Brand-driven value creation arises from growth and/or return relative to capital cost. Thus, firms may seek to leverage brand strength for driving the profit margin – e.g., through extending the price premium and lowering the cost of selling – or it may focus on exploiting brand equity to grow the business – e.g., by expanding into new markets.

Which strategy is better-suited to drive value creation is not evident. Little is known about the mechanisms that underlie brand-driven value creation and how these might differ across firms and industries.

The Study
In this report, Marc Fischer, Max Backhaus, and Tobias Hornig undertake an approach based on analysis of financial data to understand the role of customer-based brand equity (CBBE) measures in creating firm value via three drivers: (1) investors' expectations about the rate of return on new invested capital, (2) the future growth in earnings, and (3) the length of the period during which a firm can earn excess return.

They econometrically estimate the CBBE effects on these value drivers at the firm level in a broad sample of 613 firms covering a period of nine years from 2005 to 2013. Their database includes retailers, durable and non-durable products, as well as services.

They find that while earnings growth and sustainability of excess return are the most influential drivers for most industries and firms, the return on invested capital is more relevant in industries such as media, information technology, and industrial and utilities. They also find substantial across-firm and across-industry variation in both CBBE leverage effects and relative importance of value drivers. Finally, they identify cases where CBBE impact on a value driver is not well aligned with its relevance for value generation, leaving an untapped potential for value creation.

Put into Practice
Marketers should think differently about their brand strategy: a detailed analysis of each firm's situation is necessary to determine the most effective brand exploitation strategy. It is not sufficient to focus only on raising CBBE by investing into brand building. It is equally if not more important to think about the best brand exploitation strategy, so that brand investments are not wasted but appropriate value in the marketplace.

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According to the theory of efficient capital markets, all available information about a company is incorporated into its stock price (Fama 1970): The stock price rises if unexpected new information arrives that leads investors to increase expectations regarding future cash flows, and vice versa. But what happens when investors learn about an increase in brand equity? Extant research (e.g., Bharadwaj et al. 2011; Mizik and Jacobson 2008; Srinivasan and Hanssens 2009) shows that this event is likely to result in higher firm value. Edeling and Fischer's (2016) recent meta-analysis suggests that, on average, improving brand equity by 10% translates to an increase of firm value of 3.3%. A self-evident implication of this empirical regularity is that brand managers should strive to improve their brand's equity rating, which can be regularly monitored by employing established customer-based brand equity (CBBE) measures such as EquiTrend (Harris Interactive), BAV (Young & Rubicam), and YouGov's brand index.

While intuitive, however, this conclusion might be too simple. Consider the two U.S. retailers CVS Health and Kroger. Data from 2005–2013 indicate the firms are of similar size in terms of average sales: US$88.5 billion for CVS and US$77.4 billion for Kroger, a difference of 14%. The strength of their brands is also not very different: The CBBE (EquiTrend) rating in 2005–2013 averaged 66.6 for CVS and 60.9 for Kroger, a mere 9% difference. However, we observe a striking gap between the average market capitalization of the two firms: CVS was valued three times higher than Kroger (US$47.0 vs. US$15.6, respectively, a difference of 200%). In 2015, Brand Finance valued the CVS brand at US$20.3 billion, compared with US$6.0 billion for the Kroger brand, a 243% difference. It is not apparent why two firms that are from the same industry sector and are comparably strong CBBE and sales show such substantial differences in brand and firm valuation. Deeper analysis of financial data is likely to provide more insights. In this paper, we argue that a firm's brand exploitation strategy is another, possibly complementary explanation.

Valuation theory posits, and practice bears out, that value basically arises from two sources: return relative to capital cost and growth (Copeland et al. 2013; Koller et al. 2015). Consequently, a firm may either leverage the strength of its brand mainly to drive the profit margin (e.g., through extending the price premium and lowering the cost of selling) or focus more on exploiting brand equity to grow the business (e.g., by expanding into new markets). The right choice, however, is not clear-cut; the alternatives are not necessarily equal in their potential to drive firm value. It requires a deeper understanding about how firm value is generated as well as about the firm's specific situation and industry. Unfortunately, our knowledge about the underlying mechanisms that cause brands to generate value is limited.

Financial valuation theory (e.g., Copeland et al. 2013) decomposes value creation from return and growth into four value drivers: the *return on invested capital* (*ROIC*), the *cost of capital* (*WACC*), the *earnings growth rate* (*EGR*), and the *sustainability of excess return* (*S*). First, ROIC, obtained by dividing after-tax operating profit by invested capital, measures the average rate of return on new investments that the firm expects to generate from its future projects. Second, WACC reflects the capital-structure weighted average of the cost of equity and cost of debt. Third, EGR represents the expected average rate by which earnings grow (note, however, that this growth only adds value when producing excess return [i.e., $ROIC - WACC > 0$). A fundamental assumption of competitive theory is that excess return cannot be maintained forever (Demsetz 1982). Finally, S measures the length of this period and is the capital market equivalent of competitive advantage.

The value contribution of these drivers is not equal; rather, it depends on industry and firm characteristics. To ensure that the firm follows the most effective route of value generation from exploiting the strength of their brands, it is necessary to know the leverage effect of CBBE on

these value drivers and which driver is most relevant. Identifying this effect is the key substantive contribution of the current research.

Specifically, we model the impact of CBBE on the financial value drivers and address the following research questions:

- How large is the impact (measured as elasticity) of CBBE on each of the value drivers?
- Which source of value creation, growth or return, is more relevant in which industry during our observation period?
- How does the impact of CBBE value drivers vary across firms and industries? How does this difference resonate with the variation in importance of value drivers for value generation?

We answer these questions by analyzing a broad sample of 613 firms covering a period of nine years (2005–2013) across a wide range of industries. Our database includes retailers, durable and nondurable products, and services. Although a healthy body of research on the role of brands for value generation exists, we cannot use it to answer our questions for two main reasons. First, we are not aware of studies that quantify the impact of brands on expected earnings growth and the sustainability of excess return, which are key value drivers. Second, we aim to estimate the impact of CBBE on *all* value drivers together and for each individual firm. Only then can we can identify the strongest link of brand-driven value generation.

Our study offers new insights for both scholars and practitioners. We extend the branding literature by demonstrating that how firms strategically exploit the strength of their brands makes a difference. We also contribute to the literature by introducing and studying the sustainability of excess return, which quantifies an important but unobserved construct: competitive advantage. For managers, our study suggests they should think differently about their brand strategy. It is not sufficient to focus only on raising CBBE by investing in brand building; it is equally, if not more,

important to think about the best brand exploitation strategy, so that brand investments are more likely to appropriate value in the marketplace.

We report findings that are new to the literature and highly informative for practice. While earnings growth and sustainability of excess return are the most influential drivers for most industries and firms, the return on invested capital is more relevant in industries such as media, information technology, and industrial products and utilities. Our results also offer a possible solution to the puzzle of our introductory example. We find that EGR is more important than ROIC in driving firm value for both CVS Health and Kroger. CVS's brand exploitation strategy is consistent with this ranking; the leverage effect of its CBBE on EGR is much greater than on ROIC and beats the industry average. In contrast, Kroger's CBBE impact on ROIC exceeds the industry average but fails with respect to EGR, for which its leverage effect is below industry average and 10 times lower compared with CVS. Thus, Kroger's strength in brand exploitation does not appear to align well with the relevance of value drivers for value generation.

The remainder of the paper is structured as follows: In the next section, we present results of interviews with industry experts, summarize the related empirical literature, and continue with a discussion of brand mechanisms for value creation. We then develop our modeling framework to decompose firm value and specify the estimation equations. The following section reports information about the data sample and estimation issues. It is followed by a discussion of results. We conclude the paper with implications for further research.

Background

We first review the basic approaches to corporate valuation and then summarize the results from interviews with industry experts. We conclude this section by reviewing the related brand literature.

Corporate Valuation

Many approaches to company valuation exist. It is beyond our scope to review the corporate valuation literature in detail (for thorough reviews, see, e.g., Damodaran 2012; Koller et al. 2015). According to Damodaran (2012), valuation approaches can be broadly categorized into two classes: direct and relative valuation. Relative valuation refers to the multiplier analysis in which a set of similar companies is identified and their market value linked to a common performance metric such as sales or earnings before interest and taxes (EBIT). Although widely used in practice, relative valuation can be challenging, because it may be difficult to find a set of firms that is comparable to the focal firm.

Direct valuation follows the framework of discounted cash flow (DCF) analysis. Here, the idea is to estimate the intrinsic value of a company on the basis of its fundamentals. It involves a projection of future cash flows that are discounted at an appropriate rate that reflects the firm's risk and capital structure. This type of valuation is attractive from both theoretical and practical points of view. It requires being explicit about the input information for cash flow projections and coincides with the market value of a firm, at least in theory. Most importantly, it is transparent about the mechanism of value generation by incorporating the four key value drivers ROIC, WACC, EGR, and S (e.g., Copeland et al. 2013; Koller et al. 2015).

Industry Interviews

From November 2017 to January 2018, we conducted nine interviews with industry experts. The main purpose of these interviews was to understand the extent to which managers are

familiar with the mechanism of value generation and the role of brands in this system. The interviews lasted 20–30 minutes. The interviewees were all senior executives with extensive experience in several international markets (e.g., health care, software, energy, business services, financial services). Two managers held senior marketing and sales positions, four held senior positions in finance and accounting, one manager worked for investor relations, and two executives were chief executive officers (CEOs) and founder of a marketing analytics startup company In each interview, we first explained our framework of value generation that centers on the four value drivers. We then asked the interviewees to rank the value drivers EGR, ROIC, and S according to their importance for value generation in their industry.[1] Finally, we were interested in understanding how they perceive the role of brands in influencing these value drivers.

Though we do not claim any representativeness, the interviews produced important insights. First, we observed no dominant perception about the relative importance of one financial driver over others for value generation. Three managers put ROIC first, while four chose EGR. Two managers did not provide a ranking. Surprisingly, sustainability of excess return was considered the least powerful driver. The interviewees viewed the leverage effect of CBBE on the value drivers as more differentiated. Seven of the nine believed the effect depends to a great extent on the firm's brand exploitation strategy and market conditions, such as the level of market saturation and the intensity of competition. Interestingly, two executives pointed out that the key role of brands is to secure competitive advantage (i.e., the largest brand impact should be on the sustainability of excess return).

[1] Interviewees did not consider WACC a relevant driver in their operations because it is mainly driven by macroeconomic conditions and capital market factors that are beyond their control.

In summary, managers seem to understand that brands can fulfil various roles within the mechanism of value generation. However, they exhibited no agreement on the relative importance of brand leverage effects on value drivers. In addition, they perceived value drivers to contribute differently to firm value depending on industry, firm, and time.

Related Literature on the Value Relevance of Brands

The question of whether brands contribute to value generation has attracted the focus of a large body of research within and beyond marketing. Figure 1 provides an overview of the relations and constructs that have been studied. Note that because our focus is on CBBE, we do not include other brand equity measures (sales-based brand equity and financial brand equity) here. The literature can be summarized into two groups. The first group of studies (e.g., Luo et al. 2013; Mizik and Jacobson 2008) establishes evidence that brands are indeed valuable intangible assets that contribute to shareholder/firm value. The literature shows overwhelming support for the value relevance of brands, as emphasized by Edeling and Fischer (2016).

The second group of studies investigates the role of brands for individual components and drivers of firm value, which is also the focus of our study. It is therefore important to position the current study relative to prior empirical research on the impact of CBBE on value drivers, which we do in Table 1. As is evident from the table, the majority of these studies (four of the seven) focus on the relation between brands and risk factors. Whereas strong brands appear to reduce the cost of debt, the findings on equity cost (i.e. systematic risk) are mixed. Bharadwaj et al. (2011) find a positive relation, but Rego et al. (2009) report a negative relation. In contrast, the findings on profitability are consistent and suggest that strong brands improve profitability.

We were not able to find studies that measure the impact of CBBE on either EGR or S. We note Morgan et al.'s (2009) work, in which they investigate the relationship between brand management capability and profit growth using a cross-sectional manager survey. This study

shows no significant impact on profit growth. However, because the focal variable is management capability and not CBBE, the study measures a precursor or moderator effect, which is not the same as the direct effect of CBBE on EGR. We conclude that the brand impact on EGR and S is be underresearched, and our study is aimed to fill this gap. More importantly, Table 1 shows that no prior research has investigated all value drivers together, which is important to be able to compare their relative importance for value generation.

