# DETERMINING CONSUMER-BASED RETAILER EQUITY AND THE DISCRIMINATION OF FREQUENT SHOPPERS: AN EMPIRICAL STUDY

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## ABSTRACT

*The concept of retailer equity was derived from the concept of brand equity, based on the premise that, similar to brands, retailers possess "equity." Retailer equity was identified as the differential effect of retailer knowledge on customer response to the marketing of the retailer. It is an important concept since it can be a source of competitive advantage for retailers. This study determines the retailer equity perceptions of frequent and less-frequent shoppers and puts forward the discriminating variables between them through their perceptions. In the study, confirmatory factor analysis and discriminant analysis were used. As a result it was found that frequent shoppers do differ from less-frequent shoppers regarding their retailer equity perceptions and they have more positive perceptions for retailer equity dimensions.*

*Key words: consumer-based retailer equity, shopping frequency, confirmatory factor analysis, discriminant analysis.*

## TÜKETİCİ TEMELLİ PERAKENDE DEĞERİNİN BELİRLENMESİ VE SIK ALIŞVERİŞ YAPAN TÜKETİCİLERİN AYRIMI: AMPİRİK BİR ÇALIŞMA

### ÖZET

*Perakendeci değeri kavramı, marka değeri kavramından türetilmiştir ve markalara benzer şekilde perakendecilerin de bir "değer" sahibi olduğu görüşüne dayanmaktadır. Perakendeci değeri, perakendeci bilgisinin, perakendecinin pazarlama faaliyetlerine ilişkin olarak gelişen tüketici tepkisi üzerindeki farklılaştırıcı etkisi olarak tanımlanmaktadır. Perakendeci değeri, perakendeciler için bir rekabet avantajı kaynağı olmasından dolayı önemli bir kavramdır. Bu çalışmada sık ve seyrek alışveriş yapanların perakendeci değeri algılamalarının tanımlanması ve algılamalarına ilişkin olarak aralarındaki ayırıcı değişkenlerin belirlenmesi amaçlanmaktadır. Çalışmada, tanımlayıcı*

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*faktör analizi ve diskriminant analizi kullanılmıştır. Sonuç olarak sık alışveriş yapanların seyrek alışveriş yapanlardan perakendeci değeri algılamaları temelinde farklılaştıkları ve perakendeci değeri boyutlarına ilişkin olarak daha olumlu algılamalara sahip oldukları bulunmuştur.*

***Anahtar kelimeler: tüketici temelli perakendeci değeri, alışveriş sıklığı, tanımlayıcı faktör analizi, diskriminant analizi.***

Today, retailers face a challenging marketing environment in the form of more demanding consumers, intensified competition and slow-growth market. Retail sales represent a declining share of consumer expenditures (Pappu and Quester, 2006). Today's business is about creating and delivering value to the consumer. In this environment building "equity" is an important strategic issue for retailers. Therefore, understanding the perceptions and subjective evaluations of consumers for the retailer is not only a check point in controlling marketing efforts, but also a tool for developing new strategies. In that manner, retailer equity is an important source of competitive advantage for retailers.

Retailer equity is a newly emerging concept. It was derived from brand equity. In relation with Keller's (1993) definition of brand equity, retailer equity is defined as "the differential effect of retailer knowledge on customer response to the marketing of the retailer." It is the incremental utility or value added to a store by its name. This phenomenon has recently attracted the attention of both practitioners and marketing researchers.

In this study, retailer brand equity is conceptualized from a consumer perspective. Consumer-based retailer equity is defined similar to how Aaker (1991) describes it, as "the value consumers associate with a retailer, as reflected in the dimensions of: retailer awareness, retailer associations, retailer perceived quality and retailer loyalty" (Pappu and Quester, 2006: 5). These consumer-based retailer equity dimensions were derived from the four brand equity dimensions.

Although the shopping trip is one of the most basic elements of consumer behavior, it has attracted relatively little attention (Bawa and Ghosh, 1999). Among the most important factors influencing a household's shopping frequency are household size, shopper's age and time availability (Blaylock, 1989). Considering store traffic as the most important metric for retailers' successful operation, retail managers are interested in identifying frequent shoppers. Most of the previous research on shopping trips has attempted to investigate the relationship between shopping frequency and shoppers' demographic characteristics (Kim and Park, 1997; Bawa and Ghosh, 1999). In addition, shopping frequency was taken into consideration as one of the two dimensions of retail patronage behavior (Pan and Zinkhan, 2006).

