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wallet formation

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INTRODUCTION

Marketing academics and practitioners have long recognized the effects of store attribute evaluations on store performance (Gómez, McLaughlin, and Wittink 2004; Pan and Zinkhan 2006). Retailer managers use information about these relationships to allocate resources across stores based on their specific attributes in order to improve store satisfaction and ultimately store sales (Bloemer and De Ruyter 1998). For example, if a store scores low on “service quality,” the manager may invest in employee satisfaction and training, hire additional workers, or extend opening hours in order to improve the perceived service level and store sales. In fact, many retailers have developed so-called customer satisfaction (CS) management programs as part of which they routinely collect information about customers’ evaluations of store attributes and overall satisfaction across stores and over time. They use the results of these CS management programs to match the chain’s image with the characteristics of the target group and to differentiate their stores from competitors.

So far most research on retail satisfaction formation has been cross-sectional, using survey data that usually does not account for changes in the effects of retail attributes on satisfaction and loyalty over time. An exception is the study by Mittal, Kumar, and Tsiros (1999). Studying two moments in time, they show that the weights for attributes driving satisfaction change over time, although this mainly occurred due to changes in the consumption system. Possible variation over time may also result from changing economic circumstances (i.e., business cycles). Within the marketing and retailing literature, studies have considered how the business cycle affects advertising spending, marketing mix effectiveness and private label market shares (e.g., Deleersnyder et al. 2009; Van Heerde et al. 2013; Lamey et al. 2007). However, to the

best of our knowledge, studies that investigate how changes in the economic environment affect the relationships between store attributes and customer satisfaction and loyalty do not exist.

The notion that the economic climate has an effect on specific store attribute—store satisfaction/share of wallet relationships seems very plausible. For example, customers may become more price oriented during economic recessions (Lamey et al. 2007; Gordon, Goldfarb, and Li 2011) and might thus value the price attribute more. However, the relation might not be so straightforward. Today’s retailers are very much aware of consumers’ changing preferences, especially in highly competitive environments (Van Heerde, Gijsbrechts, and Pauwels 2008). More specifically, during recessions retailers may actually decide to focus more on price by using heavy sales promotions and less on providing more value through additional service. As a consequence, it is not always clear how economic changes affect the impact of retail store attributes on satisfaction and share of wallet.

In this study, we study how store attribute evaluations are related to store satisfaction and share of wallet, and specifically how the economic environment affects these relationships. We investigate the impact of the economic environment by including consumer confidence as a moderator of the retail service attribute—customer satisfaction—share of wallet relationship chain. We use an extensive dataset comprised of customer evaluations of store attributes, as well as customers’ store satisfaction scores for all grocery chains in the Netherlands over the period 2009 – 2012. Our findings allow retailers to develop appropriate satisfaction programs in anticipation of fluctuations in the business cycle.

We contribute to the retailing literature and specifically to the retail store satisfaction¹ literature in multiple ways. First, we test whether the effects of retail satisfaction drivers change over time due to changes in consumer confidence. Studies have so far neglected this research avenue. Second, we consider how the effects of satisfaction on share of wallet is affected by

¹ We will use store- and customer satisfaction and store- and customer loyalty interchangeably, as they refer to the same concept.

consumer confidence. By doing so, we also contribute to the literature on business cycle effects in marketing, which has thus far not studied how economic developments affect customer satisfaction and share of wallet (SOW) formation.

The rest of this paper is structured as follows: We first briefly discuss the literature on store satisfaction formation and business cycles within marketing. Subsequently, we present our hypotheses and describe the research methodology. Next, we discuss the empirical results of our study. We end with a discussion, management implications and research limitations.

LITERATURE REVIEW

This study combines two different research streams in marketing, which so far have not been combined. First, we utilize the work on store satisfaction formation, which investigates how consumers develop attitudes towards stores and how these attitudes influence performance outcomes like store patronage, store loyalty, and SOW. Second, we consider the business cycle literature, which considers the effect of the business cycle on marketing spending, marketing effectiveness and marketing performance (Deleersnyder et al. 2004, 2009; Lamey et al. 2012; Srinivasan, Lilien, and Sridhar 2011; Van Heerde et al. 2013).

Store satisfaction

Store satisfaction or store image is commonly defined as “the overall attitude toward the store, based upon the perceptions of relevant store attributes” (Steenkamp and Wedel 1991). It thereby is assumed that store satisfaction is the outcome of a multi-attribute model (James et al. 1976), in which individual store attributes are evaluated and store image is the weighted combination of these evaluations (Ter Hofstede, Wedel, and Steenkamp 2002; Bloemer and De Ruyter 1998).

Store attributes reflect a cost-related factor (the monetary and nonmonetary aspects of what consumers give up in an exchange) and a value-related factor (what a consumer gets from an exchange). Following Baker et al. (2002), we split the cost-related factor of an exchange into a monetary and nonmonetary aspect. We specifically consider price-related attributes and location-related attributes. 'Price' refers to the store's perceived prices and price promotional effort, while 'location' reflects the distance to the store and possibilities for multipurpose and comparison shopping. The value-related factor consists of the store attributes assortment, store atmosphere, and service.

Store attribute perceptions have been found to be related to key measures of retail success such as store patronage, store loyalty and SOW (Hildebrandt 1988). The Service-Profit Chain (Heskett et al. 1994) and related studies (Anderson and Mittal 2000) suggest that these relationships are mediated by store satisfaction. Most studies have investigated the links between store attribute evaluations, overall satisfaction, and store loyalty at the individual level by relying on cross-sectional data. Due to their cross-sectional nature, these studies disregard changes in the analyzed relationships over time. Moreover, most studies only account for differences between individual customers in a limited fashion, although some studies have found evidence for differential effects of customer satisfaction on purchase intentions (e.g., Mittal and Kamakura 2001).

Only a few studies assess potential shifts in attribute weights over time (Mittal, Kumar, and Tsiros 1999; Slotegraaf and Inman 2004). Mittal and colleagues (1999) showed that attribute weights for product and service components of an automobile consumption system may change over time depending on attribute saliences. Meanwhile, Slotegraaf and Inman (2004) found that the effect of satisfaction with resolvable attributes on perceived product quality increases towards the end of a product's warranty period, while satisfaction with irresolvable attributes weakens over time. Hence, attribute weights may change depending on ownership duration,

which is related to shifts in consumption goals. Other potential causes of changes in attribute saliences—namely frequency of exposure and variation in attribute performance—have received less attention. In the context of our study, for example, the economic climate may affect how often a consumer is confronted with a particular attribute (e.g., price during a recession) and thus change the importance of that attribute. Alternatively, the economic tide might increase the variability in attribute performance (e.g., service levels are likely to vary more in a recession), which could also lead to changes in attribute weights. Hence, more research is needed to fully understand the causes underlying changes in attribute weights over time.

Business Cycle and Marketing

The business cycle literature can be divided into three domains: The first domain consists of studies that relate fluctuations in the business cycle to variation in *sales* across brands, products and product categories (e.g., Deleersnyder et al. 2004). The second domain of studies examines the relationship between the economic tide and *marketing spending*. The key question is whether to increase (anti-cyclically) or decrease (pro-cyclically) marketing spending in a recession (e.g. Deleersnyder et al. 2009; Lilien 2005). Lastly, papers belonging to the third domain study the *effectiveness* of marketing mix instruments over the business cycle (Gordon, Goldfarb, and Li 2011; Van Heerde et al. 2013).

In the business cycle literature, changes in a country's gross national product (GNP) are commonly used to measure fluctuations in the business cycle. In this study, we will use CC rather than GNP as indicator for the economic climate. CC is a well-established construct in the economics literature (e.g, Curtin, 2007; Katona 1974; Van Oest and Franses 2007), but it has received little attention in the marketing literature (see the study of Ou et al. 2014 for a notable exception).

The reason for using the CC construct rather than GNP is that it takes into account consumers' subjective evaluations of their household's finances and their expectations about the economic climate. Economists argue that consumer spending is a function of the "ability to buy" and the "willingness to buy" (e.g., Katona 1968; Ou et al. 2004, p. 341). The ability to buy will be larger when consumers have more income, savings etc. at their disposal. The willingness to buy depends on more subjective factors, such as consumers' expectations about their future financial situation. Initially, the ability to buy was considered the main determinant of spending. However, it has been acknowledged and shown that this is not sufficient and that also the willingness to buy plays an important role. CC captures both dimensions and may thus be a better predictor of consumer behavior than changes in GDP (Kumar, Leone, and Ganesh 1995; Ou et al. 2014).

