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Determinants of Store Brand Share☆

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Abstract

Private labels or store brands have witnessed considerable growth in the last few decades, especially in grocery products. However, market shares of store brand vary considerably across categories, markets, and countries. A natural question of interest to academics and practitioners is what factors influence store brand market shares. Drawing on a utility framework, we develop 21 consumer, manufacturer, retailer, and product-market characteristics that can influence store brand share. We test the empirical generalizability of the effect of these determinants through a meta-analysis of data from 54 individual and aggregate market studies. Twenty of the 21 determinants show significant, empirically generalizable effects. We discuss the key findings, their implications, and directions for future empirical research.

Keywords: Store brands; Private labels; Empirical generalization; Meta-analysis; Retailing

Introduction

Store brands (SBs) have been growing in sales across the globe over the last two or three decades. In the United States, supermarket sales of SBs increased 5.1 percent in 2011, pushing SB dollar share up half a point to 19.5 percent, a record high (Nielsen/PLMA 2012). By comparison, sales of national brands (NBs) gained only 2 percent over the same period in the U.S. SB unit share in 2011 rose to 23.6 percent, compared to about 15 percent in the 1980s. SB shares are even higher in Europe, and are also growing in Asia and Australia (Kumar and Steenkamp 2007). However, market shares of SBs are not uniform across categories or countries. For example, in 2012, SB market share for the United Kingdom was twice that for the U.S., and SB share in the U.S. was more than twice the share for most countries in Asia. Within the U.S., average SB share for all packaged foods was three times as much as in household goods and five times the SB share in personal care products (Euromonitor 2012). SB shares also vary by retailer and across geographic regions within a country. This variation in market share raises an important question as to what factors influence consumer choice and thus aggregate market share of SBs.

Sethuraman (1992) and Hoch and Banerji (1993) were among the first to provide a comprehensive empirical analysis of the determinants of SB share. Since that time, a large body of empirical research has emerged addressing two questions: (i) At the individual or household level, what factors influence SB proneness and choice vis-à-vis NBs? and (ii) At the aggregate market level, what are the determinants of SB share? In this study, we attempt to draw empirical generalizations from this body of literature.

In particular, we identify 54 empirical studies that provide information on the antecedents of SB proneness, choice, and market share. These studies yield several directional empirical generalizations related to whether a particular factor, on aggregate, positively influences SB choice or share, negatively influences it, or does not have a significant influence. We then delve deeper into the data and the studies and offer additional insights into the strength of the relationship, the moderators of the effect, and other aspects of the relationship that can be gleaned from the meta-analysis data.

The rest of the paper is divided as follows. We first present a utility framework and identify potential determinants of SB share which we investigate in our meta-analysis. Next, we

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describe the procedure for compiling and meta-analyzing the data from published literature. We then present and discuss the results of our meta-analysis. We conclude by summarizing the key results and stating their implications, as well as offering directions for future research.

Framework

We draw on a consumer utility maximization framework to develop the potential determinants of SB share. Consumers will buy SBs if they perceive the SB to be of better value than NBs. Perceived value arises from non-price utility for the brand (owing to perceived quality and imagery) and (dis)utility for price. We identify 21 potential determinants of SB share from the drivers of price utility and nonprice utility, as represented in Fig. 1.[2]

Drivers of price utility

Price utility in the context of NB-SB competition is directly driven by the price of SBs relative to NBs, temporary price promotions offered for both NBs and SBs, and consumer price sensitivity. Generally, NBs are the higher-priced brands and SBs are the lower-priced options, so that the NB-SB price differential [p(NB)-p(SB)] is generally positive. Hence, the higher the *NB-SB price differential* [p(NB)-p(SB)], the higher the temporary *SB price discounts* and the lower *NB price discounts*, the higher the relative SB value and the greater the likelihood of SB purchase and the higher the SB share. Moreover, for a given price differential, higher *consumer price sensitivity* implies higher price disutility for NBs, resulting in larger SB share.

The NB-SB price differential is determined by the conduct of both retailers, who sell NBs and SBs, and manufacturers, who market their NBs through the retailers. In particular, if retailers increase the NB-SB price differential by increasing *SB price promotions* (e.g. temporary price discounts), then SB share will increase. If retailers or manufacturers increase *NB price promotions*, then SB share will decrease. Retailers' and manufacturers' price decisions with respect to NBs and SBs, in turn, depend on competitive and other marketplace factors. Raju, Sethuraman, and Dhar (1995a) show that when *price competition or cross-price sensitivity among NBs* is high, manufacturers and retailers reduce the price of NBs. The decreased NB price, in turn, depresses the price differential between NBs and SBs, resulting in smaller SB share. Price competition may also be stimulated by the *number of NBs*. Other things equal, more NBs means less quantity sold of each brand and hence a stronger pressure to reduce NB prices. This in turn closes the NB-SB price gap, resulting in smaller SB share. Higher *NB concentration* can also lead to smaller SB share. Higher NB concentration implies that a few NB manufacturers garner a large share of the market, and thus market power, resulting in wider distribution and more price control. NB manufacturers may leverage this price control to influence the NB-SB price differential in their favor, resulting in lower SB share. *Retail concentration* (total share held by top retailers), on the other hand, works in the opposite direction and gives market power to retailers. If there are a few retailers who are very strong, these retailers can then use the power of their size to obtain better terms for NBs as well as develop their own differentiated SBs (e.g. Marks and Spencer in the U.K.) and hence manipulate the price differential in their favor and increase SB share.

Consumer price sensitivity, in turn, is posited to vary depending on (i) consumer demographics, (ii) perceived risk, and (iii) shopping trip/behavior. Consumer demographics often related to price sensitivity are household income and household size. For a given household size, lower income implies less affordability for the higher-priced NBs and greater price sensitivity. By purchasing lower-priced SBs, lower-income households may stretch their limited budgets. In a similar vein, for a given household income, the greater the size of the family, the tighter the monetary resources leading to higher price sensitivity and hence the propensity to purchase the lower-priced store brands (Richardson, Jain, and Dick 1996).

Disutility of uncertainty reflects both the likelihood of making a mistake and the consequences of making a mistake (Erdem and Keane 1996). Sinha and Batra (1999) propose that if the *perceived risk* of purchasing a brand in a given category is less, consumers are more motivated to find lower prices for greater monetary savings, exhibit greater price sensitivity, and are thus more likely to purchase the lower-priced SBs.

Perceived risk, in turn, is influenced by perceived quality variability and familiarity with store brands. Higher perceived quality variability in brands creates greater uncertainty as to whether the generally lower-priced store brand is of good quality, resulting in greater perceived likelihood of making a mistake, enhancing perceived risk (Batra and Sinha 2000). Increases in perceived risk will deter SB purchases and diminish SB share. *Familiarity with SBs*, on the other hand, reduces the perceived risk of purchasing SBs (Richardson, Jain, and Dick 1996). If consumers become familiar with SBs through trial or inspection, then perceived risk will be reduced and they will be more likely to opt for the store brand (Fitzell 1992).

Among the shopping trip characteristics, the average size of the shopping basket and shopping trip frequency play a role in influencing consumer price sensitivity and thus SB share. Consumers with high quantity requirements, which are related to both *basket size* and *trip frequency*, are more likely to shop for economical alternatives, which results in significant savings (e.g. Baltas 1997). Such consumers are thus more likely to buy the lower-priced SBs.

[2] The 21 drivers do not represent an exhaustive list of all variables that can potentially influence SB share. These variables were selected based on two criteria: (i) availability of sufficient data for meta-analysis and (ii) consistency with the utility framework. For example, NB-SB price competition potentially affects price disutility and increases SB share; however, we could not test the effect of that variable due to lack of data. Ethnicity is a potentially interesting demographic variable which may influence SB share; but we did not include the variable in the meta-analysis since there was no clear link between ethnicity and consumer utility. In the same vein, due to lack of data and/or theory, we do not highlight potential nonlinearities or (reverse) causal paths relating to the effect of the determinants in Fig. 1 on SB share.

