



# Alternative panel models to evaluate the store brand market share

## Evidence from the Spanish market

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### Abstract

**Purpose** – The purpose of this paper is to understand the intra- and inter-category differences of the store brand market share. Strategic, structural and performance factors are considered to be explanatory.

**Design/methodology/approach** – The paper proposes four possible alternative fixed-effects panel models for the data. The empirical analysis is performed on the Spanish consumer goods market in 50 traditional categories during the period from 1996 to 2000, when these brands consolidated their position as the best choices on the shelves.

**Findings** – The paper obtains consistent results for the four models proposed. The analysis of these reveal which strategic, structural and performance factors influence the store brand market share and how they influence it at intra- and inter-category levels.

**Research limitations/implication** – The main limitations of this research derive from the conditioning factors of the information. Some potential explanatory variables could not be considered in the models or could only be considered to explain the inter-category differences.

**Practical implications** – The results obtained have interesting implications for manufacturers and retailers in the management of the brands in their product portfolio and in the management of their relationships in the distribution channel.

**Originality/value** – This research provides integrated modelling of the store brand market share by jointly considering cross-sectional and time effects using the panel methodology and proves that considering time avoids some counter-intuitive results of cross-sectional research.

**Keywords** Market share, Competitive strategy, Performance management

**Paper type** Research paper

### 1. Introduction

For years, manufacturers did not consider store brands to be serious competition to manufacturer brands. One of the main reasons that manufacturers underestimated this competition was probably due to the conditions within which these brands emerged. Store brands began to appear in categories in which manufacturers had no strong brands (McMaster, 1987), with poor packaging, low prices and minimum acceptable quality. Their marketing by the distributor was guided fundamentally by profit



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motives. Nevertheless, the presence of these brands today is remarkable in a large number of consumer goods categories, some of them reaching a higher market share than the entire set of manufacturer brands.

Store brands are one of the most interesting phenomena in North American and European markets. According to the Private Label Manufacturers Association (PLMA), store brands account for one out of five products sold in US supermarkets, drugstore chains and mass merchandisers, a total of \$65 billion dollars a year in the retail industry. Throughout Europe, store brands have increased to record levels. They account for over 40 per cent of the total sales volume in Switzerland (43 per cent), Belgium (43 per cent), the UK (42 per cent), and Germany (41 per cent) and one of every three products sold in Spain (33 per cent) and France (32 per cent) (PLMA, 2007).

The importance of store brands for manufacturers, retailers and consumers varies from market to market, depending on their level of development. It is difficult to describe the general state of store brands in Europe, since each country has developed very different programs for these brands. Store brand programs developed in countries where these brands have reached the maturity stage are qualitatively different from those in countries that lag behind. More advanced countries were using all possible marketing mix strategies for their own brands by the early 1990s. Their products covered the whole range of the quality spectrum, offering the quality and assortment of manufacturer brands. Chains such as Sainsbury's in the UK, Coop in Switzerland and Real in Germany exemplify these policies, which include (among others) innovation, wide brand range, very different formats and varieties, whole vertical integration and sophisticated communication strategies.

In Spain, store brands began to be commercialized in the late 1970s when self-service formulas initiated the displacement of traditional commerce (Puelles *et al.*, 1997). They appeared in Eroski (1977), Pryca (1985) and Continente (1986) as generic brands. Production technology has improved remarkably since then. Their market share increased significantly in the mid-1990s, with their evolution of packaging and merchandising policies (Recio and Román, 1999). By the mid-1990s, store brands were presented to the consumer as a value alternative, with the same quality as leading manufacturer brands but a better price.

Since 2000, retail stores have developed segmented store brands. They began to commercialize store brands with the lowest prices (price leader store brands) on their shelves. Store brands with the highest quality (premium store brands) have been developed much more timidly, and no chain promoted them strongly until 2006. At the end of 2006, Carrefour invested substantially in innovation in its own brands through premium store brands. Thus, in food Carrefour offers a value store brand, "Carrefour" for customers who wish to acquire the best price-quality ratio; a price leader store brand "1" for customers concerned with paying the lowest price and several premium brands for consumers concerned with quality: "Quality Tradition Carrefour" for the customer who always wants a guarantee of better quality; "Carrefour Selection" gourmet national and foreign products; "From Our Land" (under the umbrella "Carrefour Selection") for the customer of typical Spanish gourmet products; "Carrefour Kids" for children's foods and "Carrefour Eco" for the ecology-conscious customer.

According to AC Nielsen (2005) data, at the beginning of the 1990s, Spain was included among the markets with lower store brand penetration (8 per cent). In 2005, Spain ranked as the fourth country in store brand market share, a value of 26 per cent

(out of 38 countries belonging to Europe, North America, the Asia Pacific region, emerging markets and Latin America). In addition, Spain was the only country of the ten first most developed in store brands that ranked among the top ten in store brand growth (16 per cent).

Within the current context of coexistence between both kinds of brands, a combination of factors has favoured the growing evolution of store brands. First, the relative power of the retailer in the marketing channel (Borghesani *et al.*, 1997; Burt and Sparks, 2003) is often used in negotiating the increasingly demanding store brands. Retailers are thus dual agents. They are the customers of the producers from whom they acquire manufacturer brands, but they are also competitors who market their own store brands. Second, store brands have achieved positioning as the best choices on the shelves and the market in a large number of product categories. This market power has frequently been used by retailers to obtain better concessions from manufacturers in the distribution channel (Mills, 1995; Narasimhan and Wilcox, 1998; Ailawadi, 2001; Ailawadi and Harlam, 2004). Finally, distributors are positioned closer to the consumer (Pellegrini, 1993), which has made it possible for retailers to communicate more information to consumers and guarantee their products at a lower cost. Unlike manufacturers, retailers can dispense with the advertising investment in their brands, which is especially significant given the increasing dispersion of advertising audiences (Mills, 1995). Retailers need not allocate a percentage of their sales to advertising their brands, and they can limit themselves to providing strong assortment support for the same.

The potential and/or real threat that store brands have represented for years to manufacturer brands in a large number of product categories has triggered a strong research interest in understanding the factors that influence the determination of the store brand market share. In recent years, various research projects have proposed models for analyzing the explanatory factors of the store brand market share in consumer goods categories (Hoch and Banerji, 1993; Raju *et al.*, 1995b; Dhar and Hoch, 1997; Putsis and Cotterill, 1999; Cotterill *et al.*, 2000, among others).

Nevertheless, works such as that by Raju *et al.* (1995b) note that analysis of the relationship of different variables to the store brand market share has frequently been approached from a cross-sectional or inter-category perspective, which has occasionally led to counter-intuitive results. One of these results is the inverse relationship between the price differential between manufacturer and store brands and the market share of the latter.

This research incorporates the time plane into the analysis of the store brand market share using the panel methodology with fixed effects. Considering time avoids the counterintuitive results of cross-sectional research and shows which variables influence the store brand market share and how they influence it, in both the intracategory “temporal” and the intercategory “transversal”. First, we review the specialized literature to identify the main determinant factors of demand for products with a store brand. The specialized literature shows that it is appropriate to group factors according to whether they are related to the basic and structural conditions of markets, to the strategic actions of agents – manufacturers and retailers – involved in their management, or to the economic-financial results. Second, we present an empirical methodology to provide integrated modelling of the store brand market share

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by jointly incorporating cross-sectional and time effects to explain the dependent variable applied to the Spanish case.

This study considers the store brand of 50 product categories for a period of five years, from 1996 to 2000. During this period, the store brand is positioned in Spain as the brand with the best price-quality ratio in the shelves. It undergoes strong growth and is consolidated as a value brand encouraging the appearance of other store brands with different positioning (price leader and premium) that seek to satisfy the needs of segments not yet covered.