Valuation Theory and Mechanisms of Value Creation by Brands

In the following subsections, we establish our theoretical framework of value drivers that are direct outcomes of common DCF valuation (Copeland et al. 2013). We work out the various mechanisms by which brands create value for firms and how these mechanisms relate to the value drivers.

A Formula Approach to Corporate Valuation

In a discounted cash flow framework, a firm's value equals the present value of the expected future cash flows. When valuing a business, these expected cash flows are usually generated from estimated earnings in future periods, which in turn are determined by current earnings and the expected growth rate in these earnings (Koller et al. 2015). Thus, firm value in period $t = 0$, FV_0, is equal to the sum of discounted future cash flows (DCF model):

$$(1) \qquad FV_0 = \frac{EBIT_1 \cdot (1-t) - I_1}{(1+WACC)} + \frac{EBIT_2 \cdot (1-t) - I_2}{(1+WACC)^2} + \frac{EBIT_3 \cdot (1-t) - I_3}{(1+WACC)^3} + \ldots,$$

where $EBIT_t$ denotes EBIT in period t, I_t are investments in new capital in period t, $WACC$ is the weighted average of cost of capital, and τ denotes the cash tax rate. Note that $WACC$ and τ do not have a time subscript—that is, they are constant. This assumption is not too restrictive and is

frequently applied in practice because these metrics only change as a result of substantial exogenous shocks (e.g., a recession, a change in tax law), which are difficult to predict.

Copeland et al. (2013, 497ff) show that Equation 1 can be simplified and rearranged such that it decomposes firm value into two parts (see Web Appendix W1):

$$FV_0 = \underbrace{\frac{EBIT_1 \times (1-\tau)}{WACC}}_{\substack{\text{Value of current} \\ \text{earnings strength}}} \times \underbrace{\left[1 + \frac{(ROIC - WACC) \times EGR \times S}{ROIC \times (1 + WACC)}\right]}_{\text{Value of growth expectations}} \quad (2)$$

The first part of Equation 2 collects future cash flows generated from the capital invested at the time of valuation. It reflects the value of current earnings strength. Although value generation is associated with the current earnings level, most of this value is generated in the future through earnings persistence. The second summand measures the value of growth expectations. It shows that the value added is a mix of growth and return expectations, which are reflected in the four key value drivers ROIC, EGR, S, and WACC. The expression demonstrates several fundamental implications for value creation. First, value creation without growth in earnings is not possible. Second, growth per se is not the objective and can even destroy value when ROIC < WACC. Only *profitable growth* is valuable, which requires ROIC > WACC. Finally, the expression reveals that S plays an important role as it limits value creation from profitable growth. This is because no competitor can expand and earn more than the cost of capital on the investment in a long-term competitive equilibrium (Demsetz 1982). Only firms with a significant competitive advantage can sustain excess return over a longer time (Dierickx and Cool 1989).

Theoretical Framework of Value Drivers

Equation 2 is our core valuation equation. Figure 2 summarizes the theoretical framework that guides our empirical analysis. Consistent with prior research (e.g., Stahl et al. 2012), we propose that marketing actions such as advertising investments contribute to brand building, which we measure in terms of CBBE. We propose that CBBE potentially influences firm value via its value drivers. Figure 2 shows the endogenous variables and the associated estimation equation. Note that for completeness and to account for potential endogeneity of our key CBBE construct, we estimate five equations; however, our substantive interest focuses only on the three value drivers ROIC, EGR, and S.

Mechanisms of Value Generation by Brands

Marketing theory has produced a rich literature that explains how brands create value for customers (e.g., Fischer et al. 2010; Keller 1993) and companies (e.g., Aaker 1991; Kapferer 2011; Srivastava et al. 1998). Aaker (1991, 16) suggests six mechanisms through which brands may add value for the firm (for a similar set, see Keller 2008, 88–91). Srivastava et al. (1998, 6) also refer to these mechanisms but discuss them with a broader scope of how intangible market-based assets enhance value. Next, we review each of these value creation mechanisms and how they map onto the three focal value drivers (see Table 2). In our discussion, we focus on the most effective relation between a mechanism and a value driver. By no means does our focus on the main relation imply that the mechanism has no relevance for other value drivers; rather, shedding light on the mechanisms and their main relation to value drivers can help managers prioritize actions and derive a focused, value-based brand exploitation strategy.

Prices and margins. Powerful brands are characterized by high awareness, high perceived quality (relative to its price positioning), and strong and differentiated brand associations (Keller 1993). These features can help consumers retrieve information and offer a reason to buy (Aaker

1996, p. 9). They often translate into monopolistic power for brands that enables them to command a significant price premium (e.g., Ailawadi et al. 2003). As a result, a high-equity brand does not lose market share (up to a point) when its price increases or competitors lower their prices. This is the core idea behind brand valuation methods based on their price premium (e.g., Swait et al. 1993).

The aforementioned features of powerful brands may also result into a major advantage for the brand in choice situations. Awareness and faster retrieval of information increase the likelihood that the brand enters the customer's consideration set, which is a necessary condition for choice (Nedundagi 1990). Strong brand (quality) associations significantly contribute to creating brand preference, and this advantage translates into higher market share (volume premium). The preference–market share link is the key mechanism in brand valuation models that focus on the volume premium of brands (e.g., Park and Srinivasan 1994). Not only does the market share advantage have a revenue effect, but it may also improve costs. For example, higher volume enables the firm to benefit from economies of scale and scope (Spence 1980); marginal cost can decrease from riding down the learning curve; and margins can improve due to increased market power, which can be leveraged to reduce purchase cost.

The brand mechanism outlined herein yields higher prices and/or lower costs. It therefore primarily drives the return on invested capital (see Table 2).

Efficiency and effectiveness of marketing programs. Keller (1993, 8) defines CBBE "as the differential effect of brand knowledge on consumer response to the marketing of the brand." This understanding implies that existing and prospective customers are more responsive to marketing activities by a high-equity brand. For example, higher awareness and positive, favorable, and strong brand associations can improve the effectiveness of a new product promotion activity in the sense that potential buyers will be less skeptical of brand quality (Aaker 1991, p. 16f). A

positive brand image also motivates customers to invest more resources into information search, which can include the willingness to seek out new distribution channels (Keller 1993). Customers are less responsive to price increases, as noted previously. Finally, we have ample evidence that advertising response and carryover patterns are much stronger for high-equity brands than for weaker brands. Consumers with salient brand and product associations require fewer ad contacts and thus fewer resources to achieve communication objectives (Percy and Elliott 2009). All these brand effects enhance the profit margin, which is why this brand mechanism is predominantly associated with the value driver ROIC.

Brand loyalty. Researchers have long argued that strong brands provide reasons to buy and increase customer satisfaction (e.g., Stahl et al. 2012). As a result, the customer base becomes more loyal, which entails several value-enhancing effects. A loyal customer is less likely to switch to competitive offerings. Consequently, cash flows generated from these customers are less vulnerable to future competitive attacks (Srivastava et al. 1998). Indeed, a strong, brand-loyal customer base may erect significant entry barriers that keep potential new entrants out of the market (Aaker 1991, 47). As a result, firms with such a customer base face less competitive pressure, which can drive down excess return. Therefore, we conclude that the brand loyalty value mechanism is primarily associated with enhancing the sustainability of excess return.

Satisfied and loyal buyers are also more responsive to marketing efforts, which reduces the costs of marketing programs. Loyal customers show higher willingness to pay and therefore accept higher prices (Srivastava et al. 1998). Finally, retaining a loyal customer requires much less investment than acquiring new prospects (e.g., Aaker 1991, 47; see also Stahl et al. 2012). We conclude from these effects that brand loyalty also influences the value driver ROIC.

Brand extensions. Strong brands offer a greater potential to extend existing product lines, expand into related and new product categories, enter international markets, and increase

revenues by licensing brand names to be used in other categories (e.g., Lane and Jacobson 1995; Srivastava et al. 1998). It is the greater awareness and positive associations potential customers hold with respect to a strong brand that reduce entry barriers and result into faster trial, referrals, and adoption and stronger preferences for the new product (Keller 1993). Aaker (1996, 292f) differentiates between brand extensions and range brands. Brand extensions are incremental and short-term oriented. They are driven by searching for product classes that fit with the brand and allow the quick introduction of a new product. The core benefit arises from the lower risk profile associated with the extension. Developing a range brand, however, is strategic and builds on the creation of a brand asset with a real competitive advantage across product categories. This strategy may involve altering the future identity of the brand. An example of a successful range brand is Kraft, with its lines Philadelphia, Kraft slices, and Kraft Mayonnaise (Aaker 1996, 295).

Another powerful driver of revenue growth is brand alliances that include ingredient branding. Among the most successful ingredient branding strategies is the "Intel Inside" campaign. Because leading computer manufacturers put the campaign logo on their products, customers developed trust and strong quality perceptions of Intel. They arguably inferred these positive associations from the original equipment manufacturers' decision to inform about the Intel processor inside. Intel's worldwide sales increased by 63% in the first year of the campaign (Aaker 1996, p. 12). Considering these powerful growth effects, we associate the brand extension mechanism primarily with earnings growth.

Trade leverage. Trade leverage is another value-creation mechanism that is linked with growth. It refers to the observation that strong brands enjoy significant advantages in retail distribution. Like consumers, distribution partners associate less risk with new product launches when they come under the umbrella of an established brand name. A brand with a loyal customer base is also more attractive to retailers because it promises stable revenues from selling the brand.

As a result, strong brands are more successful in the competition for scarce shelf space. Finally, cooperating with high-equity brands in promotion activities also suggests higher effectiveness for retailers (Aaker 1991, 18). Trade leverage is most likely to turn into revenue growth, which is why we connect this mechanism primarily with the value driver EGR.

Competitive advantage. Strong brands are a major source of competitive advantage that can result in excess return, though this excess return can only be realized over a longer period if the firm is able to maintain the competitive advantage. The resource-based view of the firm posits that a firm reaches a sustainable competitive advantage by virtue of unique resources that are rare, valuable, inimitable, and nonsubstitutable, as well as firm-specific (e.g., Makadok 2001). The brand offers such a resource that protects the company from competition and makes its future cash flows less vulnerable (Aaker 1991; Srivastava et al. 1998). Consumers have greater preferences for strong brands. These preferences impose switching costs that result in greater loyalty (Chaudhuri and Holbrook 2001; Keller 1993). Dominant brands often act as a reference in their category (Coca Cola, Airbnb, etc.) and increase barriers for the entry of new competitors (Kapferer 2011, 24; Spence 1980). This unique position also shields the brand against competitive actions along the marketing mix (Mela et al. 1997). All these effects suggest lower pressure from incumbents and new entrants on the firm's own margin over time. Thus, competitive advantage represents a mechanism that is primarily linked with the sustainability of excess return.

Econometric Model Specification

Modeling Requirements

Our empirical design includes model equations for our focal value drivers ROIC, EGR, and S. In addition, we model CBBE and WACC to account for their endogeneity when using these variables in other equations/metrics. Before we turn to the specifications, we briefly discuss

several requirements our equations must satisfy. Specifically, we need to model expectations and account for heterogeneity, dynamics, diminishing returns, and the influence of control variables.

Expectations. Market valuation of a business is based on investors' expectations about the stream of future cash flows. Thus, our focal value driver variables are *expectations* about ROIC, earnings growth, WACC, and sustainability of excess return. Ideally, we would ask investors for their expectations. For earnings growth, we have such information from a regular survey among analysts available. We derive the expected sustainability of excess return from firm market values. We adopt a modeling approach to measure expectations for ROIC and WACC.

Heterogeneity. We pool data from various firms and markets for model estimation. We thus need to control for idiosyncratic differences in our focal constructs that arise from firm and market differences. We include firm size and market concentration as two observable heterogeneity variables. In addition, we specify the intercept in each equation as firm-specific and assume that these effects follow a random distribution (as in, e.g., Fischer and Himme 2017). By incorporating firm-specific effects, we also effectively control for omitted firm characteristics such as management luck or other market-based assets, which we cannot observe. Because we model the unobserved firm characteristics in a Bayesian fashion as part of the intercept, they do not appear in the error term. We thus circumvent endogeneity issues that may arise when other predictors correlate with unobserved firm characteristics as part of the error term. Finally, we specify the parameters for advertising in the brand equity equation and for CBBE in all other equations to be heterogeneous, which enables us to measure firm differences in their effectiveness of influencing CBBE, the value drivers, and ultimately firm value.