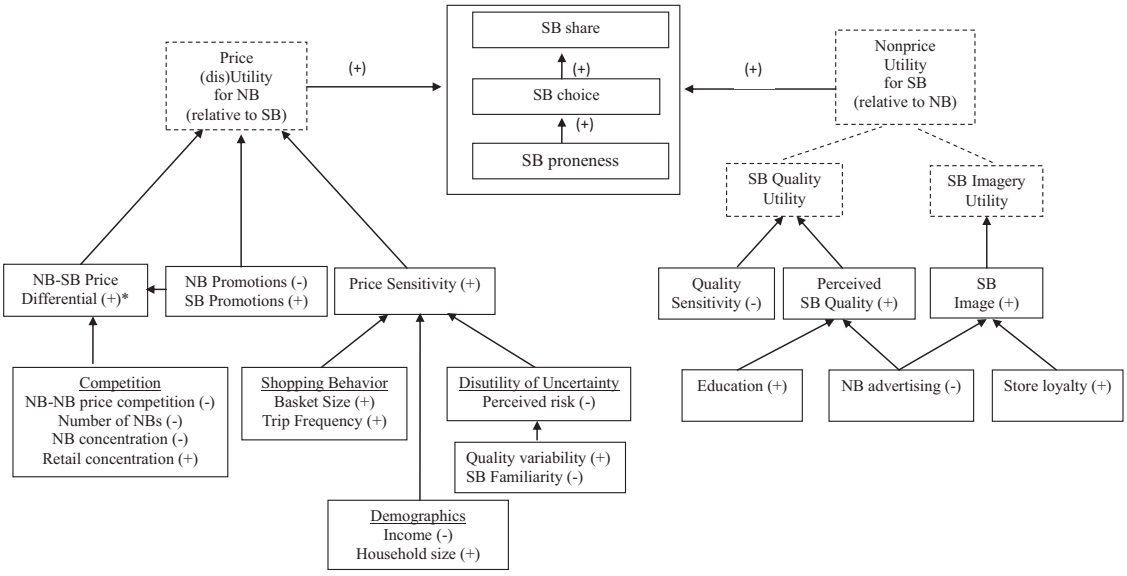

Fig. 1. Determinants of store brand (SB) share. *(+) implies the determinant has a positive effect on the immediately preceding factor; (−) implies the determinant has a negative effect. However, we do not test these antecedent or causal paths in our meta-analysis but use them to derive the relationship between the determinant and SB share. For example, SB familiarity is negatively related to perceived risk, perceived risk is negatively related to price sensitivity, and price sensitivity is positively related to SB share through disutility for NB price. Therefore, SB familiarity is positively related to SB share, as indicated in Table 1.

Drivers of non-price utility

Non-price utility comprised quality utility (utility from perceived quality) and nonquality utility (utility from imagery). The *perceived quality* of SBs relative to NBs has been extensively discussed as the key determinant of SB share (see, e.g. Bettman 1974; Erdem, Zhao, and Valenzuela 2004; Hoch and Banerji 1993; Steenkamp and Geyskens 2014). Higher *SB perceived quality* leads directly to higher utility for the SB and higher SB share. Higher perceived quality of SB in turn may be driven by the level of consumer education. It is generally believed that the objective quality of SBs has improved and is close to, if not equal to or greater than, the objective quality of comparable NBs. This objective quality is often reflected in information provided in the packaging. Educated consumers are willing and able to read these labels or access other product-related cues. They therefore act as "smart consumers" and are more prone to saving money without compromising on quality by buying the SBs.

The traditional view holds that SBs are generally of lower quality than NBs. *Quality sensitive* consumers are therefore more likely to prefer the higher-quality NBs (Ailawadi, Neslin, and Gedenk 2001). Finally, brand image, the impression in consumers' minds of a brand's total personality, plays a major role in the choice between NBs and SBs (Sethuraman 2003). *SB image*, developed through advertising and consistent quality, will positively affect SB share. On the other hand, NB image, developed through NB advertising and differentiation, will negatively impact SB share.

Because SBs are closely associated with the store that sells the brand, (nonprice) SB utility may be intrinsically related to store loyalty. Store-loyal consumers are believed to trust their preferred store and hence the SBs it offers (Bonfrer and Chintagunta 2004; Richardson, Jain, and Dick 1996). Moreover, the ability to buy a trusted, single brand across a wide range of product categories reduces uncertainty and enhances the utility of the shopping experience (Ailawadi, Pauwels, and Steenkamp 2008).

Procedure

Data compilation

We adopt procedures commonly used in meta-analysis for compiling studies from the literature. First, we searched online portals such as Social Science Citation Index, Google Scholar, ABI/Inform, and Lexis/Nexis using key words – "store brands," "private labels," "retailer brands" – and identified all empirical studies published in academic journals. We identified other empirical studies from references in these publications. We reviewed all the identified papers and selected those that are appropriate for our meta-analysis.

We tracked all empirical studies that captured SB sales performance as either SB proneness, SB choice, or SB market share. Of those studies, we selected all those that provided an empirical estimate of the effect of at least one determinant variable on any one of the three measures of SB performance. This procedure yielded 54 studies, which are listed in Appendix Table A1.

We coded the following data from each study: (i) study identification (authors, year published, journal, etc.); (ii) dependent variables (SB proneness/choice/share); (iii) independent determinant variables (e.g. income, price differential); (iv) operationalizations of the dependent and independent variables; (v) measures related to magnitude and/or direction of the effect of influencing factors on SB share; (vi) measures related to variance and/or statistical significance of the effect of determinant on SB share; (vii) other study characteristics (e.g. type of data

– actual or survey, number of observations used for estimating the effect, type of product, etc.).

Method for empirical generalization

Ideally, we would like to assess the following for each determinant: (i) direction of the relationship or effect; (ii) statistical significance of the effect; (iii) magnitude or strength of the effect; (iv) nonlinearity of the effect; (v) other factors that moderate or influence the effect and, where appropriate, (vi) direct and reverse causality of the effect. However, the nature and paucity of data does not permit an assessment of all six aspects for every determinant. In particular, each study provides information on only a small subset of the hypothesized variables, and very few explore moderating factors or reverse causality. So we meta-analyze data on each determinant separately, using the following procedure:

1. Compile all studies that estimated the relationship between the potential determinant (and its various operationalizations) and SB share (and its various operationalizations). For example, potential determinant NB-SB price differential was operationalized in different studies as percent difference between SB price and average NB price or percent difference between SB price and leading NB price. Dependent variable SB share was operationalized in these studies as SB unit volume share, SB dollar share or SB versus NB choice. All these studies were included together as the basis for meta-analyzing the effect of that determinant on SB share. The list of studies used in the meta-analysis for each determinant variable is given in Appendix Table A2.
2. Collect all observations from these studies that provide direction, magnitude, or significance of the effect. If a study reported sign, magnitude, or significance results for multiple categories or multiple markets using multiple models, each estimate was considered a separate observation, consistent with the spirit of meta-analysis (Assmus, Farley, and Lehmann 1984).
3. Provide summary statistics of the direction of the effect across all observations using Empirical support or E-score (Sethuraman 2009). The Empirical support score is measured as the number of observations with significant positive effects (minus) the number of empirical observations with significant negative effects.[3] A large positive *E*-score indicates that there are many more observations with positive effect than negative effect implying a strong positive influence of the determinant on SB share. We compute both the raw *E*-score and the *E*-ratio or normalized *E*-score (Raw *E*-score/total number of effect observations).
4. Provide summary statistics of the effect using Rosenthal *z*-scores (Gielens 2012). The Rosenthal *z*-statistic (Rosenthal 1991) is commonly used to provide a magnitude of the directional effect in the form of *z*-scores. It is obtained by computing the one-tailed *z*-score (based on the expected or hypothesized direction) for each effect, summing them to obtain a net *z*-score and dividing by the square root of the number of observations used in the aggregation.[4] A relatively high *E*-score generally corresponds with a relative large *z*-score. We compute the unweighted Fisher *z*-score (treating all effect observations as independent and assigning them a weight of 1) and weighted *z*-score (treating multiple observations from same data as nonindependent and assigning them a weight equal to 1/# of nonindependent observations – for example, if three effect estimates are from the same data, the weight for each observation is 1/3).
5. Estimate the average magnitude of the effect, if data are available. In particular, where possible, we compute the elasticity measure as the percent change in SB share for 1 percent change in the independent determinant variable.
6. To account for nonlinearity in effects, (a) identify those (few) studies that explicitly test for nonlinearity and report their findings and (b) look at results for models with discrete categories (e.g. low/medium/high income) to see if nonlinearity or nonmonotonicity can be detected.
7. To account for reverse causality, where appropriate, see if any article investigating the effect has addressed this aspect.
8. To account for other factors that might moderate the strength of the effect, we regress the Fisher *z*-scores against some predictors such as type of data (recency, geographic location), measure of dependent variable (share or choice or proneness), and any other suitable predictors for which data are available. This analysis was only performed for those drivers for which more than fifteen observations were available.
9. To identify interactions, if any, look for pertinent findings from the individual studies.

