

ANALYSIS OF CONSUMERS' ATTITUDES TOWARD BRAND EXTENSION QUALITY

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ABSTRACT

Current research has shown that consumers' attitudes towards brand extensions are a function of brand affect, and similarity between parent and extension product categories. This paper developed a model of evaluation of brand extensions with the variables of relevance of the brand's specific association in the extension category and typicality of the brand in its original category. Data were collected from 475 consumers in investigating the impact of brand quality, brand liking, value congruence, and category similarity on the brand extension evaluation. Using HLM methodology, the study found that consumers tend to value more brand quality and value congruence in evaluating brand extension. Although brand liking and category similarity have positive relationship with brand extension evaluation, but their influence was not very strong.

Keywords: factor analysis, brand extension, brand quality

1. INTRODUCTION

Brand extension is the major concern of most firms. Brand extension is argued to be effective as launching new products is more expensive and risk. For example, Montoya-Weiss and Calantone (1994) found that, around 30% of all new products fail. Bearing in mind the costs and risks associated with extension of new product, firms prefer brand extension than introducing new product. A brand extension bears diversity of definitions. In a simplistic way brand extension can be defined as the use of established brand names to enter new product categories (Keller and Aaker, 1992).

The literature points out, that the success of brand extension is influenced by several factors. However, which factor(s) may have significant effect on the success of brand extension is not apparent. This raises important critical questions in mind: what are the factors that influence the success of brand extension evaluation, and how significant of those factors with success of the brand extension evaluation? This paper investigates the influence of brand quality, brand liking, value congruence, and category similarity on the success of the brand extension evaluation. The rest of this paper is organized as follows. In next section we briefly review literature on brand extension, followed by description of the methodology and data set used in this study. In section 4 we present the empirical results and discussion, and section 5 is the conclusion.

2. LITERATURE REVIEW AND HYPOTHESIS

It is argued that a company may introduce a product to the market, by either developing a new brand name for that product or exploiting an existing brand name. However, the former

strategy is assumed to be risky and expensive. On other hand, extending an existing brand is argued to have potential advantages as the consumers have already the knowledge and perceptions on the existing product. Studies (e.g. Smith and Park, 1992, Keller, 1993) have identified several factors that influence success of brand name extension. Some of these factors are: Brand quality, brand liking, value congruence, category and similarity.

2.1 The Influence of Brand quality

It has been argued that perceived brand quality has influence of the success of the brand extension. Barrett, Lye & Venkateswarlu (1999) have established that original brand quality perception, product category fit, consumers' perception of the product category complementarity and substitutability, plus the transferability of design and manufacturing capability, all significantly influence attitude towards brand extension. Aaker and Keller (1992); Smith and Park (1992) argue that stronger brands provide greater influence for extensions than weaker brands. On other hand, Sunde and Brodie (1993); Bottomley and Doyle (1996) confirm that high perceived quality brands could be extended further and receive higher evaluations than low perceived quality brands. Accordingly, quality perceptions of the original and extended brands are considered as an integral part of brand extension models. Brand quality is considered to have greater influencing power on the brand extension evaluation because brands with higher perceived reputation quality tend to provide consumers with greater risk relief and so encourage more positive evaluations than brands of lower reputation quality. From this point of view we postulate that:

H1: the higher the perceived quality of the parent brand, the more favourable should be evaluations of the brand extensions.

2.2 The Influence of Brand liking

Brands and product categories are conceptualized as cognitive categories in consumer mind (Boush and Loken, 1991). A brand extension in a new product category is viewed as a new instance that can be more or less similar to the brand and its existing products. Categorization theory suggests that when a person encounters a new instance of a category, the affect associated with that category is transferred to the newly categorized member (Fiske, 1982 in Broniarzyk and Alba, 1994). A brand extension, by virtue of its name, is a member of the mental category of the parent brand in consumers' minds. Therefore, we hypothesize that:

H2: Brand liking towards the parent brand positively impacts brand extension evaluation

2.3 The Influence of Value Congruence

It has been argued that the extendibility of a brand depends on the source of value of the product category, that whether the value of the product is of functional benefits or of self-expressive benefits. Previous researches on brand extensions suggest that brand extensions that are congruent with the core brand perform better than brand extensions that are

incongruent (Park et al, 1991). Basing on these findings, we propose the following hypothesis:

H3: Consumers will positively evaluate brand extension when extended to a category where the source of value is congruent.