In spite of the interest that the segmented store brands attract, we should specify that, in the Spanish market, no research institute as yet offers disaggregated information for premium store brands. As to price leader brands, AC Nielsen possesses disaggregated historical data for the last two years, although it considers price leader brands to be price leader store brands and price leader manufacturer brands commercialized exclusively by one distributor.

## 2. Literature review

The influence of four independent factors on the store brand market share is observed. The first factor is comprised of competitive strategy variables related to manufacturer and distributor actions concerning price and differentiation. The second incorporates market structure variables, such as market growth, manufacturer structure and retailer structure. The third includes the main variables related to the basic market conditions: price elasticity and perceived risk in the purchase. The fourth factor includes the influence of the variables of the economic-financial results, specifically the retail profit margin and the retail stock turnover of the category.

### *2.1. Relationship of the competitive strategy to the store brand market share*

Two basic types of competitive advantage are cost leadership and differentiation (Porter, 1980). One advantage of leadership in costs is based on offering a lower price; it requires efficiency in production and distribution processes as well as a high level of production and distribution of the products offered. On the other hand, an advantage in differentiation is based on the combination of better marketing (use of an innovative technology, innovative design, advertising, prestige price and greater convenience) and better marketing strategy (market segmentation and positioning) (Porter, 1980; Hambrick, 1983; Miller and Friesen, 1986; Miller, 1988; Davis and Schul, 1993).

The actions by manufacturers and retailers who interact in an industry, that is, industry's competitive behaviour, is central to marketing strategy research and practice (Varadarajan and Jayachandran, 1999). The specialized literature shows that the influence of marketing strategy on the store brand market share occurs through the actions by manufacturers and distributors that favour price and non-price competition. In the area of store brands, one can encourage price competition through strategies based on average price reduction of manufacturer and store brands or the practice of promotions with a direct price incentive "price reduction promotions". One can also encourage non-price competition through strategies based on the practice of promotions with an indirect incentive -special pack price promotions-, improved quality, advertising effort and innovation.

The effect that price as a strategic variable exercises on the store brand market share has been studied in prior research, both independently and in terms of

differential. The negative relationship between demand and price in economic models of classic theory supports the idea that an increase in the price differential between manufacturer and store brands contributes to improving the store brand market share. Connor and Peterson (1992) and Dhar and Hoch (1997) verify that increased price differentials between both brands act as an incentive for the consumer to acquire store brands.

Nevertheless, Raju and Dhar (1991), Sethuraman (1992) and Mills (1995) obtain a negative and counter-intuitive relationship between both variables, a relationship that works such as those by Raju *et al.* (1995b) and Cotterill *et al.* (2000) attempt to explain. Whereas Raju *et al.* (1995b) observe the expected positive sign when they analyze the time evolution of the store brand market share in a single category, Cotterill *et al.* (2000) find the same sign in the relationship when they consider jointly the demand and competitive interactions of the market agents.

The reaction of the demand for store brands to price variations has been examined from both an intra-brand perspective (response to the demand for store brands due to variations in these brands' prices) and an inter-brand perspective (variation of the demand for store brands due to changes in the prices of manufacturer brands). As regards the intra-brand effect, Putsis and Cotterill (1999) and Cotterill *et al.* (2000) find that the price of a brand (store or manufacturer) negatively affects their market share. For the inter-brand effect, Kamakura and Russell (1989) observe that the effect of price changes in manufacturer brands on the store brand market share is greater than the impact of changing the prices of the store brand itself.

Promotion strategies also affect the store brand market share. Evidence suggests that manufacturer brand promotions are effective deterrents of store brand market share (Blattberg and Wisniewski, 1989; Sethuraman and Mittelstaedt, 1992). However, several studies indicate that significant and frequent price promotions of manufacturer brands may erode manufacturer brand market share. Along this line, the work by Narasimhan *et al.* (1996) finds that intensive promotional activity can favour the store brand market share if it increases consumer sensitivity to price.

Therefore, the promotional activity of a category affects the store brand market share positively to the extent that the applied promotions act against the consumer's perception of the greater value of manufacturer brands. It is probable that direct price promotions favour greater comparison between manufacturer and store brands because they generate greater price sensitivity. It is also probable that indirect promotions do not harm the perception of the value of manufacturer brands, because they do not affect consumer price sensitivity in the short term.

Indirect promotion can contribute to differentiating the brand. Advertising, innovation and quality are key determinants of a differentiation strategy. Brand advertising contributes to increasing the market share of a brand. It increases familiarity with the brand, its inclusion in the group considered and gives the brand some market power (Farris and Albion, 1980; Tellis, 1988). Hoch and Banerji (1993) and Ashley (1998) observe that the advertising investment of manufacturer brands creates considerable barriers that make it difficult for store brands to grow. Research by Putsis and Cotterill (1999); Cotterill *et al.* (2000) and Scott-Morton and Zettelmeyer (2004) has also shown the negative effect of the advertising expenditure by manufacturer brands on the store brand market share.

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As to innovation, authors like Simmons and Meredith (1983), Hoch (1996) and Recio and Román (1999) propose that manufacturers invest in the innovation and development of new products in order to distance their brands from store brands. Simmons and Meredith (1983) indicate that the product categories with a higher variety of supply and higher investment in innovation have a lower presence of store brands. In these sectors, the risk that store brands may not be able to advertise a quality similar to the quality of manufacturer brands increases significantly. Moreover, the innovation costs required to compete in these markets reduce the manufacturers' willingness to produce and supply a store brand. Research by Messenger and Narasimhan (1995) obtains a negative and significant effect of the number of new or improved products on the store brand market share.

Finally, specialized literature reveals the importance of the quality of store brands (measured by both mean level and consistency) with respect to manufacturer brands in explaining the acceptance of store brands (Hoch and Banerji, 1993; Sethuraman and Cole, 1997; Dhar and Hoch, 1997; Steenkamp and Dekimpe, 1997; Batra and Sinha, 2000; Sethuraman, 2000; Medina *et al.*, 2001a, b; Erdem *et al.*, 2004; Sprott and Shimp, 2004).

### *2.2. Relationship of the market structure to the store brand market share*

Bain (1968) defines industry structure as “those characteristics of the organization of a market that seem to exercise a strategic influence on the nature of competition”. The degree of concentration, entry barriers, fixed costs and industry growth are frequently used to characterise industry structure (Hemmasi and Graf, 1990).

High growth rates in a market are associated with high marketing costs, considerable investment, low (even negative) cash flows, and growing productivity and demand (Szymanski *et al.*, 1993). Traditionally, manufacturers have intensified the presence of their brands in growth markets by committing themselves to:

- substantial innovation costs to adapt to consumer preferences and desires;
- high risk premiums due to entry into new markets; and
- high communication and distribution costs.

Store brands have been established in mature markets, in already proven categories and those with high demand, thereby capitalizing on the effort made by manufacturers with their brands (Quelch and Harding, 1996).

The manufacturer structure and the retailer structure also affect the store brand market share. The specialized literature considers:

- the effect of concentration levels; and
- the effect of the competitive rivalry among the most concentrated manufacturer brands or retailers on the store brand market share.

As to the effect of concentration levels, basic economic arguments support the existence of a negative relationship between the manufacturer brand concentration in a market and the store brand market share. Thus, the greater the aggregate share of a limited number of manufacturer brands, the lower the market share to which store brands may aspire.