Dynamics. We include the lagged dependent variable to control for carryover effects. This specification corresponds to the established and parsimonious notion of geometrically distributed lags (Hanssens et al. 2001). Another advantage is that the impact of other predictors can be

interpreted more readily as (Granger) causal. It also controls for different initial conditions (Tuli and Bharadwaj 2009). We check for other dynamics such as nonstationary time series and serially correlated error terms but find no evidence for these characteristics.[2]

Diminishing returns. Marketing investments should be subject to diminishing returns, which is also a necessary condition for the existence of an optimal investment level (Hanssens et al. 2001). To account for this factor, we take the log of advertising and other expenditure variables in the brand equity equation, which can be interpreted as our marketing productivity equation.

Control variables. We include various control variables that are assumed to influence our focal constructs, selecting them in line with prior research in finance, accounting, marketing, and strategy. These controls cover strategic variables (e.g., R&D expenditures), financial variables (e.g., financial leverage), and variables of operational efficiency (e.g., operating margin). We also account for economy-wide, period-specific influences by incorporating the growth in U.S. gross domestic product (GDP). Because we focus on the effects of CBBE on the value drivers, we do not discuss the control variables in detail. Web Appendix W4 lists the various control variables, assigns the equation where they appear, and provides references from supporting literature.

[2] The test for common factors (Greene 2012) does not suggest serially correlated errors (one- and two-period lagged; $p > .10$). Using panel unit-root tests (Fisher-type based on augmented Dickey-Fuller tests; Choi 2001), we cannot reject the null hypothesis of nonstationary time series.

Specification of Estimation Equations

CBBE equation. For measuring the impact of advertising investments and other variables on CBBE, we specify the following equation

$$
\begin{aligned}
(3) \qquad CBBE_{it} &= a_{0i} + a_1 CBBE_{it-1} + a_{2i} \ln ADV_{it-1} + a_3 \ln RD_{it-1} + a_4 \ln OE_{it-1} \\
&\quad + a_5 OPM_{it-1} + a_6 EARN_{it-1} + a_7 SIZE_{it-1} + a_8 CONC_{it-1} + u_{1it}, \\
&\text{with } u_{1it} \sim N\left(0, \sigma^2_{u1}\right), \ \mathbf{a}_i = \bar{\mathbf{a}} + \Upsilon_a \mathbf{w}_{ai}, \text{ and } Var\left(\mathbf{a}_i\right) = \Upsilon_a \Upsilon_a',
\end{aligned}
$$

where **a** denotes the vector of parameters to be estimated, *i* is an index for firm, *t* is an index for period, and *u* is an i.i.d. error term. Appendix Table A2 summarizes the symbols and abbreviations we use for predictor variables in Equation 3 and the following equations. Vector $\mathbf{a}_i$ includes the parameters that are assumed to be firm specific, where $\bar{\mathbf{a}}$ is the mean and $\mathbf{w}_{ai}$ is a random vector with mean zero and variance matrix equal to an identity matrix. We allow the firm-specific parameters a_{0i} and a_{2i} to be correlated. Matrix Ψ provides the covariances and variances of the assumed multivariate normal distribution of $\mathbf{a}_i$. We impose the same flexible structure on the parameter vectors in all other equations. We measure carryover by the parameter a_1. The use of lagged values for the predictor variables avoids potential endogeneity issues.

Profitability equation. Let $\widetilde{ROIC}_{it}$ measure the expected return on invested capital. We assume that investors form their expectations on the basis of the following information set:

$$
\begin{aligned}
(4.1) \qquad \widetilde{ROIC}_{it} &= b_{0i} + b_1 ROIC_{t-1} + b_{2i} CBBE_{it-1} + b_3 ADV_{it-1} + b_4 RD_{it-1} \\
&\quad + b_5 OE_{it-1} + b_6 LEV_{it-1} + b_7 GDPGR_{t-1} + b_8 SIZE_{it-1} + b_9 CONC_{it-1} + u_{2it}, \\
&\text{with } u_{2it} \sim N\left(0, \sigma^2_{u2}\right), \ \mathbf{b}_i = \bar{\mathbf{b}} + \Upsilon_b \mathbf{w}_{bi}, \text{ and } Var\left(\mathbf{b}_i\right) = \Upsilon_b \Upsilon_b',
\end{aligned}
$$

where **b** denotes the parameter vector to be estimated and all other terms are as defined previously. Note that investors can only use past information to build expectations about future

ROIC. In period *t*, expected $\widetilde{ROIC}_{it}$ then explains realized $ROIC_{it}$ up to an error, which we denote with φ and assume to be i.i.d. normal distributed. Thus,

$$ROIC_{it} = \widetilde{ROIC}_{it} + \varphi_{it}, \text{ with } Cov\left(u_{2it}, \varphi_{it}\right) = 0. \tag{4.2}$$

Inserting Equation 4.1 into 4.2 then produces an estimation equation that includes only observable quantities, which we take to the data.

Earnings-growth equation. We specify expected earnings growth as follows:

$$\begin{aligned}\widetilde{EGR}_{it} = {} & c_{0i} + c_1 \widetilde{EGR}_{t-1} + c_{2i} CBBE_{it-1} + c_3 ADV_{it-1} + c_4 RD_{it-1} + c_5 OE_{it-1} \\ & + c_6 EARN_{it-1} + c_7 D\_NEARN_{it-1} + c_8 LEV_{it-1} + c_9 ROIC_{it-1} \\ & + c_{10} IR_{it-1} + c_{11} GDPGR_{t-1} + c_{12} SIZE_{it-1} + c_{13} CONC_{it-1} + u_{3it}, \end{aligned} \tag{5}$$

$$\text{with } u_{3it} \sim N\left(0, \sigma^2_{i,u3}\right), \ \mathbf{c}_i = \bar{\mathbf{c}} + \Upsilon_c \mathbf{w}_{ci}, \text{ and } Var\left(\mathbf{c}_i\right) = \Upsilon_c \Upsilon_c',$$

where **c** denotes the parameter vector to be estimated and all other terms are as defined previously. Earnings growth expectations are available to us from a regular survey among analysts. Because the mean is subject to sampling error that depends on the number of analysts, it introduces heteroskedasticity into the error variance. We account for this by using the number of analysts as a weight when estimating the model.

Cost-of-capital equation. Building on previous research in the marketing–finance interface (e.g., Fischer and Himme 2017; Rego et al. 2009), we specify the following equation to predict expected cost of capital:

$$\begin{aligned}\widetilde{WACC}_{it} = {} & d_{0i} + d_1 WACC_{t-1} + d_{2i} CBBE_{it-1} + d_3 OPM_{it-1} + d_4 LEV_{it-1} + d_5 INT_{it-1} + d_6 DIV_{it-1} \\ & + d_7 A\_GROWTH_{it-1} + d_8 LIQ_{it-1} + d_9 SIZE_{it-1} + d_{10} CONC_{it-1} + u_{4it}, \end{aligned} \tag{6.1}$$

$$\text{with } u_{4it} \sim N\left(0, \sigma^2_{u4}\right), \ \mathbf{d}_i = \bar{\mathbf{d}} + \Upsilon_d \mathbf{w}_{di}, \text{ and } Var\left(\mathbf{d}_i\right) = \Upsilon_d \Upsilon_d',$$

where **d** denotes the parameter vector to be estimated and all other terms are as defined previously. Expected $\widetilde{WACC}_{it}$ explains realized $WACC_{it}$ in t up to an error, which we denote with η and assume to be i.i.d. normal distributed. Thus,

$$WACC_{it} = \widetilde{WACC}_{it} + \eta_{it}, \text{ with } Cov\left(u_{4it}, \eta_{it}\right) = 0 . \tag{6.2}$$

Inserting Equation 6.1 into 6.2 then produces our estimation equation.

Sustainability-of-excess-return equation. We now turn to our last estimation equation to explain expected sustainability of excess returns. Recall that this variable measures the length of the period during which the firm is expected to earn rents above its cost of capital. As a result, $\tilde{S}$ is a duration variable that is nonnegative by definition. This requires an appropriate distributional assumption and estimation approach, such as a hazard model (Greene 2012). The Weibull distribution is a very flexible distribution that allows for both monotonic and nonmonotonic shapes of the marginal distribution and encompasses the exponential distribution as a special case (Greene 2012). We adopt this distribution and test whether this assumption is supported by our data (see the Web Appendix, Figure W6).

Note that because the duration of superior rents is a unique event that follows a random distribution, it is conceptually not apt to include the lagged dependent variable into the model. We specify our last equation for expected sustainability of excess return as follows:

$$\begin{aligned} &f\left(\tilde{S}_{it}\right) = \left(\lambda_{it} p\right)\left(\lambda_{it}\tilde{S}\right)^{p-1} e^{-\left(\lambda_{it}\tilde{S}\right)^{p}}, \text{ for } \tilde{S}_{it} > 0,\ \lambda > 0,\ p > 0, \\ &\text{with } \lambda_{it} = \exp\left[-\left(\begin{array}{l} g_{0i} + g_{1i} CBBE_{it-1} + g_2 ADV_{it-1} + g_3 RD_{it-1} + g_4 OE_{it-1} \\ + g_5 A\_GROWTH_{it-1} + g_6 GDPGR_{t-1} + g_7 SIZE_{it-1} + g_8 CONC_{it-1} \end{array}\right)\right], \\ &\mathbf{g}_i = \bar{\mathbf{g}} + \Upsilon_g \mathbf{w}_{gi}, \text{ and } Var\left(\mathbf{g_i}\right) = \Upsilon_g \Upsilon_g', \end{aligned} \tag{7}$$

where $f\left(\tilde{S}\right)$ describes the density of expected sustainability $\tilde{S}$, λ is the location parameter, and *p* is the scale parameter that characterizes the moments of the distribution and are to be estimated, **g** denotes the parameter vector to be estimated, and all other terms are as defined previously. Again, we consider one-period-lagged values for all predictor variables to account for the fact that investors use prior information levels when forming their expectations. We adopt a hazard function approach to estimate the parameters in Equation 7 (Greene 2012).

Data and Estimation

Data Sources

We collected data on an annual basis from various databases, including Harris Poll EquiTrend, COMPUSTAT, Bloomberg's, the Center for Research in Security Prices (CRSP), and I/B/E/S. Our data collection covers the period 2005–2013. The sample includes 613 companies from major industry sectors, such as telecommunication services, consumer packaged goods, and so on. The total number of observations exceeds 5,000. However, because we do not necessarily observe all variables for each firm and period, the effective sample size is considerably smaller and varies by equation. Our panel is considered unbalanced because a very small portion of firms enters or leaves the panel due to firm birth, death, or merger and acquisition events.

We must acknowledge that the EquiTrend database is biased toward larger brands that are owned by larger firms, and this is also a feature of our estimation sample because larger firms tend to offer more complete financial data. However, the samples do not differ in terms of financial variables such as liquidity, leverage, and operating margin (see Web Appendix W4 and Table W4.1). Strictly speaking, our results do not generalize to small firms with weak brands.

Measures. We use the established EquiTrend data to measure CBBE (e.g., Bharadwaj et al. 2011). The measure is a latent variable scaled to a 0–100 index and estimated using four individual-level consumer variables: familiarity, perceived quality, purchase consideration, and distinctiveness (see Web Appendix W3 for a detailed description). Following prior practice (Rego et al. 2009), we aggregate mean ratings of different brands for multibrand firms, though the majority in our sample are mono-brand firms (80%). By "mono-brand firm," we mean that the firm owns one dominating brand that accounts for all or the lion's share of the business.

We use COMPUSTAT data to construct our ROIC variable (see Appendix Table A3 for details). Our expected earnings growth variable represents the five-year consensus forecast of analysts provided by the I/B/E/S database. Investors broadly rely on these analyst forecasts (Kothari 2001). Bloomberg provides all information we need to calculate WACC. We follow the standard approach (e.g., Rego et al. 2009) and estimate firm-specific beta on a yearly basis by using daily stock returns for each firm. Together with information on credit spreads, the yield of a risk-free bond, and the capital structure, we obtain WACC for each year and firm.