2.4 The Influence of Perceived Similarity

Researchers have found that similarity of the product brand is an important factor in the extendibility of the brand. Smith and Park (1992) refer to the brand similarity as the degree to which consumers perceive the extensions as similar to other products affiliated with the brand. According to Aaker and Keller (1990), the greater similarity between the parent brand and extension category should encourage successful brand extensions. Consistent to Aaker and Keller (1990), several other studies (e.g. Park, et al. 1991, Dacin and Smith 1994; Herr, et al. 1996), have reported the similar results on the positive effects on similarity between the original and extended category. The implication of these findings is that consumers will develop more favourable attitudes towards extensions if they perceive high similarity between the extension and the original brand. From this point of view we hypothesize that:

H4: Extensions into categories perceived as more similar to the category of the parent brand are more likely to be accepted compared to extensions into less similar product categories.

2.5 Interaction effects of Brand Quality and Category similarity

It has been argued that, perceived quality towards the original brand and the similarity between the original brand and the extension may have an interaction effect on consumer evaluation of an extension (Aaker & Keller, 1990). It is quite likely for consumers to purchase a brand that has good fit with the high-quality original brand than a brand that has poor fit with that original brand because a brand which has good fit with the high-quality original brand can give more satisfaction, self-esteem and prestige to them. Naturally, consumers will show more interests in brands that have good fit with a high-quality original brand than in those with the fit perceived to be low (Chowdhry, 2007). Therefore, we hypothesize that:

H4: Perceived quality and category similarity have a positive interaction effect on consumer brand extension evaluation.

3. METHODOLOGY

This study employed HLM methodology to test the factors that influence the success of the brand extension evaluation from one category into another. This method has been selected because of its usefulness in analysing hierarchically structured data simultaneously at all levels. In this study we consider the data in two levels: different extension scenarios - stimulus (level 1) which are nested in consumers - subjects (level 2). The HLM has more advantages compared to other methods like ordinary least square (OLS); which treat the data, either separately in the two levels or treat all observations as independent regression model. HLM methodology is suitable in this study, as it not only produces power and correct p-

values at all levels, but it also makes it possible to answer simultaneously questions at each level (Hox, 2002).

3.1 Data Description

This study used the data collected through an experimental study on brand extension evaluation. Based on pre-test, the categories that were primarily identified with functional benefits and self-expressive benefits were selected. From the selected categories, the product brands were identified. A sample of 35 consumers participated in the study. The consumers are presented with 13 to 14 different extension scenarios (6 of which involves congruent extensions and the remainder of which involve non-congruent extensions).

3.2 The Study Variables

The dependent variable in this study is evaluation of brand extension, operationalized by the average of the perceived quality of the brand extension (measured using 7-point Likert scale) and liking of the brand extension (measured using 7-point Likert scale). The use of two indicators provided a more reliable measure of the evaluation of brand extension variable. We find that the correlation between the two variables was 0.75, giving a reliability of 0.86.

The independent variables (i.e., brand quality, brand liking, value congruence and category similarity) follow the four hypotheses presented in section 2 above. The perceived brand quality and brand liking were measured by using 7-point Likert scale while category similarity and brand congruence were categorical variables measured by using 0 = non-similar, 1 = similar; and 0 = non-congruent, 1 = congruent, respectively. Two more product variables (i.e. brand quality*category similarity), and (Category similarity* Value congruence) for checking the interaction effects were also included in the analysis.