The studies performed within the scope of store brands reflect that manufacturer brand concentration gives these agents greater market power and higher negotiating

power in the channel and allows them to enjoy economies of scale and scope (Putsis, 1997; Dhar and Hoch, 1997; Cotterill and Putsis, 2000; Cotterill *et al.*, 2000). In concentrated markets, to the extent that the combination of the three aspects mentioned previously does not induce unjustified price increase in the manufacturer brands, store brands will have a lower market share.

On the other hand, the works by Simmons and Meredith (1983) and McMaster (1987) show the competition among the most concentrated manufacturer brands on store brand market. They indicate that, in markets where there are no strong brand leaders, the growth experienced by the store brand is greater. Markets in which the most concentrated manufacturer brands compete for the top position are characterized by intense competition in the prices of these brands, which negatively affects the store brand market share.

As to retailer structure, Putsis (1997), Dhar and Hoch (1997), Cotterill and Putsis (2000) and Cotterill *et al.* (2000) observe a positive influence of the retail concentration on the store brand market share, which is supported by the aforementioned effects derived from concentration – market power, negotiating power and economies of scale and scope. Likewise, the works by Dhar and Hoch (1997) and Corstjens and Lal (2000) note that the intensity of the retail competition has a positive effect on the store brand market share through the development of quality programs and the application of more competitive prices for these brands.

### *2.3. Relationship of the basic market conditions to the store brand market share*

Scherer and Ross (1990) list a combination of basic conditions of supply and demand within the structure-conduct-results paradigm of industrial organization. From a market orientation, the variables that determine the basic conditions of competition in the market acquire special relevance. Specifically, perception of risk and sensitivity to the variable price are two conditions of market demand that affect the competition between manufacturer and store brands.

A detailed analysis of the relationship between price elasticity of demand and store brand market share requires differentiating between the two components that constitute the total elasticity of demand: the price elasticity of each brand and the cross price elasticity of demand between brands. The total elasticity of demand measures the net response of the demand once it has produced the price variation in the brand studied and considered the reaction of the competitor and the effects of the cross demand on other brands.

Raju *et al.* (1995a) observe that the store brand market share is greater in categories with high price elasticity for each brand, high cross price elasticity between manufacturer and store brands and low cross price elasticity between manufacturer brands.

Store brand products have traditionally been perceived as lower in quality and price compared to manufacturer brand products. Therefore, in the specialized literature the hypothesis accepted as more probable is that the store brand achieves a higher market share in categories with a higher price elasticity of demand (Raju *et al.*, 1995a, Connor and Peterson, 1992; Dhar and Hoch, 1997) and that these products are primarily purchased by price-sensitive consumers (Hoch, 1996 and Erdem *et al.*, 2004).

The level of perceived risk in the category is another crucial factor in store brand purchases (Bettman, 1974; Richardson *et al.*, 1996; Batra and Sinha, 2000). Perceived

risk can be gauged using performance, financial, psychological or social criteria (Dunn *et al.*, 1986; Grewal *et al.*, 1994; Gordon, 1994). Dunn *et al.* (1986) and Grewal *et al.* (1994) identify two fundamental kinds of risk associated with brand choice: functional risk and economic risk. The former refers to the consequences of poor functioning caused by a possible failure of the product as well as the probability that these results may occur. The second risk indicates the economic consequences of a possible product failure and its likelihood of occurring. To this classification we can add the psychological or social risk incurred by the consumer when the brand acquired does not fulfil his or her expectations or those of the reference group respectively (Gordon, 1994).

The research by Mills (1995) and Narasimhan and Wilcox (1998) assumes that, given the same price for manufacturer and store brands, the consumer will always choose the manufacturer brand. These authors explain the asymmetrical preference for manufacturer brands through three factors:

- (1) Quality differences between manufacturer and store brands.
- (2) Image differences stemming from advertising support.
- (3) Risk perceived by consumers in the purchase of a store brand.

Research by Sethuraman and Cole (1997) justifies the lower market share of store brands in certain categories as a result of consumer predisposition to pay a premium for manufacturer brands in the products in which they perceive a greater risk. These authors indicate that categories with a lower purchase frequency are characterized by higher perceived functional risk. They highlight the positive link between the average price of a category and the perceived economic risk and underscore the negative impact of the hedonistic nature of a category in the choice of store brands. Finally, Gordon (1994) notes the importance of the perceived social risk in the choice of store brands in categories of goods with a high social value.

#### *2.4. Relationship of the economic-financial results to the store brand market share*

Performance measures are usually classified as either accounting or non-accounting (Frazier and Howell, 1982; Ambler *et al.*, 2004). Ambler *et al.* (2004) identify 19 items forming the primary general metrics for marketing performance. These authors identify sales, gross margin and profitability as the main accounting measures, and consumer attitudes, consumer behaviour, customer trade, relative to competitor and relative to innovation as the main non-accounting measures. The difference between these two types of performance measures is that accounting measures record the history of a firm, while non-accounting measures capture the firm's potential for performance in the future. The former have been the measures of marketing performance most frequently used, particularly sales, market share, profit contribution and purchase (Ambler and Kokkinaki, 1997).

In this study, we consider the effect of two accounting measures of retailer performance for the category on the store brand market share. These measures are stock turnover (net sales/average stock investment) and profits (gross margin/net sales) (Thomas *et al.*, 1999; Mittal and Swami, 2004).

Hoch and Banerji (1993) observe that retail profit margin and retail stock turnover of the category are key in explaining store brand market share. Both variables



determine the distributor's willingness to invest in private brands, which ultimately has repercussions on their market share.

Distributors must bear the stock and marketing expenses for their store brands (Swindley, 1992; Hoch, 1996; Johansson and Burt, 2004). They are willing to make a greater marketing effort for these brands when the potential return from the investment in the category is high. In categories with low returns on the investment, the distributor has less incentive to allocate marketing resources to their private brand, which acts in detriment to their market share. By applying the same reasoning, it can be argued that a distributor is less willing to invest in store brands belonging to low stock turnover categories. The retail stock costs for the store brands in these categories, together with the marketing expenses, can be too high to be compensated.

Table I summarizes the expected signs for the explanatory variables of the store brand market share in consumer goods markets.

### 3. Methodology

The empirical analysis to determine the effect of the aforementioned variables on the store brand market share is applied to the Spanish consumer goods market for 50 categories of A.C. Nielsen products[1]. Annual data for the five-year period from 1996 to 2000 are obtained. Until 2000, A.C. Nielsen published information on store brands on the Spanish consumer goods market for a limited set of product categories, specifically,

Hypothesis	Expected effect on the store brand market share
<i>Competitive strategy:</i>	
<i>Price</i>	
Price differential	+
Price of store brands	-
Price of manufacturer brands	+ (higher than the effect of price of store brands)
Promotional activity	+ (price promotion) non-positive (non-price promotion)
<i>Differentiation</i>	
Advertising of manufacturer brands	-
Quality differential	-
Innovation	-
<i>Market structure:</i>	
Market growth	-
Manufacturer brand concentration	-
Competitive rivalry among manufacturer brands	-
Retailer concentration	+
Competitive rivalry among retailers	+
<i>Basic market conditions:</i>	
Price elasticity of demand	+
Perceived risk	-
<i>Economic-financial results:</i>	
Retail profit margin	+
Retail stock turnover	+

**Table I.**  
Expected signs for the explanatory variables of the store brand market share

for product categories that belong to traditional sectors of food, perfume and hygiene, and drugstore and cleaning products, in which store brands were introduced early. The evolution of these brands, their acceptance by consumers and the interest that they arouse in manufacturers and distributors led A.C. Nielsen to expand the sample considerably from the year 2000 onward. We chose 1996 as the first year of analysis because that year A.C. Nielsen began to use scanner technology to obtain information.