The objective of this study is to determine perceptions of frequent and less-frequent shoppers on retailer equity, and to identify the discriminating variables between them regarding their perceptions. Through that, it was aimed to provide a perspective for retailer equity in relation with shopping frequency.

## CONCEPTUAL MODEL AND RESEARCH HYPOTHESIS

Consumer-based brand equity is defined as the differential effect of brand knowledge on consumer response to the marketing of the brand (Keller, 1993). That definition includes three important concepts: (1) differential effect, (2) brand knowledge, and (3) consumer response to marketing. Therefore,

a brand is said to have positive (negative) customer-based brand equity if consumers react more (less) favorably to the product, price, promotion, or distribution of the brand than they do to the same marketing mix element when it is attributed to a fictitiously named or unnamed version of the product or service. (Keller, 1993: 8)

Consumer-based retailer equity emerged from the consumer-based brand equity. In relation to the brand equity definition of Keller (1993), retailer equity is defined as "the differential effect of retailer knowledge on customer response to the marketing of the retailer" (Hartman and Spiro, 2005). In other words, retailer equity is the attached value endowed by a retailer name to a store (based on Farquhar, 1989).

Consumer-based retailer equity, like brand equity, is a multi-dimensional concept including retailer awareness, retailer associations, service quality, and store loyalty (Pappu and Quester, 2006; Arnett, et al., 2003).

*Retailer awareness:* Retailer awareness is the informational node associated with the retailer name. It is important because it represents the ability to identify the store under different conditions (Hartman and Spiro, 2005). In decision-making it plays a critical role as it reflects the consideration set of the consumer and influences the formation and strength of a store association in store image. In conceptualizing brand equity, awareness and associations were treated as a combined dimension; however, in conceptualizing retailer equity both were considered as distinct dimensions (Pappu and Quester, 2006; Arnett et al., 2003).

*Retailer associations:* Brand associations can be classified in three major categories: attributes, benefits and attitudes. The success of a marketing program can be evaluated through the creation of favorable associations (Keller, 1993). The concept of "retailer associations" is defined as "anything linked to the memory of the retailer" (Pappu and Quester, 2006: 320). There are again different approaches in conceptualizing retailer associations. Arnett et al. (2003) define retailer associations related to "product quality" and "perceived value," while Pappu and Quester (2006) define them on the basis of "retailer image." In this study, both approaches were taken into consideration since including more indicators improves the conceptualization of retailer association (Pappu and Quester, 2006).

*Retailer perceived quality:* In general, quality is "superiority" or "excellence." In that sense, perceived quality is determined as the judgments of consumers in relation to the general excellence or superiority of the product (Zeithaml, 1988). Retailer perceived quality, as different from the objective quality, is the perception of quality of the retailer according to the consumer. In that sense, retailer perceived quality also includes the perception of quality of goods and services (Pappu and Quester, 2006).

*Retailer loyalty:* Retailer loyalty is defined by Pappu and Quester (2006: 320) as "the tendency to be loyal to a focal retailer as demonstrated by the intention to buy from the retailer as a primary choice." It has been conceptualized as an interaction of attitude and behavior (Samuelson and Sandvik, 1997). Loyal customers require less persuasion and they are more likely to recommend an organization or its products to other potential customers. In addition, the retention of existing customers acts as a significant barrier to new companies entering the market (Christopher and McDonald, 1985).

In the literature there are two measurement models developed for retailer equity: one is built on the basis of brand equity (Pappu and Quester, 2006), and the other is built on developing a retailer equity index (Arnett et al., 2003). In both measurement approaches, consumer-based retailer equity is taken as a multi-dimensional concept.

Shopping frequency is an important indicator in retailing. It is affected by income, age, education, gender, race, marital status, travel time, store attitude, store image, product quality, selection, price, store atmosphere and service (Darden and Lumpkin, 1984; Darley and Lim, 1993; Kargaonkar et al., 1985). Since it represents how often a shopper patronizes a particular store (Pan and Zinkhan, 2006), shopping frequency is defined as a dimension of retail patronage behavior, which is the consumer's tendency to concentrate visits on the same retailer institution (Bellenger and Moschis, 1982). To understand the consumer's patronage patterns is important since it involves the exploration of the psychological and behavioral aspects of the activity of shopping.