The multilevel regression model used in this study is specified as follows:

$$Y_{ij} = \beta_{1j}X_{ij} + \varepsilon_{ij}$$

Where y is the dependent variable, i, level 1 and j is level 2. In this case level 1 is nested into level 2. The β_{1j} parameter is the intercept or coefficient of constant. X is the independent variable and ε is the error term.

4. EMPIRICAL RESULTS AND DISCUSSION

Before reporting the results from the multilevel analysis, we first report descriptive statistics, and correlation matrix between the variables.

4.1 Descriptive statistics

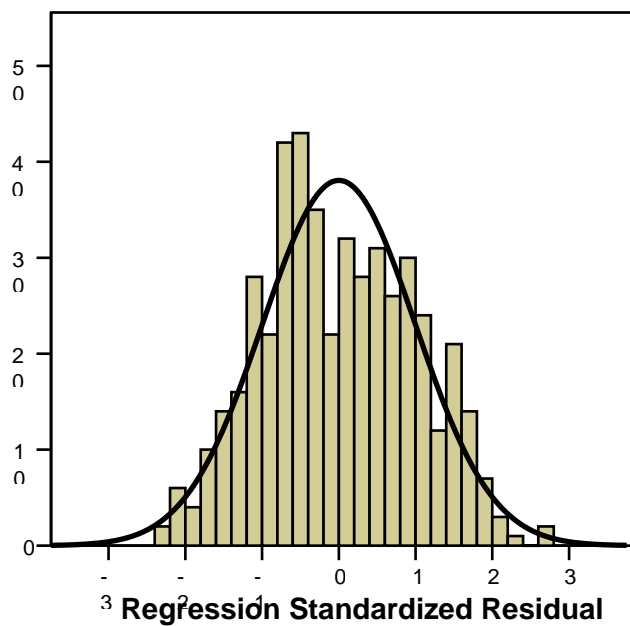
Table 1 below reports the descriptive statistics from the ordinary level regression analysis.

Table 1: Descriptive Statistics

| | N | Mean | Std. Deviation |
|----------------------------|-----|--------|----------------|
| Brand Extension Evaluation | 475 | 3.3400 | 1.8940 |
| Brand quality | 475 | 4.58 | 1.54 |
| Brand liking | 475 | 4.21 | 1.63 |
| Value congruence | 475 | .44 | .50 |
| Category similarity | 475 | .65 | .48 |

General comment on the descriptive statistics above is that on average brand extension scenarios were favourably evaluated by consumers (Mean = 3.34). Regarding perceived brand quality, the data shows that on average consumers preferred brand extension of good quality (M= 4.58), while more that 50% of consumers viewed brand extensions as similar to parent brand (M= 0.65). However, in regarding value congruence, majority of consumers (55%) rated brand extensions as non-congruence. In relation to the distribution of the data, figure 1 below indicates that variables are almost normally distributed.

Figure 1: Test for Normality



4.2 Bivariate analysis

In the table below we present partial correlation coefficients between variables. The results reveal that there is positive correlation between brand extension evaluations with all independent variables. However, only three coefficients of brand quality, value congruence, and brand liking are significant, while correlation coefficient is not significant. Looking on the correlation coefficients between independent variables, we can see that there are no high coefficients between the variables which could cause multicollinearity effects on the dependent variable.

Table 2: Correlations Matrix

| | Brand quality | Brand liking | Value congruence | Category similarity |
|------------------------|----------------------|---------------------|-------------------------|----------------------------|
| BRAND EXTENSION | 0.459* | 0.279* | 0.184* | 0.023 |
| Brand quality | 1.000 | 0.581 | 0.033 | -0.039 |
| Brand liking | | 1.000 | -0.004 | -0.009 |
| Value congruence | | | 1.000 | -0.206 |
| Category Similarity | | | | 1.000 |

*Correlation is significant at $p < 0.01$ level (2-tailed).

