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Sreejesh S.
IFHE University

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Consumers' Evaluation of Brand Extensions: An Application of Multiple-Group Causal Models in Assessing Cross Product Category Measurement Equivalence

Sreejesh S

Brand extensions are among the most important and popular strategies followed by the companies in recent days. A major part of brand value stems from its contribution to launching a new product in the market. Brand extension is the “use of established brand name to enter into new product categories” (Aaker & Keller, 1990). Brand extension strategies are most extensively used in marketing because, by launching a new product under the established brand name, firms hope consumers will respond favorably to the new offering through developing and

Sreejesh S., MA, MBA, MPhil PhD, is an assistant professor of management and marketing, IBS, IFHE University, Hyderabad, India, 501 504.

communicating strong brand positioning, augmenting brand awareness and quality associations, and increasing the probability of trial by shrinking new product risk for consumers (Reddy, Holak & Bhat, 1994; Chowdhury, 2001; Taylor & Beardon, 2002). Brand extension strategy has been considered to be more profitable than introducing a new brand in the market. The reasons for extending brand across sectors include

- i. The escalating cost of establishing brands in a competitive market, as consumers become immune to promotional activities, creates greater pressure to leverage existing brands into new product categories (Aaker & Keller, 1990);
- ii. In an increasingly busy market place, brand extensions allow

manufacturers' brands to hold more shelf space and retain higher profiles in customers' minds (Farquhar, 1990);

- iii. Brand extensions can control the costs of distribution expenditures (Morein, 1975); and
- iv. Brand extensions help in increasing the chance of a new product's success and reducing launch costs (Kapferer, 1997; Chowdhary, 2002).

The basic premise behind brand extension is the manufacturer can develop a new product or service that can piggyback on the perceptions and feeling associated with a parent brand. The best example for this is *Caterpillar*, whose strengths lie in the manufacturing of construction and mining equipment. When the company

extended into the footwear market, that extension was considered a success story in Caterpillar's history. The reason for success is the company's ability to elicit the same association for the extended product as the parent brand.

Virgin Group, a successful global company, extended its products to airline, cruises, bridal services, telecommunications, etc. Virgin's consumers with positive associations and attitude are more likely to try the brand extension than choose a completely unfamiliar brand in that product category.

Yahoo began as a search engine in 1994 but has now expanded into different fields such as auctions, chat rooms, games, stock quotes, financial information, shopping portals, and many other services. Again, an example of brand extension.

The article is organized as follows. First, the study reviews relevant literature on brand extension evaluation and identifies the gaps from extant literature. Second, based upon the extant literature, the study forms hypotheses. The study discusses the methodology for data collection and analysis in the fourth phase. Finally, it discusses theoretical and managerial implications, and provides some directions for future research.

Review of Literature

Aaker and Keller (1990) studied the effects of certain brand and product category-related aspects on the attitude consumers develop toward hypothetical extensions of reputable brands. They proposed a relationship between perceived quality of the original brand and consumers' attitude toward extensions in unrelated product categories (Aaker & Keller, 1990). The authors suggested this perceived quality transferred to the extension category to the extent that there has been sufficient congruence between the original product category and the extension category (Aaker & Keller, 1990). The transfer of positive associations is related to the extent of similarity the consumer perceived between original product category and the extension.

Van Riel, Lemmink, and Ouwersloot (2001), replicated Aaker and Keller's (1990), study and extended it to the service domain. The important research questions in this article were "Are there differences in the mechanisms by which consumers evaluate brand extensions in services and non-service contexts?"; "How are the mechanisms used in services context distinct from those in consumables context," and "What would be the implication of these

differences for the extendibility of service brands?". The authors used the same hypotheses as used by Aaker and Keller (1990). To test these hypotheses, they conducted a survey among 101 Dutch graduate and undergraduate students and chose the brands according to the criteria suggested by Aaker and Keller (1990). Finally, the study provides the evidence that, in a service context, consumers use complementarity of the extension with the original category as a major cue to evaluate the extension. Supplementarity, however, plays a less important role as the availability of useful skills of the service provider plays a similar role as in a tangible product context.