Retailer patronage behavior is positively related to general attitude toward a store, which probably has a direct affect on store-specific quality perceptions (MacKenzie and Lutz, 1989). In addition, previous studies have revealed a strong association between retail image and frequency of visit (Haynes and Talpade, 1996) and re-patronage intention (Wakefield and Baker, 1998). Image is expressed as a function of the salient attributes of a particular store that are evaluated and weighted against each other (Bloemer and Ruyter, 1998). Retail image to "equity." Customers' patronage behavior towards a particular store is dependent on their image of that particular store (Osman, 1993).

Most of the previous studies have investigated the relationship between shopping frequency and shoppers' demographic characteristics and retail patronage behaviour. In this study, it was aimed to determine the differing perceptions of frequent shoppers and less frequent shoppers on retailer equity. Through that, the research hypotheses were developed as follows:

> $H_1$: Frequent and less-frequent shoppers do discriminate on the basis of consumer-based retailer equity dimensions.

> $H_{1a}$: The derived discriminant function produces more accurate classification than random classification.

## MEASUREMENT AND DATA COLLECTION

The consumer-based retailer equity scale was developed through the studies of Arnett et al. (2003), Pappu and Quester (2006), and Laczniak et al. (2003). In total 27 variables were included in the study. In addition to consumer-based retailer equity, the shopping frequency of the consumers was measured by a multiple-choice question.

In the study the data were collected from 468 consumers through face-to-face interview. The socio-demographic characteristics of the respondents are given in Table 1.

**Table 1**
**The Socio-demographic Characteristics of the Respondents**

| Age | N | % | Occupation | n | % |
|---|---|---|---|---|---|
| 20-24 | 24 | 5.1 | Civil servant | 74 | 15.8 |
| 25-29 | 28 | 5.9 | House wife | 106 | 22.7 |
| 30-34 | 60 | 12.9 | Student | 17 | 3.6 |
| 35-39 | 98 | 21.0 | Merchant | 8 | 1.7 |
| 40-44 | 154 | 32.9 | Labor | 48 | 10.3 |
| 45-49 | 54 | 11.6 | Retired | 20 | 4.3 |
| 50-54 | 32 | 6.8 | Entrepreneur | 59 | 12.6 |
| 55 and above | 18 | 3.8 | Other | 136 | 29.0 |
| **Total** | **468** | **100.0** | **Total** | **468** | **100.0** |
| **Income Level (USD)** | **N** | **%** | **Gender** | **n** | **%** |
| 1.000 USD and below | 164 | 35.1 | Female | 167 | 35.7 |
| 1.001-2.000 USD | 197 | 42.0 | Male | 301 | 64.3 |
| 2.001 USD and above | 107 | 22.9 | | | |
| **Total** | **468** | **100.0** | **Total** | **468** | **100.0** |

Retailer equity was measured for a conventional supermarket chain. A conventional supermarket is a self-service food store offering groceries, meat, and produce with limited sales of nonfood items, such as health and beauty aids and general merchandise. Half of the conventional supermarkets offer promotions on a regular basis. One day each week they advertise that week's sale items in local papers (Levy and Weitz, 2005). The chosen supermarket is a chain store and operates nationwide.

In the study, first of all, an exploratory factor analysis was conducted. The purpose of the exploratory factor analysis is to explain whether items are loaded correctly to the corresponding factors as identified by previous research. Since in this present study indicators were taken through the retailer equity literature, whether they loaded correctly to the corresponding dimension was tested by exploratory factor analysis. Then a confirmatory factor analysis was used to determine the dimensions of retailer equity. After determining the dimensions of retailer equity, in order to identify the discriminating variables between the frequent and less-frequent shoppers, a two-group discriminant analysis was run. For the statistical analysis, the statistical packages AMOS 6.0 and SPSS 13.0 were used.

## RESEARCH FINDINGS

**Consumer-Based Retailer Equity**

In the study, first of all, the validity of the retailer equity scale was assessed. Hence, the exploratory factor analysis with varimax rotation was run and 13 variables were dropped from the scale and 14 variables were obtained.

After that, to test the multi-dimensionality of consumer-based retailer equity, a confirmatory factor analysis by using structural equation modeling was conducted. Confirmatory factor analysis is used to confirm a pre-specified relationship (Hair et al., 1998). The objective of the confirmatory factor analysis is to verify empirically the factor structures and to determine the fit of the hypothesized factor model (Sharma, 1996). The confirmatory factor model of the study is given in Figure 1.