Sustainability of excess return is a latent construct and not observable. From our DCF model, however, we know that it is an inherent part of the valuation process. Assuming efficient capital markets, it is implicitly incorporated in a firm's current market value. Consequently, we solve Equation 2 for $\tilde{S}$ (for details, see Web Appendix W1):

$$(8)\quad \tilde{S}_{it} = \begin{cases} Max\left[\left(FV_{it} - \dfrac{EBIT_{it}\left(1-\tau\right)}{\widetilde{WACC}_{it}}\right)\left(\dfrac{\widetilde{ROIC}_{it}\times\widetilde{WACC}_{it}\times\left(1+\widetilde{WACC}_{it}\right)}{\widetilde{EGR}_{it}\times EBIT_{it}\left(1-\tau\right)\times\left(\widetilde{ROIC}_{it}-\widetilde{WACC}_{it}\right)}\right), 0\right] \\ \text{for } \widetilde{ROIC}_{it} - \widetilde{WACC}_{it} > 0 \\ 0 \text{ else.} \end{cases},$$

where firm value FV_{it} is the sum of the average market value of equity over trading days of a year and the book value of debt (COMPUSTAT's DATA 9) as of December 31 of the respective year. Equations 4 and 6 provide values for $\widetilde{ROIC}$ and $\widetilde{WACC}$. $\widetilde{EGR}$ is based on the five-year consensus forecasts by analysts, and CRSP and COMPUSTAT deliver the remaining information.

Control variables. We obtained financial data such as leverage, dividend payouts, size, and so on, as well as data on marketing and R&D expenditures, from COMPUSTAT. We compute the C4-concentration index by aggregating the market shares of the four largest firms at the two-digit North American Industry Classification System (NAICS) level. Appendix Table A3 provides further details on the definition and data sources of variables used in our analysis. Note that we do not model stock returns but rather absolute firm value as a result of a corporate valuation model. For that reason, we are not concerned with different release periods as all information is properly aligned at year-end.

Descriptive Statistics and Model-Free Insights

Table 3 presents the descriptive statistics for our data. Mean CBBE is 56.29. Mean return on invested capital corresponds to .22. Analysts forecast the five-year earnings growth to be .13, on average. The mean cost of capital amounts to .09 during the period 2005–2013. Investors expect that the average firm in our sample has a sustainability period of 14 years during which the firm may enjoy profitable growth (ROIC > WACC). This finding is in line with Rappaport and Mauboussin's (2001) conclusion that a period of at least 10 years is required for most listed companies to justify their market valuation. Note we estimate a period of 0 years for 74 of 491 cases (15%), which reduces the median to 8.4 years. Appendix Table A1 shows the correlation matrix for our model variables. We observe no excessive correlation suggesting collinearity

issues, which is also supported by variance inflation factors (VIF). The largest VIF amounts to 3.79, far below the threshold of 10 (Greene 2012).

We conduct simple mean-difference tests to generate first insights from a model-free analysis. Table 4 summarizes the results. Here, we build two groups that include observations with low CBBE versus high CBBE. We then compare the group means for our key performance variables. Panel A shows the results if we split the sample according to the median CBBE. In Panel B, we compare the means between the lowest and highest quartiles in terms of CBBE.

Results of the difference test provide first evidence in favor of our expected brand-leverage effects. We observe significant differences in terms of firm value, ROIC, earnings growth forecasts, and the sustainability of excess return. Firms with stronger brands enjoy higher firm values, profits, and earnings growth, as well as a longer period of excess return. Unsurprisingly, these differences are more pronounced when we compare the end quartiles of the distribution of CBBE. However, we find no significant differences in the cost of capital.

Estimation

Estimation approach. We use a two-step simulated maximum likelihood approach with instrumental variables (IVs) for estimation (e.g., Fischer and Himme 2017). Under the usual regularity conditions, this estimator is consistent and asymptotically normal distributed. We use instrumental variables in Equations 4–7 to reduce the danger of biased estimates that may result from a potential simultaneity between CBEE and the drivers of firm value. It is possible that firms anticipate investors' expectations for ROIC, for example, which in turn influences their current investments in CBBE to meet these expectations.

Identification. The large variation of our focal variables across and within firms provides the source for identifying effects. However, we need to account for potential simultaneity issues with respect to CBBE and employ IV estimation, which requires that we have sufficient and

appropriate instruments available to identify CBBE. Except for CBBE and the lagged dependent variable, we treat all other predictors in an equation as predetermined variables, which we test for, and thus as potential instruments. To properly identify CBBE, we must use information outside the equation, which Equation 3 provides. Here, we assume that CBBE in year *t* results from prior investments in advertising, R&D, and other activities. Brand investments are also likely to be higher when previous year's earnings and operating margin are higher. Because CBBE enters the value driver Equations 4–7 with a lag of one year, we use two-years-lagged values of the predictors of Equation 3 (excluding lagged CBBE) as instruments (for details, see the Web Appendix, Table W5). Web Appendix W5 describes results of common tests to check for the validity and strength of our instruments, which provide strong evidence thereof.

Finally, we note that estimation of the carryover coefficient associated with the lagged dependent variables in Equations 3 to 7 may cause identification problems (Arellano 2003). The lagged dependent does not only accommodate dynamic effects but also tends to pick up firm heterogeneity. Following Fischer and Himme (2017), we instrument the lagged values with their deviations from the firm-specific mean to isolate the true carryover effect. The well-known endogeneity issue associated with the lagged dependent variable in a (differenced) fixed effects model does not arise here. We do not take first differences and do not specify firm-specific effects as part of the error term. Instead of that, we model a random intercept.

Empirical Results

Table 5 summarizes the estimations results for Equations 3–6 on CBBE, expected ROIC, expected earnings growth, and expected WACC. Table 6 shows the results for the sustainability of excess return Equation 7, which we estimate using a hazard model approach. Pseudo-R^2 ranges from .65 (WACC equation) to .91 (CBBE equation). We consider an $R^2 > .50$ to be meaningful for explaining variance in a large panel data set. In addition, we check whether our corporate valuation model (model 2) is a good approximation of observed market values of firms. For this purpose, we insert predicted values from Equations 4–7 into Equation 2 to predict firm values. The correlation with observed market values amounts to .954[3]; in other words, our model is able to explain more than 90% of the variance of observed market values.

All equations reveal strong heterogeneity of firms, as reflected by the significant standard deviation of the intercept term, which suggests indeed important firm-specific factors such as management quality or other market-based assets. In addition, we find moderate to strong carryover effects across Equations 3–6. All significant coefficients of the control variables show the expected direction and are in line with prior empirical studies. For the sake of brevity, we do not discuss these results in detail but focus on the effects associated with CBBE.

Parameter Estimates Related to CBBE

We observe that advertising expenditures drive CBEE ($\bar{a}_2 = .413$; $p < .01$), which is consistent with previous findings (e.g., Stahl et al. 2012), and that CBEE itself has the expected positive influence on ROIC ($\bar{b}_2 = .001$; $p < .05$). Our estimation results also show that CBBE drives earnings growth ($\bar{c}_2 = .003$; $p < .01$). The average impact of CBBE on WACC is positive

[3] Note that values obtained with Equation 2 are subject to measurement error, which dilutes the correlation estimate. By using the estimations errors of Equations 4–7 and the delta method, we approximate the measurement error for Equation 2. The corrected correlation increases to .99 but also involves a wider confidence interval.

but not significant ($\bar{d}_2 = 1.109$; $p > .10$). Finally, we find strong evidence for the role of CBBE in establishing a competitive advantage that ensures a longer period of excess return for the firm ($\bar{g}_1 = .011$; $p < .01$; see Table 6). The estimated standard deviations of the CBBE parameters are also significant ($p < .01$), which suggests substantial variation in the brand-leverage effects across firms.

Elasticity Estimates for Value Drivers and Firm Value

An important objective of our study is to understand and compare the relative importance of CBBE in influencing value drivers and how value drivers influence firm value, factors that are not easily intuited. Because parameter estimates are not directly comparable, we transform them into elasticities. Specifically, we use the conditional estimates of firm-specific parameters (which correspond to the posterior mean in a Bayesian setting) together with firm-specific means for CBBE, value drivers, and market value of the firm to compute these elasticities. Web Appendix W2 provides details on how we calculate each of the elasticities. We report total effects and account for carryover in the calculation of elasticities for ROIC and EGR with respect to CBBE. Specifically, we divide the estimated CBBE parameter by (1 – carryover).

Table 7 shows elasticity estimates across 13 industries, which are based on the Global Industry Classification Standard. Because the number of firms included in the industry group is usually below 30, we do not report means and associated significance statistics, which are biased in small samples. We report the median, which is less influenced by outliers than the mean and therefore draws a more realistic picture of the situation in the industry. The last row shows overall values across industries. Here, we report the mean with its *p*-level and the standard deviation.

CBBE effects on value drivers. Table 7 demonstrates that CBBE has, on average, a substantial influence on all three value drivers. The largest mean elasticities are associated with earnings growth (=1.78, $p < .01$) and sustainability of excess return (=1.22, $p < .01$). The effect is smaller for profitability (=.172, $p < .01$).[4] Note the elasticity depends on not only firm-specific parameters for CBBE but also the level of CBBE and the level of the value driver.

Considering results by industry, we observe a strong variation for each of the value-driver elasticities. The median leverage effect for CBBE on profitability is three to four times higher for health care and telecommunication services (.342 and .339) than for consumer services and media (.076 and .116). The differences are even larger for the leverage effect on earnings growth. The industry median ranges from –.211 for automobiles and components to 9.00 for telecommunication services. Note these elasticities cannot be interpreted as sales elasticities because the dependent variable, earnings (growth), is a profit measure. A negative elasticity occurs if a firm is overinvested in an intermediate performance variable such as CBBE (Edeling and Fischer 2016). The large variation in EGR elasticities across industries is also reflected in its standard deviation of 6.54.

The last two columns of Table 7 present results on firm-value elasticity with respect to ROIC, EGR, and S. Note that, by construction, the elasticity is the same with respect to earnings growth and sustainability of excess return. The overall means across industries are practically the same with .390 for ROIC and .372 for EGR and S. However, we find again a large variation for all elasticity measures across industries. The median impact of ROIC on firm value ranges from .079 for health care to .575 for media. The median impact with respect to EGR and S may be as low as .020 for telecom services and as high as .586 for transportation. Firm-value

[4] For comparison, the elasticity of ROIC for R&D expenditures amounts to –.016 and for EGR to .324. It is not significant for S.

elasticities with respect to EGR and S are higher compared to ROIC in most industries. The reverse, however, is true for media, information technology, and industrial, energy, and utilities. We do not observe much difference in transportation. Interestingly, we find ROIC to be the strongest driver of firm value in the media industry, with an above-average elasticity of .575 paired with a below-average leverage effect of CBBE on ROIC of .116. This finding suggests that brand exploitation strategies of firms in this industry are not well aligned with the relevance of this value driver for value creation. We delve into this issue in more detail in the "Discussion" section.

Robustness Checks

We performed several additional analyses and robustness checks. Specifically, we tested how sensitive our results and conclusions are with respect to the distributional assumptions of $\tilde{S}$, the omission of other market-based assets such as customer strength, the specification of dynamics in the models, the use of alternative estimation approaches, the stability of the CBBE parameter over time, and the composition of the sample. For the sake of brevity, we do not report on these robustness checks here but refer to the Web Appendix for full details (section W6 with Figure W6 and Tables W6.1–W6.8). We obtain consistency with and support for our focal model results. Thus, we conclude that our results are not driven by model assumptions, omission of important variables, model specifications, the selection of estimation approaches, or the composition of the sample.

Using the Results to Analyze the Strategic Situation

Firm value is strongly driven by investors' expectations about the rate of return on new invested capital, the future growth in earnings, and the length of the period during which a firm can earn excess return. We focus herein on the role of CBBE in driving firm value via these three

value drivers. Table 7 provides answers on the relative impact of CBBE on value drivers and on the importance of the value drivers for firm value. We find substantial across-firm variation of both CBBE leverage effects and relative importance of value drivers for value creation. These findings suggest that a detailed analysis of each firm's situation is necessary to determine the most effective brand exploitation strategy.