The panel methodology is used in this research to explain the store brand market share. This methodology is appropriate when variables differ longitudinally and cross-sectionally in the explanation of a phenomenon. The choice of a panel model with fixed or random effects in the study of the time and cross-sectional variability of the phenomenon under study depends on the existence of a fixed component in the cross-sectional differences or on their total randomness, respectively. For store brands, it is possible to identify categories where these brands have shown very good evolution since their introduction, reaching and maintaining considerable levels, and other categories in which these brands do not reach an appreciable market share and in which the evolution progresses slowly[2]. This fact clearly shows the existence of typical, non-random characteristics that affect the store brand market share levels in the product category and that warrant the application of panel modelling with fixed effects. The decision to consider fixed effects instead of random effects panel models was also supported statistically. The Hausman test applied to the panel models developed in this research showed clearly that the random effects estimators were not consistent and recommended the use of fixed effects.

We apply the commonly used fixed effects panel model, which adopts the following expression (equation 1):

$$y_{it} = \eta_i + \beta x_{it} + v_{it} \quad (1)$$

where:

$\eta$ : cross-sectional heterogeneity  $i = 1 \dots n$ : identifies the cross sections;

$v$ : random disturbance  $t = 1 \dots t$ : identifies the time sections;

The store brand market share is expressed with this model. To specify the model, an exponential potential function was used originally (equation 2). It was linearized for estimation using natural logarithms (equation 3):

$$SBMS_{it} = \mu_i \times e^{\sum_{p=1}^h \beta_p X_{p,it}} \times \prod_{p=h+1}^m X_{p,it} \beta_p \times \varepsilon_{it} \quad (2)$$

$$LSBMS_{it} = \eta_i + \sum_{p=1}^h \beta_p X_{p,it} + \sum_{p=h+1}^m \beta_p L X_{p,it} + v_{it} \quad (3)$$

where:

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$SBMS_{it}$ (LSBMS $_{it}$ ):	store brand market share in category $i$ , and year $t$ (natural logarithm).
$p = 1 \dots m$ :	identifies the explanatory variable.
$X_{p,it}$ (LX $_{p,it}$ ):	explanatory variable -competitive strategy, market structure, basic conditions, economic – financial results (natural logarithm).

Non-linear expressions are used frequently when studying demand. In the area of store brands, prior research findings about the effect of certain variables on the market share level recommend using this kind of expression. Raju *et al.* (1995a) note, for example, that the greater the store brand market share, the smaller the effect of price differentials on the store brand market share, meaning that sensitivity to price differentials decreases to the extent that the store brand market share increases. Other authors, such as Cotterill *et al.* (2000), underscore the importance of a high store brand market share to cushion the effect of prices on demand. These authors show that a high store brand market share attenuates the negative, intra-brand effect and can invert the inter-brand asymmetry.

The time and cross-sectional differences observed in the store brand market share for the Spanish market are explained by indicators that measure the variables identified in the literature review as potential determinants of the store brand market share.

The information sources used in the capture of data are A.C. Nielsen in general. In particular, *Infoadex* is used for the advertising of manufacturer brands; IRI (Information Resources Inc.) is used for the promotional activity and innovation; *Ocu-Compra Maestra* for the quality differential; *Alimarket* for the retail concentration; and *Cabsa* for the variables of retail profit margin and retail stock turnover of the category. *Infoadex* carries out the control and analysis of advertising in Spain. Its study *InfoAdex* presents complete annual information on the real investment by media, sectors, advertisers and brands. More information at: [www.infoadex.es](http://www.infoadex.es). OCU is part of a European consumer group, *CONSEUR*, together with Belgium, Italy, Portugal, and France. This source provides technical analysis of the composition of the most representative brands for each category, the label, etc. It also offers a common variable, the overall appraisal made by experts once all technical characteristics for every brand has been evaluated. More information is available at: [www.ocu.org](http://www.ocu.org). Publicaciones Alimarket, SA is a firm that specializes in economic and market information on the sectors and firms in Spain. Its publication, *Alimarket Revista*, publishes an annual monograph on commercial distribution in the consumer goods sector (food, beverages and non-food). More information at: [www.alimarket.es](http://www.alimarket.es). Cabsa (Central de Análisis de Balances, SA) is a firm that pioneers the economic-financial analysis of firms in Spain. Its database is comprised of more than 160,000 Spanish companies in 102 economic sectors. Its sector databases are widely accepted in the Spanish market, since they provide economic-financial information for all companies in a large number of sectors. More information at: [www.cabsa.es](http://www.cabsa.es)

A description of each of the indicators used for quantifying the variables, both dependent and independent, considered in this research and the information source are included in Table II.

Variables	Measurement	Source
Store brand market share (SBMS)	Aggregate volume market share for store brands, in the $i$ th category, $j$ th year	AC Nielsen
Price differential (PDIF)	Average price differential between manufacturer brands and store brands over the manufacturer brand price, in the $i$ th category, $j$ th year	AC Nielsen
Price of store brands (PSB)	Average price of store brand products, in the $i$ th category, $j$ th year	AC Nielsen
Price of manufacturer brands (PMB)	Average price of manufacturer brand products, in the $i$ th category, $j$ th year	AC Nielsen
Promotional activity (PROMPR/PROMSP)	Percentage of value sales in price promotion "PROMPR" and in special pack "PROMSP", in the $i$ th category, year 2000. Information obtained for 37 product categories	IRI
Advertising of manufacturer brands (ADVERT)	Average advertising effort for the manufacturer brands in the $i$ th category, based on the information provided by the source for the year 1996 and the year 2000, relative to the total advertising expenditures for all manufacturer brands in the $i$ th category in relation to total advertising expenditures for all manufacturer brands in the consumer goods market	Infoadex
Market growth (MKGROWT)	Inter-annual growth rate of the sales volume, in the $i$ th category, $j$ th year	AC Nielsen
Quality differential (QDIFCTG; QDIFMB, QDIFLMBS, QDIFLMB)	Average objective quality of store brands in relation to the average objective quality of all brands "QDIFCTG" average objective quality of all manufacturer brands "QDIFMB" (3) average objective quality of the leading manufacturer brands "QDIFLMBS" and objective quality of the leading manufacturer brand "QDIFLMB", in the $i$ th category for the set of years considered. Information obtained for 33 product categories. The objective quality is valued by experts on a nine-point scale	OCU Compra Maestra
Innovation (REFSST)	Average number of product references in the superstore, in the $i$ th category, year 2000. Information obtained for 37 product categories	IRI
Manufacturer brand concentration (CR3MB)	Aggregate volume market share for the top three manufacturer brands, in the $i$ th category, $j$ th year	AC Nielsen
Competitive rivalry among manufacturer brands (DPCR3MB)	Dispersion (Pearson's coefficient of variation) of the average volume market shares for the top three manufacturer brands, in the $i$ th category, $j$ th year (inverse indicator of competitive rivalry). When this variable is used to explain the fixed effects of the panel model, average values by product category from 1996 to 2000 are considered	AC Nielsen
Retailer concentration (CR4RET)	Aggregate volume market share for the top four grocery retailers, in the $j$ th year	Alimarket
Competitive rivalry among retailers (DPSALES)	Dispersion of the average volume market shares by the retail formats that market store brands, in the $i$ th category, $j$ th year (inverse indicator of competitive rivalry). When this variable is used to explain the fixed effects of the panel model, average values by product category from 1996 to 2000 are considered	AC Nielsen

*(continued)***Table II.**  
Variables and measurement

Variables	Measurement	Source
Price elasticity of demand (ELST)	Average variation of the volume sales in the <i>i</i> th category when the prices are modified. The indicator used is based on the average volume sales of the <i>i</i> th category in the <i>j</i> th year achieved by each of the retail formats that markets it, and the average price of the <i>i</i> th category in the <i>j</i> th year in each of these retail formats. The years 1996 to 2000 are considered	AC Nielsen
Economic risk (ECORISK)	Average purchase price, in the <i>i</i> th category, <i>j</i> th year	AC Nielsen
Retail profit margin (RPM)	Average retail profit margin over sales, in the <i>i</i> th category, <i>j</i> th year (the source includes all main retailers in the consumer product market)	Cabsa
Retail stock turnover (RST)	Average retail stock turnover, in the <i>i</i> th category, <i>j</i> th year (the source includes all main retailers in the consumer product market)	Cabsa

Table II.