As can be seen from Figure 1, three indicator variables were available for the retailer awareness dimension, four indicator variables were available for the retailer associations dimension, four indicator variables were available for the retailer loyalty dimension and three indicator variables were available for the retailer perceived quality dimension. The confirmatory model was not so different from the retailer equity scale developed by Pappu and Quester (2006), there was one variable less in retailer associations.

**Figure 1**
**The Confirmatory Factor Model**
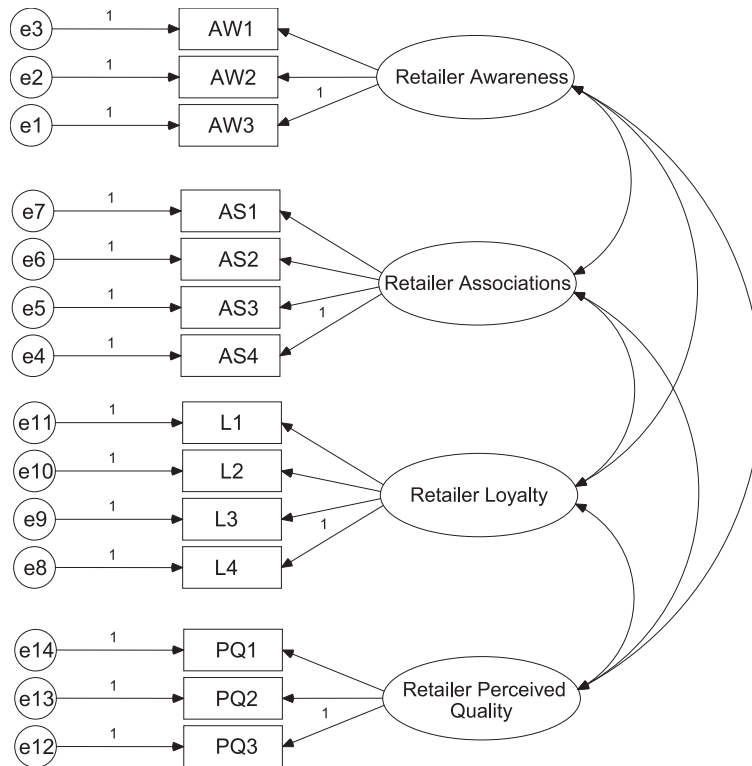


The number of variables included in the confirmatory model was 32. Fourteen of them were the observed variables while 18 of them were the unobserved variables. The model included 18 exogenous and 14 endogenous variables in sum.

**Table 2**
**Fit Measures**

| Fit Measures | Measurement Model | Ideal Model | |
|---|---|---|---|
| Discrepancy ($\chi^2$) | 263.025 | 0.000 | CMIN |
| Degrees of Freedom | 71 | 0 | DF |
| P | 0.000 | | P |
| Discrepancy / df ($\chi^2$/df) | 3.705 | | CMINDF |
| Root Mean Square | 0.055 | 0.00 | RMR |
| Goodness of Fit Index | 0.924 | 1.000 | GFI |
| Adjusted GFI | 0.888 | | AGFI |
| Normed Fit Index | 0.933 | 1.000 | NFI |
| Relative Fit Index | 0.914 | | RFI |
| Incremental Fit Index | 0.950 | 1.000 | IFI |
| Tucker-Lewis Index | 0.936 | | TLI |
| Comparative Fit Index | 0.950 | 1.000 | CFI |
| RMSEA | 0.076 | | RMSEA |
| Hoelter .05 Index | 163 | | HFIVE |
| Hoelter .01 Index | 181 | | HONE |

In Table 2, the goodness of fit measures through the results of the confirmatory factor analysis can be seen. In evaluating the goodness-of-fit between the model and the data the first measure is the likelihood ratio chi-square statistics. This value has a statistical significance (p=0.000). The chi-square statistics alone, however, are not enough to conclude that the fitness since chi-square is sensitive to the sample size. Therefore, other fitness measures were checked. The discrepancy/df was found as 3.705, which was between the required range (1< $\chi^2$/df <5). In addition, GFI (0.924), AGFI (0.888), NFI (0.933), RFI (0.914), IFI (0.950), TLI (0.936) and CFI (0.950), RMSEA (0.076) indicated that there was fitness between the data and the model. RMSEA considers the error of approximation in the population and asks the question "how well would the model, with unknown but optimally chosen parameter values, fit the population covariance matrix?" RMSEA is expressed per degree of freedom. Values less than .05 indicate good fit while values as high as .08 represent reasonable errors of approximation in the population. Values ranging from .08 to .10 indicate mediocre fit and those greater than .10 indicate poor fit. When the sample size is small, RMSEA tends to over- reject true population models (Byrne, 2006).

