Relationship between multiple CRM activities in retail and customer performance: The moderating effects of brand loyalty and variety seeking behavior

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This study examines the effect of selective promotion and assortment based on customer relationship management (CRM) data as well as reward points on share of wallet (SOW), expenditure, and customer satisfaction, coupled with the moderating effects of customers’ brand loyalty and variety-seeking behavior in retail.

This study adopts a two-stage, multi-method research design using a qualitative study followed by a quantitative study to construct a theoretical framework on the hypotheses. The results show that reward points directly enhance SOW whereas assortment based on CRM enhances customer satisfaction. Additionally, the effect on expenditure by reward points is strengthened by brand loyalty, whereas selective promotion is strengthened by variety-seeking behavior.

Although existing research indicates the CRM effect that leads to effective communication with customers and more efficient merchandising, previous research mainly examined the effect of CRM implementation or reward points. Therefore, the difference between the effect of reward points and other CRM activities remains unclear. This study verifies the different effects of multiple CRM activities in retail, identifies brand loyalty and variety-seeking behavior as original contingent factors of CRM, and verifies their influence on respective CRM activities.

Key words: customer relationship management, brand loyalty, variety-seeking behavior, multiple CRM activities, retail

1 INTRODUCTION

Since the mid-1990s, customer relationship management (CRM) has attracted attention of practitioners and researchers as a new form of information technology (IT) to improve customer management, along with IT development and relational marketing in mature markets (Payne & Frow, 2005). CRM is “a strategic approach that is concerned with creating improved shareholder value through the development of appropriate relationships with key customers and customer segments” (Payne & Frow, 2005, p. 168). From the marketing research perspective, CRM has been examined using various frameworks, such as relationship, loyalty, and service marketing (Sheth & Parvatiyar, 2000).

Moreover, CRM has received much attention as a strategy to help businesses retain customers in a mature market and competitive environment. In the retail context, reward points alone would not be effective for ensuring loyalty in a competitive environment (Liu & Yang, 2009) because the switching cost of reward points is extremely low in retail (Meyer-Waarden & Benavent, 2009). This tendency is noticeable especially in traditional brick-and-mortar retailers, which usually target customers in a limited trading zone (Meyer-Waarden & Benavent, 2009).

However, retailers can improve their demand creation ability by providing customers with appropriate promotion through CRM data (Liu & Yang, 2009). Because CRM enables retailers to grasp preferences of each store’s customers
appropriately, they can then improve the competitiveness of core offerings and offer ease of purchase accordingly (Leenheer & Bijmolt, 2008). Despite this potential of CRM, many retailers offer only reward points, and few retailers effectively utilize CRM to create relationships with their customers.

The extant literature has largely focused on identifying the effect of implementing CRM or reward points. However, CRM’s effect should not be limited to those resulting from reward points. It is necessary to understand the difference between the effect of reward points and other CRM activities as well as situations in which respective CRM activities will have an effect. In this study, the effects of reward points, selective promotion and assortment based on CRM data are examined. Additionally, we examine the contingent effect of brand loyalty and variety-seeking behavior, which could influence these effects. Finally, this study provides some implications regarding the effectiveness of CRM in retail.

2 LITERATURE REVIEW

Boulding, Staelin, Ehret, and Johnson (2005) and Payne and Frow (2005) indicated that CRM primarily involves developing a holistic organizational strategy to manage customer relationships. Specifically, it entails retaining excellent customers as CRM members (Lewis, 2004), customizing promotional approaches to customers based on CRM data (Jayachandran, Sharma, Kaufman, & Raman, 2005), and enhancing the effectiveness of existing core offerings by utilizing CRM data cross-functionally or with suppliers (Mithas, Krishnan, & Fornell, 2005). Especially, in the retail context, it refers to reward points (Liu, 2007) as well as promotions customized for each customers based on CRM data (Liu & Yang, 2009). It also refers to activities to realize appropriate assortment (Leenheer & Bijmolt, 2008), considering the core offering of retailers is merchandising such as assortment (Alderson, 1957; Briesch, Chintagunta, & Fox, 2009).

In parallel with the conceptualization of CRM, empirical research on the effectiveness of CRM activities has been conducted. With some exceptions (e.g., Sharp & Sharp, 1997; Shugan, 2005), existing research has mostly confirmed that CRM contributes to enhance behavioral loyalty, which is “repeated purchases that stem from a conation or action orientation involving a ‘readiness to act’ favoring one entity” (Oliver, 1999, p. 35). It also impacts attitudinal loyalty, which is “a ‘cognition’ or ‘pleasurable fulfillment’ favoring one entity such as a firm, its brand, or its offerings” (Oliver, 1999, p. 35) as well as boosts customer retention and strengthens the linkage between customer satisfaction, which is “a customer’s overall evaluation of the performance of an offering to date” (Johnson & Fornell, 1991), and behavioral loyalty. Especially in non-contractual settings such as brick-and-mortar retail, behavioral loyalty is often perceived as the outcome of CRM activities (Kumar, Pozza, & Ganash, 2013) because customers exhibit fluid purchase behavior in retail, i.e., customers are normally regular customers of several stores in a trading area (Leenheer, van Heerde, Bijmolt, & Smidts, 2007; Mägi, 2003).

As described in Table 1, existing research mainly discussed the effect of CRM on retention of existing customers, long-term effects of implementing CRM or the effect of reward points, the influence of CRM activity on purchase behavior of existing or satisfied customers after their CRM membership, and the influence of contingent factors (Hidaka, Kim, & Akiyama, 2014; Hidaka, 2015).

Empirical research focused on the effectiveness of implementing CRM (Demoulin & Zidda, 2009, p. 393; Liu, 2007, p. 20). Mägi (2003), Lewis (2004), Seiders, Voss, Grewal, & Godfrey (2005), Meyer-Waarden (2007), Leenheer et al. (2007), Meyer-Waarden & Benavent (2009), and Verhoef (2003) are examples of some researches. Lewis (2004) verifies that CRM implementation enhances customer retention by comparing the effect on members of CRM activity with non-members. Additionally, Mägi (2003) verifies that CRM implementation strengthens the linkage of customer satisfaction and behavioral loyalty, except among price-conscious customers.

However, implementation of CRM is only its initial step (Reinartz, Krafft, & Hoyer, 2004). It is important for firms to enhance customer satisfaction and loyalty after implementing CRM (Henderson, Beck, & Palmatier, 2011; Liu, 2007).