Some studies show that CC has an impact on consumer spending (e.g. Allenby, Jen, and Leone 1996; Fornell, Rust, and Dekimpe 2010; Ludvigson 2004), Generally speaking, consumers with low CC spend less and save more than consumers with a high CC in order to prepare for potentially bad financial times (Garner 1991). The question is whether CC not only affects consumer spending, but also influences the importance of specific service or product attributes on satisfaction. Some recent empirical evidence suggests that that might be the case. Ou et al. (2014), for example, show that the effectiveness of customer loyalty strategies depends on the CC level. More specifically, they find that value equity is an important driver of loyalty if CC is low. The same holds for brand equity, but only in a non-contractual setting. They use both economic arguments (i.e. expected lower spending power leading to a stronger focus on financial benefits) and more psychological arguments (i.e. more risk averse) to derive their hypotheses. In a retail setting, we have some evidence that during economically bad times consumers may move to cheaper products (i.e. private labels) (Lamey et al. 2007). This might be because customers start valuing product attributes differently. Inspired by these studies, we

derive hypotheses on how CC moderates the impact of retail store attributes and store satisfaction and SOW.

CONCEPTUAL MODEL AND DEVELOPMENT OF HYPOTHESES

Based on the discussed extant literature, we have developed a conceptual model (see Figure 1) that we aim to test in our empirical study. In this model we assume that three groups of store attributes are related to store satisfaction: (1) service, (2) price, and (3) convenience (incl. location). Each group consists of underlying specific attributes. Price and convenience are cost-related factors, namely that what consumers give up in an exchange, and service refers to what a consumer gets from an exchange (a value-related factor). In our model, we relate store satisfaction to store loyalty, as measured by a customers' SOW (e.g., De Wulf, Odekerken-Schröder, and Iacobucci 2001; Ailawadi et al. 2014; van Doorn and Verhoef 2008). The notion that store attributes influence store satisfaction as a kind of overall attitude towards the store, that subsequently affects SOW is well-accepted in the retail marketing literature (e.g. Sirohi, McLaughlin, Wittink 1998). Recently, a study by Ailawadi et al. (2014) uses a conceptual framework similar to ours and they relate store attributes to store attitudes that subsequently affect SOW. Importantly, they also show that store attitudes only partially mediate the relationship between store attributes and SOW. Hence, we also allow for direct effects of store attributes on SOW in addition to their indirect impact through changes in satisfaction. We hypothesize that CC moderates the relationship between the store attribute perceptions and store satisfaction. We will also explore such a moderating effect for the relationship between store satisfaction and SOW. Our discussion of moderating effects is based on existing research of business cycle effects and the notion that CC induces different consumer mindsets.

Beyond the moderating role of CC, we also account for the fact that customer characteristics (i.e., household size, age) and store characteristics (i.e., service vs. price) may impact the effects

of store attributes on satisfaction as well as the effect of customer satisfaction on SOW (e.g., Mittal and Kamakura 2001; Cooil et al. 2007)

Before discussing the moderating effect of CC, we discuss the possibility for a direct effect of CC on satisfaction and SOW.

< Insert Figure 1 >

Direct effect of CC on Satisfaction and SOW

So far CC has mainly been related to consumer spending. The effect of CC on customer satisfaction has not been studied. One potential reason for a main effect could be that due to lower CC customers become more pessimistic, which might reduce their overall evaluations of multiple aspects in life including the evaluation of the stores they visit. According to Katona (1975, p. 155) CC also reflects consumers' wants and aspirations "for new and better products". One could argue that raising expectations increases service expectations, which could lead to lower satisfaction following standard performance-expectation satisfaction models (Anderson 1973). Similarly, under conditions of low CC service expectations would decrease leading to higher satisfaction. The empirical evidence for a main effect of CC on satisfaction however is absent. In fact, Fornell, Rust and Dekimpe (2010, p. 30) report a zero correlation between changes in customer satisfaction and changes in CC. Probably, this occurs due to the two opposing mechanisms as discussed above.

The effect of CC on SOW seems more straightforward. Due to their lower confidence, consumers may be more selective and become aware of more alternatives. They might constantly try to pick the best offer (e.g., Lamey et al. 2007; Leeflang and van Raaij 1993). As a consequence, they might become less loyal and switch more between stores resulting in a lower SOW. Alternatively, consumers may distribute their purchases differently across stores that they already patronize. For example, a consumer may decide to have more fill-in trips to nearby value-oriented stores and occasionally go on a major shopping trip to a service-oriented

store. The empirical evidence regarding this effect is limited so far. Ou et al. (2014) do not show a main effect of CC on loyalty intentions. One reason might be that there is another effect at work in addition to the previously mentioned one. Higher CC consumers might buy more impulsively leading to more variety seeking and a lower SOW. However, there is some evidence that value-oriented stores become more popular during recessions (Zurawicki and Braidot 2005). This could imply that at the individual chain level no effect is found, but that consumers move their purchases from service-oriented stores to discount or value-oriented stores. Therefore, we also explore how consumer confidence will affect satisfaction and SOW at the chain type (value vs. service) level.

To conclude, we do not put forward hypotheses regarding the direct effects of CC on satisfaction and SOW, because the underlying theory and empirical evidence is weak or absent. We will, however, empirically assess the direct effects.

Moderating role of CC on the Service-Satisfaction Link

In general, better service attribute evaluations should contribute positively to store satisfaction (e.g., Ailawadi et al. 2014), as a stronger service provides more value and quality to consumers. The question is whether this impact becomes bigger or smaller when consumer confidence increases or decreases. Prior literature on business cycles suggests that consumers become more price (rather than quality) sensitive during economic downturns and tend to choose lower-quality alternatives, e.g., value-oriented stores (Zurawicki and Bradot 2005) and private labels (Van Heerde et al. 2013; Gordon, Goldfarb, and Li 2011; Lamey et al. 2012) and thus are less focused on service quality. This might suggest that as CC decreases (increases), the impact of service attributes on customer satisfaction should become lower (higher). This would imply a positive interaction effect between CC and service attributes through changes in people's financial "ability to buy".

As noted, however, CC is also associated with a different consumer mindset that may affect consumers' "willingness to buy". Low CC fosters a stronger pessimism among consumers, whereas high CC induces more optimism. Prior research suggests that low CC consumers have a more skeptical consumption attitude and are more considerate regarding what they actually buy (Shama 1980). This might imply that consumers will focus more on store attributes in general, but that they are specifically concerned about the provided service quality. Granted, there is an additional market factor that could interfere with this: Consumers might perceive more variation in service levels during a recession because some retailers may spend less on innovation, decrease their advertising spending, and/or reduce their workforce (e.g., Deleersnyder et al. 2009). As a consequence, the weight of the "service attribute" in the satisfaction judgment may increase (Mittal et al. 1999).

The above reasoning suggests two opposing ideas on the direction of the moderating effect. However, the evidence seems strongest for the first line of reasoning: lower CC leads to a decreasing role of the service attribute. We thus hypothesize:

H₁: CC increases the positive relationship between service-related attributes and store satisfaction.

Moderating role of CC on the Price-Satisfaction Link

As with service, we assume that positive evaluations of the store's prices increase store satisfaction as a lower price might increase the store's provided value. As noted above, previous studies have shown that consumers become more price sensitive during economic downturns due to a lower financial "ability to buy" (Van Heerde et al. 2013; Gordon, Goldfarb, and Li 2011) and are thus more likely to visit value-oriented stores (Zurawicki and Braidot 2005) and buy private labels (Lamey et al. 2007). Conversely, when the economy expands, consumers'

expectations about their future financial situation increases and hence they will be less cautious with money, spending more and buying impulsively. It is also more likely that low CC consumers consider what they spend and become more price sensitive. Hence, we assume that the relationship between price attributes and store satisfaction become stronger when confidence is low compared to when it is high and vice versa. This suggests a negative interaction effect between price attributes and CC.

Again, a market factor may affect consumer mood and thereby strengthen this effect. During bad economic times, consumers are confronted more frequently with “price”-related messages, thereby increasing the salience of the “price” attribute and its importance to consumers (Mittal, Kumar, and Tsiros 1999; Oliver 1997). Based on the above discussion, we put forward the following hypothesis:

H₂: CC decreases the positive relationship between price attributes and store satisfaction.

Moderating role of CC on the Convenience-Satisfaction Link

Convenience refers to store attributes (such as location) that indicate how easy and costly it is to visit a store. If it becomes easier and less costly to visit a store, the perceived value of the store increases leading to higher satisfaction. Hence, there is a positive main effect of convenience on store satisfaction. CC might potentially impact this positive relationship. During periods of low CC, consumers will aim to reduce their spending because of their lower financial “ability to buy”; this may also hold for spendings on traveling to stores. Recently, Ma et al. (2011) showed that higher gas prices change consumer shopping patterns: Specifically, consumers tend to shop in nearby stores when gas prices are high. These results suggest that travel costs are indeed important for consumers. In periods of low CC, consumers may aim to reduce their spending on travel costs by going to a nearby store or to areas with higher store density. This suggests that convenience becomes more important for consumers.