In the study, Hoelter .05 and Hoelter .01 indexes were also checked. Hoelter .05 represents the required minimum sample size to test the hypothesis at 95% confidence interval level and 0.05 significance level and Hoelter .01 represents the required minimum sample size to test the hypothesis at 99% confidence interval level and 0.01 significance level. As can be seen from Table 2, the sample size used in the study (468) was much larger than the required minimum sample sizes determined by Hoelter .05 (163) and Hoelter .01 (181) indexes.

Table 3 included the unstandardized regression coefficients of the consumer-based retailer equity constructs.

**Table 3**
**Unstandardized Regression Coefficients**

|  | Estimate | Std. Error | t- value | Sig. |
|---|---|---|---|---|
| AS4 <--- Retailer Associations | 1.000 |  |  |  |
| AS3 <--- Retailer Associations | 1.296 | .075 | 17.340 | 0.000 |
| AS2 <--- Retailer Associations | 1.206 | .076 | 15.812 | 0.000 |
| AS1 <--- Retailer Associations | 1.202 | .076 | 15.807 | 0.000 |
| L4 <--- Retailer Loyalty | 1.000 |  |  |  |
| L3 <--- Retailer Loyalty | 1.165 | .061 | 19.087 | 0.000 |
| L2 <--- Retailer Loyalty | 1.005 | .062 | 16.244 | 0.000 |
| L1 <--- Retailer Loyalty | 1.140 | .061 | 18.593 | 0.000 |
| PQ3 <--- Perceived Quality | 1.000 |  |  |  |
| PQ2 <--- Perceived Quality | 1.047 | .065 | 16.037 | 0.000 |
| PQ1 <--- Perceived Quality | 1.049 | .064 | 16.418 | 0.000 |
| AW3 <--- Retailer Awareness | 1.000 |  |  |  |
| AW2 <--- Retailer Awareness | .812 | .052 | 15.566 | 0.000 |
| AW1 <--- Retailer Awareness | .724 | .055 | 13.205 | 0.000 |

**Table 4**
**Standardized Regression Coefficients**

|  |  |  | Estimate |
|---|---|---|---|
| AS4 | <--- | Retailer Associations | .700 |
| AS3 | <--- | Retailer Associations | .878 |
| AS2 | <--- | Retailer Associations | .790 |
| AS1 | <--- | Retailer Associations | .790 |
| L4 | <--- | Retailer Loyalty | .757 |
| L3 | <--- | Retailer Loyalty | .860 |
| L2 | <--- | Retailer Loyalty | .743 |
| L1 | <--- | Retailer Loyalty | .839 |
| PQ3 | <--- | Perceived Quality | .788 |
| PQ2 | <--- | Perceived Quality | .757 |
| PQ1 | <--- | Perceived Quality | .776 |
| AW3 | <--- | Retailer Awareness | .819 |
| AW2 | <--- | Retailer Awareness | .689 |
| AW1 | <--- | Retailer Awareness | .600 |

The statistical significance of each estimated parameter is assessed by its t-value (Sharma, 1996). As can be seen in Table 3, all the parameter estimates were statistically significant at an alpha of .01. That is, the loadings of all the variables on the factors were significantly greater than zero.

In Table 4, the standardized regression coefficients are given. The standardized regression coefficients allow the researcher to compare directly the relative effect of each independent variable on the dependent variable (Hair et al., 1998). As seen in Table 4, the standardized regression coefficients had values ranging .600 and .878. That means the variables used to explain retailer equity had impact on retailer equity dimensions in differing degrees.

In the study, the correlations among the constructs were also tested. The correlation between constructs represents a "shared" influence. As seen in Table 5, the consumer-based retailer equity dimensions were correlated. It means there was a relationship among four of the retailer dimensions; retailer associations, retailer loyalty, retailer perceived quality and retailer awareness.