Other researches verify the effect of a specific reward-program in CRM activity. Existing research such as Taylor and Neslin (2005) and Liu (2007) identify the effect of reward points. Taylor and Neslin (2005) verify that reward points promote not only expenditure within the expiration date of rewarded points in the retail context but also expenditure after the expiration date, and conclude that reward points have a long-term effect on expenditure as well as short-term one. Liu (2007) verifies that reward points prompt a response from existing heavy users, but do not impact their purchase frequency or expenditure. However, for low or middle level existing users, reward points prompt their response, purchase frequency and expenditure (also discussed by Leenheer et al., 2007).

Other researches have verified the effect of tailored direct mail. Verhoef (2003) verifies a different effect of direct mail from that of CRM activities in financial
| Research                          | Dependent Variables                                      | Data Method                        | Context                                      | Results                                                                                                                                 |
|----------------------------------|----------------------------------------------------------|------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Sharp & Sharp (1997)             | CRM membership                                          | Self-reported survey               | Grocery Retail                               | Little to no effect on all DiD/Sharp indicators                                                                                 |
| De Wolf et al. (2000)            | Perceived relationship investment                        | Structural equation model          | Food and Apparel Industry                    | The perceived relationship investment affects relationship quality, which results in behavioral changes, depending on customer’s demographics. |
| Mägi (2003)                      | CRM membership                                          | Self-reported survey               | Online Retail                                | CRM membership strengthens both customer retention and customer loyalty.                                                            |
| De Wulf et al. (2001)            | Perceived relationship investment                        | Structural Equation Model          | Food and Apparel Industry                    | The perceived relationship on relationship quality depends on customer’s involvement and positive word of mouth                      |
| Mägi (2003)                      | CRM membership                                          | Self-reported survey               | Grocery Retail                               | CRM membership strengthens both customer retention and customer loyalty.                                                            |
| Verhoef (2003)                   | CRM membership                                          | Self-reported survey               | Food and Apparel Industry                    | CRM membership contributes to enhancing customer retention.                                                                          |
| Lewis (2004)                     | CRM membership                                          | Purchase data and Self-reported    | Insurance                                    | CRM membership enhances both customer retention and customer loyalty.                                                            |
| Taylor & Neslin (2005)           | Reward points                                           | Purchase data and Self-reported    | Grocery Retail                               | CRM membership increases both customer retention and customer loyalty.                                                             |
| Seiders et al. (2005)            | CRM membership                                          | Self-reported survey and Purchase  | Specialty Retail                             | The relationship between customer satisfaction and repeat purchase depends on convenience, competitive intensity, customer involvement, and household income. |
| Leenheer et al. (2007)           | CRM membership                                          | Purchase data and Self-reported    | Grocery Retail                               | CRM membership enhances customer lifetime duration and SOW.                                                                          |
| Liu (2007)                       | CRM membership                                          | Purchase data and Self-reported    | Grocery Retail                               | CRM membership enhances customer lifetime duration and SOW.                                                                          |
| Meyer-Waarden & Benavent (2009)  | CRM membership                                          | Purchase data and Self-reported    | Grocery Retail                               | CRM membership enhances customer lifetime duration and SOW.                                                                          |
| Gázquez-Abad et al. (2011)       | Tailored Direct mail (relational and promotional)       | Purchase data and Self-reported    | Apparel Retail                               | CRM membership enhances customer lifetime duration and SOW.                                                                          |
services, i.e., the implementation of CRM activities enhances customer retention and behavioral loyalty, whereas direct mail enhances only behavioral loyalty. Gázquez-Abad, De Cannière, and Martínez-López (2011) identify that relational direct mail, which enhances retailer image, has a long-term positive effect on expenditure, frequency, and purchase unit per category as well as a short-term effect, whereas promotional direct mail, which calls for action, has only a short-term effect in the apparel retail context.

Research has also focused on contingent factors of CRM to understand the difference in CRM effects (Liu & Yang, 2009; Meyer-Waarden, 2007; Taylor & Neslin, 2005). For example, Mägi (2003) verifies the negative effect of price consciousness, as mentioned above. Taylor and Neslin (2005) account for contingent factors such as price sensitivity, household income, and planning orientation before a purchase to examine the effect of reward points, although these factors do not receive empirical support in this study. Liu (2007) identifies a different effect by usage level. Furthermore, some competition- and consumer-related factors have been investigated. Meyer-Waarden (2007) verifies that the effect of CRM implementation is weaker among customers located near to competing retailers. Liu and Yang (2009) identify that firms with high market share can benefit more from their CRM activities, although the effect of their CRM activities decreases as the marketplace becomes more saturated with competitor’s CRM activities.

Existing research has made important contributions to verify the effect of CRM activities. However, the following research issues remain (Hidaka et al., 2014).

First, focus on multiple CRM activities is needed. Previous research mainly examined the effect of CRM implementation or the effect of reward points. Therefore, the difference between the effect of reward points and that of other CRM activities remains unclear (Liu & Yang, 2009). CRM’s merits should not be limited to the effects of reward points. Dorotic, Bijmolt, and Verhoef (2012) indicate that it could be fruitful for CRM research to clarify the effect of personalized promotions by CRM and the CRM effect resulting from cooperation with core offerings (p. 227).

Although some researches have verified the effect of tailored direct mail (e.g., Gázquez-Abad et al., 2011; Verhoef, 2003), they have not explicitly shown the difference in the effect of it and reward points. Additionally, the direct mails considered in these researches are not necessarily based on CRM data. It is therefore necessary to clarify the differences in effects of different CRM activities, such as reward points, selective promotions based on CRM data (Jayachandran et al. 2005), and CRM activities related to core offerings (Mithas et al., 2005).

Second, we should understand the context in which an individual CRM activity works effectively (Meyer-Waarden & Benavent, 2009). As mentioned above, existing research shows some contingent factors. However, many studies examined only the effect for CRM implementation or the effect for reward points. Consequently, it remains unclear whether these contingent factors have a similar influence on CRM activities other than reward points.

Third, since few contingent factors other than price consciousness (Mägi, 2003), usage level (Liu, 2007), and socio-demographics (Meyer-Waarden, 2007) have received empirical support as customer-related factors (Liu & Yang, 2009, p. 96), further investigation of these factors is necessary. There is scope in the existing literature to find contingent factors that enhance the effect of respective CRM activities (Meyer-Waarden & Benavent, 2009).

In light of these gaps in the literature, this research examines differences in the effects of multiple CRM activities on customer purchase behavior, and the influence of contingent factors that enhance the respective CRM activities in retail.