4.3 Multilevel Analysis

In order to get thorough understanding of the effect of brand quality, brand liking, value congruence and category similarity, we analyzed the data by using HLM method. The fact that the data fall into two levels (i.e. Subjects as level 2 and Stimulus as level 1), this approach was thought to be plausible. The first step of our multilevel analysis involved determining the variation (ANOVA) in brand extension evaluation between the consumers, by running a model without independent variables (i.e. having intercept only). The model yields the following results in table 3 below:

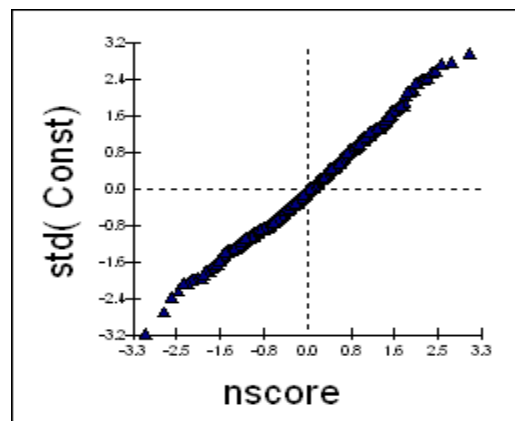
Table 3: Parameters estimates and standard errors of Random ANOVA model

| | Random ANOVA Model |
|-----------------------|----------------------------------|
| Fixed Part | |
| Constant | 3.321 (0.168) ($p = 0.000$) |
| Random Part | |
| Level 2: σ_0^2 | 0.785 (0.237) |
| Level 1: σ_e^2 | 2.795 (0.189) |
| Deviance | 1891.204 |

The results revealed that the average evaluation of the brand extension across all consumers and within all different extension scenarios is 3.321. Moreover, the result shows that residual variances of level one is 2.795 with the corresponding standard error 0.189 and level two variance is 0.785 and its corresponding standard error is 0.237. All parameters are significant at $p < 0.01$. This can be concluded that the large part of the variation in success of brand extension is due to differences between extension scenarios rather than consumers' differences. Furthermore, the deviance value is 1891.204¹; indicating the reasonable “model fit”. By calculating the intra-class correlation¹; we found that 22% of the variance of the brand extension evaluation is at the group level; although is not very high, but multilevel model can be used in these data.

When we checked for the assumption of normality, we found that the residuals (the difference between the observed values and the fitted values) values are almost normally distributed across the all extension scenarios. This result is indicated in the figure below:

Figure 2: Normal Plot



The graph shows that there are no extreme outliers, indicating that the data are normally distributed across all extension scenarios. From this graph we can argue that the results confirm the validity of normality assumption.

In order to test the effects of independent variables on brand extension evaluation, we run multilevel model by stepwise method. The results are shown in the table 4 below:

Testing if variance at group level is the same as the individual level, i.e $\sigma_0^2 = \sigma_e^2$ when all variables are included, (that is model 4). By using chi-square test, we find that the variances are significantly different from zero, at $p < 0.001$. This means that variances are not the same at the two levels of the data. Total variation in the model is 2.716 (see table 4, model 4); showing 24.4% of the total variation is due to differences between consumers and, and 75.6% is caused by differences in brand extension scenarios.

Table 4: Parameter estimates and std errors of different models of brand extension evaluation