In this study, for the variables of advertising and price elasticity, only a cross sectional indicator was available for the set of years considered. These variables were thus used to explain the fixed effects of the panel modelization. Likewise, complete information was not available on time level and cross-sectional level for the variables of promotional activity, quality differential and innovation. The effect of these variables on the store brand market share was thus limited to an analysis of the individual effects by means of the Pearson's correlation coefficient between each of these variables and the store brand market share.

We estimate four possible alternative fixed effects panel models for explaining the store brand market share. On the one hand, models 1 and 2 consider the perceived economic risk and the price differential between manufacturer brands and store brands, instead of the price of manufacturer brands and the price of the store brands. These two models thus enable evaluation of the appropriateness or inappropriateness of increasing the price differentials between the manufacturer and store brands in order to incentivize the private brand market share. Models 3 and 4 consider the prices of manufacturer brands and store brands and thus permit analysis of intra-brand and inter-brand competition between the manufacturer and store brands in the product category.

Due to the problems of multi-collinearity between the retail profit margin of the category and retail concentration, we cannot consider these two variables together. In models 1 and 3 it is possible to evaluate the individual effects of the concentration at a retailer and manufacturer level on the store brand market share, but not the effect of the retail profit margin of the category. In models 2 and 4 the influence of the variables of the economic-financial results can be analyzed jointly, but the effect of the retail concentration cannot.

Finally, due to problems of multicollinearity, the two variables used to measure the manufacturer structure and the retailer structure (concentration and competitive rivalry among the most concentrated brands) were not introduced together in the panel models for either manufacturer brands or retailers. The panel models revealed more

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explanatory capacity for the concentration measures (manufacturer brand concentration and retail concentration).

For the estimation of the models, the E-views computer package was used. An initial estimation by ordinary least squares (OLS) provided evidence of the possible existence of auto-correlation. Therefore, an estimate was made using the generalized least squares (GLS) in order to limit the inconveniences that could result from possible non-compliance with the basic condition of non-auto-correlation (Table III).

## 4. Results

### 4.1. Intra-category results

Table III presents the results of applying the panel modelling to the store brand market share in the 50 product categories over the five-year analysis period. In all dimensions of the determinant variables we find statistically significant variables that explain the evolution of the store brand market share. Thus, the actions taken by manufacturers and distributors concerning the prices of their respective manufacturer and store brands are prominent in the competitive strategy. Market growth and, fundamentally, the concentration at a manufacturer and retailer level have a significant influence concerning the market structure. Prominent among the effects of the basic conditions is the economic risk perceived by consumers[3]. Finally, of the variables of the economic-financial results, both indicators used are significant – the retail profit margin and the retail stock turnover of the category.

The proposed models are acceptable overall, given that they have a high explanatory capacity (unweighted statistics: 95.13 per cent < adjusted  $R^2$  < 95.71 per cent; weighted statistics: 99.98 per cent < adjusted  $R^2$  < 99.96 per cent). The signs obtained allow verification of nearly all of the relationships proposed in the literature review for the explanatory variables. The economic risk perceived by the consumer for a category is the only variable for which the expected relationship is not obtained.

A positive and significant relationship is observed between the price differentials of the manufacturer and store brands and the store brand market share at an intra-category level. The sign obtained contributes further evidence to the arguments that support the conclusion that the counter-intuitive results obtained for the price differential in various works (Raju and Dhar, 1991; Sethuraman, 1992; and Mills, 1995) could be caused by failure to consider the time plane and the massive application of cross-sectional analyses in the study of the store brand market share (Raju *et al.*, 1995b).

Moreover, models 3 and 4 clearly show the negative intra-brand relationship between the price of store brands and their market share and the positive inter-brand relationship. The *t*-student test performed in the two models for the comparison of the estimated coefficients of prices show the asymmetrical inter-brand relationship with respect to the intra-brand relationship. Thus, a decrease in the prices of store brands contributes positively to their demand, but a similar decrease in the prices of manufacturer brands affects the store brand market share negatively and with greater intensity.

Among the market structure variables, the low effect of the market growth rate versus the more pronounced influence of the concentration stands out. In all the estimated models, market growth negatively affects the store brand market share, supporting conventional arguments for the idea that the maturity phases of the

**Table III.**  
Alternative panel models  
in the study of the store  
brand market share

Explanatory variables	Model 1	Model 2	Model 3 <sup>a</sup>	Model 4 <sup>a</sup>
PDIF	0.12 ***	(35.741)	0.013 ***	(110.532)
LPMB			1.184 ***	(43.699)
LPSB			-0.984 ***	(-40.597)
MKGROWT	-0.0008 **	(-2.614)	-0.001 ***	(-4.418)
LCR3MB	-0.372 ***	(-17.176)	-0.353 ***	(-18.735)
LCR4RET	0.427 ***	(17.288)	0.358 ***	(17.392)
LECORISK	0.169 ***	(5.010)		
LRPM			0.148 ***	(4.732)
LRST	1.138 ***	(13.534)	1.178 ***	(25.371)
Adjusted <i>R</i> -squared (%)	95.709		0.831	(16.381)
<i>F</i> -statistic	101.984		Unweighted statistics	
Durbin-Watson stat	1.843		95.166	95.131
			90.1201	89.449
			1.782	1.751
Adjusted <i>R</i> -squared (%)	99.959		Weighted statistics	
<i>F</i> -statistic	11067.610		99.967	99.984
Durbin-Watson stat	2.008		13850.290	28316.810
			1.989	2.009

**Notes.** <sup>a</sup>The *t*-student test was performed for the comparison of the estimated coefficients of LPMB and LPSB. It confirmed statistically the significance of differences in both models, with values of *t*=13.42 in model 3 and *t*=6.94 in model 4; Significant at \*\*\*1 per cent and \*\*5 per cent; *t*-ratios in parentheses; Dependent variable: LSBMS; Method: GLS (cross section weights); Sample: 1996-2000; Total panel (balance observations): 250

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product lifecycle favour the development of store brands. The increase in retail concentration helps the private brand market share of these agents, contrary to the manufacturer brand concentration.

As regards basic market conditions, to the extent that the average price of a category increases (used as indicator of the economic risk perceived by the consumer), demand shifts towards store brands. The negative relationship between the perceived economic risk and the store brand market share postulated in the specialized literature is verified in inter-category studies[4], although it does not occur as such in the intra-category analysis developed (models 1 and 2).

Finally, the influence of the variables of the economic-financial results on the store brand market share should be analyzed. The results provide evidence that the profit margin and stock turnover that the distributor obtains for the product category facilitate the growth of store brands.

#### *4.2. Inter-category results*

The fixed effects obtained in the panel modelling can be observed in Table IV. All are statistically significant with a confidence level of 99%. The results obtained reveal the cross-sectional differences in the store brand market share, whereby the most negative values correspond to categories with the worst store brand market share, as demonstrated by Pearson's correlation coefficient between both variables.