### 3 STUDY 1: QUALITATIVE RESEARCH

Although Payne and Frow (2005) indicate that CRM is a company-wide strategy, neither the specific practical form of strategic CRM in retail nor the effects have been sufficiently verified (Leenheer & Bijmolt, 2008). Therefore, we first need to identify the specific content of the multiple CRM activities in retail as well as the difference in each one’s effect. Furthermore, because the contingent factors and their influence remain unclear (Liu & Yang, 2009), this study adopts a two-stage, multi-method research design: a qualitative study followed by a quantitative study (Creswell, 2003; Weerawardena, Sullivan-Mort, Salunke, Knight, & Liesch, 2015) to ensure the conceptual validity of multiple CRM activities, their contingent factors, and their effects.

#### 3.1 Research context

This research first uses theoretical sampling (Eisenhardt & Graebner, 2007) to identify an adequate case. Theoretical sampling means that “cases are selected because they are particularly suitable for illuminating and extending relationship and logic among constructs” (Eisenhardt & Graebner, 2007, p. 27). This research samples a retailer that utilizes CRM in an integrated way to achieve a sustained solid performance, in consideration of the abovementioned theoretical research issue, with reference to articles in Japanese business magazines. We searched for retailers that conduct CRM activities and identified a medium-sized grocery store chain that operates about 40 stores in a rural area in Japan.
as an adequate case for following reasons:

In response to hostile entry of a major general merchandising store to its trading area, this grocery store drove the competitor to withdraw by implementing CRM. It conducted company-wide CRM, referring to TESCO (Iino, 2002; Shinohara, 2008). It created satisfaction for each customer by analyzing purchase data and undertaking CRM activities linked with merchandising. This increased their sales by 40% (Ishibashi, 2001; Kiyoshima, 2008; Yoshimura, 2009), making them achieve successive sales and profit rises for eight consecutive terms until 2008 (Ogino & Shimoda, 2012). These efforts are well known in the retail industry (Kiyoshima, 2008).

This grocery store targets middle-range markets, and its assortment and price are standard and very common. Despite the successive entry of new competitors, it has maintained a stable performance, with annual sales of approximately $6 million in 2014.

In addition to secondary data, several interviews were conducted with CRM chief managers of this grocery store (Table 2) to confirm the validity of theoretical sampling and identify the details of its CRM activities. The interviews were conducted between May 2011 and February 2015.

Members of this grocery store’s loyalty program usually receive 1 point per purchase of ¥210. For 250 of these points, the customer can get a 1-point ticket, and can exchange three 1-point tickets for a ¥1000 gift certificate. However, members who purchase over a certain amount per month can receive 3–5 times the amount of points on a specific day in the following month (Fact 1).

The scheme had a total of 430,000 members in 2008. To put that figure in context, the population of the Prefecture where they mainly operate stores is 840,000. The ratio of members to all households is 90.6%, and the ratio of sales by members to all purchases is 95.6%.

This grocery store uses purchase data obtained from CRM to carry out various activities, including selective promotions. This store issues coupons for products that customer may potentially like. These coupons are printed on the top of receipts. To determine what coupons to offer, this store conducts cluster analysis, and categorizes customers into 20 clusters, such as “customer who tends to want easy-to-cook products and save many steps” or “customer who is conscious of health and sticks to foodstuffs,” and provides coupons for products categorized into the same cluster. These coupons promote products that the customer has not purchased yet but may potentially like (Fact 2).

Selective promotions are not always issued to all members, but are issued frequently. The response rate to selective promotions is about 40%, a rate that is remarkably high compared to non-targeted coupons distributed to an unspecified number of recipients, where the rate is only a few percent.

In addition, this store changes its displays and assortment on a per-stores basis according to CRM data. For example, in the store that has many customers “who tend to want easy-to-cook products and save many steps,” seasonings that can save time in cooking specific dishes are placed in the meat aisle. Cross-categorical displays and assortment are realized so that customers can find all ingredients for common favorite menus within a single display. Additionally, this grocery store proposes menus for customers based on CRM data. These menus promote purchases located next to the forementioned displays and at store entrances (Fact 3).

These menu proposals thus promote co-purchase behavior of proposed products and increase the unit purchase price. In one example, this activity increased sales of the displayed items by 20–40%. Although not all assortment and displays are based on CRM data, using CRM data has allowed this grocery store to reduce its flier costs by 70% and decrease special sales by 50%.

### Table 2 Job titles of management interviewees

| Interviewees* |
|---------------|
| President Office Manager |
| Sales Planning Department Manager |
| Logistics Department Manager |
| Food Department Manager |
| Grocery Center Manager |
| Financial Department Manager |
| Sales Planning Department Manager |
| Sales Planning Department Staffs |
| Sales Planning Department Manager |

*Job titles reflect titles held at the time of the interviews. Due to intra-firm job rotation, interviewees were sometimes no longer in the department in charge of CRM activities.

3.2 In-depth interviews with loyalty program members

Next, in-depth interviews were conducted with ten members of this grocery store’s loyalty program (Table 3) to generate the hypotheses. The interviews were conducted between April 2014 and January 2015. The main themes in these interviews were expenditure and frequency of visits to the store, customer characteristics related to purchase behavior, the patterns of their purchase behavior, and their consciousness of CRM activities. The interviews lasted...
about 60 minutes, and all interviews were recorded and confirmed with each interviewee.

The concise qualitative data from the interviews are as follows (see also Hidaka, 2016).

First, in terms of reward points, customers C and D, who are usually very conscious of reward points, said, “I usually buy products with relatively large amounts such as rice or SAKE on 5-times-point days” (customer C), and “I always keep 5-times-point days in mind and do extra shopping of products that can be stored to earn more points” (customer D) (Fact 4). Customer J, with a high purchasing ratio at this grocery store, said, “I buy collectively at this grocery store without going to various other stores, because points are provided a lot.” These responses demonstrate customer’s strong consciousness about 3- or 5-times-point days encourages their purchase ratio and amount at this store (Fact 5).

Secondly, regarding selective promotion, the displays and assortment based on CRM data, customer E, who has little time for shopping due to her job and is very content with the ease of shopping, says, “I don’t have to search around the store. In this store, necessary items are kept in a compact way” (Fact 6). The same sentiment was expressed for selective promotion: “I feel the ease of shopping in this grocery store because it unselfconsciously understands what I want. I often feel the recommended products are suitable for me.” This indicates that awareness of the ease of shopping created by selective promotion promotes customer satisfaction (Fact 7).

