Trademark dilution by blurring: a brand equity perspective

ABSTRACT

This paper studies the effect of unauthorized use of famous brand names (senior brands) on their brand equity, based on a multidimensional consumer-based conceptualization. Moderation effect of similarity between the unauthorized brand and the senior brand is also studied. Although the definition of brand dilution is related to brand equity, previous studies on trademark dilution have omitted the brand equity's theoretical framework. This paper integrates the aforementioned literature with the Human Associative Memory model, in order to develop the hypotheses. An experimental design with four real senior brands and sixteen fictitious unauthorized brands (junior brands) was applied to 617 undergraduate students from a large university in Ecuador. Hypotheses about the effect on brand equity dimensions and on an overall brand equity construct were tested using structural equation models. Awareness of senior brand was not diluted by exposure to junior brands; however, strength of associations, loyalty and overall brand equity were diluted. There was a reduction in dilution due to greater similarity between junior and senior brands. Considering that brand equity dimensions have desirable consequences on consumer behavior and firm value, this paper's results highlight the importance of protecting brands against unauthorized use by third parties.

Keywords: trademark dilution, consumer-based brand equity, similarity, familiarity.

INTRODUCTION

Unauthorized use of famous brand names by third parties - either in the same or in different product categories - equals ten times the authorized uses in the United States (Brauneis and Heald, 2011). Among the consequences of this issue is trademark dilution, defined as a reduction in brand equity due to the emergence of an imitator or unauthorized user (junior brand) (Simonson, 1993) that generates negative cognitive, affective, or behavioral effects on famous brand's consumers (Loken and John, 2010). The literature identifies two types of dilution: blurring and tarnishment. Dilution by blurring is the weakening of the associations (in consumers' memory) between the brand and its distinctive aspects, e.g. product category and attributes (Choy and Kim, 2013; Pullig, Simmons and Netemeyer, 2006). For example, a junior brand named Kodak pianos, which uses a similar logo to senior brand Kodak Film Processing, could reduce consumers' ability to recognize or associate the senior brand with its product category (Morrin, Lee and Allenby, 2006). Tarnishment is explained as a negative change in senior brand evaluation (Simonson, 1993), because the junior brand - typically related to unsavory or unwholesome products or services, parodies or criticism - has added negative associations to (or negatively modified the existing ones in) the consumer mental schema. For example, the slogan "Enjoy cocaine" with the same typography and colors of Coca-Cola, could add negative associations to the senior brand Coca-Cola in consumer memory (Loken and John, 2010). In summary, the conceptualization of blurring and tarnishment is focused on the strength and content of associations, respectively (Jacoby, 2008).

However, from a consumer perspective, brand equity (BE) is a perception of added value that a brand gives a product, compared to the same unbranded product (Aaker, 1991; Farquhar, 1989; Keller, 1993). This added value is supported on several dimensions that go beyond associations, so it is presumed that other aspects of BE could be diluted when a junior brand enters the market. Aaker (1991) proposes four dimensions for BE from a consumer perspective: awareness, associations, perceived quality and loyalty. Keller (1993) identifies awareness and brand image as the principal dimensions of BE, where brand image is the result of a set of associations. Some scholars (Buil et al., 2008, 2013; Christodoulides and de Chernatony, 2010; French and Smith, 2013) argue that Aaker's conceptualization is one of the most accepted in the marketing literature. This study uses Aaker's BE dimensions because this framework describes a chain of effects of junior brand on senior brand equity.

Empirically, dilution has been evidenced with several dependent variables: strength of associations (Morrin and Jacoby, 2000; Morrin et al., 2006; Pullig et al., 2006), brand personality (Choy and Kim, 2013), probability of inclusion of the brand in the evoked set (Pullig et al., 2006), and purchase intention (Choy and Kim, 2013; Pullig et al., 2006). However, these studies have presented neither a conceptual framework nor empirical evidence to analyze the chain of effects generated by junior brands on BE dimensions and, ultimately, on the overall perception of added value (overall brand equity). Therefore, the purpose of this study is to analyze how BE dimensions are affected by junior brands, and if this hypothetical effect extrapolates to the overall brand equity. It can be argued that studying this issue is important for marketing literature and practice, since several studies support the influence of BE on desirable consequences on consumer behavior, such as purchase intention, pay price premiums, positive attitude towards extension, brand preference (Buil et al., 2013; Yoo and Donthu, 2001), and consequences at firm level, including market share and firm value (Srinivasan and Hanssens, 2009). The focus of this study is on blurring cases, in order to deepen the line of study of previous scholars (Choy and Kim, 2013; Morrin and Jacoby, 2000; Morrin et al., 2006; Pullig et al., 2006).