**Table 5**
**Covariance Values**

| | | Estimate | Std. Error | t-value | Sign. |
|---|---|---|---|---|---|
| Retailer Associations | <--> Retailer Loyalty | .541 | .057 | 9.471 | 0.000 |
| Retailer Associations | <--> Retailer Awareness | .657 | .065 | 10.171 | 0.000 |
| Retailer Loyalty | <--> Retailer Awareness | .895 | .080 | 11.169 | 0.000 |
| Perceived Quality | <--> Retailer Awareness | .599 | .062 | 9.685 | 0.000 |
| Retailer Loyalty | <--> Perceived Quality | .487 | .055 | 8.926 | 0.000 |
| Retailer Associations | <--> Perceived Quality | .514 | .052 | 9.909 | 0.000 |

In Table 6, the correlation matrix of the retailer equity dimensions is given. As seen in Table 6, the correlations among the variables were high and positive. Therefore, a change in one dimension affects the others in a positive way. The highest correlation was between retailer loyalty and retailer awareness as .901 and the second highest correlation was between the retailer association and retailer awareness as .807.

**Table 6**
**Correlation Values**

| | | | Estimate |
|---|---|---|---|
| Retailer Associations | <--> | Retailer Loyalty | .719 |
| Retailer Associations | <--> | Retailer Awareness | .807 |
| Retailer Loyalty | <--> | Retailer Awareness | .901 |
| Perceived Quality | <--> | Retailer Awareness | .701 |
| Retailer Loyalty | <--> | Perceived Quality | .617 |
| Retailer Associations | <--> | Perceived Quality | .794 |

In sum, through the analysis it was confirmed that retailer equity is a multidimensional concept. It is composed of retailer associations, retailer loyalty, retailer awareness and retailer perceived quality.

After determining the multidimensionality of retailer equity and the validity of the retailer equity scale, the discrimination between the frequent and less-frequent shoppers regarding retailer equity perceptions was sought.

**Discrimination of Frequent and Less-Frequent Shoppers**

In the study, in order to identify the discriminating variables between frequent and less-frequent shoppers, a discriminant analysis was used. Discriminant analysis is a useful technique in the examination of whether significant differences exist among the groups in terms of the predictor variables (Malhotra, 2004). The findings of the discriminant analysis are stated below:

As can be seen in Table 7, the eigenvalue of the canonical discriminant function was .508 and it accounted for 100 percent of the explained variance. The canonical correlation associated with this function was .580 and chi-square was significant at p= 0.000. The canonical discriminant function shows the multivariate aspects of the model. The discriminant function is also referred to as the canonical discriminant function, because discriminant analysis is a special case of canonical correlation analysis (Sharma, 1996).

**Table 7**
**Summary of Canonical Discriminant Functions**

| Function | Eigenvalue | Variance % | Cumulative% | Canonical Correlation |
|---|---|---|---|---|
| 1 | .508 | 100.0 | 100.0 | .580 |

The significance of the discriminant function was tested by Wilks' Lambda. As can be seen in Table 8, the discriminant function was found statistically significant. Wilks' Lambda value varies between 0 and 1. Large values of Wilks' Lambda (near 1) indicate that the group means do not seem to be different whereas small values of Wilks' Lambda indicate that the group means do seem to be different (Malhotra, 2004). It was concluded that frequent and less-frequent shoppers do discriminate on the basis of consumer-based retailer equity dimensions. That means the research hypothesis ($H_1$) was accepted.

**Table 8**
**Wilks' Lambda of the Discriminant Function**

| Test of Function | Wilks' Lambda | Chi-Square | df | Significant |
|---|---|---|---|---|
| 1 | .663 | 188.510 | 14 | 0.000 |

Table 9 includes the discriminating variables between two groups. Wilks' Lambda and univariate ANOVA were used to assess the significance between the means of independent variables for the two groups (Hair et al., 1998). These tests showed that the frequent and less-frequent shoppers did discriminate through all of the variables, except one, "X's merchandise is of low quality." There was no statistically significant difference between the groups regarding the perception of merchandise quality; however, frequent shoppers have a more positive perception compared to less frequent shoppers.