Thirdly, qualitative data are also obtained to support the argument that the effect of each CRM activity is strengthened. It is suggested that the influence of consciousness of reward points for purchases is further enhanced, especially in case of customers with some brand loyalty. Customer C says, “I always buy rice on 5-times-point days purposely. Especially rice. As the rice I always buy is not often discounted, I buy it on 5-times-point days.” Customer D, who is loyal to a brand of cosmetics, says, “Since my favorite cosmetics are never discounted, I always buy them on 5-times-point days.” These statements indicate that some brand loyalty motivates customers to purchase in this store on 3- or 5-times-point days as an alternative to price discounts (Fact 8), and this trend is expected to be typical of customers loyal to relatively expensive and less discounted products such as rice (Fact 9).

Furthermore, it is suggested that the influence of consciousness of selective promotion and assortment on purchases is further enhanced, especially in case of customers with variety-seeking behavior. Customer E says, “As I am a consumer who wants to try out different items, I often buy the products that this grocery store recommends.” This indicates that customers with this characteristic tend to buy unknown but recommended items (Fact 10). On the other hand, these effects are not exhibited among customers who create shopping lists or decide what to buy before shopping (Customers A and H) (Fact 11).

3.3 Analyses

This research presents three findings. First, details of CRM activities are identified according to Facts 1 through 3. The CRM activities consist of (1) reward points, where members who purchase over a certain amount per month can receive three to five times points on a specific day; (2) selective promotions, where products for which the customer may have potential demand are selectively promoted on purchase receipts based on CRM data; and (3) assortment based on CRM data, where assortment and displays are customized per store based on the demand trend with menu proposal promotions in stores.

Second, the results indicate each CRM activity can have different effects on customers’ purchase behavior. Particularly, reward points have a direct positive effect on customers’ purchase expenditure and share of wallet (SOW) (Facts 4 and 5), whereas selective promotion and assortment based on CRM data enhance the ease of purchase, which mainly results in enhancing customer satisfaction (Facts 6 and 7). Though existing research in the retail context has mainly focused on the CRM effects that strengthen existing customer satisfaction and loyalty linkage (Mägi, 2003; Meyer-Waarden & Benavent, 2009; Seiders et al., 2005), these facts indicate that it is important to focus on CRM effects that create further customer satisfaction, in line with some existing research (Mithas et al., 2005).

Third, customers’ brand loyalty and variety-seeking
behavior are identified as factors that influence the effect of each CRM activity. Puccinelli et al. (2009) indicate that it is fruitful to focus on a customer’s purchase process for understanding the effect of CRM activities in retail because CRM activities affect customer purchase behavior.

The effect of reward points on expenditure tends to be high when customers have some brand loyalty. Brand loyalty is “an intrinsic commitment to repeatedly purchase a particular brand” (Peter & Olson, 2008, p. 396). This effect of reward points is created because receiving a higher number of reward points on particular days can serve as an alternative to a discount of loyal brands, which are merely discounted (Facts 8 and 9). Furthermore, the effect of selective promotion and assortment on expenditure tends to be especially high when customers exhibit variety-seeking behavior (Facts 10 and 11). Variety-seeking is a desire for new or novel products manifested by purchase exploration in the context of consumer choice (Hoyer & Ridgeway, 1984), and is the antithesis of brand loyalty (Peter & Olson, 2008). This effect is seen to emerge because selective promotions and assortment based on CRM data enable this grocery store to effectively promote unplanned purchases among customers with variety-seeking behavior.

4 THEORETICAL FRAMEWORK AND HYPOTHESES

4.1 Theoretical framework

The findings in Study 1 enable the creation of a theoretical framework for multiple CRM activities in retail (Figure 1).

Three CRM activities used in retail can be identified. Reward points, the most traditional, has been the focus of existing research (Liu, 2007). Although various formats of reward point programs can be assumed (Liu & Yang, 2009), this study assumes a reward point program in which customers can receive additional points for purchases on specific days. Selective promotion is a CRM activity based on information obtained through CRM (Jayachandran et al., 2005). The tailored assortment based on CRM data provides customized assortment among stores (Leenheer & Bijmolt, 2008).

These activities are expected to improve continuous expenditure and SOW as well as customer satisfaction. In particular, the effect on behavioral loyalty is emphasized in the retail context. In addition, because existing research advocates a focus on the psychological aspects, customer satisfaction should be another key metric of CRM (Kumar et al., 2013).

Brand loyalty and variety-seeking behavior are identified as important customer factors that affect the outcomes of these CRM activities. Although little existing research refers to the influence of these factors on the effect of CRM, Study 1 indicates that these should be important contingent factors.

4.2 Hypotheses

Findings from Study 1 indicate that customers’ awareness of respective CRM activities influences their SOW, expenditure, and customer satisfaction. Reward points can lead to high behavioral patronage (Liu, 2007), mainly because they give customers a temporary economic incentive (Verhoef, 2003; Liu & Yang, 2009). Economic incentives have a greater—albeit more sporadic—impact on customers’ behavioral loyalty than customer satisfaction (Henderson et al., 2011). On the other hand, selective promotion and assortment based on CRM data can directly affect customer satisfaction because insights into customers gleaned from CRM enable retailers to reduce customers’

![Figure 1](https://example.com/figure1.png)  
*Figure 1 Theoretical framework.*
processing cost in purchases and offer ease of purchase for each customer in stores, rather than an economic incentive (Berger et al., 2002). These lead to the following hypotheses:

**H1-1a:** Customer awareness of reward points increases SOW.

**H1-1b:** Customer awareness of reward points increases expenditure.

**H1-2:** Customer awareness of selective promotion increases customer satisfaction.

**H1-3:** Customer awareness of assortment based on CRM increases customer satisfaction.

As mentioned above, reward points produce an effect mainly by offering an economic incentive, whereas selective promotion and assortment based on CRM work mainly through reduction of processing costs and enabling ease of purchase. Accordingly, brand loyalty and variety-seeking behavior are the focus here as contingent factors because they differentiate the mechanism of creating customers’ consideration sets (Brisoux & Laroche, 1981) before and during a purchase (Hauser & Wernerfelt, 1990), which should affect the effect of each CRM activity.

