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Price promotions and brand equity: the role of brand types

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Abstract

Purpose – This study investigates whether the influence of selected marketing-mix elements on brand equity differs for different types of brands. The main focus is on price promotions' influence. In addition, the impact of discount-store distribution is explored.

Design/methodology/approach – This study applies fixed-effects regression to analyze German panel data, which includes 126 national brands in four product categories across five years.

Findings – The results reveal that frequent price promotions and intensive discount-store distribution have a negative influence on brand equity. However, this effect differs across brand types: the higher a brand's initial equity level, the more harmful is the impact of these marketing activities on brand equity.

Research implications – This study shows that brand types play an important role in moderating the influence of marketing activities on brand equity. Thus, further research endeavors may generate new insights by accounting for these brand-related differences in their investigations.

Practical implications – Managers of high-equity brands should avoid frequent price promotions and intensive discount-store distribution. In contrast, managers of low-equity brands may use these instruments more widely because their detrimental effects are less severe.

Originality/value – Current research mainly focuses on improving the conceptualization of brand equity or exploring different kinds of marketing-mix elements. Findings on potential effect moderators are scarce. Thus, this study substantiates and extends existing findings by emphasizing the importance of distinguishing different brand types when investigating the effect of marketing-mix elements on brand equity.

Keywords Price promotion, Brand equity, Brand type, Panel data

Paper type Research paper

Introduction

Brand equity is an essential marketing asset and a key driver of a company's long-term success because it enhances product differentiation and strengthens a firm's competitive advantage (Aaker, 1991; Ambler, 2003; Shocker *et al.*, 1994). Thus, brand equity ultimately improves key performance indicators, such as revenues and profits (Baldauf *et al.*, 2003; Slotegraaf and Pauwels, 2008). Consequently, identifying factors that affect brand equity is a top priority on managers' agendas and a major concern in marketing research (Bravo-Gil *et al.*, 2007; Keller *et al.*, 2008). In this context, price promotion has received particular attention because behavioral theory suggests that this widely applied marketing-mix instrument exerts a detrimental effect on brand equity because it negatively affects brand associations and quality perceptions (Aaker, 1991; Dodds *et al.*, 1991; Keller, 1993; Winer, 1986).

Recognizing the topic's relevance, extensive scientific research has examined the relationship between price promotions and brand equity. However, results are conflicting: whereas a large number of studies find a negative promotional impact on brand equity (e.g. Buil *et al.*, 2013; Jedidi *et al.*, 1999; Villarejo-Ramos and Sánchez-Franco, 2005; Yoo *et al.*, 2000), a smaller number of works report that the effect is positive (e.g. Chu and Keh, 2006; Huang and Sarigöllü, 2012; Palazón-Vidal and Delgado-Ballester, 2005), and some investigations even find that the effect is not statistically significant (e.g. Bravo-Gil *et al.*, 2007; Sriram *et al.*, 2007). Prior research efforts have mainly focused on improving the conceptualization of brand equity (e.g. direct vs. indirect approaches; see Christodoulides and de Chernatony, 2010) or on revealing potential differences related to the type of promotion offered (e.g. monetary vs. non-monetary promotions; see Buil *et al.*, 2013). However, only little attention has been devoted to

detecting brand-related factors that may moderate promotional influence and could potentially contribute to explain conflicts in existing findings.

The following examples of Starbucks and Procter & Gamble (P&G) illustrate that potential brand-dependent differences could play a crucial role. In 2008, the coffee chain Starbucks introduced a \$1 cup to defend its market share against growing low-price competition (Reuters, 2008; Stibel, 2008). For a company that popularized the \$4 cup, this move represented a huge price discount. About half a year later, Starbucks announced its first quarterly loss since it went public in 1992 (NBCNews.com, 2008), which, to a substantial extent, could be attributed to the new pricing strategy (Stibel, 2008). In a similar fashion, P&G introduced an everyday low pricing for its dishwashing detergent brand “Cascade” to maintain its market position against competitors. In contrast with Starbucks, this promotional strategy was a success: after one year, the Cascade brand contributed to the company’s highest profit margins in 21 years (Keller, 2000).