However, the opposite might also be true: consumers want to shop around during a recession to search for the best deals, although, as noted, the evidence for this finding is limited. If they shop around more, consumers prefer to lower their variable shopping costs rather than their fixed costs, but they still want to reduce their spending due to their lower financial “ability to buy”. (Van Heerde, Gijsbrechts, and Pauwels 2008). This implies that convenience becomes less important during periods of low CC, whereas in times of high CC convenience becomes more important. Alternatively, consumers may distribute their purchases differently across stores that they already patronize. It has been shown that, irrespective of the economic conditions, consumers visit multiple stores combining occasional major shopping trips to a main store with regular fill-in trips to nearby stores (Kahn and Schmittlein 1989; Bell, Ho, and Tang 1998). Thus, consumers may not necessarily shop at more stores in periods of lower CC, but they can spread their purchases differently across the stores they already patronize (e.g., more fill-ins in a store nearby).²

Prior research finds that, on average, fixed shopping costs are more decisive factors in the decision where to shop than variable shopping costs (Briesch et al. 2009). Hence, we expect that consumers with low CC aim to reduce travel spending to account for their expected negative personal financial development, and we put forward a negative interaction effect between CC and convenience. We thus hypothesize:

H₃: CC decreases the positive relationship between convenience and store satisfaction.

Store Satisfaction and SOW

Within the marketing literature, there is mixed evidence that satisfaction is related to loyalty (Kumar, Dalla Pozza, and Ganesh 2013). Within retailing, it is widely assumed that satisfied customers are more loyal (e.g., Gómez, McLaughlin, and Wittink 2004), although the positive

² We thank an anonymous reviewer for this suggestion.

effect of customer satisfaction on SOW could be non-linear (e.g. Keiningham, Perkins-Munn and Evans 2003; van Doorn and Verhoef 2008). We are mainly interested in whether the effect of satisfaction on loyalty might get stronger or weaker when CC decreases. As noted, prior literature suggests that in economic downturns, consumers may choose more value-oriented stores (Zurawicki and Bradot 2005). This could imply that in times of lower confidence, consumers at least become less loyal to service-oriented stores. During these periods, consumers might also shop around more to get the best deal. Hence, they will divide their loyalty among more stores, where they can get the best deals for their required products. This may suggest that the effect of satisfaction on SOW will decrease, as consumers are dividing their loyalty among multiple stores even though they are satisfied with one store. In short, it will be more difficult to obtain loyal customers through improving satisfaction. Instead, a higher SOW can probably be achieved through very attractive price deals. This suggests that in times of low CC, a direct effect of the price attribute on SOW may exist. We will thus explore whether store attributes and specifically price are also directly related to SOW above and beyond the relationship between store satisfaction and SOW. In our hypothesis, we focus on the relationship between satisfaction and SOW:

H4: CC increases the positive relationship between satisfaction and SOW.

RESEARCH METHODOLOGY

Description of Data

We use an extensive dataset consisting of customer evaluations of store attributes, store satisfaction and customer demographics for all grocery chains in The Netherlands over the period November 2009 – July 2012. The data are collected as part of a monthly survey ('EFMI Shopper Monitor') among a representative sample of Dutch grocery shoppers by an academic research institute that investigates trends and developments among Dutch grocery shoppers.

Each month, about 220 respondents, responsible for grocery shopping in their household, answer a range of questions related to the stores they frequently visit. It is important to note that the sample of respondents differs across months. We thus have repeated cross-sectional data and not panel data from the same respondents whose shopping behavior we track over time. Despite that the sample composition differs per month, the set of households is very similar with respect to sociodemographics. The averages for the variables household size, age, and income show marginal differences across months. We supplement the survey data with publicly available data on CC in The Netherlands for the same time period.

The definitions of some key constructs and their measurements are provided in Table 1. The table shows that customer satisfaction is measured on a single item asking respondents how they would evaluate the stores they frequented in the last month on a 10-point scale ranging from 1 (poor) to 10 (excellent). Similarly, the respondents are asked to evaluate the same stores on 17 store attributes encompassing questions regarding the store's price level, assortment size, personnel, service quality, etc. SOW is measured as the respondents' self-reported share of purchases in the category for each chain that they have visited the month before. Additionally, the survey also collects relevant consumer demographics like the respondent's age, his household's size and income level. We use these variables to account for customer heterogeneity in the effects of store attributes on satisfaction and SOW. The service chain variable is operationalized based on a survey among nine retail experts from the Netherlands who indicated whether the positioning of each of the thirty Dutch grocery chains was mainly around price or service. The respondents showed a high level of agreement and we decided to classify a chain as mainly service if more than 50% of the respondents thought that this was the case. We additionally use monthly CC data published by Statistics Netherlands (CBS). This index is based on five questions about the general economic climate in The Netherlands and consumers' willingness to buy among a representative sample of Dutch households. The index

is calculated as the difference between the percentage of optimists and pessimists (who think the economic situation has improved and worsened, respectively) (www.cbs.nl).

<Insert Table 1 about here>

Store attributes

As discussed in our conceptual model, we expected three dimensions in the store attributes. We conduct a principal components factor analysis, employing Varimax rotation, to reduce the store attribute measures to a limited set of factors and to explore whether these three dimensions are indeed present. We find a three-factor solution as presented in Table 2. The three factors together explain 61 percent of the variation in the 19 store attributes. We also assessed the usability of more factor solutions, but this resulted in less well-interpretable factors, with multiple double loadings, and/or factors with only one item.

We define the factors as follows: “price” referring to low prices, attractive offers, and the supply of cheap products; “service” in a broad sense, including friendly and knowledgeable personnel, the quality and variety of the products, fast checkout, long opening hours, parking space availability, and the tidiness of the store; and “convenience,” pertaining to the presence of other stores nearby and the travel distance to the stores. The identified factors are similar to those identified in the literature and in our model (Gómez, McLaughlin, and Wittink 2004; Theodoris and Chatzipanagitou 2009).

<Insert Table 2 about here>

Descriptive Analysis

For a first indication as to whether the aforementioned constructs and other variables used in this study differ between periods with low, medium, and high CC, we first did a descriptive analysis. We obtained the descriptives as follows. For the whole observation period, we have plotted the monthly averages of our key constructs in Figure 2. As can be seen from that figure, the store attributes and CC vary significantly over time. Our observation period includes the

2008-2012 global recession and, as a result, the data shows sufficient variation in CC to identify possible moderating effects. In addition, we split the 33 monthly observations for the CC variable in three equally sized groups. The cut-off values for the low, medium, and high CC periods are -28.3 and -13.8 respectively. We subsequently have calculated the means of all variables and presented them in Table 3. As indicated in the table, the means for most variables do not significantly differ for periods with low, medium, and high CC. Most importantly, we see that the means of the dependent variables satisfaction ($p < .10$) and SOW ($p < .001$) vary depending on the level of CC. It is exactly this variation that we want to explain in this paper.

<Insert Table 3 about here>

We also checked whether the variables used in this study are significantly correlated. If there is a substantial amount of overlap between variables, i.e. when multicollinearity exists, we might be unable to disentangle the effect of individual variables on store satisfaction and SOW and, in that case, we may have to exclude one of the overlapping variables from the analysis. The correlation matrix is shown in Table 4. We see that multicollinearity is not an issue, as the highest correlation is .71. Even though this correlation is pretty high, this is among one of the dependent variables (in this case satisfaction) and one of the store attributes (service). Among the store attributes themselves there is zero correlation, because they are obtained through orthogonal rotation and thus by construction uncorrelated.

<Insert Table 4 about here>

<Insert Figure 2 about here>

Model development

In this section we develop two models that explain fluctuations in customer satisfaction and SOW across stores and over time. We start with a discussion of the model explaining customer satisfaction, followed by the SOW model. The explanatory variables of the satisfaction model

consist of the principal components measuring customers' evaluations of the store's service, price level, and convenience as well as the CC level. As control variables, we include the format type to which a store belongs (service oriented or price oriented) and customer characteristics like customer age, household size, and income level. We allow the parameters of the store attribute factors to change over time; changes in these parameters are explained by CC and a variable indicating whether a chain mainly uses service or price to position itself. Moreover, in line with the micromarketing literature (e.g., Hoch et al. 1995), we also accommodate for moderator effects of consumer characteristics (see also Mittal and Kamakura 2001; see our conceptual model).

Finally, we account for unobserved, chain-specific effects, such as differences in marketing efforts and the quality of the chain's management, through the inclusion of a chain-specific random intercept in the model specification. Hence, the full model is specified as follows:

$$SAT_{ijt} = \beta_{0j} + \beta_{1t}SERV_{ijt} + \beta_{2t}PRICE_{ijt} + \beta_{3t}CONV_{ijt} + \beta_4CC_t + \beta_5AGE_{it} + \beta_6INC_{it} + \beta_7HHS_{it} + \beta_8SVC_j + \epsilon_{ijt} \quad (1)$$

in which,

$$\beta_{0j} = \gamma_{00} + \nu_{0j} \quad (1a)$$

$$\beta_{kt} = \gamma_{k0} + \gamma_{k1}CC_t + \gamma_{k2}SVC_j + \gamma_{k3}AGE_{it} + \gamma_{k4}INC_{it} + \gamma_{k5}HHS_{it} + \nu_{kt} \quad (1b)$$

where SAT_{ijt} is respondent i 's ($i=1, \dots, I_t$) overall satisfaction with chain j ($j=1, \dots, 30$) at time t ($t = 1, \dots, 12$); $SERV_{ijt}$, $PRICE_{ijt}$, $CONV_{ijt}$ are respondent i 's factor scores at time t for service, price, and convenience, respectively; CC_t is the level of CC index at time t ; AGE_{it} , INC_{it} , HHS_{it} are respondent i 's background characteristics measuring his/her age, income and household size at time t ; and SVC_j is a dummy variable indicating whether chain j is a service chain (1) or not (0). β_{0j} is a chain-specific intercept which is the sum of a general mean (γ_{00}) for all chains and

a normally distributed error term with zero mean $E(v_{0j} = 0)$ and constant variance ϕ^2 . Similarly, we allow the slope parameters for the three attribute factors to vary over time. Each parameter β_{kt} ($k = 1, \dots, 3$) is the sum of a general mean, the deterministic effects of a set of explanatory variables and a normally distributed error term with mean zero and constant variance ($v_{kt} \sim N(0, \phi_k^2)$).