To analyze the cross-sectional differences in the store brand market share, a regression analysis is performed in which the fixed effects of each of the alternative panel models are considered as the dependent variables, and the explanatory variables are those, which have not been included in the time analysis. The variables that emerged as statistically significant in the explanation of the inter-category differences in the store brand market share can be observed in Table V.

The set of variables considered explains between 45 and 49 per cent of the variance of the fixed effects, depending on the panel model considered. The signs obtained for all the variables are in accordance with the literature review. At a manufacturer level, a significant and negative influence is obtained for advertising of the manufacturer brands and for the competitive rivalry among the leading brands. At a distributor level, competitive rivalry among the retail formats that market a store brand exercises a positive effect on the store brand market share. As to the possible influence of the basic market conditions, we see that store brands achieve greater acceptance by consumers in price-elastic categories.

Finally, we must note that it was not possible to consider one set of variables theoretically determinant in the empirical modelling of the store brand market share. Specifically, it was not possible to incorporate the effect of variables related to promotions, quality differential between manufacturer and store brands, and innovation, as complete information was unavailable for both time level and cross-sectional level. For promotions and innovation, it was possible to access information for only 37 of the categories analyzed in the year 2000. For the quality differential, only one cross-sectional indicator was available for 33 categories analyzed.

The effect of these variables on the store brand market share is thus limited to an analysis of the individual effects, calculated using Pearson's correlation coefficient between each of these variables and the store brand market share. The results are shown in Table VI.



**Table IV.**  
Inter-category differences  
in the store brand market  
share

Product category	Fixed Effects (FE)			
	Model 1	Model 2	Model 3	Model 4
AIRFRSH	-4.661 *** (-10.001)	-4.492 *** (-16.106)	-5.083 *** (-13.017)	-5.112 *** (-19.251)
ALMFOIL	-3.330 *** (-7.171)	-3.211 *** (-11.955)	-3.523 *** (-9.974)	-3.549 *** (-16.382)
ASPARA	-4.017 *** (-8.591)	-3.980 *** (-14.819)	-4.209 *** (-11.960)	-4.303 *** (-20.151)
AUTDW	-4.236 *** (-8.792)	-4.227 *** (-13.809)	-4.638 *** (-12.293)	-4.816 *** (-17.483)
BATHGEL	-4.753 *** (-10.334)	-4.638 *** (-16.818)	-5.021 *** (-14.394)	-5.073 *** (-22.717)
BLEACH	-3.900 *** (-8.857)	-3.558 *** (-13.691)	-4.117 *** (-12.248)	-3.962 *** (-18.674)
CCOSPRE	-4.021 *** (-8.602)	-3.941 *** (-14.269)	-4.281 *** (-12.015)	-4.366 *** (-19.299)
CHOCBAR	-4.441 *** (-9.513)	-4.377 *** (-16.135)	-4.650 *** (-13.185)	-4.738 *** (-21.980)
COOKIES	-4.653 *** (-10.001)	-4.597 *** (-17.177)	-4.883 *** (-13.940)	-4.974 *** (-23.541)
CORN	-3.676 *** (-7.913)	-3.756 *** (-14.208)	-3.893 *** (-11.094)	-4.091 *** (-19.683)
DEODOR	-5.596 *** (-12.533)	-5.274 *** (-10.777)	-5.891 *** (-15.557)	-5.776 *** (-12.756)
DETERG	-4.772 *** (-10.171)	-4.527 *** (-15.976)	-5.021 *** (-14.037)	-4.974 *** (-21.197)
DIAPERS	-4.772 *** (-9.491)	-4.789 *** (-14.946)	-5.032 *** (-12.992)	-5.246 *** (-19.374)
DOMGLOV	-3.289 *** (-7.224)	-2.949 *** (-10.507)	-3.462 *** (-9.967)	-3.302 *** (-14.647)
DUSTPAD	-4.250 *** (-9.236)	-4.007 *** (-14.618)	-4.442 *** (-12.537)	-4.384 *** (-19.518)
FHGROD	-4.591 *** (-9.882)	-4.428 *** (-15.648)	-4.988 *** (-13.014)	-5.022 *** (-17.452)
FLOORCL	-3.829 *** (-8.646)	-3.571 *** (-13.670)	-4.156 *** (-12.363)	-4.084 *** (-19.232)
FLOORRF	-4.183 *** (-9.407)	-3.889 *** (-14.754)	-4.375 *** (-12.943)	-4.269 *** (-19.954)
HANDDDW	-4.435 *** (-9.307)	-4.235 *** (-14.932)	-4.687 *** (-12.357)	-4.664 *** (-19.107)
INSCOFF	-4.249 *** (-8.746)	-4.206 *** (-14.421)	-4.489 *** (-12.138)	-4.619 *** (-19.346)
INSECT	-4.185 *** (-9.347)	-3.777 *** (-13.580)	-4.422 *** (-12.876)	-4.242 *** (-18.153)
JUICE	-4.223 *** (-9.000)	-4.183 *** (-15.248)	-4.419 *** (-12.457)	-4.522 *** (-20.563)
LEGUM	-3.757 *** (-8.386)	-3.582 *** (-13.872)	-3.951 *** (-11.678)	-3.931 *** (-19.052)
LIQUOR	-4.862 *** (-9.947)	-5.027 *** (-16.778)	-5.199 *** (-14.005)	-5.523 *** (-22.402)
MARGAR	-4.572 *** (-9.855)	-4.555 *** (-17.005)	-4.847 *** (-13.888)	-4.980 *** (-23.724)
MARMAL	-4.122 *** (-8.811)	-4.142 *** (-15.498)	-4.366 *** (-12.382)	-4.520 *** (-21.392)
MAYONN	-4.404 *** (-9.592)	-4.376 *** (-16.602)	-4.604 *** (-13.315)	-4.714 *** (-22.829)

(continued)

Product category	Fixed Effects (FE)			
	Model 1	Model 2	Model 3	Model 4
MILK	-4.540***	-4.527***	-4.748***	-4.881***
MUSSELS	-4.172***	-4.167***	-4.362***	-4.494***
NAPKINS	-3.411***	-3.313***	-3.579***	-3.617***
OLIVOIL	-4.236***	-4.266***	-4.467***	-4.655***
PASTAS	-3.985***	-3.939***	-4.281***	-4.379***
PINEAPP	-3.985***	-3.978***	-4.156***	-4.259***
PREDISH	-4.169***	-4.282***	-4.396***	-4.643***
RICE	-4.000***	-3.947***	-4.202***	-4.290***
ROASCF	-4.395***	-4.377***	-4.603***	-4.739***
SCOPAD	-4.232***	-3.951***	-4.438***	-4.339***
SHAMPOO	-5.461***	-5.358***	-5.978***	-6.058***
SLICEBR	-4.077***	-4.031***	-4.332***	-4.438***
SOFTNER	-3.938***	-3.845***	-4.203***	-4.275***
SOUP	-4.977***	-4.887***	-5.248***	-5.333***
TISSUES	-3.551***	-3.445***	-3.726***	-3.765***
TOILPP	-3.548***	-3.466***	-3.744***	-3.812***
TOMSC	-3.571***	-3.484***	-3.737***	-3.781***
TOOTPS	-5.257***	-5.144***	-5.561***	-5.625***
TOWELS	-3.468***	-3.419***	-3.649***	-3.736***
TUNE	-4.383***	-4.353***	-4.585***	-4.708***
WATER	-5.162***	-4.977***	-5.357***	-5.329***
WHISKY	-5.443***	-5.571***	-5.746***	-6.050***
YOGUR	-4.824***	-4.789***	-5.095***	-5.223***
Pearson's correlation coefficient FE-SBMS	0.778***	0.703***	0.752***	0.698***