Results

First we present the results for price, then the consumer variables, the product-market characteristics, and the retailer and manufacturer promotions as listed in Tables 1 and 2.

National brand – store brand price differential

Demand and utility theories strongly support a positive relationship between the NB-SB price differential, deemed the core selling proposition of SBs, and SB share. Overall, the

[3] Some independent variables were measured in discrete categories (e.g. Income: <25 K$, 25–50K$, >50K$, etc.). The coefficients corresponding to each of these income categories were recorded. The effect was deemed positive or negative by comparing it to the base category. For example, if the base category is >50K$ and the coefficient corresponding to SB choice probability for 25–50K$, is, say 0.2, then the choice probability is higher for the lower income group or income has a negative effect on SB choice. Each binary comparison is treated as an observation.

[4] Most studies provided *t*-tests, standard errors, or actual significance levels (*p*-values) from which *t*-statistics could be computed. From these *t*-tests, based on the expected direction of the effect, we computed a one-tailed *p*-value which was then changed to a one-tailed *z*-value for aggregation. In a few cases, authors only reported whether the effect was significant at, for instance, $p < .05$ or not. In those few cases, we assumed $p = .05$ ($z = 1.645$) if significant or $z = 0$ if nonsignificant.

Table 1
Empirical generalization results.

Determinant variable	Sign	# obsns. (studies)	*E*-score (+, −, 0)	*E*-score ratio	*z*-Score (weighted)	Elasticity (# obsns.)
1. NB-SB price differential	+	58 (9)	+11 (23,12,23)	.19	6.18 (8.5)	.10 (6)
Consumer – demographic						
2. Household income	−	40 (16)	−12 (7,19,14)	−.31	−19.8 (−13.9)	−.13 (29)
3. Household size	+	38 (12)	+4 (10,6,22)	.11	3.1 (2.7)	n.a.
4. Household education	+	16 (9)	+9 (10,1,5)	.56	19.2 (10.0)	n.a.
Consumer – perceptual						
5. Price sensitivity	+	39 (13)	+31 (31,0,8)	.80	21.5 (20.5)	.45 (15)
6. Perceived risk	−	69 (13)	−38 (3,41,25)	−.55	−24.4 (−12.1)	−.002 (19)
7. Perceived quality variability	−	18 (7)	−9 (0,9,9)	−.50	−9 (−7.4)	−.18 (14)
8. SB familiarity	+	37 (8)	+29 (30,1,6)	.78	33.0 (19.3)	n.a.
9. SB quality	+	48 (11)	+33 (33,0,15)	.69	35.2 (12.6)	.09 (5)
10. Quality sensitivity	−	4 (3)	−4 (0,4,0)	−1	−6.5 (−5.5)	n.a.
11. SB image	+	14 (7)	+11 (12,1,3)	.79	9.7 (9.6)	n.a.
Consumer – shopping behavior						
12. Basket expenditure	+	15 (2)	−6 (0,6,9)	−.40	−4.8 (−.67)[a]	n.a.
13. Trip frequency	+	21 (9)	+14 (14,0,7)	.67	10.6 (6.9)	n.a.
14. Store loyalty	+	6 (5)	+4 (5,1,0)	.67	8.0 (8.2)	n.a.
Product-market characteristics						
15. Number NBs	−	45 (6)	−39 (0,39,6)	−.87	−10.8 (−5.2)	−.22 (12)
16. Category price elasticity	−	6 (3)	−6 (0,6,0)	−1	−5.24 (−4.0)	−.05 (5)
17a. NB concn. – share top NBs	−	5 (2)	−4 (0.4.1)	−.8	−5.06 (−4.6)	−.34 (3)
17b. NB concn. – var. NB shares		34 (1)	+16 (21,5,8)	.47	2.81 (2.8)	n.a.
18. Retail concentration	+	40 (4)	+13 (14,1,25)	.35	10.5 (8.0)	.37
Retailer and manufacturer promotions						
19. Retail promotion – SB	+	67 (11)	+28 (30,2,35)	.42	15.2 (7.4)	.10 (4)
20. Retail promotion – NB	−	47 (7)	−19 (2,21,24)	−.40	−23.9 (−29.1)	−.31 (4)
21. Manufacturer advertising	−	46 (6)	−17 (2,19,25)	−.37	−8.67 (−6.1)	−.17 (9)

[a] All Fisher *z*-scores are significant at $p < .01$, except this score (−.67). n.a. = not able to compute elasticities due to lack of primary data.

Table 2
Moderating effects.

Determinant variable	Main effect	Data: USA (vs. non US)	Data: recent 5 years (vs. non recent)	Model: price included (vs. excluded)	DV: share (vs. other)	DV: choice (vs. other)
1. NB-SB price differential	+	More positive	n.s.	n.a.	Less positive	n.a.
2. Household income	−	n.s.	More negative	n.s.	n.s.	n.s.
3. Household size	+	n.s.	n.s.	More positive	More positive	n.s.
4. Household education	+	Less positive	More positive	n.s.	n.s.	More positive
5. Price sensitivity	+	n.s.	n.s.	Less positive	n.a.	n.s.
6. Perceived risk	−	n.s.	Less negative	More negative	n.s.	More negative
7. Perceived quality var.	−	More negative	Less negative	n.s.	n.s.	n.s.
8. SB familiarity	+	More positive	n.s.	n.s.	n.a.	n.s.
9. SB quality	+	n.s.	n.s.	More positive	n.s.	More positive
10. Quality sensitivity	−	n.a.	n.a.	n.a.	n.a.	n.a.
11. SB image	+	More positive	n.s.	n.s.	n.a.	n.a.
12. Basket expenditure	+	n.a.	n.a.	n.a.	n.a.	n.a.
13. Trip frequency	+	Less positive	Less positive	n.s.	n.s.	More positive
14. Store loyalty	+	n.a.	n.a.	n.a.	n.a.	n.a.
15. Number NBs	−	n.a.	n.a.	n.s.	n.a.	n.a.
16. Category price elasticity	−	n.a.	n.a.	n.a.	n.a.	n.a.
17a. NB concn – share top NBs	−	n.a.	n.a.	n.a.	n.a.	n.a.
17b. NB concn – var. NB shares		n.a.	n.a.	n.a.	n.a.	n.a.
18. Retail concentration	+	Less positive	More positive	n.a.	n.a.	n.a.
19. Retail promotion – SB	+	Less positive	Less positive	More positive	Less positive	n.a.
20. Retail promotion – NB	−	n.s.	n.s.	More negative	n.a.	n.a.
21. Manufacturer advertising	−	n.s.	n.s.	More negative	n.a.	n.a.