Next, we specify a model shown in Equation (2) that explains SOW (SOW_{ijt}). We apply a logit transformation to this variable to ensure that it has a normal distribution by approximation (Ailawadi, Pauwels, and Steenkamp 2008). We use a variable notation similar to Equation (1). As can be seen from Equation (2), this model also has a chain-specific intercept, which is the sum of a general mean (δ_{00}) for all chains and a normally distributed error term ($v_{0t} \sim N(0, \theta^2)$). The slope parameters for the three attribute factors as well as customer satisfaction may vary over time. Each parameter α_{lt} ($l = 1, \dots, 4$) is the sum of a general mean, the deterministic effects of a set of explanatory variables and a normally distributed error term ($v_{lt} \sim N(0, \theta_l^2)$).

We estimate several versions of this model. First, we estimate a simple model that includes just a main effect of satisfaction on SOW (in addition to some control variables). We allow the intercept to differ per chain, but not the slope parameter for satisfaction. Moreover, we do not include any store attribute variables. This model can be obtained by setting the following restrictions: $\alpha_{1t} = \alpha_{2t} = \alpha_{3t} = 0$ and $\alpha_{4t} = \alpha_4$. Next, we extend the model by accommodating for interaction effects with the satisfaction variable. The slope parameter for satisfaction is allowed to change over time in model 2 (i.e., $\alpha_{4t} = \alpha_{4t}$) and is explained by the variables in Equation (2b). Finally, we estimate the full model as specified in Equations (2), (2a), and (2b).

$$\ln\left(\frac{SOW_{ijt}}{1 - SOW_{ijt}}\right) = \alpha_{0j} + \alpha_{1t}SERV_{ijt} + \alpha_{2t}PRICE_{ijt} + \alpha_{3t}CONV_{ijt} + \alpha_{4t}SAT_{ijt} + \alpha_5CC_t + \alpha_6AGE_{it} + \alpha_7INC_{it} + \alpha_8HHS_{it} + \alpha_9SVC_j + \epsilon_{ijt}^* \quad (2)$$

in which,

$$\alpha_{0j} = \delta_{00} + \nu_{0j} \quad (2a)$$

$$\alpha_{lt} = \delta_{l0} + \delta_{l1}CC_t + \delta_{lt}SVC_j + \delta_{l3}AGE_{it} + \delta_{l4}INC_{it} + \delta_{l5}HHS_{it} + \nu_{lt} \quad (2b)$$

We estimate the models using the `lmer()` function in R (currently part of the R package `lme4`), which fits linear and generalized models with varying coefficients (Gelman and Hill 2007). Parameter estimates are obtained through optimization of the full log-likelihood (FML) which includes both the regression coefficients and the variance components.

Endogeneity of store attribute variables

There is a potential endogeneity problem with the store attributes price, service, and convenience. Over time a retailer may decide to strategically emphasize price (service or convenience) more/less in certain economic climates, with some expectation regarding how that would affect customer satisfaction (or SOW). For instance, if a store manager expects customer satisfaction levels to go down, he may decide to lower prices, leading to improved customer perceptions of the chain's price attribute. Hence, in this case, the store attribute perceptions are the result of the chain manager's decision to change the store's positioning. In technical terms, this would mean that the store attribute variables in Equation (1) and (2) are correlated with the error terms in these equations. Ignoring this endogeneity, would probably lead to an overestimation of the effects of the store attributes on satisfaction and SOW. To

correct for this point, store attributes should be considered endogenous. We have therefore estimated IV regressions for each store attribute and each of their interaction effects with other variables. In this approach, each attribute is modeled as a function of the exogenous control variables and two instruments, namely the chain's average perceived score on that attribute in the previous month and the average attribute scores of competitors. Including the error terms of each IV regression in the main equations for satisfaction (Equation 1) and SOW (Equation 2) corrects for the potential endogeneity of store attributes and allows us to estimate the true effect of each attribute on customer satisfaction and SOW. This procedure is known as the control function approach to endogeneity (Rossi 2014) and we provide more details about it and its specific implementation in this paper in Appendix 1. Testing for the significance of the included error terms in Equations (1) and (2) is equivalent to a Hausman test for endogeneity (Hausman 1978). These tests indicate that endogeneity is not a problem in our analysis and we therefore proceed discussing the results of the models without endogeneity corrections.

EMPIRICAL RESULTS

Satisfaction Model

The moderating effects of consumer confidence

We present the parameter estimates of the satisfaction model in the leftmost column of Table 5. Customer satisfaction positively relates to the three store attributes. Hence, a customer's overall evaluation of the chain improves if he or she is more positive about the chain's price, service, and convenience level. We find that service has the largest impact on customer satisfaction, followed by price and convenience. These findings are consistent with those of Sirohi, McLaughlin, and Wittink (1998) and Baker, Grewal, and Parasuraman (2002), who showed that consumers value stores more if they offer better service, lower prices and more convenience. Baker, Grewal, and Parasuraman (2002) found that price and service are the most important attributes, but their study did not show any effect of convenience on consumers' value perceptions.

We find that CC negatively affects the relationship between service and satisfaction ($\beta = -.001; p < .05$). This finding contradicts hypothesis H1. The rationale for this might be that in periods of lower confidence, consumers focus more on what firms already deliver. This would imply that in these times the effect of service on satisfaction becomes stronger, whereas this effect weakens in times of high economic confidence. Surprisingly and contrary to hypothesis 2, we do not find evidence for a significant interaction effect between price and CC ($\beta = -.0004; p > .05$). We therefore cannot support this hypothesis and conclude that the effect of price on satisfaction does not depend on the level of economic confidence. Finally, we

do not find support for a moderating effect of CC on the relationship between convenience and satisfaction ($\beta = .001; p > .05$). We thus cannot support hypothesis H3³.

The effects of control variables

Consistent with the micromarketing literature, we also find moderating effects of consumer characteristics on the relationship between store attributes and satisfaction in addition to the direct effects discussed previously. The effect of price on satisfaction, for example, depends on consumers' income level ($\beta = -.024; p < .001$). The effect of price on satisfaction is smaller for high-income families compared to lower-income families. This can be because high-income families are less price sensitive and thus less likely to become (dis)satisfied as the result of price changes. Moreover, we find that the satisfaction scores of older customers are more responsive to changes in perceived service quality ($\beta = .002; p < .001$), which is consistent with previous findings that older shoppers derive satisfaction from interactions with sales personnel (Pan and Zinkhan 2006).

Importance of Individual Store Attributes

Using the method proposed by Rust, Lemon, and Zeithaml (2004), we also determined the impact of the individual drivers on store satisfaction. We thereby focus on the direct effects of each driver only and thus ignore each driver's indirect effects through interactions with other variables. The results of this analysis indicate that the items "Low prices" and "Fast checkout" have the largest impact on the dependent variable, whereas having a "Spacious store" and a "Sufficient supply of other stores close to the focal store" contribute very little to satisfaction formation. The results of this analysis enable store managers to concretely adjust the service, price, or convenience level of their stores. The effect sizes for each driver offer clear and

³ We also have run the analyses with only one of the items of the convenience construct. The key results of our paper don't change if we include just one of these items.

specific guidance on which marketing variables to adjust, rather than just “service” or “price”, and their potential impacts on satisfaction. We refer to the Appendix 2 for more details regarding the method.

Share of Wallet Models

Model Fit of Separate SOW models

Table 5 shows the results of the three SOW models. As explained before, we estimated alternative models in order to determine the exact nature of the relationship between satisfaction and share of wallet. First, we estimate a model that directly relates satisfaction to SOW to see whether such a relationship actually exists. Next, we add the moderating effects of CC, because, as pointed out in hypothesis 4, we expect that the satisfaction-SOW relationship depends on the level of CC. Finally, we include direct and indirect effects of store attributes to check whether they have an effect on SOW above and beyond the effect of the overall satisfaction with the store (see also Ailawadi et al. 2014).