The pressing question is why price promotions had such opposite effects on Starbucks and Cascade. One potential answer could be that Starbucks and Cascade are simple different types of brands: while Cascade’s promotional strategy seemed to meet consumers’ expectations of a functional low-priced product (Keller, 2000) and did not harm the brand, a similar strategy by Starbucks may have eroded the brand’s equity because prices contradicted consumers’ expectations of a premium brand (Quelch, 2008; Stibel, 2008). That is, consumers’ value perceptions may vary across different types of brands, which might have led them to react differently to otherwise similar promotional strategies.

Although the given cases could provide important implications for brand management, no empirical evidence on the moderating role of brand types exists. Therefore, this study aims to

analyze whether price promotions' influence on brand equity varies across different types of brands (i.e. brands with different initial levels of equity). In addition, the work investigates whether initial equity levels also moderate the influence of distribution decisions. To examine these suppositions empirically, this work applies fixed-effects regression on a panel data set containing 126 German national brands in four product categories encompassing a time span from 2009 to 2013.

The study's results advance current scientific understanding by identifying the initial brand equity level as an important moderator of marketing-mix elements' influence on brand equity. That is, price promotional and distribution decisions can have very different effects on brand equity depending on the type of brand under consideration. This insight also provides valuable implications for practitioners: promotional and distribution strategies need to be aligned with a brand's value proposition (i.e. equity level) in the market to avoid the deleterious effects of these marketing activities.

This article proceeds as follows: a conceptual framework establishes the basis for the research hypotheses. Then, the research methodology to test these hypotheses is outlined, and the empirical results are depicted. Next, the study's main results, their implications for researchers, and their limitations and resulting research avenues are discussed. Finally, managerial implications conclude this work.

Conceptual framework

Extant research shows that various marketing-mix elements can substantially influence brand equity (e.g. Buil *et al.*, 2013; Villarejo-Ramos and Sánchez-Franco, 2005; Yoo *et al.*, 2000). This study's main focus is on investigating price promotions' impact on brand equity and the potential moderating role of brand types because existing findings on this research topic are

conflicting. In addition to this main area of interest, the conceptual framework includes a brand's distribution decisions to account for potential differences in brands' placement strategies. Furthermore, a potential influence of a brand's market share is reflected in the framework to control for different competitive strategies.

Impact of price promotions on brand equity

This study adopts Yoo *et al.*'s (2000, p. 196) definition of brand equity as “the difference in consumer choice between the focal branded product and an unbranded product given the same level of product features.” That is, brand equity reflects the additional value or utility buyers gain from the brand name, provided that the products are functionally equivalent. Christodoulides and de Chernatony's (2010) literature review confirms a broad acceptance of this definition.

According to Aaker (1991, 1996), brand equity consists of four manifest dimensions: perceived quality, brand associations, brand awareness, and brand loyalty. The majority of existing studies show that price promotions can negatively influence key dimensions of brand equity (e.g. Buil *et al.*, 2013; Villarejo-Ramos and Sánchez-Franco, 2005; Yoo *et al.*, 2000). Consumers use price as an extrinsic signal to evaluate product quality (e.g. Agarwal and Teas, 2002; Milgrom and Roberts, 1986; Rao and Monroe, 1989). Thus, by lowering internal reference prices, discounts can negatively affect consumers' quality perceptions, which may lead to a decrease in brand equity (e.g. DelVecchio *et al.*, 2006; Dodds *et al.*, 1991; Raghurir and Corfman, 1999). Furthermore, price promotions may have a detrimental effect on brand associations because they convey an image of low and unstable quality (e.g. Buil *et al.*, 2013; Winer, 1986).

While most empirical investigations conceptualize a brand's price promotional activities as the frequency with which price discounts are offered (e.g. Bravo-Gil *et al.*, 2007; Villarejo-

Ramos and Sánchez-Franco, 2005; Yoo *et al.*, 2000), others also include promotional depth (e.g. Jedidi *et al.*, 1999; Palazón-Vidal and Delgado-Ballester, 2005). This study employs both conceptualizations to obtain a differentiated understanding of price promotions' impact on brand equity. Thus, from the above reasoning and the empirical evidence presented, the first two hypotheses posit:

H1a. Frequent price promotions negatively influence brand equity.