In the legal arena, there is a debate over whether famous brands need legal protection against junior brands (Dworkowitz, 2011). Those who say that anti-dilution law is unnecessary argue that the fame of senior brands is enough to offset the potential damage (weakening of associations) derived from junior brands, or even if such damage exists, it may be negligible (Tushnet, 2008). This study uses familiarity of senior brands - a proxy for their fame – as a control variable. On the other hand, the similarity of junior brands is manipulated, using different product categories and attributes, since previous studies have shown that similarity works as a boundary condition for dilution (Morrin and Jacoby, 2000; Pullig et al., 2006).

THEORETICAL BACKGROUND

Dilution by blurring and brand equity dimensions

According to the Human Associative Memory (HAM) model (Anderson, 1983; Teichert and Schöntag, 2010), information in consumer memory is stored in networks consisting of nodes (e.g., a senior brand and its distinctive aspects) connected by links (associations). When a junior brand emerges in another product category with some attributes, new associations are added to the existing network. When the consumer thinks about the brand, all associations compete for activation in memory, thus weakening the initial associations. Such weakening is evident in a reduction in the likelihood or speed of retrieval of senior brand associations (Burke and Srull, 1988), as some empirical studies show (Morrin and Jacoby, 2000; Morrin et al., 2006; Pullig et al., 2006).

Brand equity literature allows hypothesizing about junior brand's effects on senior BE dimensions. Awareness (AWA) is the ability of a potential buyer to recognize a brand when exposed to it, and to recall that a brand belongs to a certain product category (Aaker, 1991). It is also stated that brand awareness represents how well established the brand node is in memory, which, in turn, is a necessary condition for the creation and strength of brand associations (Aaker, 1991; Keller, 1993). The emergence of a junior brand may not reduce brand recognition, and may even enhance it, because junior brand advertising makes brand name salient. Brand recall, which involves a link between senior brand and its product category, could be reduced due to new associations added regarding product category and attributes of the junior brand. Considering that we are predicting two distinct effects of a junior brand on AWA, the direction of the net effect depends on the magnitude of each one. Therefore, we propose a bi-directional hypothesis:

H1a: The emergence of a junior brand does not dilute senior brand awareness

H1b: The emergence of a junior brand dilutes senior brand awareness

Associations (ASSO) are links between the brand and attributes, sensations, and/or experiences (Aaker, 1991), that can vary in favorability, uniqueness, and strength. According to the HAM model, a junior brand adds new associations to the original network, thus reducing the strength of senior brand associations. Thus, we make the following prediction:

H2: The emergence of a junior brand reduces the strength of senior brand associations.

Perceived quality (PQ) is the global perception of superiority or excellence of a brand relative to its competitors, which depends on the strength and favorability of associations regarding branded product attributes and performance (Aaker, 1991; Zeithaml, 1988). Also, a high level of awareness could be a signal to the consumer that the brand has been present a long time in

the market and that it offers high quality products (Aaker, 1991; Jacoby, Olson and Haddock, 1971). Therefore, it can be argued that greater AWA and stronger and positive ASSO could be related to greater PQ (Esch et al., 2006; Yoo and Donthu, 2001). If it is possible to reduce awareness, weaken existing associations and, probably, add some irrelevant associations for overall quality evaluation to the senior brand network because of the emergence of a junior brand, then one can conclude that PQ could be diluted. Therefore:

H3a: The emergence of a junior brand dilutes the perceived quality of the senior brand

H3b: Awareness mediates the effect of a junior brand on the perceived quality of the senior brand

H3c: Strength of associations mediates the effect of a junior brand on the perceived quality of the senior brand.