Even though we estimate these alternative models for substantive reasons, we may evaluate the quality of the models by looking at their scores on different information criteria. The values for the AIC and BIC do not differ much for models 1 and 2 (AIC: 119835 vs. 119730; BIC: 119910 vs. 119854), indicating that just adding moderating effects to the satisfaction-SOW relationship does not lead to significant improvements in model fit. Model 3 scores lowest on both the AIC (107966) and BIC (108237) and thus is the best model among the candidates. In the remainder of this section, we discuss the results of all models, but place the most emphasis on the best-performing model (model 3).

The R-squares, calculated as the squared correlation coefficients between the observed and predicted values of the dependent variable, differ significantly across models. Model 1 and 2 both have R^2 values of .40, whereas that of model 3 is .80.

The moderating effect of consumer confidence

We observe in all model results a positive and highly significant effect of satisfaction on SOW ($\beta = .584; p < .001$). These findings are consistent with extant literature that relates customer satisfaction to performance variables in general (e.g., Szymanski and Henard 2001) and SOW in particular (Cooil et al. 2007). The results indicate that customers who are more satisfied with a chain's offering are more likely to increase their share of spending at that chain and they are less inclined to visit other chains.

We do not find that CC moderates the relationship between satisfaction and SOW ($\beta = -.003; p > .05$). This finding does not support H4.

In our discussion related to hypothesis 4, we also argue that there may be a direct effect of store attributes on SOW in addition to their indirect effects on customer loyalty via customer satisfaction. We indeed find evidence for such effects. Shoppers who are more positive about the price attributes of grocery chains are less likely to be loyal to one particular chain ($\beta = -.156; p < .05$).

The effects of control variables

SOW also depends on individual difference variables like age, household size and income. The results for model 1 show highly significant main effects for these variables, but in models 2 and 3 most of these effects disappear after incorporating interaction effects between these variables and satisfaction (Homburg and Giering 2001). What remains in model 3 is a positive main effect for age ($\beta = .022; p < .05$): We find that older customers are more likely to have a higher SOW, indicating that they visit fewer chains and/or are more likely to concentrate their

spending. Moreover, we find that larger households have a lower SOW ($\beta = -.392; p < .001$), which might indicate that they go to multiple stores because of their more diversified needs and higher price sensitivity

ROBUSTNESS CHECKS AND ADDITIONAL ANALYSES

We have executed multiple additional analyses to check the robustness of our findings and to gain additional insights. First, we included a CC variable that represents month-to-month changes in CC (rather than levels) as a moderator in our models. It may be that consumers are less influenced by the absolute levels of CC in a given month; instead, they compare the confidence level with that of the month before, which would be consistent with a CC variable in first differences. We found no significant effects of CC in any of the models when CC was measured in changes from month to month, suggesting that store satisfaction is not sensitive to changes in CC.

Second, one might also argue that instead of CC, we should consider GDP growth as a moderator. We additionally investigated the possible moderating effect of GDP growth using GDP data from Statistics Netherlands (CBS). Our results showed that, despite the fact that GDP had some main effects on satisfaction and SOW, the moderating effects of GDP are far less strong and mostly not significant. We only found one significant positive moderating effect between GDP and convenience in the model explaining store satisfaction ($p < .01$), suggesting that convenience becomes more important when GDP grows.

Third, one might argue that a trend, rather than the CC development, is shaping our results. To rule this explanation out, we included a trend variable as a main effect and moderator in our analysis. We neither find a significant main effect nor significant moderating effects for a time trend.

Fourth, as prior research has considered the moderating impact of individual CC (Ou et al. 2014), we also explore whether we can find moderating effects of CC at the individual level. We used the same survey on an additional dataset, but measured CC at the individual level. However, this analysis did not reveal any significant moderating effects.

Fifth, as prior research has shown that consumers might move from one service chains to value or price-oriented chains, we also ran our SOW models at the chain-type level. Thereby, we considered the share of the budget allocated to service chains vs. value/price chains as our dependent variable. Using this more aggregate analysis, we did not find any significant main and moderating effects of CC (Zurawicki, and Braidot 2005)⁴.

Analyses for Retail Chains and Customer Segments

The results of our analysis do not support our hypotheses. To further investigate this, we have done some additional analyses on different subsamples. Table 6 gives the parameter estimates for these analyses. For conciseness reasons, we only provide the parameters for the key relationships in our study; tables with the full set of parameter estimates can be obtained from the authors upon request.

First, we looked at the difference between customers that shop at value chains compared to those who go to service oriented chains. In accordance with the full sample analysis, we find a significant negative effect for the interaction between consumer confidence and service. This effect is stronger for customers of service chains than those of value chains. This finding is in line with the observation that most retailers lower their service levels during a recession and that the resulting changes will be perceived as losses due to a negative reference effect. These losses matter more if you are used to a higher service level and therefore we can expect a larger effect for those customers who use to shop at service chains. For the SOW models, we find a

⁴ We thank a reviewer for mentioning this issue and full details of our analyses can be requested from the first author.

significant negative effect of the interaction between satisfaction and CC for service chains, meaning that shoppers at service chains find satisfaction less (more) important when CC levels are high (low). Beyond the indirect effect through satisfaction for service chains, we also find that a store's service and convenience levels become less important when CC levels are low and vice versa, while the price level has a larger (smaller) impact on SOW when CC is low (high). These results indicate that service chain shoppers tend to compromise on quality and convenience during economically difficult times and spend more of their budgets for groceries at value oriented chains. Alternatively, this finding may imply that consumers switch to lower price (e.g. private label) alternatives within the service retailer, also resulting in a lower SOW. When CC is high, on the other hand, service and convenience become more important, and service chain customers would rather go to service chains in close proximity and/or spend more on luxury brands.

Next, we did the analyses for the three biggest grocery chains in The Netherlands. These three chains together have a market share ranging from 46-51% throughout the observation period. In this subsample, we find that the effects of price, service, and convenience on satisfaction do not depend on the CC level. It might be that these larger chains have a relatively satisfied and loyal customer base that becomes relatively insensitive to changes in store attributes. Alternatively, it could also be that these large chains simply have more resources to sustain their service levels in a recession, despite the bad economic conditions. Service and convenience becomes more (less) important to customers of the three biggest chains when CC is low (high).

If we compare loyal customers ($SOW \geq .5$) to less loyal customers, we find that the effect of service on satisfaction depends on the CC level. For both loyal and less loyal customers service becomes more (less) important when CC is low (high), just like in the analysis on the full sample. This effect is stronger for loyal customers than for less loyal customers. Moreover,

unlike less loyal customers, loyal customers are not only more satisfied but they also spend more (less) at grocery chains with higher service levels when consumer confidence is low (high).

In sum, the results for each subsample are largely in line with those for the full sample. The segmented analyses show that the increased (decreased) importance of service in times with low (high) CC, mainly applies to nonloyal customers and customers of service chains.

<Insert Table 6 about here>

DISCUSSION AND CONCLUSION

This paper contributes to the retail satisfaction literature and the business cycle literature in marketing. We link customer evaluations of store attributes to customer satisfaction and we allow these linkages to vary over time due to changes in CC, which has never been done before. Moreover, we relate satisfaction to SOW and we consider how this relationship is affected by CC. We contribute to the business cycle literature by showing for the first time how economic developments affect satisfaction formation. Prior studies in this stream have mainly considered traditional marketing mix instruments (i.e. pricing, advertising, promotions) and ignored retail-marketing mix instruments and their effect on satisfaction and SOW.

Identifying three store attribute factors (service, price and convenience), we show that service attributes become stronger determinants of customer satisfaction when CC is low (and vice versa). Importantly, we did not observe a moderating effect of CC on the effect of price on customer satisfaction. The latter result is counterintuitive, as prior research has shown that consumers tend to become more price-sensitive during economically difficult times (e.g., Lamey et al. 2007). One explanation for this finding might be that retailers have anticipated this phenomenon by emphasizing price more during periods of low CC, leading to less perceived variation in price. Meanwhile, service is neglected by many retailers during such periods,

making that a more important and salient attribute. To some extent we have checked the above explanations by accounting for the endogeneity of store attributes. We could not find evidence for this, but as accounting for endogeneity is not straightforward (e.g. Rossi 2014), we consider the reactions of retailers towards economic developments as an issue for further research.

Our results confirm prior findings of a positive relationship between satisfaction and SOW. This relationship is not affected by CC, implying that it is rather stable over time. Our finding contrasts with those of Ou et al. (2014), who show that CC lowers the impact of value equity on customer loyalty intentions. They, however, utilized a cross-sectional analysis, whereas we analyze the moderating role of CC in a longitudinal manner. Beyond that, satisfaction cannot be fully equated with value equity and some researchers have even shown that customer satisfaction is closely related to relationship equity (Vogel, Evanschitzky, and Ramaseshan 2008). On that point, Ou et al. (2014) also show no moderating effect of CC on the link between relationship equity and customer loyalty intentions.

Interestingly, customer satisfaction does not fully mediate the effect of store attributes on SOW. Actually, we find a negative effect of price evaluations on SOW, beyond the positive relationship between satisfaction and SOW. The negative effect of price can be explained by the fact that customers who have better evaluations for price are also more price sensitive (Bolton, Lemon, and Verhoef 2004). These customers shop around and search for the best deals, thereby distributing their expenses over multiple chains rather than having one preferred chain where they spend most of their budget (Van Heerde, Gijsbrechts, and Pauwels 2008).