Note: n.s. = non significant; n.a. = data not available.

relationship is positive with an elasticity of .10 (a 1 percent increase in percent price differential increases percent market share by .1 percent).

Interestingly, this determinant has one of the lowest *E*-ratios in our meta-analysis (.19). In fact, in a majority of the observations, the effect is non-significant or even negative. Past literature and our moderator analysis (Table 2) suggest that a number of factors moderate the effect including (i) longitudinal versus cross-sectional studies; (ii) within-category versus cross-category studies, (iii) accounting for endogeneity/inclusion of quality as covariate in the estimation of price effect; (iv) price differential with leading national brand versus other national brands; (v) country of study; (vi) share versus choice study; and (vii) size of price differential.

With respect to the first three factors, Raju, Sethuraman, and Dhar (1995a,b) show analytically that when the quality differential between NB and SB is low in a category, retailers can set a low price differential and still get high market share in equilibrium, resulting in a negative relationship across categories. This suggests that researchers estimating price effects using cross-category analysis must endogenize the price differential and/or use good measures of quality differential as covariates. Even in carefully designed models incorporating quality differential, researchers have found the price differential effect to be weak and category-dependent (e.g. Dhar and Hoch 1997). To obtain an initial assessment of the confounding effect of quality differential, we regressed the price differential effects (measured by *z*-score) on a dummy variable capturing whether quality was included in the regression in the original study to control for the potential confounding effect. While our regression results do not provide statistical support for (inclusion of) quality differential moderating the effect of price differential on SB share, further research is required as only two studies incorporated quality when estimating price differential effect.

One study (Wang, Kalwani, and Tolga Akçura 2007) finds the relationship between the price differential between SB and (leading) NB to be strongly positively related to SB share in all the five categories it analyzed. Theoretical arguments, backed by empirical evidence, suggest that stores position their brands to target the leading NB (Scott-Morton and Zettelmeyer 2004; Sayman, Hoch, and Raju 2002). Therefore, it is likely that SB share is more sensitive to its price differential with the leading NB than the average of all the NBs.

In a moderator analysis (Table 2), we find the price differential effect is more pronounced in the U.S. than in Europe, indicating that in the U.S., SBs are still perceived more as price fighters. In a global context, Steenkamp and Geyskens (2014) find that an increase in the price differential increases SB share, but this effect is smaller in richer countries, perhaps because consumers in richer countries are less price sensitive. Some researchers have observed that the price differential effect may work only in a specified range – between 5 percent and 35 percent (Sethuraman 1992). While this nonlinearity in the price differential effect could not be tested due to lack of data, researchers using price experiments have suggested that price differentials may be less important than quality differentials in determining SB share, and that retailers may be underpricing their SBs at the expense of profits (Hoch and Lodish 1998).

Demographics

Another popular myth debunked in our meta-analysis is that SBs are bought primarily by low-income and large households. It is true that the overall main effect of income on SB share is negative and the effect of household size is positive (Table 1), but the *E*-ratios are low, suggesting the presence of moderators and non-linear effects.

Education can lead to non-linear income effects. Fitzell (1992) and others opine that the low-income, less educated consumers do not recognize the quality of SBs, attribute imagery to NBs, and therefore buy less SBs. This perception and behavior lead to a nonlinear income effect with SB share lower for low- and high-income consumers and higher for middle-income consumers. While we did not have adequate observations for testing a nonlinear income effect and past studies (Frank and Boyd 1965; Dick, Jain, and Richardson 1995) provide mixed evidence, our result lends credibility to the notion that lack of education, lack of SB familiarity, and lack of positive SB image (all of which have a strong positive effect on SB share in this meta-analysis) may be the reasons for why lower-income consumers are less prone to purchasing SBs. This finding has implications for retailers and public policy makers in educating and making low-income consumers familiar with SBs in grocery products. For example, WalMart and others could give a discount on SBs to food stamp purchasers, or the government could send educational materials and SB coupons to households relying solely on Social Security payments. A case in point is health insurance companies only accepting payment for generics in certain prescription drugs.

Additionally, our moderator analysis (Table 2) revealed that the effect of income becomes more negative if the study was performed from data in the last five years, suggesting that income-driven price sensitivity with respect to purchase of SBs is increasing over time.

With respect to household size, nearly 60 percent of the observations are nonsignificant, while 15 percent of the observations have the opposite sign. One reason for the lack of a strong effect may be the lack of statistical power of the studies due to noise in the data or poor operationalization of the household size variable as families with children, families with no children, and so forth. An alternate explanation is that large households may be more deal-prone instead of SB-prone, and such consumers are more likely to purchase NBs when they are promoted than to purchase SBs.

The effect of education on SB choice or share is positive and significant. The effect is significantly lower in U.S.-based studies, while it is significantly higher in more recent studies and when choice is used as a dependent variable. These findings suggest that, in the U.S., store brands are still not considered to be the "smart" alternative to NBs, thereby potentially indicating a perceived quality issue.

Consumer perceptions

Interestingly, all consumer perceptual variables have high *E*-ratios (over .5), confirming the old adage "perception is reality," even when it comes to SB purchase. Consumers will purchase more SBs if they perceive that the quality is higher, quality variation is lower, have a positive image of SBs, and think that SBs are not risky. These findings indicate that, especially in mature grocery products, the future of SBs and NBs will continue to depend on how retailers and NB executives manage these perceptions. The results underscore the need for retailers to implement non-price marketing tactics (such as advertising and sampling) to enhance SB perceptions and for researchers to study the impact of these tactics on SB share.

A comparison of absolute empirical generalization measures of the perceived quality effect and price differential effect in the table below validates the assertion of Hoch and Banerji (1993) that quality is a more "important" determinant of SB share than price differential.

Effect	*E* raw	*E* ratio	*z*
Price differential	11	.19	6.18
Perceived quality	33	.69	35.2

Although the price differential between NBs and SBs is not a robust influencer of SB share, consumer price sensitivity is a consistent major determinant of household purchases. Combined with the strong results found for SB quality, risk, and image, this meta-analysis validates the notion that consumers seek value when purchasing SBs (Richardson, Jain, and Dick 1996). That is, consumers look for good (low) prices without compromising quality.

Our moderator analysis with respect to consumer perceptual variables reveals several additional insights (Table 2). First, the strong positive effect of price sensitivity appears to prevail across a wide range of study characteristics and market conditions. Second, the effect of perceived risk on SB share is significantly less negative in more recent studies, suggesting that SBs may be increasingly perceived as less risky options. Third, the effect of quality variation on SB share is significantly more negative in the U.S. and less negative in more recent studies. As with perceived risk, this finding seems to suggest that perceived SB quality variation is more of an issue in the U.S. than in Europe but, overall, SBs are perceived to be becoming more reliable over time. Fourth, the effect size of SB familiarity is significantly more positive in U.S.-based studies, suggesting that SBs may not have the same (brand) appeal there as they do in other parts of the world, most notably in Europe. Fifth, the effect size of SB quality on SB share is significantly more positive when choice is used as a dependent variable and price is a covariate. The latter effect points out that it is as important to include price as a covariate when studying quality effects as it is to include quality as a covariate when studying price differential effects (discussed earlier). Finally, the effect of SB image on SB share is significantly higher in U.S.-based studies, again reinforcing the notion that SBs still hold an inferior position in the U.S.

Shopping trip variables

Shopping basket expenditure is the only variable among the 21 we analyzed for which the expectation – that households with higher shopping expenditure are more likely to buy SBs – is not validated. This occurrence may be because of reverse causality – that households may lower their expenditure by buying low-priced SBs, other things being equal – or because of NB deal-proneness – households with large expenditure outlays may seek and purchase more NBs when they are on deal. In contrast, shopping trip frequency is an important driver of SB share. The result that purchase frequency may be a more important lever than purchase size to build SB volume has important implications for retailers, as stimulating shopping frequency may require different approaches and strategies than stimulating shopping expenditure. However, the effect of shopping frequency is significantly lower in more recent studies, but higher when choice was used as dependent variable.