The concept of brand loyalty (LOY) used in this study reflects the commitment to consume brand products (Oliver, 1999), the extent to which the consumer is attached to the brand (Aaker, 1991), or the intention to select the brand as the first choice (Yoo and Donthu, 2001). As an attitudinal construct, it depends on the salience of beliefs a consumer has about branded products (strength of associations) and the evaluative judgment of those beliefs (content of associations) (Keller, 1993), that includes perceived quality, positive image and liking (Aaker, 1991). According to this framework, when a junior brand emerges, the weakening of ASSO and dilution of PQU could deteriorate LOY. The following hypotheses are postulated:

H4a: The emergence of a junior brand dilutes senior brand loyalty

H4b: Strength of associations mediates the effect of a junior brand on senior brand loyalty.

H4c: Perceived quality mediates the effect of a junior brand on senior brand loyalty.

Despite its multidimensionality, brand equity can also be interpreted, in a general sense, as the added (or incremental) value that a brand prints on a product, compared to a product that does not have that brand (Aaker, 1991; Farquhar, 1989; Keller, 1993). The overall brand equity (OBE) (Yoo, Donthu and Lee, 2000) is theoretically related with associations, perceived quality, and loyalty. Awareness has a positive effect on brand equity, signaling quality and acting as an anchor for the formation of associations, as explained before. Thus, unique and favorable associations, as well as a high perceived quality, allow differentiation of the senior brand from its competitors in the minds of consumers (Buil et al., 2013). High levels of loyalty reflect a strong commitment to buy the products of the brand and a low switch probability (Aaker, 1991). It can be argued that when BE dimensions are diluted, the overall construct could also be diluted.

H5a: The emergence of a junior brand dilutes overall brand equity

H5b: Perceived quality mediates the effect of a junior brand on overall brand equity.

H5c: Loyalty mediates the effect of a junior brand on overall brand equity.
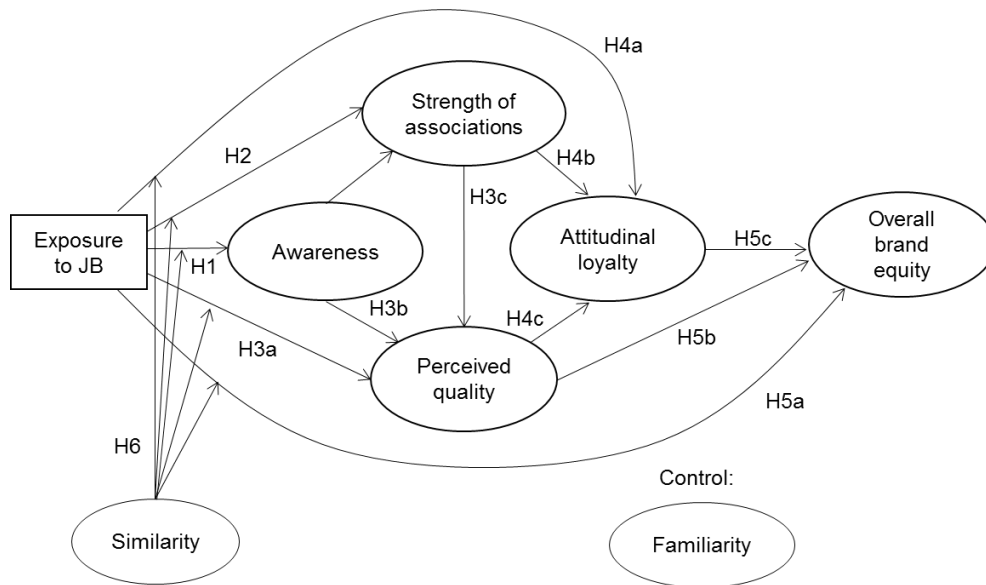
Figure 1. Conceptual Model

Similarity

Similarity is the level in which category product and attributes between junior and senior brand are perceived as equivalent (Grime, Diamantopoulus and Smith, 2002). According to the HAM model, if there is a high similarity between aspects of the junior and senior brands, these two information networks become more interconnected. When consumers think about the brand, the likelihood and speed of recovery of the initial associations may not suffer a reduction in memory, and may even increase, due to a higher number of interconnected nodes (Humphreys et al., 2000; Pullig et al., 2006). Empirical studies on trademark dilution show evidence in this line (Morrin and Jacoby, 2000; Pullig et al., 2006). The next hypothesis therefore reads:

H6: The greater the similarity between junior and senior brands, the lesser the dilution of the latter.