Although not the focus of our study, we also found effects of several control variables on both satisfaction and SOW. Furthermore, we clearly show that the effects of the considered store attributes on store satisfaction are moderated by several demographic factors. Similarly, we explain differences in the effects of satisfaction and service attributes on SOW through consumer characteristics. These findings confirm prior research that showed similar effects

(Mittal and Kamakura 1999; Cooil et al. 2007). Our results emphasize that it is important to account for customer heterogeneity when modeling both satisfaction and share of wallet.

RETAIL MANAGEMENT IMPLICATIONS

Taken together, our findings imply that satisfaction may serve as a buffer against unfavorable economic conditions. If retail managers anti-cyclically invest in service quality, they can reduce the potential harmful impact of a recession on store performance by increasing customer satisfaction and ultimately SOW. However, an increase in service quality can also lead to an immediate decrease in SOW beyond its positive effect due to enhanced customer satisfaction. This means that retail managers need to counterbalance these two opposing forces, i.e., the direct effect of service attributes vs. their indirect effects via satisfaction. Hence, it is crucial for them to understand these complex relationships in order to develop appropriate satisfaction strategies under different economic circumstances.

Our main message is that retailers should not ignore service quality during economic bad times. To further show the importance of this, we focus on the development of two chains in our sample of Dutch grocery chains: Albert Heijn and Lidl. Albert Heijn is the largest grocery chain in the Netherlands and it has a high-end positioning, whereas Lidl is a hard discounter with limited service and low prices. In the past decade, Lidl has taken many initiatives to improve its service level in the Dutch market, including a yearly Christmas leaflet, high-quality assortments under the Delicieux brand, improved fresh assortments, and an interesting collaboration with a famous Dutch TV personality to help consumers reach their ideal weight. As a consequence, Lidl improved its customer service perception scores and won the GfK Fresh Department Award four times in row from 2010 to 2013. Also, Lidl gained market share from 4.8% in 2008 to 8.6% in 2013 (EFMI and Berger 2013). Meanwhile, Albert Heijn recently lost market share (NRC 2013), while it lowered its prices substantially to improve the chain's price image. The firm employed the same strategy in early 2000, which resulted in a successful regain

of market share (Van Heerde, Gijsbrechts, and Pauwels 2008). One of the mentioned reasons for their new pricing initiative is that customers are more carefully considering their expenditures on groceries and are more price sensitive during the enduring negative economic climate in the Netherlands.

To further understand the implications of our findings, we investigated how Albert Heijn could improve its satisfaction and SOW. We first considered a 10% increase in the price and service attributes from the lastly observed values for these variables. We studied the resulting changes in satisfaction and SOW for low CC, average CC and high CC. We do so by using the parameter estimates reported in Table 5, which we multiply with the chain averages for all the explanatory variables except the service and price attribute scores. Second, we considered the same change in both attributes but then for the observed level of CC in that month. In this scenario, we again look at the percentage changes in satisfaction and SOW.

In our first simulation, we observe that improvements in both the price and service attribute evaluations increase satisfaction for Albert Heijn. This holds across all CC conditions. Interestingly, the changes for the service attribute are larger than those for the price attribute. Moreover, the changes in satisfaction become larger (smaller) for higher (lower) levels of CC, which is in line with our results. When we consider SOW, we observe that both service and price increases result in a higher SOW when CC is low or has an average level. At high levels of CC, service and price improvements result in a SOW decrease. In our second simulation, we observe that Albert Heijn can satisfy its customers more if they focus on service instead of price. However, SOW is higher under a scenario of an improved price image compared to an improved service image. Hence, focusing on the effects on satisfaction only might lead to inferior decisions by not fully capturing the potential for increasing SOW. This underlines the usefulness of a good understanding of the complex relationships between store attribute evaluations, satisfaction, and loyalty.

< Insert Table 7 about here >

RESEARCH LIMITATIONS AND FUTURE RESEARCH

Several research limitations arise in this study. We used self-reported loyalty data and not actual SOW data. These data may be biased and the correlations reported might be too high. Furthermore, we do not have longitudinal data on individual customers, but instead analyzed repeated cross-sections over time. Although, the composition of the sample is rather constant over time⁵, more advanced analytical techniques could potentially be used to analyze repeated cross-sections. Future research could focus on this for these specific data (e.g., van Oest and Franses 2005). It would be interesting to study differences between customers over time arising from increases (or decreases) in CC (see Ou et al. 2014 for an initial attempt). We also focused on a limited number of attributes. Although the three attributes studied are rather important, we could have also considered the role of corporate social responsibility and sustainability. Additionally, we only studied fast-moving consumer goods; the effects could probably be much stronger for retailers selling durables and apparel as consumers reduce spending in these categories during recessions (e.g., Deleersnyder et al. 2004). Furthermore, these sectors are more heavily affected by online players.

This study also points to some interesting avenues for future research. One important topic concerns the mechanisms underlying the found effects. Experimental or extensive survey-studies are needed to test these mechanisms. Similar studies should also be conducted in other countries so as to understand the role of culture (e.g., Deleersnyder et al. 2009). In general, more research is required to assess the effects of the economy on consumer decision-making in service industries and retailing.

⁵ Details can be requested from the first author.

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Table 1: Definitions of some key constructs used in this study

Construct	Questions	Scale
Consumer confidence	<ul style="list-style-type: none"> • Has the economic situation of your country improved, was it stable, or has it worsened in the last 12 months? • Will the economic situation of our country improve, be stable, or worsen in the next 12 months. • With regard to furniture, a laundry machine, a television and other durables, do you think it is a suitable period for buying such products or not, or are you neutral about that? • Has the financial situation of your household in the last 12 months improved, worsened, or was it stable? • Do you expect your household's financial situation in the next 12 months to improve, worsen or to be stable? 	5-point scale
Customer satisfaction	If I would have to assign a grade from 1 (very bad) to 10 (excellent) to the overall performance of the following supermarkets, I would give them:	10-point scale
Store attributes	<p>How would you evaluate the following supermarkets on the dimensions below on a scale from 1 (very bad) to 10 (excellent):</p> <ul style="list-style-type: none"> • Low prices • Attractive offers • Product quality • Customer friendly personnel • Good supply of fresh products • Large assortment • Long opening hours • Store attractiveness • Fast checkout • Good supply of additional services • (copy machine, postcards and tickets, photo service, etc) • Child friendliness of the store • Tidy store • Spacious store • Knowledgeable personnel • Much attention for new products • The store is nearby • Sufficient supply of other stores close to the focal store 	10-point scale
Share of wallet	Can you give an indication which percentage of your total expenditures on groceries you spent at the following supermarkets last month? (sum should be 100%)	Percentage

Table 2: Store attribute factors and corresponding survey elements

Survey elements – specific attributes	Factor loadings			
	Price	Service	Convenience	Alpha if deleted
Low prices	.899			
Attractive offers	.602			
Product quality		.681		.926
Customer friendly personnel		.747		.924
Good supply of fresh products		.732		.925
Large assortment		.790		.922
Long opening hours		.573		.928
Store attractiveness		.857		.920
Fast checkout		.713		.925
Good supply of additional services (copy machine, postcards and tickets, photo service, etc)		.624		.935
Child friendliness of the store		.644		.928
Tidy store		.852		.921
Spacious store		.766		.923
Knowledgeable personnel		.769		.924
Much attention for new products		.768		.923
The store is nearby			.749	
Sufficient supply of other stores close to the focal store			.671	
Reliability alpha or correlation in case of two items	.630	.930	.330	

Table 3: Descriptives for low, medium and high consumer confidence periods

		.33 percentile CC<-28.3	.66 percentile -28.3<=CC<=-13.8	1.00 percentile CC>-13.8
Satisfaction	<i>SAT_{ijt}</i>	7.34	7.31	7.31
SOW***	<i>SW_{ijt}</i>	25.82	24.20	23.67
Age***	<i>AGE_{it}</i>	46.61	45.27	45.77
Income***	<i>INC_{it}</i>	1.70	1.69	1.74
Household Size***	<i>HHS_{it}</i>	3.45	3.38	3.48
Service	<i>SERV_{ijt}</i>	0.00	0.01	-0.01
Price	<i>PRICE_{ijt}</i>	0.00	-0.01	0.01
Convenience***	<i>CONV_{ijt}</i>	0.02	-0.03	0.01
CC***	<i>CC_t</i>	-34.34	-19.31	-9.70
Service chain (0/1)	<i>SVC_j</i>	0.53	0.54	0.55