Evaluating the Brand Exploitation Strategy

In view of our findings, brand managers and senior executives are well advised to start with a thorough situation analysis before they decide about investments in their brand exploitation strategy. Value-based brand exploitation means effectively leveraging a brand's potential for improving profitability and/or growth as the two major sources of firm value creation. While theoretically possible, most firms probably will find it difficult to achieve higher profitability and growth at the same time as it may overstretch the brand potential and exceed available resources. Therefore, management needs a strategic focus in its brand exploitation strategy. To achieve this focus, a simple evaluation matrix can help (see Figure 3).

The matrix combines two dimensions for analyzing the brand's current value creation options with respect to the three value drivers. The X-axis identifies the importance of value drivers for value creation relative to one another. We measure this importance by the firm-value elasticity with respect to the value driver. The Y-axis shows the extent to which the brand leverages its customer-based equity to enhance the specific value driver. The leverage effect is measured by the value-driver elasticity with respect to CBBE and compared with its industry average.[5]

[5] We acknowledge that assignments to high and low categories might be too strict in cases in which leverage effects are close to the industry average or value driver effects on firm value are about the same size. One option would be to introduce a medium category. The resulting 3 × 3 matrix, however, considerably increases the complexity of decision making.

All else being equal, two factors drive these elasticities up or down. First, both types of elasticity metrics decrease in their respective value driver, which reflects the saturation effect. For example, the higher the achieved ROIC level, the lower its potential to drive firm value and to be driven itself by higher levels of CBBE. Second, marginal effects drive both elasticity types. A value driver's marginal effect on firm value depends on the level of other value drivers and financial metrics, such as EBIT and the tax rate. The estimated coefficient associated with CBBE in Equations 4–7 is the key determinant of the marginal effect of CBBE on the focal value driver. These marginal effects vary substantially across firms and reflect firm-specific capabilities of exploiting its brand for enhancing the value driver. Because capabilities are likely to be limited by industry conditions, we put the firm-specific value-driver elasticity with respect to CBBE in relation to the industry average.

It is now straightforward to draw conclusions from positioning the value drivers in the matrix. The analysis may lead to three possible outcomes. First, assume a value driver has low (high) importance for growing firm value and the associated CBBE leverage effect is also low (high). Then, the brand potential is appropriately leveraged. Second, the leverage effect of CBBE is high but the value driver's relative importance for value creation is low. In this case, the firm is wasting its resources. Third, we may have a value driver that is highly important for growing firm value but its brand leverage effect is below average. Here, the firm has failed to exploit the leverage potential of its brand to its full extent. The first outcome suggests the firm is on track with its brand exploitation strategy. Management should focus its resources on becoming more efficient in what the firm is doing. The major conclusion from the second and third outcomes, in contrast, is to refocus its current brand exploitation strategy and reallocate resources if industry and firm-specific conditions allow for doing so. Limitations may result from competitive

strategy, path dependencies, a firm's own resources and capabilities, and so on, which we do not consider here.

CVS Health and Kroger Revisited

We started this article with an example of two U.S. retailers, the pharmacy CVS and the grocery retailer Kroger. In our observation period, both companies were of similar size, and their brands showed a similar CBBE rating. However, the difference in market capitalization and estimated financial brand values were considerable. Using the strategic analysis tool (Figure 3) together with the estimated brand-leverage and value-driver effects, we are now in a position to evaluate the brand exploitation strategy of the two firms. For both firms, EGR and S are more powerful for value creation than ROIC. Estimated elasticities are .377 (ROIC) versus .542 (EGR and S) for CVS and .076 (ROIC) versus .283 (EGR and S) for Kroger. The estimated value-driver elasticities with respect to CBBE are as follows: .156 (ROIC), 4.99 (EGR), and 1.91 (S) for CVS and .338 (ROIC), .555 (EGR), and 2.02 (S) for Kroger. Table 7 shows the values for the average brand-leverage effects in the food & staples retailing industry.

Figure 4 shows the results of our ex post brand exploitation strategy analysis, which confirms that the CVS management followed a well-aligned brand exploitation strategy. A key focus of its strategy was to redesign stores and extend the range of products for fitness, nutrition, and beauty that were most relevant to women, their largest customer group (Keller 2008, 320f). Kroger, in contrast, adequately leveraged its brand potential only with respect to the sustainability of excess return. The brand-leverage effect of CBBE on ROIC exceeds the industry average but significantly underperforms with respect to EGR. As a result, resources appear to have been wasted on leveraging the brand to drive profit margins, whereas the potential to drive growth remained untapped. We caution that our conclusions from the ex post analysis do not draw a complete picture of the situation. Other explanations are possible for the market cap differences,

such as differences in the business model or financial health of the firms. Our story, however, offers at least a complementary explanation that is based on strong empirical insights.

Implications for the Theory and Practice of Brand Management

Extensions to Brand Literature

Our study results have important implications for brand management theory and practice, which we discuss subsequently. Prior research has produced ample evidence on the relevance of brand investments for value creation (see Table 1). We extend this literature by modeling the mechanisms of value generation derived from the standard DCF model of corporate valuation. Our analysis is important because it opens the black box and sheds light on how a brand can actually leverage its potential for value creation. Most brand experts in science and practice probably agree that brands improve each of the value drivers to a greater or lesser extent. However, the relative magnitude of these effects is not well understood.

Our study is also an important step toward a better understanding of how brands appropriate value in the marketplace. Compared with the rich literature on building brands (e.g., Keller and Lehmann 2006), research on how to leverage brands is limited. A notable exception is Datta et al. (2017), who investigate the translation of CBBE dimensions into product market outcome measured by the revenue premium approach (Ailawadi et al. 2003). The lack of further studies, however, is surprising in view of Mizik and Jacobson's (2003) finding that the stock market rewards the strategic emphasis on value appropriation more than it rewards value creation. We demonstrate how firms may appropriate value in the financial market from one of their most valuable assets. Our study thus complements Datta et al. (2017) by focusing on value appropriation in the financial market.

Conceptually, we also advance the brand management literature. We argue that it is not sufficient to only focus on brand building activities to drive CBBE. It is at least equally important to develop a value-based brand exploitation strategy. As a first step, we need to understand which value driver is most relevant for the firm. Our strategic analysis tool (Figure 3) may help setting the right focus for brand exploitation. In the next step, management must execute the brand exploitation strategy. Our previous theory discussion shows there are different mechanisms by which brands translate their equity into value via the three value drivers (see Table 2). Understanding these mechanisms can help a firm derive a plan for strategically using the marketing mix.

Marketing Mix Impact on Value Drivers

Managers may find Table 8 useful as a guide in their decision making. If the objective is to improve profitability, it is most likely to be achieved by establishing price premiums in the market and becoming more efficient and cost-effective in the execution of marketing programs, which warrants more emphasis on price and contracting as well as communication and advertising activities. In contrast, if the exploitation focus is on (earnings) growth, the brand potential should rather be used to extend product lines, increase penetration in existing markets, or form powerful brand alliances, which suggests an emphasis on product and innovation activities and on distribution and retail strategy. Finally, we believe that innovative new products and the powerful communication of a unique brand position are especially promising in building the competitive advantage to maintain excess return over a longer period. Thus, resources should be allocated to product and communications activities if the sustainability of excess return is the focus of the value-based brand exploitation strategy. We caution that our discussion does not suggest a mutually exclusive use of marketing mix elements for enhancing a specific value driver. For example, new products may well contribute to higher profitability. The purpose of

Table 8 is to provide guidance about mix elements that are, on average, deemed to be most powerful in influencing the focal value driver.

Effective Brand Exploitation Strategies and Programs

Managers may also ask which brand exploitation strategies (e.g., brand positioning, global branding, co-branding, ingredient branding, brand extension, licensing, internal branding, cause-related marketing, employer branding; see, e.g., Aaker 1991; Keller 2008) in general can influence a given value driver most effectively. While each of these strategic options include elements of both brand building and brand exploitation, one element is likely to dominate the other, depending on the strategy. We believe that brand positioning, global branding, ingredient branding, internal branding, and cause-related marketing first and foremost require investments to build the brand—that is, establish a strong customer-based brand equity as reflected in Equitrend's brand rating measure. In contrast, co-branding, brand extension, licensing, and employer branding offer ways to leverage a strong CBBE to appropriate value. What are examples of effective brand exploitations strategies and programs? In the following subsections, we discuss a few examples along the value drivers, although this discussion should not be considered exhaustive.

Focus on profitability (ROIC). A focus on ROIC implies that the firm tries to leverage the strength of its brand for increasing prices, lowering costs of service, or utilizing the potential for price discrimination. Raising prices is always a dangerous venture that can easily backfire because customers may perceive it as unfair. It must be accompanied by a meaningful reason. A sustainable strategy to exploit a brand's potential for price increases is to systematically plan and connect future product generations with price increases. Car manufacturers such as Mercedes-Benz and BMW have been following this strategy with great success. Another example is Apple.

Its iPhone 3GS with 32 GB memory was introduced at $299 in 2009. The price rose step by step with each new generation. Apple sold its iPhone 7 32 GB for $649 in 2016, an increase of 117% in seven years, and the recently launched iPhone X with 64 GB starts at $999. Of course, new features have improved the iPhone over time, but prices for memory and central processing units have declined. The combination of a strong brand with a strategic plan for successive product generations broadens the scope for price increases that customers will find acceptable in a competitive market.

The value-oriented analysis of customer data from a loyalty program may also offer ways to improve ROIC using the strength of the brand. With the rise of low-cost carriers and state-subsidized new rivals from the Middle East more than a decade ago, established premium airlines such as Lufthansa came under enormous pressure. Staying profitable became the priority challenge to satisfy investors' expectations. Competing on prices was not an option given Lufthansa's weak cost position, but exploiting the strength of its brand was. Management started a program to leverage the considerable amount of available data to better understand how its gold status customers, called senators, prefer to interact with the brand. While some customers were proud to be a senator and preferred to be recognized as such in public, others preferred less public presence but valued the personal address by representatives of the company. Using these findings, Lufthansa developed customer-specific approaches to interact with the brand and defended its price premium in this important customer group against the new competitors.

Focus on earnings growth (EGR). The brand may also be a powerful asset to leverage for growth. Such growth could come from extending the brand into new categories and markets. There are plenty of examples of successful brand extensions (e.g., Colgate, Virgin), although the risks of this strategy should not be overlooked (Keller 2008, 502–511). Licensing is another

option that involves less risk of losing money, as there are no manufacturing or marketing costs involved: Revenues generated by the licensor translate directly to profits.

The strength of a (corporate) brand's reputation can also help attract partners to form brand alliances. When Boehringer Ingelheim (BI), a medium-sized family-owned research-based pharmaceutical company, was about to launch its innovative chronic obstructive pulmonary disease drug Spiriva in 2002, it had closed a deal with Pfizer to co-market the new drug. Given an already high profit margin, the key challenge was to unlock the growth potential. BI's excellent corporate image and reputation among pulmonologists helped attract the big partner and opened up a growth potential BI would not have been able to exploit alone. Pfizer significantly broadened market access and brought in its specific expertise to develop an indication (Van den Bergh and Gerlof 2012). By 2011, Spiriva achieved a blockbuster sales level of €3.15 billion.

Focus on sustainability of excess return (S). Maintaining a competitive advantage as reflected in excess return over the long run is probably the toughest challenge for marketers. A prerequisite is a brand-loyal customer base that is willing to pay premiums despite the rise of lower-priced competitive alternatives that inevitably emerge over time. Cultivating and leveraging a strong brand community that reflects the invisible bond among brand users is one option. The success of firms such as Harley Davidson is based on such brand exploitation strategies. Another option is to create exclusivity by limiting supply and selecting customers. A brand that has implemented such strategy par excellence is the watchmaker Patek Philippe. Over the years, Patek Philippe has been able to realize a significant price markup over the already high-priced products of its competitors. A key ingredient to this competitive advantage is the firm's limited supply and control over access to its watches. For its most complex and exclusive watch, the 2001-launched Sky Moon Tourbillon, customers need to submit an application to the CEO including personal information and a motivation letter. Patek Philippe produced two

watches a year and set the launch price at €897,130 (Feth 2012). This active supply limitation and customer selection contributed to maintain the high level of brand passion that spills over across its entire product portfolio.