| | Random ANOVA Model | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|-----------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| Fixed Part | | | | | | | |
| Constant | 3.321(0.168) (<i>p</i> =.000) | 0.882(0.265) (<i>p</i> = 0.000) | 0.746(0.277) (<i>p</i> = 0.07) | 0.472(0.278) (<i>p</i> = 0.09) | 0.188(0.307) (<i>p</i> = 0.539) | 0.557(0.438) (<i>p</i> = 0.204) | 0.543(0.324) (<i>p</i> = 0.094) |
| Brand Quality | 0.534(0.048) (<i>p</i> = 0.000) | 0.470(0.060) (<i>p</i> = 0.000) | 0.453(0.058) (<i>p</i> = 0.000) | 0.460(0.058) (<i>p</i> = 0.000) | 0.391(0.082) (<i>p</i> = 0.000) | 0.466(0.057) (<i>p</i> = 0.000) | 0.466(0.057) (<i>p</i> = 0.000) |
| Brand Liking | | 0.101(0.057) (<i>p</i> = 0.078) | 0.113(0.056) (<i>p</i> = 0.043) | 0.114(0.055) (<i>p</i> = 0.040) | 0.103(0.056) (<i>p</i> = 0.066) | 0.112(0.055) (<i>p</i> = 0.041) | 0.112(0.055) (<i>p</i> = 0.041) |
| Value Congruent | | | 0.687(0.133) (<i>p</i> = 0.000) | 0.753(0.136) (<i>p</i> = 0.000) | 0.756(0.136) (<i>p</i> = 0.000) | 0.144(0.232) (<i>p</i> = 0.535) | 0.144(0.232) (<i>p</i> = 0.535) |
| Category similarity | | | | 0.335(0.155) (<i>p</i> = 0.030) | -0.192(0.475) (<i>p</i> = 0.686) | -0.176(0.221) (<i>p</i> = 0.426) | -0.176(0.221) (<i>p</i> = 0.426) |
| Quality*Simi | | | | | 0.113(0.096) (<i>p</i> = 0.240) | | |
| Congr*Simi | | | | | | | 0.942(0.293) (<i>p</i> = 0.001) |
| Random Part | | | | | | | |
| Level 2: σ_0^2 | 0.785 (0.237) | 0.602(0.184) | 0.636(0.191) | 0.664(0.195) | 0.664(0.195) | 0.665(0.195) | 0.672(0.196) |
| Level 1: σ_e^2 | 2.795 (0.189) | 2.225(0.150) | 2,203(0,149) | 2.074(0.140) | 2.052(0.138) | 2.046(0.138) | 2.004(0.135) |
| Deviance | 1891.204 | 1781.933 | 1778.890 | 1753.117 | 1748.450 | 1747.071 | 1738.251 |

4.3.1 Effect of brand quality on the brand extension evaluation

As it is explained in the literature that the perceived brand quality may have influence on the success of the brand extensions: To test this assertion, the following hypothesis was tested:

H1: The higher the perceived quality of the parent brand, the more favourable should be on the extended brand quality

The results show significant positive effect of brand quality across all extension scenarios. The regression coefficient (β) of brand quality is 0.534 and its associated standard error 0.048 (see table 4, model 1). Moreover, the results show that, the brand quality had significant effect on the brand extension evaluation at $p < 0.01$. This can be interpreted that the consumers preferred brand extensions with high-quality parent brand to those with low quality parent brand. The deviance value of the model shows significant improvement of the model fit by 109.271 points (i.e. 1891.204 - 1781.271). This reflects also that brand quality has greater influence on the brand extension evaluation across all extension scenarios, supporting our hypothesis.

4.3.2 Effect of brand liking on the brand extension evaluation

It was hypothesized that, “brand liking towards the parent brand has positive impact on the brand extension evaluation. The results are presented in table 4, model 2. The result from our analysis reveals the positive significant effect of brand liking across all extension scenarios at $p < 0.10$. However, this shows that brand liking has lesser contribution on the brand extension evaluation when compared to brand quality. The deviance value suggests also that

there is little improvement of the model (i.e. only 3.043 points has been reduced) when the variable, brand liking is included in the model.

4.3.3 Effect of value congruence on the brand extension evaluation

It is argued that brand extensions that are congruent with the core brand perform better than brand extensions that are not incongruent (Park et al, 1991). To determine whether value congruent has significant effect on the brand extension, we tested the following hypothesis:

H3: Brand extension will be successful if extended to a category where the source of value is congruent.