H1b. Deep price promotions negatively influence brand equity.

Impact of distribution decisions on brand equity

In addition to price, another important marketing-mix element is distribution. Dodds *et al.*'s (1991) and Yoo *et al.*'s (2000) studies reveal that the image of a distribution channel (i.e. store image) significantly affects brand equity. That is, offering brands in well-reputed stores increases consumers' quality perceptions (Dawar and Parker, 1994; Grewal *et al.*, 1998) and positively stimulates brand associations (Rao and Monroe, 1989; Zeithaml, 1988). In contrast, selling brands in poor-image stores should have the opposite effect. Therefore, distributing brands through good-image stores is likely to build brand equity, while poor-image store distribution likely erodes brand equity. Thus, the second research hypothesis posits:

H2. Distribution via poor-image stores negatively affects brand equity.

Market share and brand equity

Apart from a brand's marketing-mix decisions, existing research (e.g. Huang and Sarigöllü, 2012; Park and Srinivasan, 1994) suggests that a brand's market share also influences brand equity. The current study argues that a brand's market share captures important aspects of a brand's competitive strategy (Porter, 1980). That is, brands that aim to increase their shares in

the market may decide to discount prices intensively (e.g. Gupta, 1988; Kamakura and Russel, 1993; Neslin *et al.*, 1985) and/or to extend distribution to a broader range of channels, including stores with less favorable images (Farris *et al.*, 1989). According to the previous arguments and empirical evidence, this discount-based strategy may lead to lower quality perceptions, less favorable brand associations, and, ultimately, lower brand equity. In contrast, brands that aim for a premium positioning tend to trade market share gains for high and stable prices and/or for a selective (or even exclusive) distribution of their products (e.g. Quelch *et al.*, 1987; Zoellner and Schaefers, 2015). Thus, this premium strategy is likely to emphasize a high-quality brand image and positive brand associations, which may ultimately lead to higher brand equity. From these considerations and the empirical evidence outlined, this study expects that brands that aim to increase market shares will experience a decrease in their equity:

H3. Market share gains are negatively associated with brand equity.

Brand types as moderators

Keller (2000) argues that a brand should be priced in accordance with consumers' perceptions and expectations of a brand's value proposition. That is, a premium brand should offer high quality at premium prices (Zoellner and Schaefers, 2015), while a commodity brand should focus on providing basic functionalities at a reasonable price (Keller, 2000). In the current context, these insights imply that marketing activities, such as deep or frequent discounting, that do not fit the consumers' quality perceptions and brand images are likely to seriously harm brands with high equity (e.g. premium brands). In contrast, consumers may perceive the same set of activities as more appropriate if carried out by brands with low equity (e.g. commodity brands) because they perceive less dissonance between marketing activities and value proposition. Buil *et al.* (2009) provide supporting empirical evidence from a different application

area. They explore the role of different equity levels in moderating the influence of brand extensions on the equity of the parent brand and find that the diluting effect on the parent brand's equity is significantly higher when introducing high-equity extensions. Although Buil *et al.*'s research question differs from that of the current work, a brand's initial equity level should also play a crucial role in the context of price promotions and brand equity.

From the outlined theoretical considerations and existing empirical evidence, this study suspects that a brand's value proposition (reflected by its current equity level) can moderate the influence of price promotions on brand equity. Thus:

H4. The higher a brand's initial equity level, the more negative is the influence of price promotions on the brand's equity.

Following the same logic, the effect of distribution via poor-image stores on brand equity is also likely to be different across brand types. That is, distributing premium (i.e. high-equity) brands via poor-image stores should result in a strong negative influence on the premium brand's equity (Zoellner and Schaefer, 2015), while the same distribution practice is probably less harmful for the equity of commodity (i.e. low-equity) brands (Keller, 2000). Thus, the fifth research hypothesis states:

H5. The higher a brand's initial equity level, the more negative is the effect of distribution via poor-image stores on brand equity.