Communication with the Investor Community

Finally, our study offers new tools that support investors and analysts in their work as well as firms in managing their relations with the investor community. For example, CEOs and chief financial officers can improve their communications with investors. The key is to understand the investors' mental model of how they think about ROIC, earnings growth, and the sustainability of excess return and determine whether they see profitability or growth as a top priority for management. The firm's communications can demonstrate how exactly brand investments will affect future firm value and growth expectations.

Our framework can help financial constituencies think differently about their investment decisions. Investors can gain a better understanding of how marketing affects their key metrics. Because our model conceptualizes and quantifies the routes of future cash flow generation, financial analysts may use the empirical estimates as a reference point in their valuation models. Our elasticity estimates are particularly actionable for them.

Limitations and Future Research

Our study has limitations that may stimulate further research. First, our study focuses on one important market-based asset, the brand. Although we effectively control for other assets and test the robustness of our results, it would be interesting to study the role of customer satisfaction, service quality, and so on in future work. Second, we use the Harris EquiTrend metric to measure CBBE, which has been done in prior work (e.g., Bharadwaj et al. 2011). Strictly speaking, our results hold true only for this measure. There are other CBBE metrics (e.g., Luo et al. 2013 Stahl

et al. 2012), and it would be worthwhile to replicate our models with these metrics. Finally, we acknowledge that our sample suffers from the same representativeness limitation as previous research. CBBE ratings are predominantly available for larger and more successful brands/firms. The bias toward larger firms with on average stronger CBBE ratings limits the variation in our focal CBBE variable. Although there is no reason to believe that it affects the consistency of estimates, this bias could reduce the statistical power of our tests. Therefore, our findings are rather conservative. It would be fruitful to obtain effect estimates in a broader sample of firms.

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TABLE 1
Empirical Research on the Impact of CBBE on Value Drivers

Reference	Data	CBBE Metric	Model	Value Drivers				
				Profit-ability	Risk	Earnings Growth	Sustainability of Excess Return	Firm / Industry Level
Aaker and Jacobson (2001)	Financial data (1988–1994)	Index (proprietary)	Linear regression	✓				
Bharadwaj et al. (2011)	Financial data (2000–2005)	Dimensions (EquiTrend)	Linear regression		✓			
Fischer and Himme (2017)	Financial data (2005–2012)	Index (EquiTrend)	Dynamic, simultaneous equation system		✓			
Luo et al. (2013)	Financial data (2008–2011)	Index (YouGov)	VAR model		✓			
Mizik (2014)	Financial data (2000–2010)	Index (BAV)	Linear regression	✓				✓
Rego et al. (2009)	Financial data (2000–2006)	Index (EquiTrend)	Linear regression, ordered logit model		✓			
Stahl et al. (2012)	Company and customer data (1998–2008)	Dimensions (BAV)	(Aggregate) choice model, linear regression	✓				
The current study	Financial data (2005–2013)	Index (EquiTrend)	Linear regression, hazard model	✓	✓	✓	✓	✓

Notes: CBBE = customer-based brand equity; BAV = Brand Asset Valuator
Profitability: ROA (return on assets), ROE (return on equity), ROIC (Return on invested capital)
Risk: systematic risk, idiosyncratic risk, credit spread, WACC (weighted average cost of capital)

TABLE 2
Brand Value Creation Mechanisms and Their Main Relation(s) to Value Drivers

Mechanism of value creation (Aaker 1991)	Most effective for driving …		
	Profitability (ROIC)	**Earnings growth (EGR)**	**Sustainability of excess return (S)**
Prices and margins	✓		
Efficiency and effectiveness of marketing programs	✓		
Brand loyalty	✓		✓
Brand extensions		✓	
Trade leverage		✓	
Competitive advantage			✓

Note: The table emphasizes the key relation between a value creation mechanism and a value driver. However, it would not be appropriate to conclude that a mechanism is only relevant for its main value driver(s). For example, brand-loyal customers may well contribute to earnings growth by more intensive product use or trying new products.

TABLE 3
Univariate statistics (2005-2013)

	N	Mean	Median	Std. Dev.
Firm value ($m)	3,588	32,074.90	10,419.69	61,456.74
CBBE (0–100)	3,289	56.29	56.68	7.87
Profitability (ROIC)	4,478	.22	.20	.47
Earnings growth (EGR)	3,292	.13	.11	.19
Cost of capital (WACC)	3,364	.09	.09	.03
Sustainability of excess returns (years) [1)]	491	14.04	8.39	18.48
EBIT (1 – τ) ($m)	4,514	2,883.66	826.50	6,730.35
Advertising expenditures ($m)	2,593	559.87	162.60	1,104.35
Other expenditures ($m)	4,472	2,658.16	482.86	5,870.54
R&D expenditures ($m)	5,517	435.57	.00	1,394.34
Firm size (ln total assets in $m)	4,522	9.25	9.15	2.10
Financial leverage (ratio)	4,284	2.71	1.11	14.25
Industry concentration (ratio)	5,517	.34	.33	.14
Investment rate (ratio)	4,338	.75	.91	12.57
U.S. GDP growth (ratio)	5,517	.04	.04	.02
Operating margin (ratio)	4,457	.03	.14	4.55
Pretax interest coverage (ratio)	4,133	2.87	.07	93.06
Dividend payout (ratio)	3,882	.51	.14	6.11
Asset growth (ratio)	4,399	.06	.04	.24
Liquidity (ratio)	3,894	1.72	1.44	1.36

[1)] We calculated sustainability according to Equation 8 using predicted values for ROIC and WACC from Equations 4 and 6. The sample size of these regressions explains the low number of observations for sustainability. For the univariate statistics, we exclude outliers that are more than six standard deviations away from the mean (32 cases). 74 of 491 cases show an expected duration of 0 years.

TABLE 4
Mean Difference Tests

	Expected difference	Observations with low CBBE		Observations with high CBBE		t-statistic for difference
		N	Mean	N	Mean	
Panel A: Group split based on median CBBE in total sample						
		CBBE = 50.14		CBBE = 62.44		
Firm value	High > Low	1,128	37,058	1,186	47,182	3.397 ***
Profitability (ROIC)	High > Low	1,403	.22	1,393	.27	3.425 ***
Earnings growth (EGR)	High > Low	1,031	.12	1,152	.13	.754
Cost of capital (WACC)	?	954	.09	1,080	.09	1.363
Sustainability of excess return (S)	High > Low	116	14.22	336	14.16	.026
Panel B: Group split based on highest and lowest sample quartiles for CBBE						
		CBBE = 46.03		CBBE = 65.56		
Firm value	High > Low	581	38,390	637	45,296	1.736 **
Profitability (ROIC)	High > Low	706	.21	705	.30	3.919 ***
Earnings growth (EGR)	High > Low	506	.11	606	.14	2.888 ***
Cost of capital (WACC)	?	507	.09	543	.09	.909
Sustainability of excess return (S)	High > Low	46	10.64	185	15.41	1.802 **

Notes: The t-test for differences between group means corrects for unequal group variances if necessary. Tests are one-sided if clear directional effects are expected, two-sided if not. Sample sizes differ depending on the available observations for focal variables.
*** $p < .01$; ** $p < .05$.

TABLE 5
IV-Estimation Results for Equations 3–6

	(First-stage regression) CBEE (Eq. 3)		Profitability / ROIC (Eq. 4)		Earnings growth / EGR (Eq. 5)		Cost of capital / WACC (Eq. 6)	
	Expected sign	**Coefficient (Standard Error)**	**Expected sign**	**Coefficient (Standard Error)**	**Expected sign**	**Coefficient (Standard Error)**	**Expected sign**	**Coefficient (Standard Error)**
Intercept		50.639 (1.09)***		.426 (.022)***		.001 (.083)		.128 (.008)***
Estimated SD		.833 (.073)***		.113 (.012)***		.515 (.061)***		.002 (.006)***
Carryover								
Dependent variable (*t – 1*)	+	.295 (.021)***	+	.324 (.001)***	+	.713 (.017)***	+	.279 (.034)***
Marketing constructs								
IV-CBBE (*t* − 1)		---	+	.001 (2.7x10^{-4})**	+	.003 (.001)***	+/– [1)]	1.109 (.984)
Estimated SD		---		3.5x10^{-4} (2.1x10^{-4})***		.001 (9.7 x10^{-5})***	[1)]	.631 (.106)***
Advertising expenditures (*t* − 1)	+ [2)]	.413 (.061)***	+/– [1)]	.035 (.018)*	+/– [1)]	.302 (.044)***		---
Estimated SD		.446 (.004)***		---		---		---
Controls								
R&D expenditures (*t* − 1)	+/– [2)]	–.006 (.026)	+/– [1)]	–.056 (.012)***	+/– [1)]	.166 (.035)***		---
Other expenditures (*t – 1*)	+ [2)]	.050 (.028)***	+/– [1)]	.009 (.003)***	+/– [1)]	.002 (.010)		---
Operating margin (*t – 1*)	+	1.316 (.389)***		---		---	–	–.028 (.008)***
Earnings (*t – 1*) [1)]	+	1.345 (.389)***		---	+/–	–.005 (.002)***		---
Negative earnings dummy (*t – 1*)		---		---	+	.108 (.022)***		---
Financial leverage (*t – 1*) [1)]		---	+	.182 (.069)***	+/–	–1.632 (5.60)	+/–	–.997 (.588)*
Profitability (*t – 1*)		---		---	+	.037 (.045)		---
Investment rate (*t – 1*) [1)]		---		---	+	–4.37 (24.4)		---
Pretax interest coverage (*t – 1*) [1)]		---		---		---	-	.001 (.001)
Dividend payout (*t – 1*) [1)]		---		---		---	+	–2.821 (11.3)
Asset growth (*t – 1*)		---		---		---	–	.005 (.003)
Liquidity (*t – 1*) [1)]		---		---		---	+	7.023 (7.20)
US GDP growth (*t – 1*)		---	+/–	.065 (.095)	+/–	–.022 (.477)		---
Observed firm and market heterogeneity								
Firm size (*t – 1*)	+/–	–.303 (.058)***	+/–	–.020 (.001)***	– [1)]	2.990 (55.7)	–	–.003 (.001)***
Industry concentration (*t – 1*)	+/–	–2.408 (.642)***	+/–	–.097 (.017)***	+/–	–.096 (.060)	+/–	–.026 (.006)***
Sample size (*Pseudo-R*^{2})		1,317 (.907)		1,084 (.867)		979 (.667)		649 (.652)

Notes: Two-sided t-tests. Pseudo-R^2 measures the squared correlation between actual and predicted values of the dependent variable.
*** $p < .01$; ** $p < .05$; * $p < .1$. [1)] For reading convenience, coefficients are multiplied by 10,000. [2)] Variable is log-transformed

TABLE 6
IV-Estimation Results for Sustainability of Excess Return / S (Equation 7)

	Expected sign	Coefficient (Standard Error)
Intercept		.961 (.300)***
Estimated SD		1.19 (.233)***
Marketing constructs		
IV-CBBE ($t-1$)	+	.011 (.004)***
Estimated SD		.005 (3.9×10^{-4})***
Advertising expenditures ($t-1$) [1)]	+/–	–.229 (.232)
Controls		
R&D expenditures ($t-1$) [1)]	+	–.246 (.154)
Other expenditures ($t-1$) [1)]	+/–	–.260 (.030)***
Asset growth ($t-1$)	+	.265 (.091)***
US GDP growth ($t-1$)	+/–	7.96 (.880)***
Observed firm and market heterogeneity		
Firm size ($t-1$)	+/–	.111 (.026)***
Industry concentration ($t-1$)	+/–	–.085 (.181)
Weibull scale parameter 1/p		.460 (.013)***
Sample size		417
Log likelihood		–467.5
Pseudo-R^2		.680

Notes: Two-sided t-tests. *** p < .01; ** p < .05; * p < .1 . [1)] For reading convenience, coefficients are multiplied by 10,000.