Familiarity

The present study uses familiarity as a control variable. Brand familiarity is frequently defined as the extent of a consumer's direct or indirect experience with a brand (Alba and Hutchinson, 1987; Kent and Allen, 1994), and it reflects the consumers' brand knowledge stored in their memory (Campbell and Keller, 2003; Cian, Krishna and Schwarz, 2015). The more familiar a brand is to a consumer, the more stable is the associated knowledge structure, which in turn is less likely to be changed (Choy and Kim, 2013). The above described relationships are depicted in figure 1.

METHODS AND SAMPLE

Preliminary Procedures

Four real brands (senior brands), from four different product categories, were used. Two focus groups (men and women) were run in order to preselect the product categories and brands most often used. Several pretests (N between 44-59) were performed in order to define four product categories with their respective senior brands and distinctive attributes, and product categories

for fictitious junior brands (Table 1). Data from these pretests were analyzed qualitatively, in order to identify the most mentioned attributes related to each senior brand. Also, five to six suggested categories were evaluated for product similarity to each senior brand product category, from which two junior brand categories were selected for each senior brand.

Table 1. Selected Product Categories, Senior (SB) and Junior Brands (JB)

Product categories / SB	Distinctive attributes	High product similarity JB	High attribute similarity	Low attribute similarity	Low product similarity JB	High attribute similarity	Low attribute similarity
Toothpaste / Colgate	fresh breath, clean sensation	Buccal spray	fresh mint flavor, clean sensation	cinnamon flavor, does not replace brushing teeth	Chewing gum	fresh mint flavor, clean sensation	blackberry flavor, colorful smile
Deodorant /Rexona[a]	great scents, high protection	*Eau de Toilette*	great scents, long lasting	for kids, kids scent (lavender)	Body wipes	great scents, skin protection	unscented, momentary cleaning
Carbonated soft drink / Coca-Cola	unique flavor, refreshment	Juice	unique flavor, quenches thirst	lemonade, drink it hot or cold	Candy	unique flavor, refreshes	citric flavor, with vitamin
Pen / BIC	inexpensive, high quality	Tablet pen	inexpensive, they never fail	elegant, low compatibility	Watch	inexpensive, they never fail	sophisticated look, not water-resistant

Notes: a. Known as degree in United States and Canada

Undergraduate students were used in all these phases of the research. Student samples are justified when the research purpose relates to theory testing, since researchers should be concerned with using a sample that gives the possibility of theory rejection (Calder, Phillips and Tybout, 1981). This type of sample has been used in all major dilution studies reviewed (Choy and Kim, 2013; Morrin and Jacoby, 2000; Morrin et al., 2006; Pullig et al., 2006) and is widely used in consumer and marketing research (Peterson and Merunka, 2014).

Procedures for Main Study and Measures

Two graphic designers elaborated visual advertisements for junior brands, using the same senior brand name and varying the level of product and attribute similarity (low/high) related to each senior brand, producing four junior brands (JB) for each senior brand (SB). A total of 618 students from a large university in Ecuador were randomly assigned to a 4 (SB=Rexona, Coca-Cola, BIC, Colgate) $\times$5 (exposure= SB, JB$_1$, ... , JB$_4$) between-subjects design.

First, the participants were shown the visual stimuli (SB or JB) and two additional advertisements about unrelated brands. Then, some demographic questions were asked. Next, the participants were asked a set of questions (21 items) about BE dimensions and OBE for SBs (Netemeyer et al., 2004; Yoo et al., 2000). Brand associations items used in this study are intended to measure the strength of associations (Yoo et al., 2000). Participants reported how familiar they were with each of the SBs (1 item) (Morrin, 1999; Reinholtz, Bartels and Parker, 2015). Similarity questions were asked for participants in the treatment conditions only, using Bhat and Reddy's (2001) scales about perceived product fit (2 items). All items related to BE, familiarity and similarity were measured on seven point-Likert scales (Table 2). Items were back-translated, including a check for conceptual equivalence by a Marketing professor. The

back-translated and original versions of the items showed a high level of coincidence. After data collection, 1 questionnaire was eliminated because of inconsistent responses, which resulted in a final total sample size of N=617 (Female= 60,5%; M_{AGE}=20,98; SD=2,73), with group sample sizes ranging from 30 to 34.