Methodology

Sample

This study analyzes German panel data from 2009 to 2013 to investigate the stated research hypotheses. Using panel data has several advantages (see Baltagi, 2005; Hsiao, 2003; Klevmarken, 1989) in the current context. First, observing a large set of entities (e.g. brands)

over several points in time helps control for individual heterogeneity (Klevmarken, 1989). That is, panel data analysis techniques can account for unobserved or unmeasured entity-specific characteristics, such as brand heritage or corporate strategy, to mitigate the omitted variable bias, which is an inherent problem in cross-section or time-series data (Hsiao, 2003). Second, panels provide a larger information base, offer more degrees of freedom, enhance estimation efficiency, and alleviate collinearity issues among the variables (Baltagi, 2005; Hsiao, 2003). Finally, panel data can identify and measure effects that are not detectable in cross-section or time-series data because they include both entity- and time-related information (Baltagi, 2005).

The data set is provided by the market research institute GfK, which collects panel data of approximately 30,000 households that scan their daily purchases in all major fast-moving consumer goods (FMCG) categories. The data include virtually all brands that are present in the German market, which makes the panel particularly appropriate for this analysis. The established packaged goods categories “chocolate bars,” “ground coffee,” “yogurt,” and “shower gel” are selected because they have a sufficient number of private label products to allow for an accurate calculation of a brand’s price premium, which serves as this study’s brand equity measure. To counteract the attrition bias, which is a typical feature of panel data (Baltagi, 2005), only brands present in the market for at least four (of the five) years are selected. This data cleaning measure excludes small niche brands that are rarely purchased. Removing them from the database improves data quality and reflects proven practice in panel-data analysis (e.g. Jedidi *et al.*, 1999; Sriram *et al.*, 2007).

The final analysis database entails 126 national brands, which account for more than 90% of sales in their respective product category. Following proven practice in panel-data analysis (e.g. Clarke, 1976; Jedidi *et al.*, 1999; Sriram *et al.*, 2007), this study analyzes purchase data on a

quarter year level to allow sufficient time for short-term-oriented marketing activities to affect long-term brand equity.

Measures

Dependent variable

According to Aaker (1996, p. 107), “the price premium may be the best single measure of brand equity” because it captures the outcome of any driver of brand equity. As several empirical studies confirm this notion (e.g. Anselmsson *et al.*, 2007; Netemeyer *et al.*, 2004; Park and Srinivasan, 1994), this study uses a brand’s price premium as a summary measure of brand equity. In accordance with proven practice (e.g. Palmatier *et al.*, 2007; Steenkamp *et al.*, 2010), the price premium is calculated as the percentage difference between the normal undiscounted price of a branded product (i.e. national brand) and the normal price of a functionally equivalent non-branded product (i.e. private label). To eliminate potential comparability problems, this study exactly matches national brands’ and private labels’ products according to all available product features, including flavor, packaging, pack size, and other attributes (e.g. fat content). The price premium on the product level is aggregated on the brand level using quantity weighted averages.

The price premium measure has several advantages: first, it adequately approximates the common definition of brand equity as the outcome difference (here: price) between a branded product and an un-branded product that are identical in all features except brand name (e.g. Kamakura and Russell 1993; Keller, 1993; Yoo *et al.*, 2000). Second, it facilitates comparability across categories, brands, and countries (Steenkamp *et al.*, 2010). Third, it indicates that consumers view price differences as percentages rather than in absolute terms (Monroe, 1973). Finally, it relies on actual market data, is not biased by potentially subjective judgments, and is

relatively easy to calculate (Christodoulides and de Chernatony, 2010; Kamakura and Russel, 1993).