***p<0.001;**p<0.01;*p<0.05. Differences are tested with a One-Way Analysis of Variance.

Table 4: Correlation matrix

	SAT	SOW	AGE	INC	HHSIZE	SERV	PRICE	CONV	CC	SERVCHAIN
SAT	1.000									
SOW	0.333	1.000								
AGE	0.102	-0.005	1.000							
INC	-0.008	0.011	-0.011	1.000						
HHSIZE	-0.051	-0.006	-0.006	0.352	1.000					
SERV	0.714	0.181	0.107	0.007	-0.067	1.000				
PRICE	0.337	0.121	0.112	0.007	-0.046	0.000	1.000			
CONV	0.179	0.153	-0.004	0.002	-0.015	0.000	0.000	1.000		
CC	-0.004	-0.033	-0.034	0.008	0.011	-0.001	0.001	-0.003	1.000	
SERVCHAIN	0.184	0.081	-0.025	0.009	0.027	0.445	-0.465	0.115	-0.001	1.000

Table 5: Parameter estimates of the customer satisfaction and SOW models

Label	Variable	Satisfaction		Share of wallet	
		Par. est. (st. error)	Par. est. (st. error)	Par. est. (st. error)	Par. est. (st. error)
Intercept	Y_{00}	7.334*** (.044)	-5.240*** (.143)	-5.596*** (.337)	-5.738*** (.565)
Satisfaction			.521*** (.009)	.572*** (.043)	.584*** (.075)
Service	$SERV_{ijt}$	.746*** (.025)			-.058 (.086)
Price	$PRICE_{ijt}$	.658*** (.023)			-.0156* (.066)
Convenience	$CONV_{ijt}$	.288*** (.026)			.147* (.061)
Service chain (0/1)	SVC_j	-.016 (.047)	-.371 (.147)		-.369 (.261)
Consumer confidence (CC)	CC_t	-.00003 (.00004)	-.006*** (.001)	.003 (.006)	.015 (.009)
Age	AGE_{it}	-.001*** (.0004)	-.005*** (.001)	.026*** (.005)	.021* (.009)
Household size	HHS_{it}	-.016*** (.003)	.006 (.008)	-.0465*** (.045)	-.392*** (.079)
Income	INC_{it}	-.026*** (.006)	-.046*** (.014)	.251*** (.075)	.108 (.141)
Satisfaction : CC	$SAT_{ijt} \times CC_t$			-.001 (.001)	-.003* (.001)
Service : CC	$SERV_{ijt} \times CC_t$	-.001* (.0006)			.001 (.002)
Price : CC	$PRICE_{ijt} \times CC_t$	-.0003 (.0004)			-.0001 (.001)
Convenience : CC	$CONV_{ijt} \times CC_t$	.001 (.0006)			.002 (.001)
Satisfaction : Service chain (0/1)	$SAT_{ijt} \times SVC_j$			-.062*** (.018)	.038 (-.030)
Service : Service chain (0/1)	$SERV_{ijt} \times SVC_j$	.005 (.0012)			-.445*** (.039)
Price : Service chain (0/1)	$PRICE_{ijt} \times SVC_j$	-.002 (.011)			.151*** (.031)
Convenience : Service chain (0/1)	$CONV_{ijt} \times SVC_j$	-.020* (.009)			.098*** (.024)
Satisfaction : Age	$SAT_{ijt} \times AGE_{it}$			-.004*** (.001)	-.003** (.001)
Satisfaction : Household size	$SAT_{ijt} \times HHS_{it}$			.065*** (.006)	.053*** (.011)
Satisfaction : Income	$SAT_{ijt} \times INC_{it}$			-.042*** (.010)	-.021 (.019)
Price : Age	$PRICE_{ijt} \times AGE_{it}$	-.003*** (.004)			.006*** (.001)
Price : Household size	$PRICE_{ijt} \times HHS_{it}$	-.014*** (.003)			-.022* (.009)
Price : Income	$PRICE_{ijt} \times INC_{it}$	-.024*** (.005)			.016 (.013)
Service : Age	$SERV_{ijt} \times AGE_{it}$	.002*** (.0004)			-.003* (.001)
Service : Household size	$SERV_{ijt} \times HHS_{it}$	.014*** (.003)			.026* (.012)
Service : Income	$SERV_{ijt} \times INC_{it}$	-.022*** (.005)			-.032 (.021)
Convenience : Age	$CONV_{ijt} \times AGE_{it}$	-.001** (.0004)			-.002 (.001)
Convenience : Household size	$CONV_{ijt} \times HHS_{it}$	.006 (.003)			.031 (.008)
Convenience : Income	$CONV_{ijt} \times INC_{it}$	-.010 (.006)			-.017 (.015)
R ²		.81	.39	.40	.80
Number of observations		26716	29421	29421	26716

***p<0.001;**p<0.01;*p<0.05

Table 6: Parameter estimates for the segmented analyses*Panel 1: Satisfaction models*

		Full sample	Value chain customers	Service chain customers	Three largest chains	Loyal customers	Nonloyal customers
Service	$SERV_{ijt}$	.746***	.745***	.734***	.849***	.636***	.732***
Price	$PRICE_{ijt}$	.658***	.607***	.699***	.626***	.535***	.651***
Convenience	$CONV_{ijt}$	.288***	.279***	.274***	.314***	.311***	.255***
Consumer confidence	CC_t	-0.0003	-0.001	0.00005	-0.0005	.001	0.0002
Service : CC	$SERV_{ijt} \times CC_t$	-.001*	-.001#	-.002*	-.001	-.003*	-.001#
Price : CC	$PRICE_{ijt} \times CC_t$	-.0003	-.0005	.0003	.0003	.0002	-.0004
Convenience : CC	$CONV_{ijt} \times CC_t$	.001	.001	.0008	.001	.00003	.001

Panel 2: SOW models

		Full sample	Value chain customers	Service chain customers	Three largest chains	Loyal customers	Nonloyal customers
Service	$SERV_{ijt}$	-.058	-.047	.612***	-.571**	-.084	-.051
Price	$PRICE_{ijt}$	-.0156*	-.128	.040	-.250	-.289*	-.122**
Convenience	$CONV_{ijt}$	.147*	.066	.335***	.155	-.062	.047
Consumer confidence	CC_t	.015	-.010	0.02	0.01	-0.03	0.006
Satisfaction	SAT_{ijt}	.584***	.617***	.606***	.820***	.417**	.372***
Satisfaction : CC	$SAT_{ijt} \times CC_t$	-.003*	-.001	-.005*	-.004	.005	-.001
Service: CC	$SERV_{ijt} \times CC_t$	.001	-.003	.010**	.009*	-.007*	.001
Price: CC	$PRICE_{ijt} \times CC_t$	-.0001	.002	-.004*	-.005	.0004	.0004
Convenience: CC	$CONV_{ijt} \times CC_t$	.002	.0003	.004*	.004#	-.001	.001

***p<0.001; **p<0.01; *p<0.05; #p<0.10

**Table 7:
Simulation Results Attribute Improvements Albert Heijn**

	Simulation 1: Increase in attributes for different CC levels			Simulation 2: Increases in attributes for value of CC in last observation
CC scores	High - CC = -12.75	average CC = -22.6	Low - CC = -33.25	CC = -31
	Percent Satisfaction Change			
10% price	0.42 %	0.58 %	0.75 %	0.71 %
10% service	0.74 %	0.90 %	1.08 %	1.04 %
	Percentage Point SOW Change			
10% price	-0.83 %	2.80 %	7.01 %	6.10 %
10% service	-3.11 %	0.39 %	4.46 %	3.57 %