## Table 9
### Wilks' Lambda, F Values and Significant Variables

| | Wilks' Lambda | F | Sig. | Arithmetic Mean Frequent Shopper | Less-Frequent Shopper |
|---|---|---|---|---|---|
| **L1** I consider myself to be loyal to X stores | .784 | 128.738 | .000 | 3.39 | 2.13 |
| **L2** In my supermarket shopping X stores are my first choice | .707 | 192.686 | .000 | 3.92 | 2.42 |
| **L3** I will not buy from other retailers if I can buy the same item at X stores | .831 | 94.668 | .000 | 3.38 | 2.24 |
| **L4** Even when items are available from other retailers, I tend to buy from X stores | .807 | 111.112 | .000 | 3.46 | 2.24 |
| **AW1** I am aware of X stores | .912 | 45.016 | .000 | 3.73 | 2.93 |
| **AW2** I can recognize X stores among other competing stores | .909 | 46.909 | .000 | 3.84 | 3.05 |
| **AW3** Some characteristics of X stores come to mind quickly. | .949 | 25.168 | .000 | 3.63 | 3.04 |
| **PQ1** There is a high likelihood that products sold at X stores will be of extremely high quality | .930 | 34.863 | .000 | 3.91 | 3.25 |
| **PQ2** Overall, X sells high quality product merchandise | .939 | 30.516 | .000 | 3.80 | 3.21 |
| **PQ3** When shopping at X, I expect to see high quality merchandise | .920 | 40.702 | .000 | 3.84 | 3.16 |
| **AS1 X's merchandise is of low quality*** | **.999** | **.432** | **.511** | **3.69** | **3.61** |
| **AS2** I would consider the merchandise at X stores to be a good buy | .890 | 57.503 | .000 | .3.93 | 3.16 |
| **AS3** The prices at X stores are acceptable | .930 | 34.836 | .000 | 3.63 | 2.96 |
| **AS4** X stores merchandise offers value for money | .874 | 67.074 | .000 | 3.89 | 3.01 |

*AS1 was reverse coded.

In Table 10, the major variables are ordered by size of correlation within discriminant function. The structure matrix shows the discriminant loadings that represent the simple correlation between the predictors and the discriminant function. In the structure matrix the discriminant loadings are given as ordered from highest to lowest by the size of the loading.

In interpreting the results of the discriminant analysis, the interpretation was done on the discriminant loadings since they are more valid than weights. Generally, the variables exhibiting a loading of .30 or higher are considered substantive (Hair et al., 1998). As was stated in Table 10, all the variables except the perception on "low merchandise quality," contributed to the discrimination of the frequent and less-frequent shoppers. The best discriminating variable between the groups was retailer loyalty.

**Table 10**
**Structure Matrix**

|  | Function |
|---|---|
| **L2** In my supermarket shopping X stores are my first choice | .902 |
| **L1** I consider myself to be loyal to X stores | .738 |
| **L4** Even when items are available from other retailers, I tend to buy from X stores | .685 |
| **L3** I will not buy from other retailers if I can buy the same item at X stores | .632 |
| **AS4** X stores merchandise offers value for money | .532 |
| **AS2** I would consider the merchandise at X stores to be a good buy | .493 |
| **AW2** I can recognize X stores among other competing stores | .445 |
| **AW1** I am aware of X stores | .436 |
| **PQ3** When shopping at X, I expect to see high quality merchandise | .415 |
| **PQ1** There is a high likelihood that products sold at X stores will be of extremely high quality | .384 |
| **AS3** The prices at X stores are acceptable | .384 |
| **PQ2** Overall, X sells high quality product merchandise | .359 |
| **AW3** Some characteristics of X stores come to mind quickly | .326 |
| **AS1 X's merchandise is of low quality\*** | .043 |

*AS1 was reverse coded

The classifications ratio represents a validation of the discriminant function. In the study, the correct classification ratio of discriminant function was quite high (81%), as seen in Table 11.

**Table 11**
**The Classification Matrix**

| | | Frequent Shoppers | Less-frequent Shoppers | Total |
|---|---|---|---|---|
| **Predicted Group Membership** | | | | |
| **Original Group Membership** % | Frequent Shoppers | **101** | 49 | 150 |
| | Less-frequent Shoppers | 40 | **278** | 318 |
| | Frequent Shoppers | **67.3** | 32.7 | 100.0 |
| | Less-frequent Shoppers | 12.6 | **87.4** | 100.0 |

Classification ratio 81%

In order to assess the classification accuracy, it should have been put forward that the discriminant function classifies better than a random classification (Hair et al., 1998). Therefore, the hypothesis below was developed and tested through Morrison's likelihood analysis.