Independent variables

In accordance with research in the price promotion field (e.g. Jedidi *et al.*, 1999; Nijs *et al.*, 2001; Walters and Bommer, 1996), price promotion is captured by two separate measures. First, promotional frequency (PFREQ) is the number of weeks a brand is sold at a reduced price divided by the total number of weeks the brand is sold in the market (Nijs *et al.*, 2001; Walters and Bommer, 1996). This relative measure reflects how often a brand discounts its price on average. Second, promotional depth (PDPT) is the average price reduction in percentage of the normal price and measures how much a brand discounts its price during its promotional weeks (Jedidi *et al.*, 1999; Nijs *et al.*, 2001). As promotional frequency and depth can potentially exert different effects on brand equity (Jedidi *et al.*, 1999), both promotional measures are incorporated as separate variables in the empirical model.

The database does not contain a direct measure of store image. Thus, this study operationalizes store image as a brand's discount-store distribution share (DDS). The DDS reflects a brand's units sold in poor-image stores (i.e. discount stores) divided by the units sold in all stores. Discount stores, such as Aldi and Lidl, carry only a limited product assortment (Burt and Sparks, 1995), keep product presentation and service efforts at minimum levels (Krug, 2002), and intentionally create a store atmosphere that conveys cheap prices (Blank, 2004). Thus, the DDS seems to be an accurate indicator for store image: a high DDS indicates that a brand is widely present in stores with unfavorable images, while a low DDS signals predominant presence in good-image stores.

Finally, this analysis includes a brand's market share (SOM) as a control variable in the empirical model to account for potential differences in competitive strategies. The SOM is calculated as the brand's total revenue divided by the revenue of the entire product category (e.g. Jedidi *et al.*, 1999).

Moderators

According to GfK best practices (e.g. Haller and Twardawa, 2014; Twardawa, 2007), national brands are assigned to three distinct groups to investigate potential moderating effects of brand types. One group consists of market leaders (LEAD). The analyzed product categories are each dominated by two major national brands, which adopt the role of market leaders. This phenomenon is common in German FMCG markets and reflects a duopolistic rather than a monopolistic market structure (Haller and Twardawa, 2014). Consequently, two market leaders are defined per product category by selecting the two brands with the highest market shares. Premium brands (PREM) constitute the second brand type. A national brand is defined as premium if its regular price is higher than the price of the most expensive market leader within the same product category. The third brand type is designated as mid-range brands (MID). National brands belong to this category if they are neither premium nor market leaders. That is, their regular prices are below those of the other two national brand types.

Table I displays the identified brand types and their price premiums over private labels. A Kruskal–Wallis (1952) test and three subsequent Mann–Whitney (1947) tests confirm that the three brand types' average equities (i.e. price premiums) are significantly different from one another. That is, three distinct brand types with considerably different equity levels have been detected.

Table I Brand equity levels of identified brand types

	PREM (n = 31)	LEAD (n = 8)	MID (n = 87)
Price premium	1.86	0.68	0.34
Kruskal–Wallis test	$\chi^2 = 1087.76^{***}$		
Mann–Whitney test	PREM vs LEAD ¹⁾	Z = -14.69***	
	PREM vs MID ¹⁾	Z = -32.33***	
	LEAD vs MID ¹⁾	Z = -8.05***	
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. ¹⁾ p -values adjusted according to the Bonferroni method.			

Econometric model

This study's empirical model is situated within the class of panel data regression models. Therefore, a fundamental decision involves choosing between a fixed-effects and a random-effects specification (Baltagi, 2005). From a theoretical viewpoint, fixed-effects models should be the preferred choice if potentially influential variables cannot be included in the empirical model. A fixed-effects model mitigates this omitted variables bias by absorbing all unobserved or unmeasured characteristics in entity-specific intercepts (Greene, 2008). In the current context, this feature is essential because brand equity can be influenced by a great variety of brand-individual factors, such as advertising spending or non-monetary promotions, which are not available in the database. A Hausman (1978) specification test provides further guidance to formally decide between a fixed-effects and random-effects specification. In this context, the test soundly rejects the null hypothesis of random effects ($p < 0.00$). Thus, from theoretical considerations and formal test results, this study applies a fixed-effects model.