Isita and Gupta (2005) investigated the impact, perceived quality, similarity, consumer knowledge of extended category, and consumer innovativeness on the success of brand extensions in consumer non-durables, durables, and services. The purpose of this article was to determine how variables of similarity, perceived quality, consumer knowledge of the extended product class, and consumer innovativeness could influence brand extensions and if any difference in consumer evaluation between brand extensions in non-durable goods, durable goods, and services existed. The

authors constructed four hypotheses (similar to one used by Aaker & Keller, 1990; Klink & Smith, 2001). This study added to the knowledge of brand extensions literature in several ways. First, the study concluded that perceived quality is a crucial factor in the evaluation of brand extensions. Building a favorable reputation for a parent brand is an important contributor to the success of brand extensions. This would be more applicable in case of services and consumer durables than in case of consumer non-durables. Second, the study found that similarity is an important factor which influences the likelihood of a successful brand extension. This was more important for services and consumer durables as compared to the FMCG category. No significant relationship was found between overall evaluation of the extension and consumer knowledge of the extended product category. Finally, more innovative consumers evaluate brand extensions favorably. Thus, targeting more innovative consumers could be an efficient way of developing brand extension strategy (Isita & Gupta, 2005).

Volckner and Henrik Sattler (2006) addressed the issues of the significance and relative importance of the determinants of extension success by

simultaneously investigating ten success factors. In this study, the authors showed the drawbacks of previous literature in brand extension evaluation in that little is known about the relative importance of success factors in explaining brand extension because earlier studies investigated the effects of only a small fraction of all relevant success factors at one time. Further, previous studies only tested the direct relationship between brand extension success (dependent variable) and potential success factors (independent variable) and did not take into account some other success factors that might constitute a dependent variable in other structural relationships; i.e., previous studies did not take into account a series of structural relationships (Volckner & Sattler, 2006).

Basu Monga and John (2006) analyzed how consumers evaluate brand extensions in terms of similarity fit across cultures. Consumers from different cultures may vary in terms of brand extension evaluation, cultural differences in brand extension response could arise due to cultural differences in judging extension fit (Basu Monga & John, 2006). The authors selected two cultures: western, characterized by analytical thinking (a detachment of object from its context and focus on

attributes of the object) and eastern: characterized by holistic thinking (an orientation to the context or field as a whole). The study suggests the differences in styles of thinking influence the ways in which the consumers from eastern versus western cultures judge brand extension fit, which influences brand extension evaluation (Basu Monga & John, 2006).

In the article, "An Investigation of Consumer Evaluation of Brand Extensions," Chowdhury (2007) analyzed three constructs in brand extensions: perceived quality, perceived fit, and perceived difficulty on consumer brand extension evaluation. The study also tested relationships between quality and fit on consumer evaluation of an extension. Chowdhury used the hypotheses as stated by Aaker and Keller (1990) and showed the weakness of single item scale while attempting to rectify that problem by using a multi-item scale. The study showed that perceived quality and perceived fit have direct positive effects on consumer evaluations of extensions. These findings are consistent with the results of previous studies (Aaker & Keller, 1990; Bottomley & Doyle, 1996; Bottomley & Holden, 2001).

Thamaraiselvan and Raja (2008) focused on how consumers evaluate brand extensions for FMCG and

service product categories in the Indian context. The authors studied how consumers would evaluate brand extensions based upon factors like similarity fit, perceived quality, parent brand reputation, and perceived risk. For the six brands, they developed separate questionnaires based upon previous research (two in FMCGs & four in Services). Three extensions from each brand selected for the concerned study.

Objectives of the Study

The objectives of the study are as follows:

- To study the relative importance of factors that affect consumers' evaluation of brand extensions; and
- To study the impact of these factors in durables, non-durables, and services and understand the differences in the mechanism by which consumers' evaluate brand extensions in consumer durables, non-durables, and services.

In this study the author considered the overall consumer evaluation as the endogenous (dependent variable) and factors that determine consumer evaluation as the exogenous variables (independent).