Consistent with finding by Park et al, 1991, this study found that the value congruent has significant positive impact on the brand extension evaluation across all extension scenarios. The results show that the estimate for value congruence is significant at $p < 0.01$. The regression coefficient of the value congruent is 0.687 and its associated standard error is 0.133; implying that consumers react more favourably to the extensions of a functional brand name when the extension products reflect functional benefits than when they reflect self-expressive benefits. The inclusion of the variable, “value congruence” has also resulted to improvement of the mode fit. The value congruence has resulted to improvement of the model by reducing the deviance value by 25.775 points (see table 4, model 3). This indicates also that value congruence has significant effect on the brand extension evaluation.

4.3.4 Influence of perceived category similarity on brand extension evaluation

It was hypothesized that “extensions into categories perceived as more similar to the category of the parent brand are more likely to be accepted compared to extensions into less similar product categories”. The results show that category similarity has significant effect on the brand extension evaluation at $p < 0.05$. The coefficient is 0.335 and its associated standard error is 0.155. However, when compared with bran quality and value congruence, category similarity seems to be less significant. The deviance value is 1748.450 (see table 4, model 4) showing that the model has slightly improved by only 4.667 points, which is less significant compared to deviance of other variables.

4.3.5 Interaction effects of quality and category similarity

In this study, we tested the interaction effect of quality and category similarity. In this case, it was hypothesized that perceived brand quality and category similarity have a positive interaction effect on consumer brand extension evaluation. Inconsistent with previous studies (i.e. Aaker & Keller, 1990) who found that positive interaction effect between quality and fit, this study reveals that there is no significant interaction effect of quality and category similarity (see table 4, model 5). The results show that, the inclusion of the interaction effects has very slightly improved the model by only 1 point. This may also suggest absence of significant interaction effect of the variables on the brand extension evaluation. Moreover, the result shows that the interaction effect of quality and category similarity has negative impact on category similarity. As can be seen from table 4, model 5, interaction effect has negatively

affected the slope of category similarity to $\beta = -0.192$ and standard error 0.475 making it not significant in brand extension evaluation.

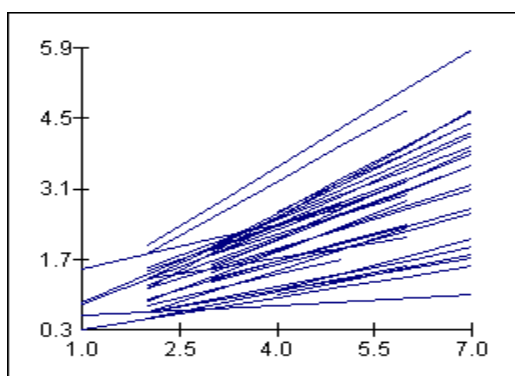
4.3.6 Interaction effects of value congruent and category similarity

We also tested the interaction effect of value congruent and category similarity. The result reveals that there is interaction effect between value congruence and category similarity (see model 6, in table 4). As can be seen from the table, the variable (Congr*Simi) is significant at $p < 0.001$, and deviance value has been reduced by 10.199 points (i.e. from 17848.450 to 1738.251). The result suggests that interaction effect of value congruent and category similarity is significant in brand extension evaluation across all extension scenarios. However, the interaction of these variables has significantly affected other variables. For example, the slopes of value congruence, category similarity have been decreased making them not significant on the brand extension evaluation.

4.4 Random Slopes Model

In the first part of multilevel analysis, we assumed that only intercepts do vary across consumers. In this part we would like to have a model where the regression coefficients also vary across consumers. The results are presented in table (5). For this purpose, we will discuss the first model, whereby we have only one independent variable (brand quality), and we allow this variable to vary across consumers. To test whether the slope vary across consumers we fitted the parallel lines to the data from different consumers. The results for the fitted parallel lines are presented in figure 2. From the figure below we note that consumer lines have different slopes.