Note: All coefficients are statistically significant at \*\*\*1 per cent; t-ratios in parentheses

**Table V.**  
Relevant variables in the  
explanation of the  
inter-category differences  
in the store brand market  
share

Explanatory variables	Model 1	Model 2	Model 3	Model 4
CONSTANT	-3.980*** (-19.453)	-3.598*** (-17.458)	-4.159*** (-18.984)	-3.948*** (-17.765)
DPCR3MB	0.401** (2.482)	0.389** (2.390)	0.388** (2.244)	0.374** (2.130)
DPSALES	-0.071*** (-3.396)	-0.094*** (-4.448)	-0.081*** (-3.633)	-0.105*** (-4.625)
ELST	-0.069*** (-3.052)	-0.051** (-2.216)	-0.080*** (-3.307)	-0.068*** (-2.745)
ADVERT	-0.109*** (-3.596)	-0.106*** (-3.471)	-0.115*** (-3.531)	-0.115*** (-3.480)
$R^2$ adjusted (%)	45.133	47.496	45.654	48.630
F-Snedecor	9.062***	9.865***	9.232***	10.277***

**Notes:** Significant at \*\*\*1 per cent, \*\*5 per cent and \*10 per cent; *t*-ratios in parentheses

	Pearson's correlation coefficient with SBMS <sup>a</sup>	N	Alternative panel models
<i>Promotional activity</i>			
PROMPR	0.40 ***	37	
PROMSP	-0.50 ***	37	
<i>Quality differential</i>			
QDIFCTG	0.06	33	
QDIFMB	0.05	33	
QDIFLMBS	-0.04	33	
QDIFLMB	0.13	33	
<i>Innovation in the product category</i>			
REFSST	-0.38 **	37	

129

**Table VI.**

Analysis of the individual effects of promotions, quality differential and innovation on the store brand market share

**Notes:** Significant at \*\*\*1 per cent, and \*\*5 per cent. <sup>a</sup>For the variables of quality differential, an indicator by product category for the set of years considered, from 1996 to 2000, was obtained; therefore, average store brand market share by product category from 1996 to 2000 was considered. For the variables of promotional activity and innovation, the information refers to the year 2000. For this reason, store brand market share by product category for the year 2000 was considered.

A statistically significant influence of promotional variables on the store brand market share is observed. This influence is positive for price promotions and negative for special pack promotions. The effect of innovation is also negative and significant. Nevertheless, no significant influence regarding the quality differential is obtained for any of the indicators used -the quality differential of the store brands with respect to the mean quality of the category, the mean quality of all manufacturer brands, the mean quality of the leading manufacturer brands or the mean quality of the leading manufacturer brand[5].

## 5. Conclusions, limitations and future lines of research

The results obtained reveal issues that are significant for store brand management, at both intra-category and inter-category level. As regards the evolution of the store brand market share in the Spanish market during the five-year analysis period (1996-2000), the following variables emerge as significant: retail profit margin and retail stock turnover of the category, price of the manufacturer and store brands, manufacturer brand concentration, retail concentration, market growth rate and perceived economic risk.

Hoch and Banerji (1993) find that the profit margin levels that the retailer obtains for the category significantly affect the store brand market share. In addition to finding the retail profit margin to be positive and significant, the research clearly shows that the store brand market share is also favoured by stock turnover increases. The higher the levels of profit margin and stock turnover of a category, the more willing the retailer is to invest in the store brand, given that higher levels of both magnitudes more easily compensate for the expenses incurred by the store brand through the income obtained with these brands.

Likewise, a significant effect of the prices of both brands is obtained. Distributors can increase their private brand market share in the category by increasing the price differential between the manufacturer and store brands (both under their

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control), either by increasing the prices of the manufacturer brands or by decreasing the prices of their private brands. Nevertheless, it is possible to observe that price variations in the manufacturer brands are more effective in altering the store brand market share than price variations in the store brands. In other words, there is a certain asymmetry in the competition between both brands. A decrease of the same magnitude in the prices of the manufacturer and store brands causes a reduction in the store brand market share, even though the price differential remains stable.

As regards the market structure, the positive evolution of store brands is strongly marked by the levels of retail concentration, which gives high negotiating power to distributors in their relationship with manufacturers. On the one hand, retailers can take advantage of their stronger position in the channel to improve the quality of their store brands, to incorporate the latest innovations of the manufacturer brands into their private brands and to improve the positioning of the latter. Moreover, the producer must pay special attention to the price policy of the distributor for the manufacturer and store brands. The considerable market share achieved by the store brands in numerous product categories can be used by the retailer as a threat to achieve lower list prices for the manufacturer brands (Mills, 1995; Narasimhan and Wilcox, 1998; Ailawadi, 2001; Chintagunta *et al.*, 2002; Ailawadi and Harlam, 2004; Steiner, 2004). Authors such as Connor and Peterson (1992), Cotterill and Putsis (2000) and Cotterill *et al.* (2000) have demonstrated the effect of retail concentration on price differentials. Lower list prices of manufacturer brands should favour lower retail sale prices of these brands and thus their purchase by consumers. However, it must be noted that lower list prices of manufacturer brands also give the distributor a greater manoeuvring margin to work with the price differential between the manufacturer and store brands and thus to favour the store brand market share.

On the other hand, retail concentration enables the retailer to benefit from economies of scale and scope with store brands, causing consumers to have a better attitude towards these brands. Store brands do not need the advertising levels of manufacturer brands, given that they can achieve economies of communication given their presence throughout the entire establishment. A high retail concentration favours the economies of communication of store brands and therefore their market share.

Nevertheless, the progressive evolution of store brands in a product category can be curbed by manufacturer brand concentration. The results obtained show that a high concentration of the leading three manufacturer brands has a negative effect on the store brand market share. This fact suggests that producers should increase the marketing effort for their own brands to try to increase consistently the manufacturer brand market shares to the disadvantage of store brands. It would thus be possible to compensate for the growing negotiating power of distributors and to decelerate the development of store brands. It is important to note that greater manufacturer brand concentration means lower heterogeneity in the tastes and preferences of consumers, which results in greater market power for these brands (Putsis, 1997). Moreover, it gives manufacturers greater negotiating power in the channel and thus the power to increase the prices of their manufacturer brands (Dhar and Hoch, 1997; Cotterill *et al.*, 2000).

Another variable of market structure with a significant influence on the evolution of the store brand market share is the market growth rate. The negative sign found for this variable means that the growth of a market continues to be led by manufacturer

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brands, meaning that growth is associated with a greater marketing effort by producers towards their manufacturer brands.

Finally, the positive effect of the economic risk of the category on the evolution of the store brand market share should be mentioned, without forgetting that for its measurement we have used a managerial variable like average purchase price of the product category. The positive effect, is supported, on the one hand, by the reduced number of categories for which experts have detected significant differences of objective quality between manufacturer and store brands; and, on the other, by the fact that the categories considered represent frequently purchased products, in which the intrinsic attributes have a strong influence on the purchase choice (Olson and Jacoby, 1972; Etgar and Malhotra, 1978; Schwinghammer and Darden, 1985). The result obtained for this variable, together with the result obtained for the price differential, indicates that price is an important incentive in the choice of brand in categories with frequent consumption. In these categories, consumers tend to give high importance to the intrinsic attributes, which demonstrate a sufficient degree of similarity between manufacturer and store brands.