Customers with some loyal brand are expected to have established consideration sets in their memory before and during purchase (Broniarczyk, Hoyer, & McAlister, 1998), i.e., they have already found the products to buy. Therefore, the effect of selective promotion and assortment based on CRM, through reducing processing costs, does not work for these customers. On the other hand, because reward points offer an economic incentive as an alternative to providing discount for their loyal brand is expected to be apparent. These lead to the following hypothesis:

**H2:** The effect of reward points on SOW and expenditure is enhanced, particularly for customers with brand loyalty.

Customers who exhibit variety-seeking behavior are expected to create their consideration sets from emergent cues, rather than have established ones. Therefore, because CRM data allows retailers to know those customers’ potential demands, appropriate selective promotion and tailored assortment based on CRM data assist these customers in creating their consideration sets (Hauser & Wernerfelt, 1990). However, it is difficult for reward points to create consideration sets for customers who are relatively unsure of what to buy. Therefore, the effect of selective promotion and assortment based on CRM is demonstrated to be particularly effective for customers who exhibit variety-seeking behavior, whereas the effect of reward points is not as evident.

**H3** maintains that certain circumstances can serve to further strengthen the effect of each CRM activity. Study 1 indicates that customers with variety-seeking behavior tend to buy the recommended items regardless of its price. That is, these CRM activities promote unplanned purchases, especially among customers with variety-seeking behavior. Additionally, these CRM activities should also increase their customer satisfaction by providing them with a purchase experience in line with their preferences. Therefore, variety-seeking behavior is expected to have a significant contingent effect on selective promotion and assortment based on CRM data in terms of expenditure and customer satisfaction. However, variety-seeking behavior is unlikely to further increase SOW simply by promoting unplanned purchases because variety-seeking behavior also appears in other grocery stores. This leads to the following hypotheses:

**H3-1a:** The effect of selective promotion on expenditure is enhanced among customers with variety-seeking behavior.

**H3-1b:** The effect of selective promotion on customer satisfaction is enhanced among customers with variety-seeking behavior.

**H3-2a:** The effect of assortment based on CRM data on expenditure is enhanced among customers with variety-seeking behavior.

**H3-2b:** The effect of assortment based on CRM data on customer satisfaction is enhanced among customers with variety-seeking behavior.

5 STUDY 2: QUANTITATIVE RESEARCH

5.1 Data collection

This study conducted an online survey among loyalty program members of the grocery store, as mentioned in Study 1. The survey was conducted in February 2015, targeting female loyalty program members aged 20 or more who shop at this grocery store normally at least once a month and who shop for household groceries most among households. The sample size is 363. Table 4 shows the characteristics of this sample.

5.2 Measurement

Seven-point scales are used to measure the awareness of
each CRM activity, customer satisfaction, variety-seeking behavior in purchasing groceries, evaluation of store characteristics, and price consciousness (see Appendix 1). Household income is measured using a 10-point scale, and brand loyalty is measured by whether customers are loyal to a certain brand of rice (1 = Yes, 0 = No; sample size is 134 and 229 respectively). Rice is considered one of the most appropriate items to measure brand loyalty because study 1 indicated that rice is a representative example of this effect and rice tends to be a frequent purchase for many customers. Variety-seeking is measured by customer’s general trend in purchasing groceries because it represents a customer’s volatile interest in products with wide ranges of categories by definition. Because the CRM effect is affected by evaluation of store characteristics (Taylor & Neslin, 2005), household income (Seiders et al., 2005), price consciousness (Mägi, 2003), and competitive loyalty program (Liu & Yang, 2009), these are adopted as the control variables.

This research focuses on behavioral loyalty according to existing research in retail, with a particular focus on SOW and expenditure as dependent variables because purchase behavior of customers in retail is usually relatively fluid (Leenheer et al., 2007; Mägi, 2003), and these metrics represent the direct effect on a firm’s bottom line (Liu, 2007). SOW represents breadth of a customer’s relationship with the retailer (Kumar et al., 2013), whereas expenditure directly represents repeat purchase behavior (Watson, Beck, Henderson, & Palmatier, 2015) and can therefore measure the effect on improvement in sales, which is difficult for SOW to measure (Kumar et al., 2013). Retailers aim to raise purchase amounts even if they cannot increase SOW because of customer’s fluid purchase behavior in retail. According to De Wulf, Odekerken-Schröder, and Iacobucci (2001), Demoulin and Zidda (2009), Mägi (2003), and Verhoef (2003), SOW and expenditure are measured subjectively. SOW is measured by the percentage of the amount purchased per month at this grocery store (0%–100%), whereas expenditure is measured by the amount purchased per month at this grocery store.

The variables of CRM activities are put through factor analysis (maximum likelihood estimation and promax rotation). As a result, three factors are retained (cumulative contribution: 81.9%). The first factor is interpreted as orientation to tailored assortment based on CRM data, the second as orientation to selective promotion, and the third as orientation to reward points. The factor scores of each factor are taken to indicate orientation to each CRM activity, and average scores are used for variables like customer satisfaction, variety-seeking behavior, and evaluation of store characteristics. Further, variety-seeking behavior, evaluation of store characteristics, and household income are standardized based on the average in order to prevent multicollinearity (Aiken & West, 1991).

5.3 Results

Table 5 presents the correlation between the independent variables; no strong correlation of over 0.7 is identified. In addition, the variance inflation factors of all variables in the regression analyses are under 4.0.

Regression analyses are adapted to verify the hypotheses according to Mägi (2003) and Taylor and Neslin (2005). Regression analyses are conducted with three CRM activities: brand loyalty, variety-seeking behavior, and interactions between each CRM activity and these contingent factors as independent variables: household income, evaluation of store characteristics, and competitive loyalty programs as control variables; and SOW, expenditure, and customer satisfaction as dependent variables, respectively. Table 6 presents these results. For variables where interaction effects are identified, we identify a simple slope of one independent variable (e.g., variety-seeking) at the level
of ±SD1 of the other independent variable (e.g., reward points) (Aiken & West, 1991, p. 13). With regard to interaction effect with brand loyalty, the scores for brand loyalty = 0 or 1 are indicated. The respective results are shown in Figure 2.

Supporting H1-1a, reward points are demonstrated to increase SOW (t = 6.208, p < .01) whereas they do not increase expenditure, therefore, H1-1b is not supported. As for H1-2, selective promotion increases customer satisfaction significantly at the 10% level (t = 1.741, p = .083 < .10). In addition, for H1-3, assortment based on CRM tends to increase customer satisfaction (t = 2.046, p < .05).