An overall positive relationship between store loyalty and SB share is supported by the empirical evidence (Table 1). Past literature has attempted to refine this overall finding. Ailawadi, Pauwels, and Steenkamp (2008) explicitly account for simultaneity between store loyalty and SB share. They find that for two Dutch retail chains (a premium and a value-oriented chain), store loyalty not only impacts SB share, but that SB share also influences store loyalty at the same time. The relationship between these constructs is further complicated as it was found to be curvilinear by Ailawadi, Pauwels, and Steenkamp (2008) for the more premium chain, but not for a more value-oriented chain.

Product-market characteristics

Competition from NBs, both in the form of number of NBs and NB-NB price competition, negatively affects SB share. Furthermore, Hoch and Banerji (1993) find that the correlation between number of manufacturers and SB share is negative (−.63) and stronger than the correlation between number of manufacturers and share of top two NBs (−.21 and −.03). That is, SB shares are disproportionately decreased if there is brand proliferation. These findings give strong credibility to the economic theory that item proliferation can limit private label growth (Schmalensee 1978). The negative effect of NB-NB price competition on SB share implies that when two NBs (e.g. Coke and Pepsi) are competing intensely on price, it may be better for a retailer to leverage the NB-NB competition to obtain higher profits than to engage in NB-SB competition to promote SB share (Lal 1990; Kumar and Steenkamp 2007).

The relationship between NB concentration and SB share is not as unequivocal. Higher NB concentration in the form of cumulative brand shares of the top three or four NBs results in lower SB share. However, according to Steenkamp and Geyskens (2014), the negative effect of NB concentration on SB shares is dampened when the markets (countries) are efficient (as opposed to those with poor infrastructure and administrative procedures), but enhanced for countries that are secular-rational (as opposed to traditional-religious).

Dhar and Hoch (1997) view NB concentration in terms of the variance in NB shares and offer a different perspective. According to these researchers, if there are ten brands on the market, with one or two brands being big players with large market shares and others small players with low shares, then variance of NB shares will be higher. In this market, the retailer can position its SB against the big players, ignore the minor brands, and still get a decent market share. Conversely, if there are ten brands on the market, each with about 10 percent market share, it is difficult for SBs to focus on one set of brands, leading to diffused marketing and smaller shares. As a result, variance in NB shares dampens the number of brands effect. Dhar and Hoch (1997) find a strong positive effect of NB share variance on SB share based on analysis of 34 categories.

It appears that NB concentration may be a double-edged sword for the NB manufacturers trying to reduce SB share. On the one hand, high shares concentrated among a few NBs may endow NB manufacturers with the ability to negotiate better terms with retailers, forcing retailers to provide shelf space and promote the dominant brands, resulting in lower SB share. On the other hand, if there are one or two NBs that are dominant, then it may be easier for the retailer to position the SBs against these large NBs and gain substantial market share.

Unlike in the case of NB concentration, the expected positive relationship of retail concentration with SB share is validated for both share of top retail firms and variance in retail market shares. SB share has often been described as a purely supply-driven phenomenon, meaning that SB share will be high in markets where retailers are dominant. As soon as retailer power develops, SB share will increase. However, this driver has a relatively low *E*-ratio (.35), demonstrating that the effect may depend on other factors (moderators). Our moderator analysis (Table 2) shows that the overall significant positive relationship between retail concentration and SB share is less positive in the U.S. This may partly explain why SB shares are higher in Europe than in the U.S. It is well known that retail concentration in Europe is higher than in the U.S. This gives the big retailers leverage both in dealing with the NB manufacturers and in developing their own strong SB program. In a global context, Steenkamp and Geyskens (2014) find that the effect of retail concentration is moderated by country characteristics. In particular, they find that the positive effect of retail concentration on SB share is stronger in countries characterized by a low degree of market efficiency and secular-rational culture.

Retailer and manufacturer marketing mix

We combined all types of retail promotions – price discount, coupon, display, feature – in our analysis because (i) many studies reported just one measure of promotion intensity that included more than one type of promotion and (ii) there were very few observations to analyze by individual promotion type.

Notable among the variables with modest E-ratios are the promotion variables. All of them have *E*-ratios around .40. The occurrence of nonsignificant results may be attributed to measures used in the estimation (percent sold on deal) and aggregation of data across categories, retailers and promotional instruments. Nevertheless, given that the asymmetric price tier effect theory (Blattberg and Wisniewski 1989) has been interpreted to imply that promotions do not generally help a SB increase its sales, it is useful to note that, in aggregate, SB retail promotions "work" from a share standpoint, but so do competitive NB retail promotions.

Previous research and our moderator analysis qualify the promotion effects. With respect to NB retail promotions, a recent empirical generalization study by Gielens (2012) shows that only the market leader's price promotions appear to negatively affect SB share. Promotion efforts by the second and third NB in the category hardly affect SB share. Our results (Table 2) show that the effect of SB retail promotion on SB share is less positive in the U.S., in recent times, and when share (as opposed to choice) is used as the dependent variable, but more positive when price is included as a covariate. The presence of moderators suggests that SB retail promotion can vary significantly across marketplace and method variables, and that marketers and modelers should be cognizant of such differences when assessing the effect of SB retail promotions.

As predicted, there is a strong significant negative effect of NB advertising on SB share. However, while the overall relationship is negative, the effect is nonsignificant in a majority of the observations (25 out of 46). Individual studies offer further insights into the above general finding. Lamey et al. (2012) find that NB manufacturers are pro-cyclical in their advertising. That is, they advertise more during expansion and less during contraction. In the contraction periods, when NBs decrease advertising, SB share increases in the short run. Some of this temporary SB share increase may lead to permanent increases in SB share after the recession. Steenkamp and Geyskens (2014) find that NB advertising is an effective marketing weapon for limiting private label shares mainly in large (populous) countries like the U.S., but is not effective in smaller countries.

Conclusion

Research in understanding the determinants of SB sales performance has come a long way in terms of types of variables investigated, data used, and sophistication of empirical models. We drew upon this rich and varied body of work to test the empirical generalizability of the effect of several determinants on SB share. In total, we meta-analyzed 54 studies relating different metrics of SB proneness, brand choice, and market share to 21 potential drivers. We employed three different metrics – empirical validation (*E*) score, Fisher *z*-score, and elasticity – to quantify the overall relationship between the potential drivers and SB share (Table 1). We also performed limited moderator (regression) analysis with available data (Table 2). Key results are as follows.

Result highlights

1. The NB-SB price differential has a positive (but not strong) overall effect on SB share and the effect is moderated by several factors. In particular, the effect is stronger (more

positive) when the focal NB is the leading brand and in the U.S. than in Europe.
2. The conventional belief that SBs are predominantly purchased by low-income, large households is not validated. Collectively, our results lend credibility to the notion that lack of education, lack of SB familiarity, and lack of positive SB image (all of which have a strong positive effect on SB share) may be the reasons for why lower-income consumers are less prone to purchasing SBs. This finding has implications for retailers and public policy makers interested in educating and making low-income consumers familiar with SBs.
3. The relationship between education and SB share is fairly strong and positive. It is more positive in Europe than in the U.S. market, suggesting that SBs may not be considered a "smart" alternative in U.S., as much as it is in Europe.
4. All consumer perceptual variables we analyzed have high empirical generalization scores. Consumers will purchase SBs if they perceive the quality is higher and quality variation is lower, if they have a positive image of SBs, and if they think SBs are not risky. These findings indicate that, especially in mature grocery products, the future of SBs and NBs will continue to depend on how retailers and NB marketers manage perceptions, potentially signaling the growing role of SB advertising in coming years.
5. Perceived SB quality has a stronger effect on SB share than the NB-SB price differential across all empirical generalization measures, confirming the notion that consumers seek value when purchasing SBs without compromising much on quality.
6. Shopping expenditure does not affect SB choice, but shopping trip frequency does. Retailers interested in boosting SB share may want to focus on stimulating shopping frequency.
7. The strong negative effect of number of NBs on SB share gives credibility to the economic theory that item proliferation can limit SB growth and highlights the importance of product assortment for retailers.
8. The strong negative effect of NB-NB price competition on SB share implies that retailers should leverage NB-NB price competition for profits in some categories rather than engaging in NB-SB competition to promote SB share or profits.
9. NB concentration has a negative relationship with SB share when measured as share of top NBs, but a positive relationship when measured as variance in share across all NBs. The finding suggests that high market share by one or two NBs enable retailers to position their SBs against these NBs and gain share.
10. Retail concentration is positively related to SB share, which may partly explain higher SB share in Europe, where retail concentration is higher than in the U.S.
11. Overall, NB and SB promotions and NB advertising do influence SB shares, but the empirical generalization scores are moderate, suggesting that they may work in some cases but not others. In particular, promotions by leading NBs are likely to be more effective in curtailing SB share than other NBs, and SB promotions are less effective in the U.S. than in Europe, perhaps because of perceived quality.