The theoretical model was tested with Structural Equation Models (SEM) in AMOS software. The initial measurement model contained the items shown in Table 2. The treatment was represented with a dichotomous variable (1= exposure to JB), as suggested by Bagozzi and Yi (1989) and illustrated by Arbuckle (2013). Since similarity between senior and junior brands could only be measured for treatment groups, its items were included as interaction terms, taking the value of zero for control groups. Furthermore, for this reason, the covariance between exposure and latent variable similarity was not set to zero, but freed.

RESULTS

Preliminary Checks

A check for the manipulation of similarity showed there was no statistically significant difference among most of the similarity levels. Although the four SBs were the most used brands in their respective product categories, they showed different levels of familiarity (M_{Rexona}=4,59; $M_{Coca-Cola}$=6,04; M_{BIC}=6,44; $M_{Colgate}$=6,51; F_{BRAND}=65,6; p=0,00). In order to avoid a range restriction problem (Aguinis, 1995), similarity and familiarity were not categorized (low/high), but included as interval variables in the structural model.

Common method variance (CMV) was analyzed with the widely used technique of marker variable (mv) (Williams, Hartman and Cavazotte, 2010), with a *post hoc* correlation as a reasonable and conservative proxy of the common variance (Lindell and Whitney, 2001). Then, the CMV-adjusted correlations between the variables investigated and their significance were calculated (Lindell and Whitney, 2001; Malhotra, Kim and Patil, 2006). After this procedure, 2 of the 273 statistically significant correlations (less than 1%) became not significant, demonstrating that CMV is not an issue in the data.

Regarding multivariate normality, all variables exhibited levels, either for skewness or kurtosis, significantly different from zero, according to critical ratios (C.R.). Mardia's coefficient showed severe multivariate kurtosis (*Mardia*= 151,46; *C.R.*=63,41; p<0,01). Lack of multivariate normality is problematic, since it inflates the Chi-square statistic (Hair et al., 2010) and underestimates standard errors, so erroneous significant relations may be found in the model. Estimation methods which are valid under non-normal data were considered, since real data are seldom normal (Yuan and Bentler, 1997). The bootstrap technique with 5000 repetitions (Andrews and Buchinsky, 2002) was chosen in order to obtain standard errors and bias-corrected confidence intervals for parameters. This method was preferred to maximum likelihood (ML) estimation and robust standard errors (adjusted by excess of kurtosis), based on Nevitt and Hancock's (2001) findings. Asymptotically free-distribution (AFD) method was discarded since it requires impractical large sample sizes (Hair et al., 2010).