Table 5 Descriptive statistics and correlations

|                          | Mean | SD  | 1    | 2    | 3    | 4    | 5    | 6    | 7    |
|--------------------------|------|-----|------|------|------|------|------|------|------|
| 1 Awareness of Reward points | 0.00 | 0.99 |      |      |      |      |      |      |      |
| 2 Awareness of Selective promotion | 0.00 | 0.99 | .535 | **   |      |      |      |      |      |
| 3 Awareness of Assortment based on CRM | 0.00 | 0.99 | .352 | **   | .585 | **   |      |      |      |
| 4 Variety-seeking behavior | 0.00 | 1.03 | .074 | .176 | **   | .320 | **   |      |      |
| 5 Evaluation of store characteristics | −0.02 | 1.15 | .318 | **   | .405 | **   | .417 | **   | .250 |
| 6 Household income         | 0.00 | 1.42 | .008 | −.019| .047 | .043 | .053 |      |      |
| 7 Price consciousness      | 0.00 | 1.50 | .127 | *    | −.171 | **   | .160 | **   | .162 | .093 | .096 |
| 8 Competitive loyalty program | 0.00 | 1.88 | −.059| .002 | .133 | *    | .058 | −.027| .150 | *    | .274 |

** p < 1%, * p < 5%, † p < 10%

Table 6 Regression analyses results

| Dependent Variables | Behavioral Loyalty | Customer Satisfaction |
|--------------------|--------------------|-----------------------|
|                    | SOW                | Expenditure           |                     |
|                    | β      | t      | β   | t      | β   | t      | Hypothesis |
| Main effects       |        |        |     |        |     |        |            |
| Awareness of Reward points | .489  | 6.208 | **   | .116 | 1.411 |      | −.011 | −.200 | H1-1 |
| Awareness of Selective promotion | −.007 | −.075 |      | .055 | .582  |      | .114  | 1.741 | †    | H1-2 |
| Awareness of Assortment based on the CRM | −.050 | −.605 |      | .057 | .661  |      | .123  | 2.046 | *    | H1-3 |
| Brand loyalty (0 = No, 1 = Yes) | −.034 | −.643 |      | .052 | .941  |      | .006  | .163  |      |      |
| Variety-seeking behavior | .108  | 1.825 | *    | .053 | .861  | −.009| −.202 |      |      |
| Interaction effects  |        |        |     |        |     |        |            |
| Brand loyalty* Reward points | −.154 | −1.821 | †   | .219 | 2.483 | *    | .108  | 1.755 | †    | H2   |
| Brand loyalty* Selective promotion | .123  | 1.219 |      | −.213| −2.027| *    | −.086 | −1.173|      |      |
| Brand loyalty* Assortment | −.075 | −.919 |      | .027 | −.314 |      | −.047 | −.799 |      |      |
| Variety-seeking* Reward points | −.054 | −.863 |      | −.286| −4.398| **   | −.003 | −.071 |      |      |
| Variety-seeking* Selective promotion | −.076 | −.966 |      | .277 | 3.379 | **   | .023  | .409  | H3-1 |
| Variety-seeking* Assortment | .093  | 1.257 |      | .135 | 1.738 | †    | .001  | .014  | H3-2 |
| Control variables    |        |        |     |        |     |        |            |
| Evaluation of store characteristics | .163  | 2.544 | *    | .133 | 1.983 | †    | .706  | 15.151| **   |      |
| Household income     | −.145 | −2.761 | **   | .099 | 1.793 | †    | .012  | .303  |      |      |
| Price Consciousness  | −.239 | −4.206 | **   | −.190| −3.206| **   | −.054 | −1.300|      |      |
| Competitive Loyalty Program | −.091 | −1.646|      | −.031| −.541 |      | −.033 | −.810 |      |      |
| F                   | 8.613 | **    | 6.453| **   | 31.126| **   |      |      |      |
| adj. R²             | .300  | .234  | .629 |      |      |      |      |      |      |

** p < 1%, * p < 5%, † p < 10%
Supporting H2, the effect of reward points on expenditure increases when customers have brand loyalty ($t = .2483, p < .05, \text{Figure 2-A}$). As for SOW, H2 is not supported because the result shows the tendency for reward points to significantly decrease SOW among customers with brand loyalty at the 10% level ($t = -1.821, p < .10$). It is shown that the effect of selective promotion on expenditure rises, particularly for customers with high variety-seeking behavior ($t = 3.379, p < .01, \text{Figure 2-B}$). Thus, H3-1a is supported. Similarly, H3-2a is supported at the 10% level ($t = 1.738, p = .083 < .10, \text{Figure 2-C}$). Likewise, the effects of assortment based on CRM on expenditure become greater particularly for customers with high variety-seeking behavior. However, H3-1b and H3-2b are not supported regarding these effects on customer satisfaction.

**Figure 2** Results of simple slope analyses

6 **DISCUSSION**

This study clarifies how respective CRM activities contribute differently to creation of SOW, expenditure, and customer satisfaction, considering the influence of brand loyalty and variety-seeking behavior.

H1-1a indicates that reward points enhance SOW. Reward points refer to the reward point program which offers a reward for loyalty mainly based on economic incentives, according to existing research (Liu & Yang, 2009; Verhoef, 2003) and Study 1. The sense of benefit that reward points produce has an immediate effect (Henderson et al., 2011) on SOW, whereas it does not enhance customer satisfaction.

Contrary to H1-1b, the results show reward points do not
enhance expenditure. One possible reason for the different result between SOW and expenditure is as follows. Reward points function as an incentive to buy at the retailer on particular days. Customers, however, do not necessarily purchase greater amounts than necessary simply to obtain reward points, considering that total expenditure on groceries for each household cannot exceed a certain range. This study measures awareness of reward points by awareness of the day upon which customers can receive triple or quintuple the number of points. Such a program-related factor (Liu & Yang, 2009) may result in improving only SOW.

Additionally, H1-3 indicates that assortment based on CRM mainly affects customer satisfaction. H1-2 indicates the same tendency for selective promotion, with the results significant at the 10% level. CRM can also contribute to create customer satisfaction (Mithas et al., 2005).

Although H1-1 through H1-3 indicate that each CRM activity alone cannot improve expenditure, taken together, they can contribute to increasing expenditure, considering the heterogeneity of customers. It is verified that the effect of reward points on expenditure is enhanced when customers have particular brands to which they are loyal, as per the result of H2. Point rewards may promote to buy those loyal brands more on 3- or 5-times-point days than on normal days, especially in case of high-priced products such as rice. Therefore, it may be necessary to pay more attention to customer’s brand loyalty to high-priced products, not just to all products.

As for SOW, this effect was opposite with significance at the 10% level. One possible reason is that customers use several stores according to a range of criteria, such as by day or by item. The switching cost of reward points is extremely low in retail (Meyer-Waarden & Benavent, 2009). Even if customers shop at the studied store to buy their favorite brand on days when they can obtain many points, they are likely to go to other stores on other days. As indicated by Fact 8 in Study 1, reward points urge the purchase of specific brands as a substitute for a discount. Although this effect encourages expenditure at this store, the same effect may be realized in other stores that also offer reward points.