A series of subsequent tests help identify further specification details. Performing a Wald test for the existence of time fixed effects rejects the null hypothesis that time indicator variables are jointly equal to zero ($p < 0.00$). Therefore, time dummies for every quarter year are included to account for potential time-specific effects, such as seasonality. Next, a Wooldridge (2002) test identifies first-order autocorrelation by strongly rejecting the null hypothesis of no first-order

autocorrelation in standard errors ($p < 0.00$). Furthermore, conducting a Pesaran (2004) cross-sectional dependence test reveals that standard errors are cross-sectionally dependent (independence is soundly rejected at $p < 0.00$). In addition, a modified Wald test (Greene, 2008) suggests that standard errors are heteroskedastic by clearly rejecting the null hypothesis of homoskedastic errors ($p < 0.00$). Finally, the data structure is characterized by a small number of periods (20 quarters) relative to the large number of observations (126 brands).

In such a data setting, Hoechle (2007) proposes the use of Driscoll and Kraay's (1998) standard errors, which are robust to heteroskedasticity, first-order autocorrelation, and cross-sectional dependence. In addition, Driscoll and Kraay's approach mitigates the problems of other estimators relying on large T assumptions, such as the Parks–Kmenta method (Kmenta, 1986; Parks, 1967) or the panel-corrected standard errors approach (Beck and Katz, 1995), both of which tend to be inappropriate when the number of cross-sections becomes large. The fixed-effects panel regression model with Driscoll–Kraay standard errors is implemented using the Stata command *xtscc* written by Hoechle (2007).

Results

Table II presents summary statistics and descriptions of the empirical model's variables. For dummy variables, no means and standard deviations are calculated because their interpretation is not meaningful. Furthermore, the output does not show each of the 20 time dummies, to enhance readability.

Table II Summary statistics

Variable	Description	Mean	Std. Dev.
<i>Dependent variable</i>			
PP	Difference (in %) between the normal undiscounted prices of national brands and private labels	0.73	0.97
<i>Independent variables</i>			
PDPT	Promotional depth: promotional price reduction in % of normal price	0.15	0.14
PFREQ	Promotional frequency: number of promotional weeks divided by number of all weeks	0.35	0.29
DDS	Discount-store distribution share: units sold in discount stores divided by the units sold in all stores	0.16	0.23
SOM	Market share: a brand's revenue divided by the revenue of the entire product category	0.02	0.05
<i>Moderator variables (dummies)¹⁾</i>			
PREM	Premium brand	-	-
LEAD	Market leader	-	-
MID	Mid-range brand	-	-
<i>Time indicator variables (dummies)¹⁾</i>			
2009_Q1 to 2013_Q4 ²⁾		-	-
Notes: PP = price premium. ¹⁾ Means and standard deviations not included for dummy variables (no meaningful interpretation). ²⁾ Not all 20 time dummies are displayed to improve readability.			

The results in Table II show that, on average, a national brand's price premium over private labels amounts to 73%, which indicates that, in the analyzed product categories, the equity of national brands is substantial. The mean promotional frequency of 35% reveals that national brands conduct price promotions in 18 of 52 calendar weeks per year on average. During these promotional weeks, the normal price is discounted by an average of 15%. Finally, the small average market share per brand (2%) suggests that the analyzed FMCG markets are rather fragmented, containing a great number of market participants with relatively small shares.

Having described the model's variables, the first step is to assess the general impact of price promotions, discount-store distribution, and market share on brand equity (i.e. H1, H2, and H3). Table III presents the results of the respective general fixed-effects panel regression model. Again, time dummies are omitted from the output to improve readability.

Table III General fixed-effects regression model

<i>Fixed-effects regression model with Driscoll–Kraay standard errors</i> (Dependent variable: price premium)		
Variable	Coeff.	Std. Error
PFREQ	-0.15***	(0.05)
PDPT	0.05	(0.08)
DDS	-0.29***	(0.05)
SOM	-1.32***	(0.26)
<i>(Time dummies omitted)</i>		
Constant	0.84***	(0.02)
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.		