Table 2. Scales, Loadings, Reliability and Validity Measures

Item		Scale	CFA stand. weights
Awareness (AWA) (Yoo et al. 2000; Netemeyer et al. 2004):			
CR=0,728; AVE=0,473; ASV=0,465; MSV=0,814			
aa1	I know what X looks like.		0,701
aa2	I can recognize X among other competing brands.	(1=Totally disagree - 7=Totally agree)	0,622
aa3[a]	I am aware of X.		-
aa4[a]	I am aware of X.		-
aa8	When I think of (senior brand product category), X is one of the brands that comes to mind.		0,736
Associations (ASSO) (Yoo et al., 2000):			
CR=0,69; AVE=0,534; ASV=0,418; MSV=0,814			
aa5	Some characteristics of X come to my mind quickly.	(1=Totally disagree - 7=Totally agree)	0,843
aa6	I can quickly recall the symbol or logo of X.		0,598
aa7r	I have difficulty in imagining X in my mind (r).		-
Perceived Quality (PQU) (Yoo et al., 2000):			
CR=0,928; AVE=0,721; ASV=0,43; MSV=0,623			
pqu1	X is of high quality.		0,908
pqu2	The likely quality of X is extremely high.	(1=Totally disagree - 7=Totally agree)	0,883
pqu3	The likelihood that X would be functional is very high.		0,795
pqu4	The likelihood that X is reliable is very high.		0,818
pqu5	X must be of very good quality.		0,836
pqu6r	X appears to be of very poor quality (r).		-
Loyalty (LOY) (Yoo et al., 2000):			
CR=0,913; AVE=0,778; ASV=0,457; MSV=0,719			
loy1	I consider myself to be loyal to X.	(1=Totally disagree - 7=Totally agree)	0,894
loy2	X would be my first choice.		0,91
loy3	I will not buy other brands if X is available at the store.		0,84
Overall Brand Equity (OBE) (Yoo et al., 2000):			
CR=0,826; AVE=0,544; ASV=0,396; MSV=0,719			
obe1	It makes sense to buy X instead of any other brand, even if they are the same.	(1=Totally disagree - 7=Totally agree)	0,699
obe2	Even if another brand has same features as X, I would prefer to buy X.		0,809
obe3	If there is another brand as good as X, I prefer to buy X.		0,756
obe4	If another brand is not different from X in any way, it seems smarter to purchase X.		0,679
Similarity (SIM) (Bhat and Reddy, 2001):			
CR=0,949; AVE=0,903; ASV=0,009; MSV=0,016			
sim1	(junior brand product category) and (senior brand product category) are similar	(1=Totally disagree - 7=Totally agree)	0,985
sim2	(junior brand product category) is like (senior brand product category)		0,914
Familiarity (FAM) (Choi et al. 2014; Ferraro et al. 2013; Morrin 1999; Reinholtz et al. 2015)			
Fam	Regarding the (senior brand product category) X, are you..	(1=Not at all familiar - 7=Very familiar)	

Notes: **a.** Two items with alternative translation were used, as suggested during the conceptual equivalence analysis. **CR**: composite reliability; **AVE**: average variance extracted; **ASV**: average shared variance; **MSV**: maximum shared variance.

Measurement Model

The initial run suggested that some of the items should be removed from the analysis because of low factor loadings (2 items from AWA, 1 from ASSO and 1 from PQU). Composite Reliability (CR) was calculated to assess the reliability of the measurement of each construct, with a threshold value of 0,70 (Hair et al., 2010). Average Variance Extracted (AVE) by the latent construct should exceed 0,50 for convergent validity and should be greater than Average Shared Variance (ASV) and (more strictly) Maximum Shared Variance (MSV) to reflect discriminant validity (Fornell and Larcker, 1981). Reliability of ASSO (CR=0,69) and convergent validity of AWA (AVE=0,473) are slightly below their thresholds. Discriminant validity of all the constructs is adequate, taking the ASV as a reference (Table 2).

As N increases above 200, Chi-square has a tendency to reject models, indicating significant differences between the proposed model and the sample covariance; while for sample sizes below 100, the test usually does not find significant differences, even when none of the proposed structural relationships is significant (Hair et al., 2010; Schumacker and Lomax, 2004). Bollen-Stine p-value obtained from bootstrapping is also sensitive to sample size, showing low values, as Chi-square's p-value does (Hartmann, 2005). Considering the large sample used in this study (N = 617), other measures were observed: CMIN/df, GFI, AGFI, CFI and RMSEA. Analyzing these indicators, the measurement model has an adequate fit (*Chi-square*=616,27; *df*=137; *p*=0,00; *CMIN/df*=4,498; *GFI*=0,90; *AGFI*=0,862; *CFI*=0,942; *RMSEA*=0,075). Table 3 shows some descriptive statistics for the study constructs. The statistics by brand show that Colgate has the highest valuation in all BE dimensions, while Rexona has the lowest.