Furthermore, selective promotion increases expenditure among customers with variety-seeking behavior, as seen from the results of H3-1a, a tendency also identified by the analysis on H3-2a at the 10% level of significance. Customers with variety-seeking behavior do not have established consideration sets, but often create them with some cues for purchase. These CRM activities can effectively assist in the purchase process of such customers and promote unplanned purchases, which results in enhancing their expenditure.

Regarding the effect of selective promotion and assortment based on CRM data on customer satisfaction, H3-1b and H3-2b are not supported. Selective promotion and assortment based on CRM data have main effects on customer satisfaction, as the results of H1-2 and H1-3 indicate. The results of H3-1b and H3-2b indicate that the selective promotion and assortment based on CRM data influence customer satisfaction regardless of the extent of variety-seeking behavior. On the other hand, variety-seeking behavior positively influences the effects of these CRM activities on expenditure, as H3-1a and H3-2a indicate. Previous research suggests that repeat purchase behavior in a store is not necessarily accompanied by a positive overall evaluation for the store (Puccinelli et al., 2009, p. 21). Considering that variety-seeking has been defined as a fluid purchase behavior with constant purchase exploration (Hoyer & Ridgeway, 1984), the role of variety-seeking behavior may vary across different aspects of consumer behavior.

As additional results, this study indicates that the effect of selective promotion on the expenditure is particularly increased for customers without brand loyalty (t = −2.027, p < .05, Figure 2-D). Unplanned purchases due to selective promotion should be also promoted effectively to these customers, as with H3-1a, considering brand loyalty is the antithesis of variety-seeking behavior (Peter & Olson, 2008). Unlike H3-2a, this effect by assortment based on CRM data is not verified. This may imply that the effect cannot be obtained unless the recommendations concern specific products and are aimed at individual customers in case of such an ambiguous customer characteristics as “without” brand loyalty. This study also indicates that the effect of reward points on expenditure becomes greater particularly for customers without variety-seeking behavior (t = −4.398, p < .01, Figure 2-E). This may indicate that these customers also make purchases on 3- or 5-times-point days frequently because they have some established consideration sets, as with H2.

7 CONCLUSION

7.1 Implications and contributions

The first theoretical implication of this study is its verification of the difference in the effect of multiple CRM activities in retail. Existing research has mainly verified the effect of implementing CRM or the effect of reward points. Therefore, difference in effects have remained unclear, although some research points out that the merit of CRM should not be limited to the effect of reward points (Liu & Yang, 2009, p. 106). This study verifies that selective
promotion and assortment based on CRM data directly enhance customer satisfaction, whereas reward points enhance SOW. Considering that customer satisfaction is an important factor in retaining customer loyalty (Kumar et al., 2013; Mittal & Kamakura, 2001; Oliver, 1999), those CRM activities in retail other than reward points indirectly contribute to creating customer loyalty. This study could not identify the effect of reward points on expenditure. It is necessary to verify this effect through further research at different retailers because it may reflect program-related factors such as point structure (Liu & Yang, 2009, p. 95).

The second contribution of this study is to identify brand loyalty and variety-seeking behavior as new contingent factors of CRM and verify that these factors enhance the effect of respective CRM activities in different ways. Existing research has indicated the necessity to further explore the contingent factors that make CRM activities more effective (Liu & Yang, 2009, p. 97; Meyer-Waarden, 2007, p. 234). Additionally, the influence of contingent factors on other CRM activities besides issuing reward points has not been explicitly verified. This study has identified the influence of these factors from the point of view of consideration sets before and during purchase. Brand loyalty and variety-seeking behavior are valuable factors that can make CRM more effective.

This study has some managerial implications. This study indicates that reward points increase SOW, whereas they do not increase the expenditure. Therefore, retailers should increase expenditure by promoting SOW because it should be difficult to increase the expenditure by reward points alone.

This study also verifies the different effects of multiple CRM activities. Retailers can revitalize their merchandising efforts, such as assortment, in addition to reward points. The results imply that a cross-functional approach in CRM contributes to improving CRM productivity (Jayachandran et al., 2005; Mithas et al., 2005; Parvatiyar & Sheth, 2001). Brand loyalty and variety-seeking behavior are important contingent factors of CRM. Retailers can identify a customer’s loyal brand and their level of variety-seeking behavior by their CRM data. Data mining focusing on these two factors should contribute to improving the effectiveness of CRM.

Regarding brand loyalty, retailers should aim to tie reward points to brands to which customers are loyal. Because brand loyalty is a relational asset of manufactures, it does not necessarily amount to store loyalty for specific retailers. However, reward points can link brand loyalty to store loyalty.

Furthermore, retailers can offer an alternative to price discounts to enhance expenditure by identifying brands to which customers are loyal. Given that price discounts can often create conflict with suppliers, the integration of reward points with brand loyalty can prevent such a conflict and may lead to a cooperative relationship with suppliers by sharing CRM data (Mithas et al., 2005).

### 7.2 Limitations

This research also has some limitations. First, because it does not use panel data, the result may be different from actual effects. We should pay attention to possible differences from results based on real response in the interpretations of this study’s findings. Verification with panel data should be carried out to precisely understand the actual effect.

Second, in terms of the theoretical framework, possible interaction effects of respective CRM activities should be discussed further in future research. It is also necessary to investigate the difference in the moderating effect of variety-seeking behavior on expenditure and customer satisfaction. Considering also that the main effect of variety-seeking behavior on SOW is significant, further study is needed to explore more comprehensively the influences of variety-seeking behavior on different aspects of consumer behavior.

Third, this research also has limitation in terms of measurement. Although it measures brand loyalty by the existence of loyal brands of rice, which is the representative field to verify the CRM effect based on Study 1, we should pay attention to interpretations and generalization of the research result. There is still room for further discussion regarding other variables. It should be verified with other fields as well.

Finally, this research leaves room for interpretations of the results. For example, the interaction effect of brand loyalty to SOW and the main effect of reward points upon expenditure have not received empirical support. Other factors such as the tendency of bulk purchase, program-related factors, and competition-related factors, which are not controlled in this research, may exert potential influence. This study chose the research site by careful theoretical sampling, but the results presented here should be verified using data from other loyalty programs (Liu & Yang, 2009). We should also be careful because the $R^2$ of the model with SOW and expenditure is relatively low. Comprehensive verification should involve development of a comprehensive model of integrated CRM in retail.