The results in Table III show that PFREQ ($\beta = -0.15$, $p < 0.01$) and DDS ($\beta = -0.29$, $p < 0.01$) negatively affect brand equity, whereas the influence of PDPT is not significant. These results provide support for H1a and H2, which establish that granting frequent price promotions and distributing brands via poor-image stores have detrimental effects on brand equity. H1b, however, is not supported, because promotional depth does not significantly affect brand equity. The negative sign of the control variable SOM ($\beta = -1.32$, $p < 0.01$) provides evidence for H3, which posits a negative association between a brand's market share and its equity.

After investigating the explanatory variables' general impact, potential moderating effects of brand types are analyzed (Table IV) to test H4 and H5. As the overall analysis in Table III revealed no significant influence of PDPT, the assessment of moderating effects focuses on PFREQ and DDS. In accordance with proven practice in multivariate regression modeling (e.g. Aiken and West, 1991; Jaccard and Turrisi, 2003; Yip and Tsang, 2007), the selected marketing-mix elements are interacted with brand-type dummies to identify potential moderating effects. For technical reasons, one arbitrary group of brands needs to be chosen as the reference category (Jaccard and Turrisi, 2003). This study selects premium brands as the reference category. This choice implies that the coefficients of PFREQ and DDS capture the effects of premium brands, whereas the coefficients of the interaction terms (i.e. PFREQxLEAD, PFREQxMID,

DDSxLEAD, and DDSxMID) indicate the respective effect differences for market leaders and mid-range brands. Using interaction terms is statistically equivalent to performing a t -test on potential differences of influence, which means that a statistically relevant difference of effects exists if an interaction term's coefficient is significantly different from zero (Yip and Tsang, 2007). To determine the magnitude and direction of influence for the non-reference categories (i.e. LEAD and MID), their respective coefficients, if significant, need to be added to the coefficient of the reference category (Aiken and West, 1991; Jaccard and Turrissi, 2003). Therefore, Table IV contains a separate column that presents the accumulated coefficients of the brand-type interactions. To avoid confusion in notation, the estimated coefficients are denoted as betas (β), whereas the calculated accumulated effects are named gammas (γ). In the case of premium brands, beta is equal to gamma because the dummies LEAD and MID are zero. For market leaders, the accumulated effect is $\gamma = \beta_{\text{PREM}} + \beta_{\text{LEAD}}$, and for mid-range brand, it amounts to $\gamma = \beta_{\text{PREM}} + \beta_{\text{MID}}$.

Table IV Fixed-effects regression model by brand type

<i>Fixed-effects regression model with Driscoll–Kraay standard errors</i> (Dependent variable: price premium)			
Variable	Coeff. (β)	Std. Error	Accumulated effect (γ)
PFREQ	-0.34***	(0.11)	-0.34
PFREQxLEAD	0.20	(0.19)	-0.34
PFREQxMID	0.28***	(0.09)	-0.06
PDPT	0.06	(0.08)	0.06
DDS	-0.51***	(0.09)	-0.51
DDSxLEAD	0.25**	(0.10)	-0.26
DDSxMID	0.29***	(0.07)	-0.22
SOM	-1.42***	(0.27)	-1.42
<i>(Times dummies omitted)</i>			
Constant	0.92***	(0.03)	0.92
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.			

The results in Table IV reveal several effect differences across brand types. Undertaking frequent price promotions has a strong negative influence on the equity of premium brands ($\beta = -$

0.34, $p < 0.01$). As the coefficient of the interaction term PRFREQxLEAD is not significantly different from zero, market leaders face the same negative impact when offering discounts frequently. Thus, the accumulated effect ($\gamma = -0.34$) is, at least statistically, the same for premium brands and market leaders. For mid-range brands, however, the positive effect difference is large and highly significant ($\beta = 0.28$, $p < 0.01$), leading to an accumulated effect that is close to zero ($\gamma = -0.06$). These results provide support for H4, because the negative effect of promotional frequency is stronger for brands with high-equity levels (i.e. premium brands and market leaders) than for low-equity brands (i.e. mid-range brands).