**H_{1a}:** The derived discriminant function produces accurate classification than a random classification.

Morrison's likelihood analysis provides a criterion that may be used to compare the proportion of correctly classified observations with the proportion expected by chance. This proportion was designated the proportional chance criteria and expressed as:

**Cpro** = p alpha + (1 - p) (1 - alpha) = [(150/468) (141/468)]+[(318/468) (367/468)] = 0.630
(**Alpha** = the proportion of customers in the sample categorized as purchasers, **p** = the true proportion of frequent shoppers in the sample, **(1-alpha)** = the proportion of the sample classified as less-frequent shoppers, **(1-p)** = the true proportion of less-frequent shoppers in the sample.

The classification ratio of discriminant function (0.810) was tested to see whether it differs significantly from proportional chance criterion (0.630).

$$H_0 : \Pi_0 = 0.630 \qquad H_a : \Pi_0 > 0.630 \qquad p = 0.810 \qquad n = 468$$

$$Z = \frac{P - \Pi_0}{\sigma_p} \quad \text{and} \quad \sigma_p = \sqrt{\frac{\Pi_0(1 - \Pi_0)}{n}}$$

$$Z = \frac{0.810 - 0.630}{\sqrt{\frac{0.630(1 - 0.630)}{468}}} = \frac{0.18}{0.0223} = 8.065$$

The calculated 8.065 value is bigger than the Z value at $\alpha = 0.01$ (2.33); therefore **H_{2a}** was accepted, meaning, the discriminant function classified frequent and less-frequent shoppers better than a random classification.

## CONCLUSION AND IMPLICATIONS

The principal objective of this study was to determine the discriminating variables between frequent and less frequent shoppers regarding retailer equity perceptions. In the study, the retailer equity was conceptualized as consumer-based retailer equity.

First of all, the validity of the scale was assessed using exploratory factor analysis and then the dimensions of retailer equity were tested by utilizing confirmatory factor analysis using structural equation modeling. As a result, it was found that the consumer-based retailer equity was a multi-dimensional concept including retailer awareness, retailer associations, retailer perceived quality and retailer loyalt, as stated in the literature. Unlike the study conducted by Pappu and Quester (2006), the retailer associations construct was explained through "X's merchandise is of low quality," "I would consider the merchandise at X stores to be a good buy," "The prices at X stores are acceptable," and

"X stores merchandise offers value for money" indicators whereas in the study of Pappu and Quester (2006), the retailer associations construct was explained through "store atmosphere," "convenient facilities," "variety of products," "after sale service" and "customer service." There was not found much difference for the other constructs.

In the study, the relations among the retailer equity dimensions were also checked. It was found the dimensions were correlated. It was important because the correlation between constructs represents a "shared" influence.

In order to determine whether the frequent and less-frequent shoppers discriminate regarding the retailer equity dimensions, a two-group discriminant analysis was used. It was found that the frequent and less-frequent shoppers discriminate on the basis of consumer-based retailer equity dimensions. The most important indicators contributing to the discrimination were "In my supermarket shopping X stores are my first choice, "I consider myself to be loyal to X stores," "Even when items are available from other retailers I tend to buy from X stores," "I will not buy from other retailers if I can buy the same item at X stores," "X stores merchandise offers value for money," "I would consider the merchandise at X stores to be a good buy," "I can recognize X stores among other competing stores" and "I am aware of X stores." In other words, frequent and less-frequent shoppers did differ regarding "retailer loyalty," "retailer associations" and "retailer awareness." Therefore, frequent shoppers are more loyal, have more awareness about the retailer and retailer associations. In that sense, it was concluded that frequent shoppers had more positive perceptions about the retailer and they had a more positive retailer equity evaluation as compared to less-frequent shoppers. The most important variables that discriminate the frequent shoppers from less-frequent shoppers is retailer loyalty and retailer associations.

The study also had several managerial implications. In a highly competitive environment, retailer managers should consider developing the consumer-based retailer equity concept. This is an important concept since it differentiates the retailer from other stores. In that sense, the managers should be sensitive to the development of retailer loyalty, retailer awareness, retailer perceived quality, and retailer associations. Furthermore, the shoppers that patronize the retailer have a better understanding and more affirmative evaluation of retailer equity dimensions. An understanding of patronage behavior is important not only because it enables managers to identify and therefore target the consumers most likely to purchase (Pan and Zinkhan, 2006), but also because it affects the retailer equity perception.

In the study, data were collected in relation to one conventional supermarket. The retailer equity concept was evaluated on the basis of consumer perceptions. For further research, the consumer-based retailer equity for other retailer types should be evaluated. It is thought that this will produce a broader conceptualization.

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