Figure 3 . Prediction of slope various across consumers



However, from table 5, we note that the estimate coefficient (β_1) of brand quality is 0.515 (standard error of 0.065), whereby individual consumer slopes vary about this mean with variance of 0.064 (standard error 0.034). Comparing this model with a previous model where analysis was done allowing only variation between consumers in intercepts (table 5 above, model 1), we find that the deviance value has decreased from 1781.933 to 1768.247, a difference of 13.686 points. The change is very highly significant, means that the model is improved by allowing slopes to vary at level two.

Looking on variation at individual level, in the previous model without random slopes (see table 4, model 4), we find that about 75.5% of the total variation was due to differences between different brand extension scenarios presented to consumers (i.e. 2.052/2.716). In the new model with random slopes, we find that, only 49.7% (i.e. 1.782/3.587) of the total variation was between extension scenarios.

Comparing standard errors from table 4, model 4, with standard errors in table 5, model 4, we can observe that, in the previous model (i.e. in table 4), standard errors were much higher compared to table 5. The higher standard errors lead to incorrect conclusion about significance of estimate coefficients. For example, the estimate coefficient for brand liking variable in the previous model was significant at $p = 0.040$, while in a random model the estimate coefficient is significant at $p = 0.012$. Therefore, with the random slopes model we get correct inference about the effect of independent variables on brand extension evaluation.

Table 5: Random Coefficients

| | Random ANOVA Model | Model 1 | Model 2 | Model 3 | Model 4 |
|----------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Fixed Part | | | | | |
| Constant (β_{0ij}) | 3.321(0.168) ($p = 0.000$) | 0.911(0.276) ($p = 0.000$) | 0.730(0.280) ($p = 0.009$) | 0.469(0.263) ($p = 0.075$) | 0.305(0.323) ($p = 0.345$) |
| Brand quality (B_{1j}) | | 0.515(0.065) ($p = 0.000$) | 0.391(0.087) ($p = 0.000$) | 0.380(0.084) ($p = 0.000$) | 0.380(0.086) ($p = 0.000$) |
| Brand liking (B_{2j}) | | | 0.175(0.075) ($p = 0.019$) | 0.182(0.074) ($p = 0.014$) | 0.181(0.072) ($p = 0.012$) |
| Value-Congru | | | | 0.652(0.130) ($p = 0.000$) | 0.702(0.132) ($p = 0.000$) |
| Cati_Simi | | | | | 0.244(0.190) ($p = 0.20$) |
| Random Part | | | | | |
| Level 2: U_{0j} | 10.785 (0.237) | 0.824(0.612) | 0.711(0.627) | 0.404(0.524) | 1.144(0.792) |
| U_{1j} | | 0.064(0.034) | 0.119(0.060) | 0.102(0.055) | 0.127(0.059) |
| U_{2j} | | | 0.055(0.0042) | 0.058(0.041) | 0.057(0.039) |
| U_{3j} | | | | 0.000(0.000) | 0.000(0.000) |
| U_{4j} | | | | | 0.477(0.291) |
| Level 1: σ^2_e | 2.795 (0.189) | 2.085(0.146) | 1.992(0.143) | 1.897(0.136) | 1.782(0.132) |
| Deviance | 1891.204 | 1768.247 | 1761.290 | 1737.440 | 1723.775 |

5. CONCLUSION

This study explored the influence of brand quality, brand liking, value congruence and category similarity on the brand extension evaluation. Consistent to some findings in the literature (Chowdhury, 2007; Aaker & Keller, 1990; Bottomley & Doyle, 1996), we found

that brand quality is an important factor in the evaluation of brand extension. This supports the argument that the high quality brand will be favourably preferred by customers. Moreover, our study found that value congruence is another important factor in the evaluation of brand extension. We found also that brand liking and category similarity may influence the likelihood of success in brand extension evaluation, though are not as stronger as brand quality and value congruence. We note that when brand quality is interacted with category similarity, it tends to affect the influencing power of other variables. However, interaction of value congruence and category similarity has greater influence on the brand extension evaluation.

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