TABLE 7
Elasticities for Value Drivers and Firm Value by Industry
(Median Based on Distribution of Firm-Specific Elasticity Estimates)

NAICS classification	**Value-driver elasticity w.r.t. CBBE**			**Firm-value elasticity w.r.t. value driver…**		
	Profitability (ROIC)	Earnings growth (EGR)	Sustainability of excess return (S)	Profitability (ROIC)	Earnings growth (EGR)	Sustainability of excess return (S)
Automobiles & components	.223	–.211	1.430	.211		.450
Consumer durables & apparel	.141	1.169	1.651	.183		.335
Consumer services	.079	3.325	1.633	.205		.534
Media	.116	1.541	1.395	.575		.356
Retailing	.169	3.556	1.135	.257		.467
Food & staples retailing	.228	3.830	1.020	.210		.509
Food, beverage, & tobacco	.249	–.105	1.532	.096		.281
Household & personal products	.224	.185	1.646	.117		.398
Health care	.342	1.652	1.212	.079		.180
Information technology	.276	2.532	.757	.291		.140
Telecom services	.339	9.003	1.153	.008		.020
Transportation	.210	5.489	1.087	.537		.586
Industrial, energy & utilities	.263	5.474	1.387	.435		.385
Overall (median)	.205	3.014	1.243	.180		.353
(mean)	.172***	1.776***	1.220***	.390***		.373***
(standard deviation)	.371	6.537	.701	.781		.538

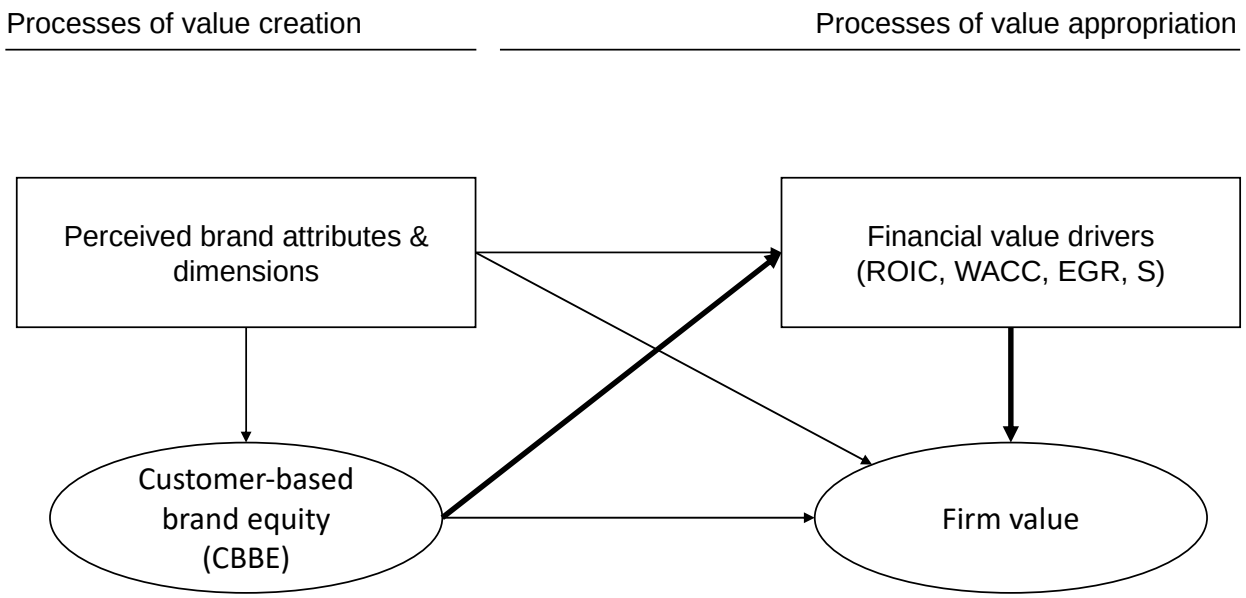
Notes: Firm-value elasticities for value drivers EGR and S are identical by construction of the valuation formula (see Eq. 2).
*** $p < .01$. Note that *p*-values are not shown for individual industries since the sample sizes are too small for proper statistical inference.

TABLE 8
Key Marketing Mix Element for Enhancing Value Drivers

	Most effective for driving …		
	Profitability (ROIC)	**Earnings growth (EGR)**	**Sustainability of excess return (S)**
Product/innovation		✓	✓
Price/contracting	✓		
Communication/advertising strategy	✓		✓
Distribution/retail strategy		✓	

Note: The table emphasizes the most powerful marketing mix element to enhance a value driver. However, it would not be appropriate to conclude that other mix elements cannot be used to improve a value driver. For example, the selection of exclusive retailers may also contribute to raising profit margins.

FIGURE 1
Research on the Value Relevance of CBBE



Note: Bold line shows focus of this study.

FIGURE 2
Theoretical Framework of Value Drivers

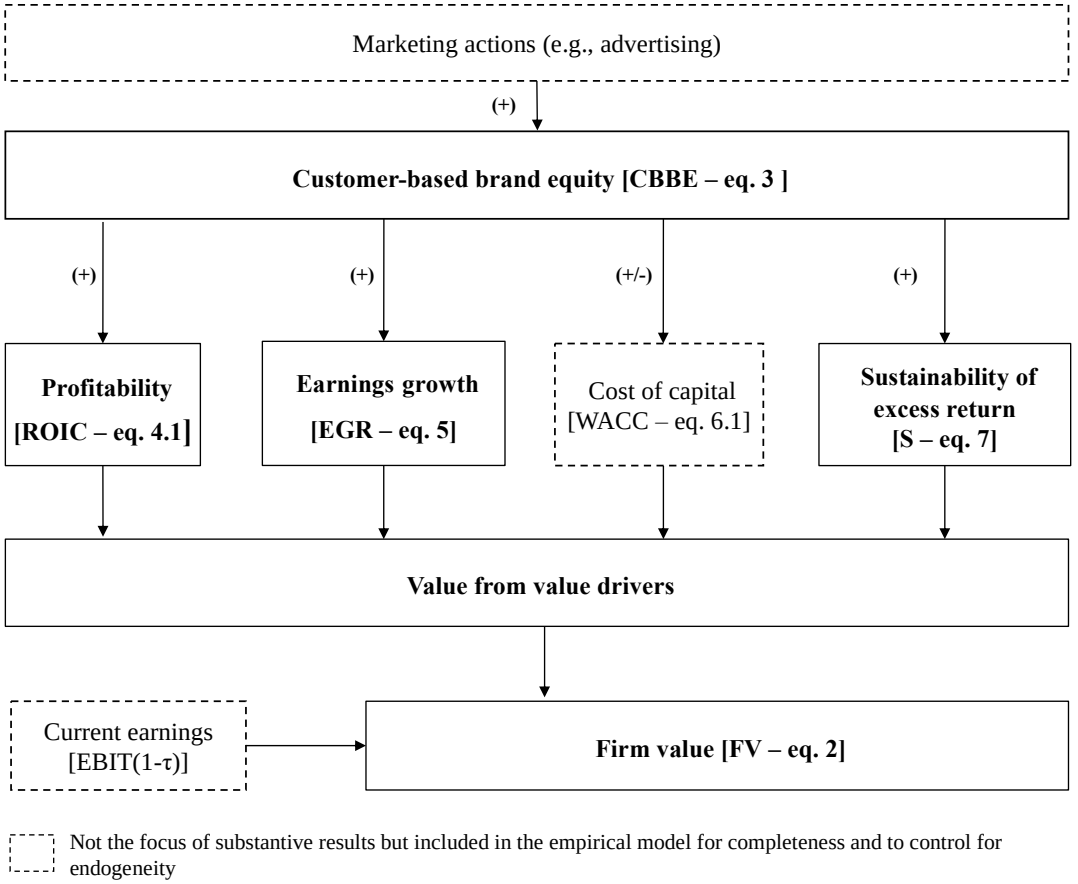


FIGURE 3
Value-Based Evaluation of Brand Exploitation Strategy

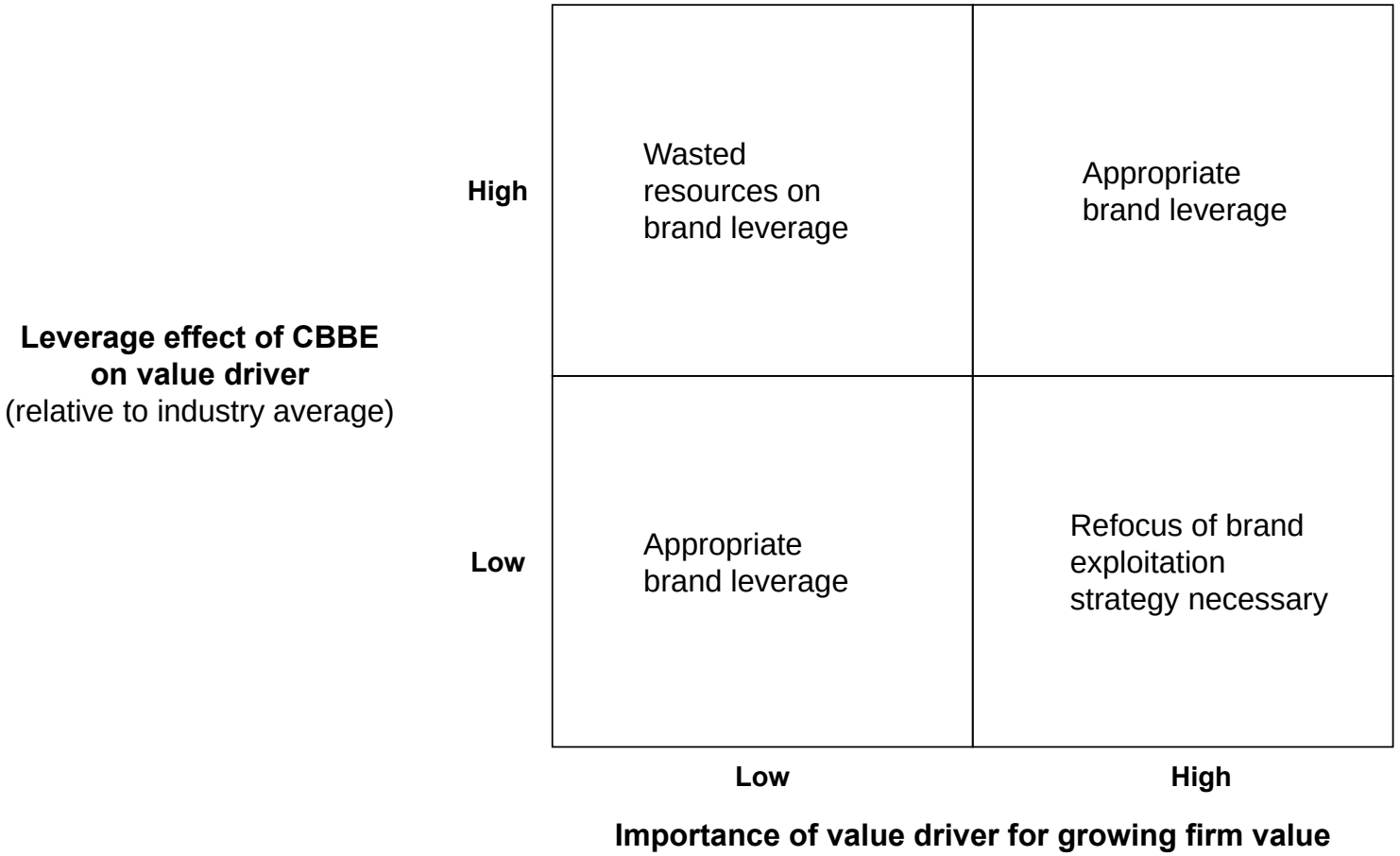
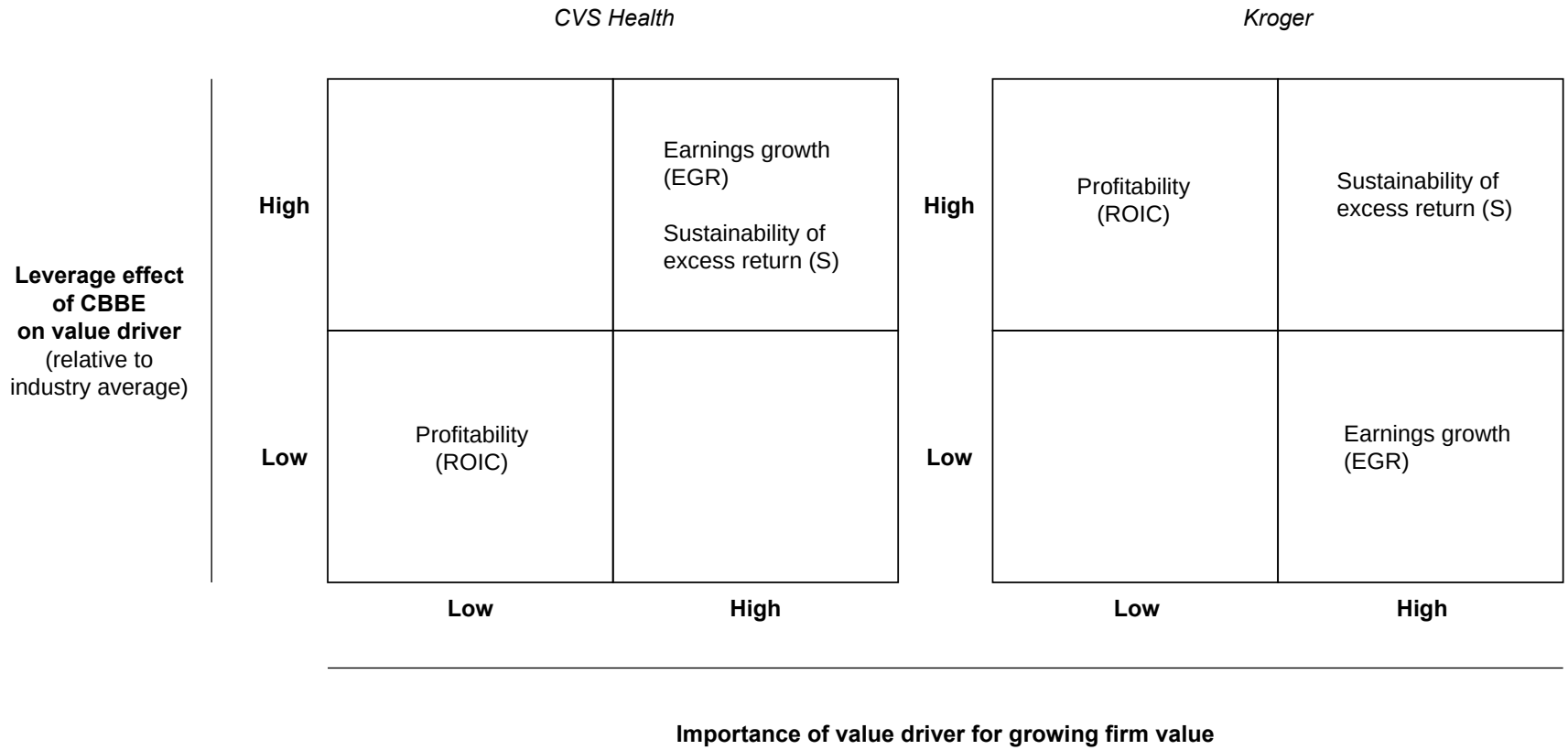