As regards the inter-category heterogeneity of store brand market share, the research shows the influence of the competitive rivalry at a retailer and at a manufacturer level, product differentiation, and price elasticity of a category. For competitive rivalry among retailers, a negative and significant effect of the indicator used (dispersion of the average volume market shares by the retail formats that market store brands) is obtained in the model. A lower value of this indicator reflects a greater homogeneity of the market shares of the retail formats that operate with store brand in a product category, in contrast with the greater dispersions that characterize categories where the sales concentration of certain formats is comparatively higher.

The result obtained indicates that the competitive rivalry among the retail formats that operate with store brands has a positive effect on the market share of these brands. This positive effect can be explained by the greater price differentials that these retail formats can apply between manufacturer and store brands under these conditions. Moreover, in the current stage of development of these brands, it is also very probable that an increase in the retail competition would further encourage the development of quality programs for store brands and that these programs would likewise contribute to the total market share of these brands.

Advertising was negatively significant with respect to the product differentiation variable. The negative influence of the advertising investment of manufacturer brands on the store brand market share suggests to producers that they should invest in advertising their brands as a strategy to curb the development of store brands in a product category. Advertising investment positively affects salience, image and differentiation and gives manufacturers the power to increase the prices of their brands without jeopardizing the market share of the same. Differentiated categories exhibit greater loyalty towards manufacturer brands, "fair" price differentials between manufacturer and store brands, lower price elasticity of demand, and lower cross-price elasticity between manufacturer and store brands (Lal and Narasimhan, 1996). All of these aspects harm the store brand market share.

As to competitive rivalry among the top three manufacturer brands, the inter-category analysis clearly shows that, in categories where the leading manufacturer brands compete more intensely (lower value of the DPCR3MB indicator), the store brand market

share is lower. This result suggests that store brands have a more complex and limited development in markets where there is no clear leader and where various brands contend for the top position. In product categories with these characteristics, the cross-price elasticity of demand between manufacturer brands is high (Raju *et al.*, 1995a). Producers attempt to maintain and even to increase the market share of their manufacturer brands at the expense of competitor brands. It is thus highly probable that these markets are characterized by greater R&D expenses, high proliferation of products, considerable advertising investments and aggressive price policies.

The positive effect of price elasticity on the store brand market share should be mentioned. In the most price-elastic categories, this marketing mix variable constitutes the main factor determining demand. Store brands have traditionally been positioned at low prices, comparatively lower than those manufacturer brands. Therefore, in price-elastic categories, where quality differences are relegated to the background in the purchase choice, store brands intensify their competitive price advantage over manufacturer brands.

It should finally be pointed out that the work presented is not without limitations, which derive mainly from the conditioning factors of the information. This study was not able to include variables in the model that were relevant (promotional activity, variety of the assortment in the product category or the objective quality differential between manufacturer and store brands). Of these variables, we were only able to obtain information for a sub-set of categories and for a specific year. Therefore, it was only possible to perform an exploratory analysis of the individual effect of each of these variables on the store brand market share. It would be appropriate in further research to include the three variables mentioned previously in the modelling.

As to the quality of the manufacturer and store brands, it would be interesting to use both objective and perceptual indicators. In addition, from the marketing perspective, it would be especially interesting to complete the model with consumer variables pertaining to product knowledge, purchase frequency, attitude towards store brands and the functional, social or hedonistic risk perceived in the category.

Regarding the cross-sectional amplitude of the analysis, A.C. Nielsen and Iri expanded the sample of categories for which they include information on the behaviour of store brands in the Spanish consumer goods market in 2000, which enables development of even more complex analyses, including new product categories. In Spain, from the year 2000 onward, large retail stores begin to segment store brands into price leader brands and value brands. Recently, only one retail store in Spain "Carrefour" has made a strong bid for premium store brands. In the future, it could therefore be interesting to carry out comparative analyses of the performance of segmented store brands in establishments that commercialise the three kinds of store brand (value store brands, price leader store brands and premium store brands) and to analyze and compare the evolution of the three kinds of brand.

Further research might also examine differences between markets over a similar time period and try to develop a time-based theory of the dynamic evolution of the store brand market share or a theory of why differences exist between markets.

#### Notes

1. The description of the categories used in the analysis is included in the Appendix, Table AI.
2. At a time level the data showed a minimum growth in categories such as air fresheners, deodorants and liquor, with an increase lower than 1 percentage point over the five years. Conversely, growth was especially pronounced in packaged pineapple, napkins, prepared

dishes, corn and dry legumes, all with increases exceeding 15 percentage points. At a cross-sectional level, the data indicated that it was possible to differentiate categories with a high average market share of store brands, such as aluminium foil (average market share exceeding 50 per cent); corn and packaged pineapple (average market share exceeding 40%); and toilet paper, packaged dry legumes, fresh tomato sauce, paper towels and domestic gloves (average market share exceeding 35 per cent). Conversely, products were detected where store brands had not exceeded 15 per cent of the market, such as deodorants, toothpaste, whisky (average market share of less than 10 per cent), bottled water, dehydrated soups, shampoo, diapers, insecticides, dust pads and wipes, and detergents (with average market share of less than 15 per cent).

3. We use the concept of economic risk to analyze the influence of some relevant variables on the store brand market share, but we do not measure economic risk directly. We use the average purchase price of the product category – the greater the average price of the product category, the greater the economic risk perceived by consumers (Grewal *et al.*, 1994). Therefore, the economic risk is considered a variable of basic market condition because it is an aspect with relative structural stability; nevertheless the measure used can change in the short time.
4. For the sample used, we performed a cross-sectional variance analysis between the economic risk perceived by the consumer and the store brand market share in each of the years analyzed. The results obtained for F-Snedecor (statistically significant at 1 per cent in all the years) provided evidence of a negative relationship between the two variables.
5. We should point out that a detailed analysis at a category level revealed the existence of significant differences in the levels of objective quality between the manufacturer and store brands in only two of the categories analyzed (prepared dishes and whisky). For all other categories, the variance analyses performed did not show evidence of significant differences in the quality of the two groups of brands.

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### Further reading

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Product category	Description
AIRFRSH	Air fresheners
ALMFOIL	Aluminum foil
ASPARA	Preserved asparagus
AUTDW	Automatic dishwasher detergents
BATHGEL	Bath gel
BLEACH	Bleach
CCOSPRE	Cocoa spreads
CHOCBAR	Chocolate bars
COOKIES	"Maria" cookies
CORN	Corn
DEODOR	Deodorants
DETERG	Detergents
DIAPERS	Diapers
DOMGLOV	Domestic gloves
DUSTPAD	Dust pads and wipes
FHGROD	Feminine hygiene products
FLOORCL	Floor cleaner
FLOORRF	Floor cleaner refills
HANDDW	Hand dishwashing detergents
INSCOFF	Instant coffee
INSECT	Insecticides
JUICE	Juices
LEGUM	Legumes
LIQUOR	Liquor
MARGAR	Margarine
MARMAL	Marmalade
MAYONN	Mayonnaise
MILK	Milk
MUSSELS	Mussels
NAPKINS	Domestic napkins
OLIVOIL	Olive oil
PASTAS	Pastas
PINEAPP	Packaged pineapple
PREDISH	Prepared dishes
RICE	Packaged rice
ROASCF	Roasted coffee
SCOPAD	Scouring pads
SHAMPOO	Shampoo
SLICEBR	Sliced bread
SOFTNER	Softeners
SOUP	Dehydrated soups
TISSUES	Paper tissues
TOILPP	Toilet paper
TOMSC	Natural tomato sauce
TOOTPS	Tooth paste
TOWELS	Paper towels
TUNE	Tuna
WATER	Mineral water
WHISKY	Whisky
YOGUR	Yoghurt

**Table AI.**  
Description of the  
product categories used  
in the analysis

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