Even though, empirical research on SBs has spanned nearly 50 years, we have only scratched the surface of what needs to be learnt about SBs. There are numerous avenues for further research. Some important areas are highlighted below.

Future research suggestions

1. *More studies needed on profit*. Only a few studies such as Ailawadi and Harlam (2004), Pauwels and Srinivasan (2004), and ter Braak, Dekimpe, and Geyskens (2013) address SB profitability by studying SB gross margins. This lack of empirical work does not reflect a lack of academic interest or managerial importance, but rather highlights the difficulty in obtaining good profit data, as most retailers are reluctant to share this type of information. Still, more research along these lines would allow for deeper insights into how SB strategies affect the retailer's bottom line at both the SB and category level.
2. *Include more consumer variables in Choice and Share studies*. Whereas demographic information is often ignored in choice-related studies, attitudinal metrics are almost never included in share-based studies. Obviously, the lack of reliable consumer information merged with more readily available scanner panel data or store-based information reduces the ease of incorporating consumer-related information. As a matter of fact, few behavioral metrics are incorporated in the extant literature (e.g. usage situation – are SBs more likely to be purchased for specific consumption moments, whereas NBs are more preferred in other situations?). Also, little is known about how consumers' SB and NB usage may complement rather than substitute for each other. Deeper insights in the role that both SBs and NBs play in consumers' consumption patterns may help retailers and manufacturers co-promote SBs and NBs and grow the category.
3. *Include more product characteristics in empirical studies*. Dhar and Hoch's (1997) comprehensive empirical study across 34 product categories found significant cross-category variation in the effect of determinants such as price and concentration on SB share. However, few studies have estimated how the effects of SB drivers systematically vary with product characteristics such as functional versus hedonic, durable versus nondurable.
4. *Include more promotion variables*. There is a dearth of research dealing with understanding what type of promotions (e.g. discounts, coupons, sampling) are effective for what type of SBs (regular or premium), in what type of categories (e.g. functional or hedonic) and when (e.g. proactively or defensively).
5. *Study SB advertising and innovation*. As retailers increasingly position their SBs as brands in their own right in all price-quality tiers (Geyskens, Katrijn, and Gijsbrechts 2010), SB advertising and product innovation efforts will become

more important and salient. Little is known about how premium SBs should be priced and positioned.

6. *Where appropriate, account for nonlinearity, endogeneity, and reverse causality in estimation models*. Even in the variables we meta-analyzed, there are potential issues of nonlinearities (e.g. income effect), endogeneity (e.g. price differential), and reverse causality (e.g. store loyalty). Unfortunately, we could not study these effects due to paucity of data. If theory or prior expectations lead the researcher to believe that one or more of these effects may exist, it would be useful to study these effects, even though the estimation procedure may become more complex (e.g. use of instrumented variables or simultaneous equation systems).
7. *Study variation of effect over time*. At present, few insights are available on how consumer effects vary over time. As SBs mature in more and more countries, the impact of several consumer characteristics may diminish (e.g. risk aversion), while the impact of others may increase (e.g. innovativeness). If retailers and manufacturers want to successfully target consumers, they need insights that are updated over time.
8. *Incorporate role of the retailer*. Finally, the role of the retailer has been vastly unexplored. Although several characteristics capturing the retail structure at a more aggregate level have been considered, little is known about what makes an individual retailer more or less successful than its rivals. Just like results have been replicated across categories and countries, future research should aim for replications across retailers as well as identify characteristics that make some retailers more successful at gaining SB shares than others.

Appendix.

Table A1
Meta-analysis studies.

#	Study reference
S1	Ailawadi, K.L., S. A. Neslin & K. Gedenk (2001), Pursuing the value-conscious consumer: store brands versus national brand promotions. *Journal of Marketing*, 65 (January), 71–89
S2	Ailawadi, K.L., Pauwels, K. and Steenkamp, J.B.E.M. (2008). Private-label use and store loyalty. *Journal of Marketing*, 72 (6), 19–30
S3	Baltas, George. (1997). Determinants of store brand choice: a behavioral analysis. *The Journal of Product and Brand Management*, 6 (5), 315–324
S4	Baltas, G., Doyle, P., & Dyson, P. (1997). A model of consumer choice for national vs. private label brands. *Journal of the Operational Research Society*, 48 (10), 988–995
S5	Baltas, G., & Doyle, P. (1998). A model of consumer choice for national vs. private label brands. *Journal of the Operational Research Society*, 49 (8), 790–798
S6	Baltas, G. (2003). A combined segmentation and demand model for store brands. *European Jl of Marketing*, 37,1499–1513
S7	Baltas, G., & Argouslidis, P. C. (2007). Consumer characteristics and demand for store brands. *International Journal of Retail & Distribution Management*, 35 (5), 328–341
S8	Batra, R., & Sinha, I. (2000). Consumer-level factors moderating the success of private label brands. *Journal of retailing*, 76 (2), 175–191
S9	Beneke, J., Greene, A., Lok, I., & Mallett, K. (2012). The influence of perceived risk on purchase intent – the case of premium grocery private label brands in South Africa,*Jl of Product & Brand Management*, 21 (1), 4–14
S10	Berges, F., Hassen, D., Monier-Dilhan, S., & Raynal, H. (2000). Consumers' decision between private labels and national brands in a retailer's chain: a mixed multinomial logit application. *Gestion*, 3, 41–57
S11	Bettman, J. R. (1974). Relationship of information-processing attitude structures to private brand purchasing behavior. *Journal of Applied Psychology*, 59 (1), 79–83
S12	Bonfrer, Andre and Pradeep K. Chintagunta, (2004). Store brands: who buys them and what happens to retail prices when they are introduced? *Review of Industrial Organization*, 24 (2) 195–218
S13	Bouhlal, Y., & Capps Jr, O. (2012). The impact of retail promotion on the decision to purchase private label products: the case of US processed cheese. *Agribusiness*, 28 (1), 15–28
S14	Bronnenberg, B., & Wathieu, L. (1996). Asymmetric promotion effects&brand positioning. *Marketing Science*, 15, 379–394
S15	Burton, S., Lichtenstein, D. R., Netemeyer, R. G., & Garretson, J. A. (1998). A scale for measuring attitude toward private label products and an examination of its psychological and behavioral correlates. *Journal of the Academy of Marketing Science*, 26 (4), 293–306
S16	Cotterill, R.W., Dhar, R. & Putsis, W.P. (1999). On the competitive interaction between private label and branded grocery products. *Food Marketing Policy Center*. Research Report No. 33
S17	Cotterill, R. W., Putsis, Jr, W. P., & Dhar, R. (2000). Assessing the competitive interaction between private labels and national brands. *The Journal of Business*, 73 (1), 109–137
S18	Cotterill, R. W., & Putsis Jr, W. P. (2000). Market share and price setting behavior for private labels and national brands. *Review of Industrial Organization*, 17 (1), 17–39
S19	Dhar, S. K., & Hoch, S. J. (1997). Why store brand penetration varies by retailer. *Marketing Science*, 16 (3), 208–227
S20	Diallo, M. F. (2012). Effects of store image and store brand price-image on store brand purchase intention: application to an emerging market. *Journal of Retailing and Consumer Services*, *19* (3), 360–367
S21	Erdem, T., Zhao, Y., & Valenzuela, A. (2004). Performance of store brands: a cross-country analysis of consumer store-brand preferences, perceptions, and risk. *Journal of Marketing Research 41* (1), 86–100
S22	Erdem, T., & Chang, S. R. (2012). A cross-category and cross-country analysis of umbrella branding for national and store brands. *Journal of the Academy of Marketing Science*, 40 (1), 86–101
S23	Frank, R. E., & Boyd Jr, H. W. (1965). Are private-brand-prone grocery customers really different? *Journal of Advertising Research*, 5 (4), 27–35