Table 3. Descriptive Statistics for the Study Constructs

		AWA	ASSO	PQU	LOY	OBE	FAM
Total sample	Mean	5,753	5,560	5,388	4,212	4,277	5,895
	S.D.	1,244	1,428	1,330	2,023	1,602	1,570
Colgate	Mean	6,194	6,013	5,885	5,370	4,704	6,510
	S.D.	0,916	1,011	1,075	1,705	1,553	1,107
Rexona	Mean	5,089	4,646	4,971	3,247	3,925	4,591
	S.D.	1,437	1,671	1,321	1,967	1,559	1,821
Coca-Cola	Mean	5,793	5,808	5,005	3,609	3,905	6,038
	S.D.	1,186	1,297	1,438	2,019	1,681	1,414
BIC	Mean	5,939	5,773	5,699	4,639	4,580	6,442
	S.D.	1,109	1,241	1,210	1,661	1,451	0,977

Structural Model

Fit measures show an adequate fit of the global model, except AGFI, which rewards parsimony (*Chi-square*=663,679; *df*=168; *p*=0,00; *CMIN/df*=3,95; *GFI*=0,902; *AGFI*=0,866; *CFI*=0,944; *RMSEA*=0,069). The results for the structural model relationships are shown in Table 4. Exposure to junior brand (EXPOS) did not affect AWA, giving support to H1a. ASSO, LOY and OBE were negatively influenced by EXPOS, giving support to H2, H4a and H5a, respectively. Dilution of LOY is partially mediated by dilution of ASSO, according to H4b, while dilution of OBE is partially mediated by dilution of LOY (H5c supported). There is no evidence for H3a, since PQU was not affected by EXPOS. Moreover, PQU was not diluted through AWA, nor was it diluted through ASSO. Similarity of junior brands positively

influenced three of four BE dimensions (ASSO, PQU and LOY) and OBE, giving support to H6. Familiarity with senior brands influenced (positively) two of five constructs (AWA and LOY). Summarizing BE dimensions relationships, positive influences of AWA over ASSO and PQU, ASSO and PQU over LOY, and LOY over OBE, were found. The regression weights of the indicators were all statistically significant.

Table 4. Regression weights and bias-corrected confidence interval (95%)

H0	Parameter	Estimate	SE[a]	Bias-corrected 95% CI		P	
				Lower	Upper		
H1a,b	AWA←EXPOS	0,204	0,139	-0,058	0,486	0,135	
H2	ASSO←EXPOS	-0,322	0,159	-0,653	-0,017	0,035	**
H3a	PQU←EXPOS	-0,316	0,328	-0,976	0,053	0,103	
H4a	LOY←EXPOS	-0,466	0,158	-0,785	-0,152	0,002	***
H5a	OBE←EXPOS	-0,468	0,127	-0,724	-0,23	0,000	***
	AWA←SIM	-0,026	0,044	-0,122	0,055	0,520	
	ASSO←SIM	0,075	0,037	0,007	0,158	0,031	**
H6	PQU←SIM	0,11	0,075	0,027	0,282	0,008	***
	LOY←SIM	0,116	0,043	0,035	0,205	0,004	***
	OBE←SIM	0,066	0,029	0,01	0,124	0,021	**
	AWA←FAM	0,416	0,04	0,336	0,495	0,000	***
	ASSO←FAM	-0,034	0,063	-0,169	0,085	0,573	
Control	PQU←FAM	-0,033	0,111	-0,265	0,092	0,709	
	LOY←FAM	0,198	0,048	0,102	0,291	0,000	***
	OBE←FAM	-0,007	0,032	-0,069	0,057	0,823	
BE relations:							
	ASSO←AWA	1,217	0,125	0,997	1,497	0,000	***
H3b	PQU←AWA	1,351	1,024	0,729	3,58	0,002	***
H3c	PQU←ASSO	-0,228	0,735	-2,115	0,164	0,309	
H4b	LOY←ASSO	0,298	0,083	0,126	0,456	0,002	***
H4c	LOY←PQU	0,718	0,072	0,572	0,855	0,001	***
H5b	OBE←PQU	0,106	0,058	-0,008	0,221	0,067	*
H5c	OBE←LOY	0,547	0,055	0,443	0,662	0,000	***