Figure 1: Conceptual Model

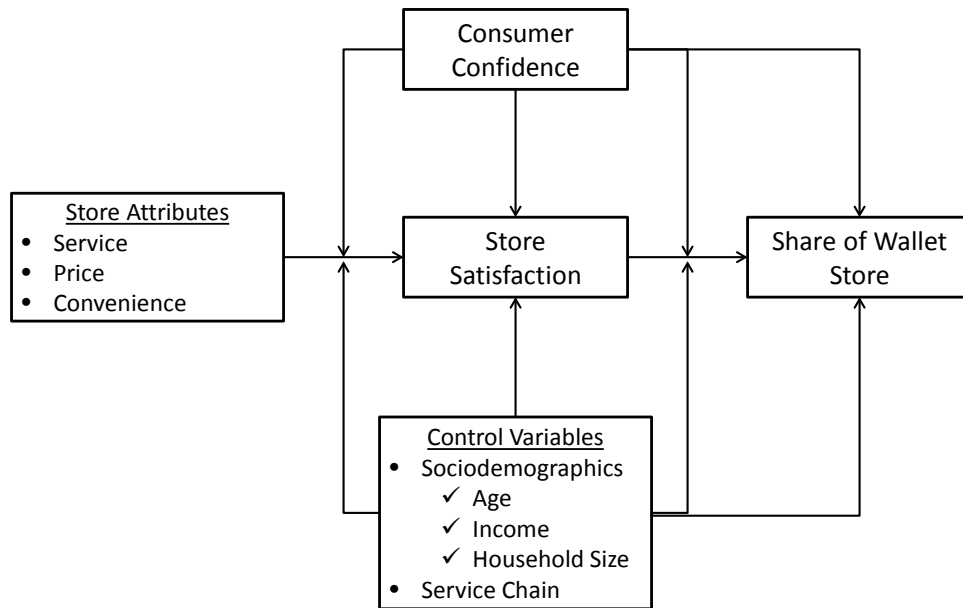
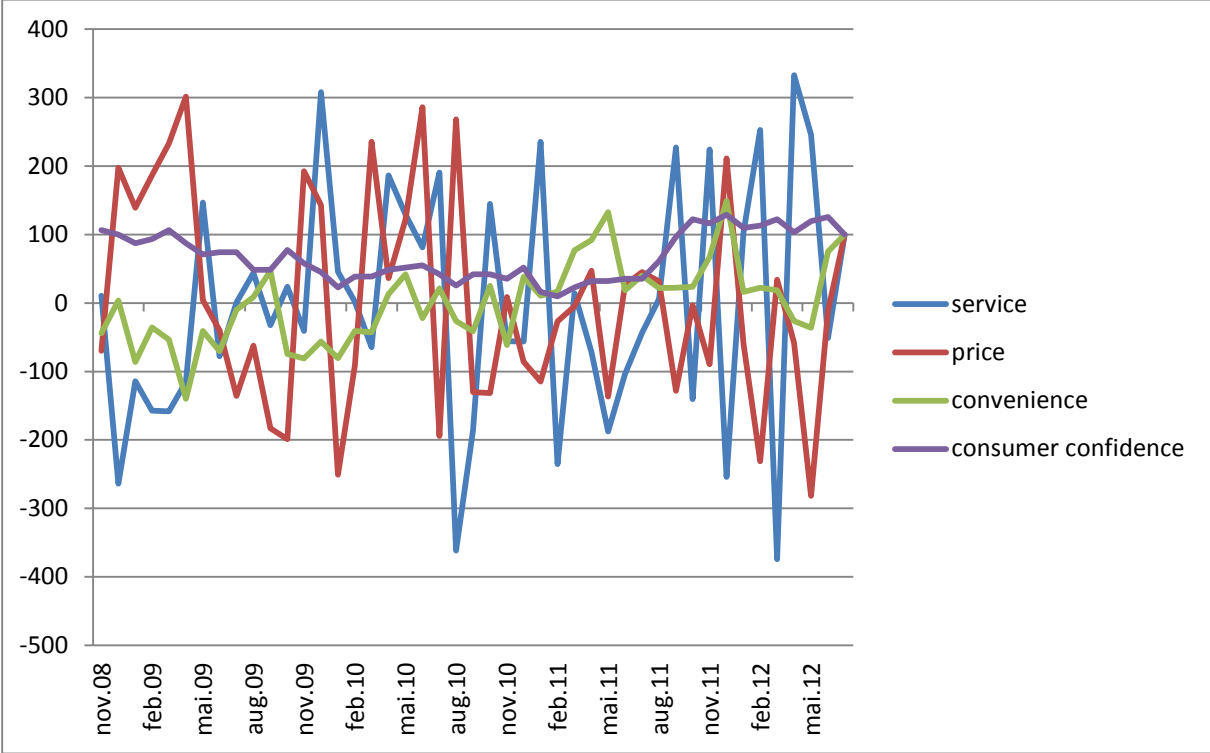


Figure 2: Developments in store attribute perceptions and CC over time (last month=100).



Appendix 1: Testing for endogeneity of store attributes

This section explains how we tested for the potential endogeneity of the store attributes via an IV approach (Wooldridge 2010; Rossi 2014). We first specified three IV regression equations, in which each store attribute is a function of two instruments, namely the chain's average evaluation of that attribute in the previous month and the average attribute scores of competitors. We further add the exogenous control variables of Equation (1) to the IV regression and we thus model each attribute as follows:

$$\widehat{PRICE}_{ijt} = \delta_0 + \delta_1 \overline{PRICE}_{jt-1} + \delta_2 PRICE_{jt}^c + \delta_3 CC_t + \delta_4 AGE_{it} + \delta_5 INC_{it} + \delta_6 HHS_{it} + \varsigma_{ijt} \quad (1^*)$$

in which $PRICE_{jt-1}$ are the average prices for each chain j in $t - 1$, and $PRICE_{jt}^c$ are the average prices for all competitors in t . The equations for the attributes service and convenience can be obtained by replacing the $PRICE$ variables with their $SERV$ or $CONV$ counterparts respectively. If $PRICE_{jt-1}$ and $PRICE_{jt}^c$ are proper instruments, we can use the predictions from Equation (1*) to estimate the true effect of price on customer satisfaction. We do so by substituting $PRICE_{ijt}$ in Equation (1) by its predicted values in \widehat{PRICE}_{ijt} . Since \widehat{PRICE}_{ijt} is uncorrelated with the error terms in Equation (1), this variable is now exogenous and the corresponding parameter will be unbiased. This procedure is known as the Two Stage Least Squares IV estimator (Rossi 2014).

The interaction terms in Equation (1) that include store attributes deserve special attention. Let us consider the interaction between $PRICE_{ijt}$ and CC_t . Consistent with the results from Equation (1*), it seems logical to use the predicted values for price (\widehat{PRICE}_{ijt}) and to multiply these values with the consumer confidence variable CC_t and regress satisfaction directly on the resulting product ($\widehat{PRICE}_{ijt} \times CC_t$). However, as pointed out by Wooldridge (2010), we can only use $\widehat{PRICE}_{ijt} \times CC_t$ as IV for $PRICE_{ijt} \times CC_t$. As a consequence, we need to estimate IV regressions for each interaction term that includes store attributes with as explanatory variables the product of the predictions from Equation (1*) and the relevant moderator as well as the exogenous control variables. The equation for $PRICE_{ijt} \times CC_t$ looks as follows:

$$(\widehat{PRICE}_{ijt} \times CC_t) = \lambda_0 + \lambda_1 (\widehat{PRICE}_{ijt} \times CC_t) + \lambda_2 CC_t + \lambda_3 AGE_{it} + \lambda_4 INC_{it} + \lambda_5 HHS_{it} + \varphi_{ijt} \quad (2^*)$$

Similar as with the main effects of the store attributes on satisfaction, we could now substitute the store attribute moderator effects in Equation (1) with their predicted values from the IV regression in Equation (2*). Alternatively, we can also use what is called a control function approach to endogeneity (see Rossi (2014) for an excellent explanation). This approach implies that we include the error terms from Equations (1*) and (2*) in Equation 1 in addition to the corresponding endogenous explanatory variables. By doing so, we incorporate only that part of the endogenous explanatory variable (i.e. $PRICE_{ijt}$) in Equation (1) that is correlated with the error term of this equation. The parameter corresponding to the endogenous variable (e.g. β_{2t} for the price attribute) becomes then a valid IV estimator. Such an approach has the advantage that testing for the significance of the included error terms from Equations (1*) and (2*) is equivalent to a Hausman test for endogeneity (Hausman 1978). We therefore included all the error terms of the first-stage regressions in the satisfaction equation and we test for their significance.

Appendix 2: Individual driver effects

We use the method proposed by Rust et al. (2004) to determine the impact of the individual drivers on store satisfaction. More specifically, we use our results from the principal components analysis and express each factor as a linear combination of all the individual drivers. This is done through the estimation of so-called factor score regression equations in which each factor is regressed on the individual drivers; the obtained matrix with parameter estimates is called a factor score coefficient matrix. Next, we replace the factors in Equations (1) with their corresponding estimated factor score regression equations. This allows us to determine the effect of a one-unit change in each of the individual drivers on store satisfaction. Since the individual drivers are standardized in the principal component analysis, we have to divide the obtained effect size for each individual driver by the driver's standard deviation. The post-hoc determination of the impact of individual drivers offers several advantages over directly including all drivers in Equation (1). First, including all individual drivers simultaneously in the equation would probably lead to multicollinearity issues; these problems are overcome if we use the factor scores as explanatory variables, because they are orthogonal. Second, eliminating the smallest principal components, which may be random, reduces noise in the estimation. In order to enhance the interpretability of our analysis, we focus on the direct effects of each driver only and we thus ignore each driver's indirect effects through interactions with other variables. The results of this analysis are presented in Table A1. As can be seen from the Table, the items "Low prices" and "Fast checkout" have the largest impact on the dependent variable, whereas having a "Spacious store" and a "Sufficient supply of other stores close to the focal store" contribute very little to satisfaction formation. The results of this analysis enable store managers to concretely adjust the service, price, or convenience level of their stores. The effect sizes for each driver offer clear and specific guidance on which marketing variables to adjust, rather than just "service" or "price", and their potential impacts on satisfaction.

Table A1: Coefficients of the individual items for the satisfaction model

Low prices	.236
Attractive offers	.200
Product quality	.109
Customer friendly personnel	.032
Good supply of fresh products	.052
Large assortment	.010
Long opening hours	.078
Store attractiveness	-.019
Fast checkout	.215
Good supply of additional services	.134
Child friendliness of the store	.026
Tidy store	-.037
Spacious store	.005
Knowledgeable personnel	-.013
Much attention for new products	.012
The store is nearby	.019
Sufficient supply of other stores close to the focal store	.006