Table A1 (*Continued*)

#	Study reference
S24	Garretson, J. A., Fisher, D., & Burton, S. (2002). Antecedents of private label attitude and national brand promotion attitude: similarities and differences. *Journal of Retailing*, 78 (2), 91–99
S25	Geyskens, I., Gielens, K., & Gijsbrechts, E. (2010). Proliferating private-label portfolios: how introducing economy and premium private labels influences brand choice,*Journal of Marketing Research*,47 (5),791–807
S26	Glynn, M. S., & Chen, S. (2009). Consumer-factors moderating private label brand success: further empirical results. *International Journal of Retail & Distribution Management*, 37 (11), 896–914
S27	Hansen, K., Singh, V., & Chintagunta, P. (2006). Understanding store-brand purchase behavior across categories. *Marketing Science*, 25 (1), 75–90
S28	Hoch, S. J., & Banerji, S. (1993). When do private labels succeed. *Sloan Management Review*, 34 (4), 57–67
S29	Jin, B., & Suh, Y. G. (2005). Integrating effect of consumer perception factors in predicting private brand purchase in a Korean discount store context. *Journal of Consumer Marketing*, 22 (2), 62–71
S30	Kara, A., Rojas-Méndez, J. I., Kucukemiroglu, O., & Harcar, T. (2009). Consumer preferences of store brands: Role of prior experiences and value consciousness. *Journal of Targeting, Measurement&Analysis for Marketing*, 17, 127–37
S31	Lamey, L., Deleersnyder, B., Steenkamp, J. B. E., & Dekimpe, M. G. (2012). The effect of business-cycle fluctuations on private-label share: what has marketing conduct got to do with it? *Journal of Marketing*, 76 (1), 1–19
S32	Lemon, K. N., & Nowlis, S. M. (2002), "Developing synergies between promotions and brands in different price-quality tiers," *Journal of Marketing Research*, 171–185
S33	Levy, S., & Gendel-Guterman, H. (2012). Does advertising matter to store brand purchase intention? a conceptual framework. *Journal of Product & Brand Management*, 21 (2), 89–97
S34	Martínez, E., & Montaner, T. (2008). Characterization of Spanish store brand consumers. *International Journal of Retail & Distribution Management*, *36* (6), 477–493
S35	Ma, Y., Ailawadi, K. L., Gauri, D. K., & Grewal, D. (2011). An empirical investigation of the impact of gasoline prices on grocery shopping behavior. *Journal of Marketing*, 75 (2), 18–35
S36	Miquel, S., Caplliure, E. M., & Aldas-Manzano, J. (2002). The effect of personal involvement on the decision to buy store brands. *Journal of Product & Brand Management*, 11 (1), 6–18
S37	Myer, J.G. (1967), Determinants of private brand attitude. *Journal of Marketing Research*, 4 (1), 73–81
S38	Raju, J. S., Sethuraman, R., & Dhar, S. K. (1995a). The introduction and performance of store brands. *Management Science*, 41 (6), 957–978
S39	Raju, J. S., Sethuraman, R., & Dhar, S. K. (1995b). National brand-store brand price differential and store brand market share. *Pricing Strategy & Practice*, 3 (2), 17–24
S40	Richardson, P.S., Jain, A. K. & Dick, A. (1996). Household store brand proneness: A framework. *Journal of Retailing*, 72 (2), 159–185
S41	Rubio, N., & Yague, M. J. (2009). The determinants of store brand market share: a temporal and cross-sectional analysis. *International Journal of Market Research*, 51 (4), 501–519
S42	Sayman, S., & Raju, J. S. (2004). Investigating the cross-category effects of store brands. *Review of Industrial Organization*, 24 (2), 129–141
S43	Scott- Morton, F, & Zettelmeyer, F. (2004). The strategic positioning of store brands in retailer–manufacturer negotiations. *Review of Industrial Organization*, 24 (2), 161–194
S44	Sethuraman, R. (1992). The effect of marketplace factors on private label penetration in grocery products. Marketing Science Institute, Report #92–128
S45	Sethuraman, R. (2001). What makes consumers pay more for national brands than for store brands-image or quality? *Review of Marketing Science WP* no. 318
S46	Sethuraman, R., & Mittelstaedt, J. (1992). Coupons and private labels: A cross-category analysis of grocery products. *Psychology & Marketing*, 9 (6), 487–500
S47	Sinha, I. & Batra, R. (1999). The effect of consumer price consciousness on private label purchase. *International Journal of Research in Marketing*, 16 (3), 237–251
S48	Stanton, J. L., & Meloche, M. (2012). Macroeconomic Determinants of Private Label Penetration. *Journal of International Food & Agribusiness Marketing*, 24 (1), 110–119
S49	Steenkamp, J. B. E. M., & Geyskens, I. (2014). Manufacturer and retailer strategies to impact store brand share: global integration, local adaptation, and worldwide learning. *Marketing Science* 33 (1), 6–26
S50	Szymanowski, M., & Gijsbrechts, E. (2012). Consumption-based cross-brand learning: are private labels really private? *Journal of Marketing Research*, 49 (2), 231–246
S51	Veloutsou, C., Gioulistanis, E., & Moutinho, L. (2004). Own labels choice criteria and perceived characteristics in Greece and Scotland: factors influencing the willingness to buy. *Journal of Product&Brand Management*, 13, 228–41
S52	Wang, Hui-Ming, Kalwani, M. U., & Akçura, T. (2007). A Bayesian multivariate Poisson regression model of cross-category store brand purchasing behavior. *Journal of Retailing and Consumer Services*, 14 (6), 369–382
S53	Walsh, G., & Mitchell, V. W. (2010). Consumers' intention to buy private label brands revisited. *Journal of General Management*, 35 (3), 3–24
S54	Zielke, S., & Dobbelstein, T. (2007). Customers' willingness to purchase new store brands. *Journal of Product&Brand Management*, 16 (2), 112–121

Table A2
Studies used in meta-analysis for each determinant.

Determinant variable	Studies
1. NB-SB price differential	S2, S19, S28, S31, S41, S44, S46, S49, S53
2. Household Income	S2, S7, S10, S13, S16, S17, S18, S19, S23, S27, S33, S34, S35, S37, S40, S43
3. Household size	S2, S6, S7, S10, S11, S13, S23, S27, S34, S35, S40, S43
4. Household education	S2, S7, S10, S13, S19, S23, S34, S37, S40
5. Cons. price sensitivity	S1, S2, S3, S5, S6, S7, S8, S26, S29, S34, S47, S51, S53
6. Perceived risk	S3, S5, S8, S9, S11, S20, S21, S22, S26, S40, S43, S47, S50
7. Perceived quality var.	S5, S8, S11, S26, S28, S29, S36
8. SB familiarity	S3, S4, S5, S11, S21, S22, S40, S54
9. SB quality	S7, S11, S19, S22, S21, S28, S33, S49, S50, S51, S53
10. Quality sensitivity	S1, S2, S34
11. SB image	S7, S15, S24, S29, S30, S53, S54
12. Basket size	S27, S52
13. Trip frequency	S3, S5, S7, S41, S44, S46, S49, S51, S52
14. Store loyalty	S1, S2, S7, S12, S34
15. Number NBs	S19, S28, S38, S43, S44, S46
16. Category price elasticity	S38, S41, S44
17a. NB conc – share top NBs	S41, S49
17b. NB conc – var NB shares	S19
18. Retail concentration	S19, S41, S48, S49
19. Retail promotion – SB	S13, S14, S17, S19, S25, S31, S32, S42, S44, S46, S49
20. Retail promotion – NB	S13, S17, S19, S42, S44, S46, S49
21. Manuf. advertising	S19, S28, S41, S43, S44, S49

Note: Study numbers (S#) correspond to the list in Table A1.