The adverse effect of discount-store distribution also varies significantly across brand types. While the negative influence is strongest for premium brands ($\beta = -0.51$, $p < 0.01$), it is only about half as strong for market leaders ($\gamma = -0.26$; $\beta = 0.25$, $p < 0.05$) and even less strong for mid-range brands ($\gamma = -0.22$; $\beta = 0.29$, $p < 0.01$). Thus, H5 is supported, because the magnitude of the negative impact of distribution via poor-image stores increases with the initial equity level of a brand. That is, the effect is most detrimental for premium brands, less severe for market leaders, and least deleterious for mid-range brands.

Discussion

This study's main purpose was to explore the role of brand types as moderators of the price promotional influence on brand equity. In addition, this study investigated whether the impact of distribution decisions also differs across brand types.

Empirical results reveal substantial effect differences across brands with varying equity levels. Specifically, the analysis shows that offering frequent price promotions is most harmful for high- and medium-equity brands, such as premium brands or market leaders. For low-equity brands, such as mid-range brands, the impact of promotional frequency is close to zero. A similar

pattern occurs for distribution via poor-image stores, which is most deleterious for high-equity brands (i.e. premium brands), less harmful for brands of medium equity (i.e. market leaders), and least detrimental for low-equity brands (i.e. mid-range brands). These insights lead to the general conclusion that the higher a brand's initial equity level, the more harmful are marketing activities that undermine consumers' quality perceptions and brand associations.

This study contributes to scientific research in several ways. First, the results substantiate existing findings because they extend the evidence base to the German market, which has not been subject to previous investigations. Second, compared with existing studies (e.g. Bravo-Gil *et al.*, 2007; Sriram *et al.*, 2007; Villarejo-Ramos and Sánchez-Franco, 2005; Yoo *et al.*, 2000), this work incorporates a much larger number of brands and also a greater variety of different brand types, thus enhancing the generalizability of extant findings. Third, the results advance current understanding by revealing that the impact of selected marketing activities considerably depends on the type of brand under consideration. Specifically, the findings indicate that a brand's initial equity level is an important factor that determines how a brand's equity reacts to harmful pricing and distribution decisions. This insight offers a starting point to explore potential sources for deviating results of existing works in this research stream (e.g. Yoo *et al.*, 2000 vs. Palazón-Vidal and Delgado-Ballester, 2005) and provides a promising avenue for future research endeavors aiming to shed light on factors that affect brand equity.

As with every empirical investigation, this study is subject to several limitations, which provide additional starting points for future scholarly research. First, this study used a summary measure of brand equity (i.e. price premium). Although a summary measure can adequately capture brand equity as a total outcome effect, it is not able to determine the specific impact on the respective manifest dimensions (i.e. sources) of brand equity. Thus, future research could

further detail and validate the current findings by exploring the moderating effects of brand types on consumers' quality perceptions, brand awareness, brand loyalty, and brand associations.

Second, this article focused on price promotions and store image. However, brand type may also be an important moderator of other marketing-mix elements' influence on brand equity. Thus, applying the current approach to other marketing-mix elements, such as advertising spending or non-monetary promotions, could also be a promising research avenue. Finally, this study used initial equity levels to distinguish different types of brands. However, other characteristics, such as innovation strength, may also play an important role in moderating the effect of marketing activities on brand equity.

Managerial implications

In addition to its scientific contributions, this study's results provide important implications for practitioners. Although price promotions and distribution via discount stores may represent tempting instruments to temporarily boost sales, marketing managers should account for these activities' deleterious long-term effects on brand equity. As brands are important factors of differentiation and crucial drivers of business success, a brand's pricing and distribution policy should be closely aligned with its value proposition. Activities that contradict this value proposition are likely to induce negative inferences about the brand's perceived quality and image, which may ultimately lead to a lower willingness to pay and lower profits. In this context, the type of the brand under management is of particular importance: managers of high-equity brands, such as premium brands or market leaders, should refrain from frequent price promotions and poor-image store distribution to avoid the highly adverse effects on their brands. Owners of low-equity brands (i.e. mid-range brands), however, can employ these instruments more widely because their impact on the brand's quality perception and image is less detrimental. A proposed

general guideline is, the more valuable a brand, the more sparingly price promotions and discount-store distribution should be used.

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