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FOOTNOTE

1) This research hypothesizes that CRM activities have an effect because they work on the cognitive process of consideration sets in customer’s purchasing process, according to study 1. Taylor & Neslin (2005) also focus on the customer’s cognitive process to explain the effect of reward points (p. 295). And Demoulin & Zidda (2009) and De Wulf et al. (2001) assess the focal CRM activity by subjective measures.

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## Variables

### Independent Variables

| # | Measures                                                                                                                                                                                                 | Reference                                                                                      | α   |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------|
| 1 | I consider reward points (the day I can receive 3 or 5 times points) in this grocery store when I purchase.                                                                                                   | Demoulin & Zidda (2009)                                                                          |      |
|   | I consider reward points (same as above) in this grocery store when I make decision on the products to buy.                                                                                                  | De Wulf et al. (2001)                                                                           |      |
|   | I evaluate reward points (same as above) in this grocery store.                                                                                                                                              | Demoulin & Zidda (2009), De Wulf et al. (2001), Seiders et al. (2005)                           |      |
| 2 | I refer to receipt coupons (the coupons on recommended items that are sometimes printed on the top of receipt).                                                                                               | Demoulin & Zidda (2009), De Wulf et al. (2001), Seiders et al. (2005)                           |      |
|   | I find products to buy based on receipt coupons (same as above).                                                                                                                                              | Demoulin & Zidda (2009), De Wulf et al. (2001), Seiders et al. (2005)                           |      |
|   | I can find suitable products for my family from receipt coupons (same as above).                                                                                                                              | Demoulin & Zidda (2009), De Wulf et al. (2001), Seiders et al. (2005)                           |      |
|   | I evaluate receipt coupons (same as above).                                                                                                                                                                  | Demoulin & Zidda (2009), De Wulf et al. (2001), Seiders et al. (2005)                           |      |
| 3 | I refer to displays that propose menu and menu recommendations (recipe proposals at the entrance or beside displays) in this grocery store.                                                              | Demoulin & Zidda (2009), De Wulf et al. (2001), Seiders et al. (2005)                           |      |
|   | I find the products to buy and decide the menu by referring to displays (same as above).                                                                                                                    | Demoulin & Zidda (2009), De Wulf et al. (2001), Seiders et al. (2005)                           |      |
|   | I can find suitable products for my family from displays (same as above).                                                                                                                                  | Demoulin & Zidda (2009), De Wulf et al. (2001), Seiders et al. (2005)                           |      |
|   | Displays (same as above) help me find suitable products for my family.                                                                                                                                      | Demoulin & Zidda (2009), De Wulf et al. (2001), Seiders et al. (2005)                           |      |
|   | I evaluate displays (same as above).                                                                                                                                                                          | Demoulin & Zidda (2009), De Wulf et al. (2001), Seiders et al. (2005)                           |      |

### Dependent Variables

| # | Measures                                                                                                                                                                                                 | Reference                                                                                      | α   |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------|
| 1 | What percentage of your total purchase is the purchase in this grocery store per month?                                                                                                                   | Demoulin & Zidda (2009), Mägi (2003)                                                          |      |
| 2 | How much do you usually spend in this grocery store per month?                                                                                                                                             | Demoulin & Zidda (2009)                                                                          |      |
| 3 | I am satisfied with this grocery store.                                                                                                                                                                      | Mägi (2003), Gustafsson et al. (2005)                                                          | 730  |
|   | This grocery store matches my expectations.                                                                                                                                                                 | Mägi (2003), Gustafsson et al. (2005)                                                          |      |
|   | This grocery store is close to my ideal grocery store.                                                                                                                                                       | Mägi (2003), Gustafsson et al. (2005)                                                          |      |

### Contingent Variables

| # | Measures                                                                                                                                                                                                 | Reference                                                                                      | α   |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------|
| 1 | I have a particular rice brand that I usually purchase (unlimited to the purchase in this grocery store).                                                                                                   | Donthu & Garcia (1999)                                                                          | 888  |
| 2 | I like to try different things in purchasing grocery (same as above).                                                                                                                                     | Donthu & Garcia (1999)                                                                          |      |
|   | I like a great deal of variety (same as above).                                                                                                                                                             | Donthu & Garcia (1999)                                                                          |      |
|   | I like new and different styles (same as above).                                                                                                                                                            | Donthu & Garcia (1999)                                                                          |      |
| 3 | What is your family income?                                                                                                                                                                                 | Taylor & Neslin (2005)                                                                          |      |
|   | I evaluate the variety of this grocery store.                                                                                                                                                              | Taylor & Neslin (2005)                                                                          |      |
|   | I evaluate the freshness of this grocery store.                                                                                                                                                             | Taylor & Neslin (2005)                                                                          |      |
|   | I evaluate the regular prices of this grocery store.                                                                                                                                                         | Taylor & Neslin (2005)                                                                          |      |
|   | I evaluate the specials of this grocery store.                                                                                                                                                              | Taylor & Neslin (2005)                                                                          |      |
|   | I evaluate the location of this grocery store.                                                                                                                                                              | Taylor & Neslin (2005)                                                                          |      |
|   | I evaluate the cleanliness of this grocery store.                                                                                                                                                           | Taylor & Neslin (2005)                                                                          |      |
| 4 | I always search the stores that sell bargain priced goods before I make a purchase grocery (unlimited to the purchase in this grocery store).                                                                 | Mägi (2003), Demoulin & Zidda (2009)                                                           | 862  |
|   | I always compare stores for price in purchasing grocery (same as above).                                                                                                                                   | Mägi (2003), Demoulin & Zidda (2009)                                                           |      |
|   | I always decide on the store at which to purchase with a great deal of account for the lowest price (same as above).                                                                                          | Mägi (2003), Demoulin & Zidda (2009)                                                           |      |

### Control Variables

| # | Measures                                                                                                                                                                                                 | Reference                                                                                      | α   |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------|
| 1 | Household income                                                                                                                                                                                           | Taylor & Neslin (2005)                                                                          |      |
| 2 | Evaluation of store characteristics                                                                                                                                                                          | Taylor & Neslin (2005)                                                                          | 906  |
|   | Price consciousness                                                                                                                                                                                        | Taylor & Neslin (2005)                                                                          |      |
|   | Competitive loyalty program                                                                                                                                                                                 | Taylor & Neslin (2005)                                                                          |      |
|   | How many point cards of grocery stores (other than this grocery store) do you have?                                                                                                                      | Mayer-Waarden & Benavent (2009)                                                                 |      |