References

Ailawadi, Kusum L. and Bari Harlam (2004), "An Empirical Analysis of the Determinants of Retail Margins: The Role of Store-brand Share," *Journal of Marketing,* 68 (1), 147–65.

Ailawadi, Kusum L., Scott A. Neslin and Karen Gedenk (2001), "Pursuing the Value-conscious Consumer: Store Brands Versus National Brand Promotions," *Journal of Marketing,* 65 (January), 71–89.

Ailawadi, Kusum L., Koen Pauwels and Jan-Benedict E.M. Steenkamp (2008), "Private-label Use and Store Loyalty," *Journal of Marketing,* 72 (6), 19–30.

Assmus, Gert, John U. Farley and Don R. Lehmann (1984), "How Advertising Affects Sales: Meta-analysis of Econometric Results," *Journal of Marketing Research,* 21 (1), 65–74.

Baltas, George (1997), "Determinants of Store Brand Choice: A Behavioral Analysis," *Journal of Product & Brand Management,* 6 (5), 315–24.

Batra, Rajeev and Indrajit Sinha (2000), "Consumer-level Factors Moderating the Success of Private Label Brands," *Journal of Retailing,* 76 (2), 175–91.

Bettman, James R. (1974), "Relationship of Information-processing Attitude Structures to Private Brand Purchasing Behavior," *Journal of Applied Psychology,* 59 (1), 79–83.

Blattberg, Robert C. and Ken Wisniewski (1989), "Price Induced Patterns of Competition," *Marketing Science,* 8 (Fall), 291–309.

Bonfrer, Andre and Pradeep K. Chintagunta (2004), "Store Brands: Who Buys Them and What Happens to Retail Prices When They are Introduced?," *Review of Industrial Organization,* 24 (2), 195–218.

Dhar, Sanjay K. and Stephen J. Hoch (1997), "Why Store Brand Penetration Varies by Retailer," *Marketing Science,* 15 (3), 208–27.

Dick, Alan, Arun Jain and Paul Richardson (1995), "Correlates of Store Brand Proneness: Some Empirical Observations," *Journal of Brand and Product Management,* 4 (4), 15–22.

Euromonitor (2012), *Passport Global Market Information Database,*.

Erdem, Tülin and Michael P. Keane (1996), "Decision-making Under Uncertainty: Capturing Dynamic Brand Choice Processes in Turbulent Consumer Goods Markets," *Marketing Science,* 15 (1), 1–20.

Erdem, Tülin, Ying Zhao and Ana Valenzuela (2004), "Performance of Store Brands: A Cross-country Analysis of Consumer Store-brand Preferences, Perceptions, and Risk," *Journal of Marketing Research,* 41 (1), 86–100.

Fitzell, Phillip B. (1992), *Private Label Marketing in the 1990s: The Evolution of Price Labels into Global Brands,* New York: Global Book Productions.

Frank, Ronald E. and Harper W. Boyd Jr. (1965), "Are Private-brand-prone Grocery Customers Really Different?," *Journal of Advertising Research,* 5 (4), 27–35.

Geyskens, Inge, Gielens Katrijn and Els Gijsbrechts (2010), "Proliferating Private-label Portfolios: How Introducing Economy and Premium Private Labels Influences Brand Choice," *Journal of Marketing Research,* 47 (5), 791–807.

Gielens, Katrijn (2012), "New Products: The Antidote to Private Label Growth?," *Journal of Marketing Research,* 49 (3), 408–23.

Hoch, Stephen J. and Shumeet Banerji (1993), "When Do Private Labels Succeed?," *Sloan Management Review,* 34, 57.

Hoch, Stephen J. and Leonard M. Lodish (1998), *Store Brands and Category Management, Working Paper,* The Wharton School, University of Pennsylvania.

Kumar, Nirmalya and Jan-Benedict E.M. Steenkamp (2007), *Private Label Strategy: How to Meet the Store Brand Challenge,* Harvard Business Press.

Lal, Rajiv (1990), "Manufacturer Trade Deals and Retail Price Promotions," *Journal of Marketing Research,* 27, 428–44.

Lamey, Lien, Barbara Deleersnyder, Jan-Benedict E.M. Steenkamp and Marnik G. Dekimpe (2012), "The Effect of Business-cycle Fluctuations on Private-label Share: What Has Marketing Conduct Got To Do With It?," *Journal of Marketing,* 76 (1), 1–19.

Nielsen/PLMA (2012), *Annual International Private Label Yearbook,*.

Pauwels, Koen and Shuba Srinivasan (2004), "Who Benefits from Store Brand Entry?," *Marketing Science,* 23 (3), 364–90.

Raju, Jagmohan S., Raj Sethuraman and Sanjay K. Dhar (1995a), "The Introduction and Performance of Store Brands," *Management Science,* 41 (6), 957–78.

———, ——— and ——— (1995b), "National Brand-store Brand Price Differential and Store Brand Market Share," *Pricing Strategy & Practice,* 3 (2), 17–24.

Richardson, Paul S., Arun K. Jain and Alan Dick (1996), "Household Store Brand Proneness: A Framework," *Journal of Retailing,* 72 (2), 59–185.

Rosenthal, Robert (1991), , Sage Publications. Incorporated.

Sayman, Serdar, Stephen J. Hoch and Jagmohan S. Raju (2002), "Positioning of Store Brands," *Marketing Science,* 21 (4), 378–97.

Schmalensee, Richard (1978), "Entry Deterrence in the Ready-to-rat Breakfast Cereal Industry," *Bell Journal of Economics,* 9 (2), 305–27.

Scott-Morton, Fiona and Florian Zettelmeyer (2004), "The Strategic Positioning of Store Brands in Retailer–Manufacturer Negotiations," *Review of Industrial Organization,* 24 (2), 161–94.

Sethuraman, Raj (1992), *The effect of marketplace factors on private label penetration in grocery products,* Marketing Science Institute. Report #92-128.

——— (2003), "Measuring National Brands' Equity over Store Brands," *Review of Marketing Science,* 1 (1), 1–22.

——— (2009), "Assessing the External Validity of Analytical Results from National Brand and Store Brand Competition Models," *Marketing Science,* 28 (4), 759–81.

Sinha, Indrajit and Rajeev Batra (1999), "The Effect of Consumer Price Consciousness on Private Label Purchase," *International Journal of Research in Marketing,* 16 (3), 237–51.

Steenkamp, Jan-Benedict E.M. and Inge Geyskens (2014), "Manufacturer and Retailer Strategies to Impact Store Brand Share: Global Integration, Local Integration, and Worldwide Learning," *Marketing Science,* 33 (1), 6–26.

ter Braak, Anne, Marnik G. Dekimpe and Inge Geyskens (2013), "Retailer Private-label Margins: The Role of Supplier and Quality–Tier Differentiation," *Journal of Marketing,* 77 (4), 86–103.

Wang, Hui-Ming, Manohar U. Kalwani and M. Tolga Akçura (2007), "A Bayesian Multivariate Poisson Regression Model of cross-category Store Brand Purchasing Behavior," *Journal of Retailing and Consumer Services,* 14 (6), 369–82.