FIGURE 4
Value-Based Evaluation of Brand Exploitation Strategy for CVS Health and Kroger (2005–2013)



APPENDIX

Table A1. Correlation Matrix

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1. CBBE	1.00																	
	(3289)																	
2. Profitability (ROIC)	.05**	1.00																
	(2796)	(4478)																
3. Earnings growth (EGR)	.03	.40**	1.00															
	(2183)	(3077)	(3292)															
4. Cost of capital (WACC)	.04	.02	.07**	1.00														
	(2034)	(2998)	(2281)	(3364)														
5. Sustainability (S)	.08	–.12*	.02	.21**	1.00													
	(452)	(491)	(491)	(485)	(491)													
6. Advertising expenditures	.04	.04*	.03	–.07**	–.14**	1.00												
	(1702)	(2563)	(2055)	(1727)	(487)	(2593)												
7. Other expenditures	.08**	.02	–.05**	–.08**	–.13**	.40**	1.00											
	(2794)	(4368)	(3054)	(2986)	(487)	(2562)	(2562)											
8. R&D expenditures	.01	.03*	.00	–.03	–.14**	.47**	.35**	1.00										
	(3289)	(4478)	(3292)	(3364)	(491)	(2593)	(2593)	(4472)										
9. Firm size	–.19**	.00	–.06**	–.22**	–.14**	.43**	.45**	,304**	1.00									
	(2826)	(4478)	(3085)	(3012)	(491)	(2593)	(2593)	(4410)	(4522)									
10. Financial leverage	–.07**	.01	–.02	–.08**	.00	–.03	–.02	–.02	.03*	1.00								
	(2668)	(4268)	(2982)	(2893)	(485)	(2399)	(2399)	(4167)	(4284)	(4270)								
11. Industry concentration	–.01	.03*	–.05**	–.04*	–.07	.00	.07**	.01	.04*	–.01	1.00							
	(3289)	(4478)	(3292)	(3364)	(491)	(2593)	(2593)	(4472)	(5517)	(4522)	(4284)							
12. Investment rate	.02	.00	.00	.01	.13**	–.01	.00	.00	–.04**	.00	.01	1.00						
	(2753)	(4295)	(3071)	(2929)	(491)	(2589)	(2589)	(4232)	(4338)	(4336)	(4091)	(4338)						
13. U.S. GDP growth	.04*	.02	.03ü	–.02	.07	.00	–.02	–.01	–.01	.00	.05**	–.02	1.00					
	(3289)	(4478)	(3292)	(3364)	(491)	(2593)	(2593)	(4472)	(5517)	(4522)	(4284)	(5517)	(4338)					
14. Operating margin	–.02	.11**	–.01	–.03	–.17**	.03	.01	.01	.07**	.00	.00	.00	.00	1.00				
	(2796)	(4412)	(3044)	(2987)	(491)	(2592)	(2592)	(4358)	(4457)	(4456)	(4205)	(4457)	(4279)	(4457)				
15. Pretax interest coverage	.02	.014	.00	.02	.01	.01	–.01	.00	.00	–.01	.00	.00	–.02	.00	1.00			
	(2607)	(4089)	(2789)	(2742)	(488)	(2282)	(2282)	(4037)	(4133)	(4130)	(3879)	(4133)	(3958)	(4083)	(4133)			
16. Dividend payout	–.07	.00	–.01	.00	.06	–.01	–.01	–.01	.01	.00	.01	.15**	.00	.00	.00	1.00		
	(2515)	(3839)	(3022)	(2636)	(490)	(2583)	(2583)	(3778)	(3882)	(3880)	(3643)	(3882)	(3878)	(3823)	(3507)	(3882)		
17. Asset growth	.02	.03	.07**	.02	.15**	–.02	.00	.00	–.02	–.01	.03*	–.02	.11**	–.05**	.01	.01	1.00	
	(2758)	(4362)	(3033)	(2948)	(491)	(2511)	(2511)	(4294)	(4399)	(4399)	(4164)	(4399)	(4224)	(4335)	(4021)	(3770)	(4399)	
18. Liquidity	.07**	–.05**	.03	.13**	.04	–.15**	–.12**	–.01	–.25**	–.07**	–.06**	–.01	–.01	–.10**	.05**	–.02	.07**	1.00
	(2458)	(3851)	(2561)	(2588)	(491)	(2299)	(2299)	(3851)	(3894)	(3892)	(3666)	(3894)	(3714)	(3886)	(3720)	(3266)	(3779)	(3894)

Table A2. Overview of Symbols

Variables	
ADV	Advertising expenditures
CBBE	Customer-based brand equity
CONC	Industry concentration
DIV	Dividend payout
EARN	Earnings less tax and before interest (net operating profit less tax)
EBIT	Earnings before interest and tax
EGR	Earnings growth rate
FV	Firm value
GDPGR	Growth rate of the US gross domestic product
A_GROWTH	Asset growth
I	Investments in new capital
INT	Pretax interest coverage
IR	Investment rate
LEV	Financial leverage
LIQ	Liquidity
D_NEARN	Dummy for negative earnings in preceding year (1 = negative)
OE	Other expenditures
OPM	Operating margin
ROIC	Return on invested capital
RD	R&D expenditures
S	Sustainability of excess returns
SIZE	Firm size
WACC	Weighted average cost of capital
τ	Cash tax rate
$\widetilde{[\ldots]}$	Expected realization of a variable
Indexes	
i	Firm index with i = 1,… *I* (number of firms)
t	Time index with t = 1… *T* (number of periods)
Model parameters	
a, b, c, d, g	Regression parameters to be estimated
u, φ, η	Error terms
σ^2	Variance
ψ	Variance–covariance matrix of random parameters
f ($\tilde{S}$)	Density function of expected sustainability of excess returns
λ	Location parameter of survival function for $\tilde{S}$
p	Scale parameter of survival function for $\tilde{S}$
ε	Elasticity

Table A3. Variable Definitions and Measures

Variables	Definition	Measure	Source / COMPUSTAT
Firm value (FV)	Market capitalization of equity + preferred stock + book value of debt + minority interest	(Yearly average of monthly stock prices · outstanding shares) + preferred stock + total Liabilities	CRSP (market capitalization equity) + DATA 10 (preferred stock); DATA 5 (current liabilities) + DATA 9 (long-term debt) + DATA 49 (minority interest)
Customer-based brand equity (CBBE)	Customer-based brand equity	Survey-based index as measure of customer-based brand equity (see Web Appendix W3 for details)	Harris Interactive: Poll EquiTrend
Profitability (ROIC)	Net operating profit after tax / Invested capital	EBIT×(1- τ) / Invested capital	DATA 308 (operating cash flow), DATA 37 (invested capital)
Earnings growth (EGR)	Five-year estimates of earnings growth (consensus)	Arithmetic mean across analysts	I/B/E/S
Earnings (EARN)	Net operating profit after tax	EBIT×(1 – τ)	DATA 308 (operating cash flow)
Cost of capital (WACC)	Weighted-average cost of capital	[Equity × cost of equity + debt ×cost of debt×(1 – τ)]/Total capital	Bloomberg
Advertising expenditures (ADV)	Advertising expenditures	-	DATA 45 (advertising)
Other expenditures (OE)	Other marketing expenditures	SG&A expense – noncoordinating costs (advertising, R&D, bad debt expense, provision for doubtful accounts, employee benefit expenses)	DATA 189 (SG&A); DATA 45 (advertising); DATA 46 (R&D); DATA 67 (estimated doubtful receivables); DATA 43 (pension/retirement expense); DATA 215 (stock options)
R&D expenditures (RD)	R&D expenditures	-	DATA 46 (R&D)
Firm size (SIZE)	Total assets	Log of total assets	DATA 6 (total assets)
Financial Leverage (LEV)	Book value total debt / Book value equity + preferred stock	-	DATA 5 (current liabilities) + DATA 9 (long-term debt); DATA 60 (common equity) + DATA 10 (preferred stock)
Industry concentration (CONC)	Four-firm concentration index	Cumulative market share of the top four firms in the industry defined by two digits of the NAICS	DATA 12 (sales)
Investment rate (IR)	(1 − cash dividends) / Net operating profit after tax	(1-cash dividends) / [EBIT× (1 − τ)]	DATA 21 (cash dividend); DATA 308 (operating cash flow)
Operating margin (OPM)	Operating income before depreciation/sales	Operating income before depreciation/sales	DATA 13 (operating income before depreciation); DATA 12 (sales)
Pretax interest coverage (INT)	EBIT divided by interest expense	(Operating income after depreciation + interest expense)/interest expense	DATA 178 (operating income after depreciation); DATA 15 (interest expense)
Dividend payout (DIV)	Cash dividends/earnings	Cash dividends/available income	DATA 21 (cash dividend); DATA 20 (income available for common stockholders)
Asset Growth (A_GROWTH)	Terminal total assets/initial assets	Total assets/total assets$_{t-1}$	DATA 6 (total assets)
Liquidity (LIQ)	Current ratio	Current assets/current liabilities	DATA 4 (current assets); DATA 5 (current liabilities)
GDPGR	U.S. GDP gross rate	(Real U.S. GDP$_t$ - Real U.S. GDP$_{t-1}$)/ Real U.S. GDP$_{t-1}$	Bureau of Economic Analysis