Notes: a. bootstrap standard error; *p<0,10; **p<0,05; ***p<0,01

DISCUSSION

In summary, these results show that dilution operates beyond strength of associations, since attitudinal loyalty and overall brand equity were also diluted. The weakening of associations supports the prediction of the HAM model and the conclusions of previous studies about trademark dilution (Morrin and Jacoby, 2000; Morrin et al., 2006; Pullig et al., 2006). It was also evidenced that brand awareness was not affected by the emergence of junior brands, which can be explained by the fact that junior brand advertising and market exposure could make the brand name salient for consumers, as the senior brand does. Perceived quality, although it depends on the strength of associations, is also supported by the content of associations regarding products attributes and performance. Our results show that junior brands have neither a direct nor an indirect effect on perceived quality. This finding suggests that the content of associations related to brand excellence and performance was not affected. On the other hand,

junior brands have direct and indirect effects on loyalty and overall brand equity. These results are similar to those of Choy and Kim (2013), who showed dilution of attitudes and purchase intention due to junior brands. It is interesting to note that attitudes towards the brand and its overall evaluation of added value could be affected by junior brands even if consumers' perception of superior quality is not affected. According to Aaker (1991) and Keller (1993), perceived quality is one of the bases for attitudinal loyalty, but there are other influencers like strength of associations, liking and brand image. That is, perceived quality is a subset of a broader set of associations in the consumer's mind that could be affected by junior brands.

Regarding perceived similarity, it moderated the three dilution situations, and reinforced perceived quality. This result coincides with prior findings that show that dilution diminishes with greater attribute and product category similarity (Morrin and Jacoby, 2000; Pullig et al., 2006). On the other hand, although the variation of familiarity among the famous brands used in this study was limited, a positive relation of familiarity with two BE dimensions (AWA and LOY) emerged in the results. Further analysis of covariance to LOY showed that this dimension was diluted in the less familiar brand (Rexona), but not in the others. We did not find an effect of familiarity on the other diluted dimensions (ASSO and OBE). We think that the weak evidence of the effect of familiarity may be due to the lack of variability of the construct in this sample.

CONCLUSIONS, LIMITATIONS AND FURTHER RESEARCH

This study represents a step forward in the literature on trademark dilution, in the sense that it analyzes the effects of a junior brand on senior BE dimensions. Most past studies use traditional measures of dilution relating to the strength of associations, but we expanded the scope of the eventual damage caused by junior brands. While awareness is not affected, other constructs such as the strength of associations, the attitude of brand loyalty and, consequently, the overall perception of added value were diluted. In the case of loyalty, dilution may be due not only to the weakening of associations, but also to the likely deterioration of some beliefs (except perceived quality) about the brand.

In any case, given that brand equity is an antecedent to desirable behaviors in consumers, these results highlight the importance of defending the brand against imitations or unauthorized use. This conclusion holds even though the brands are famous, as is the case with those used in this study. In only one of the dimensions affected by junior brand (loyalty) it was noted that greater familiarity could attenuate dilution; this did not hold up in the other constructs (associations and overall brand equity). Finally, the greatest attention should be given to unauthorized use of the brand in different products or with dissimilar attributes to those that make the brand distinctive.

This study has some limitations. The product categories used belong to "convenience" or "preference" types (Murphy and Enis, 1986), but further studies could test the dilution in "shopping" or "specialty" products where consumers get more involved with the purchase task and, probably, could process the information of senior brands in a different way that could attenuate the effect of junior brands. Another limitation is the use of undergraduate students in the sample, which limits the generalizability of the findings, although Calder et al. (1981) justify the use of student samples in research aimed at theory testing. Despite this limitation, the focus groups and pretests allowed the researchers of this study to choose appropriate brands and product categories for these consumers. Non-students and consumers of other ages would be valuable to increase the generalizability of the results. Regarding the type of imitation, in order to create the junior brands in this study, the senior brand name was used, and the level of

similarity to the distinctive aspects of the senior brand was manipulated. Further studies could compare the effects of imitation of other elements of the brand (i.e., logo, packaging, slogan, sounds, etc.) in the same or another product category, in order to have a better understanding of the relative levels of damage derived from various brand elements.

Finally, a useful advance in the topic would be to financially quantify the effects of unauthorized use of famous brands, based on long term consumer behavior in the marketplace. This could deepen the economic-harm debate within trademark dilution literature (Tushnet, 2008).

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