Hypotheses

Perceived quality of the parent brand. Aaker and Keller (1990) proposed a positive relation between perceived quality and attitude toward the extension. In other words, if any brand is associated with high quality, the extension should benefit, and, if it is associated with poorer quality, the extension should be harmful. A core brand that has high-perceived quality affords more growth opportunities for profit through extensions (Keller & Aaker, 1992; Smith & Park, 1992). Zeithamal (1988) defines perceived quality as a global assessment of a consumer's judgement about the superiority or excellence of a product, and concluded that perceived quality is at a higher level of abstraction than a specific attribute of a product. Categorization theory suggests that, if a product possesses all the properties required by the defining criteria of a category, the product belongs to the referring category (Alba & Hutchinson, 1987). Once the product activated as a category, the consumer will immediately infer cognitive judgment associated with the product and if the product is associated with high-perceived quality, the consumer's memory rehearsal about the new

brand will centre on pleasant thoughts in relation with his expected value. Therefore, when a person's perception of quality toward the original brand increases the trust and satisfaction toward the extension also increases (Chowdhury, 2007). Therefore, the first hypothesis is

H₁: If the perceived quality of the parent brand is higher, the brand extension evaluation will be positive. This is true in the case of durable, non-durables, and services.

Parent brand reputation

Reputation has been defined as "the estimation of the consistency over time of an attribute of an entity" (Milewicz & Herbig, 1994). This estimation depends upon the entity's willingness and ability to perform the similar activity continuously in a similar fashion. The important element that helps to attain reputation for a company is its quality of product which the company provides. In short, reputation is a historical notion based upon sum of the past behaviors of the entity (Milewicz & Herbig, 1994). The extent of reputation depends on providing outcome in a consistent fashion, which leads to credibility. Milewicz

and Herbig (1994) argues that the company that uses brand extension as a strategy, provides a signal to the core brand quality and fit element of reputation. If the customer is satisfied with the signals provided, a credibility transaction takes place, thereby enhancing reputation and lead to success of brand extension. The findings of previous research showed that the greater the brand reputation, the higher the possibility of favorable brand extension compared to the less reputed brands (Aaker & Keller, 1990; Dacin & Smith, 1994; Bottomley & Doyle, 1996). Therefore, the second hypothesis is

H₂: If the perceived reputation of the parent brand is higher, the brand extension evaluation will be positive. This is true in the case of durable, non-durables, and services.

Consumer knowledge.

The extent to which consumers rely on brand name depends upon their knowledge of its product category (Lahiri & Gupta, 2005). When consumers' knowledge about a product category is low, the perceived risk associated with its purchase is high, meaning the relationship between knowledge and perceived risk is negative or inverse. When the perceived risk increases, consumers

are expected to increase their reliance on established brand (Bettman & Park, 1980; Park & Lessig, 1981; Johnson & Russo, 1984; Alba & Hutchison, 1987; Smith & park, 1992). If a consumer has to appreciate the appropriateness of the brand extension, knowledge of the brand specific association is required (Broniarczyk & Alba, 1994). Therefore, the proposed hypothesis is

H₃: If the knowledge about the extension product category is low, the brand extension evaluation will be positive. This is true in the case of durable, non-durables, and services.

Consumer Innovativeness

In marketing, innovative-ness is a personality trait of an individual to accept new products that newly introduced in the market irrespective of their quality and price. Rogers (1983) examined the concept of innovativeness in his article on diffusion of innovation; however, limited studies have been conducted around the world that used innovativeness as the factor affecting brand extension evaluation (e.g., Aaker & Keller, 1997; Klink & Smith, 2001), which have observed that innovative consumers are more venturesome, willing to try new brands, are ready to take risks, and

their risk-taking propensity is very high. A greater number of innovators would accelerate the trial and acceptance of a new product (Lahiri & Gupta, 2005).

H₄: If the consumer's innovativeness is high, the brand extension evaluation will be positive. This is true in the case of durable, non-durables, and services.

Similarity

Prior research focused on fit or similarity between the parent brand and extension category in brand extension evaluation. Tauber (1988) studied 276 actual extensions and concluded that perceptual fit (i.e., whether a "consumer perceives the new item to be consistent with the parent brand") functions as a key element in predicting brand extension success (Aaker & Keller, 1990). Several reasons explain the role of similarity or perceived fit as the important factor in brand extension evaluation. The first reason is that the transfer of the perceived quality of a brand will be enhanced if two products are fit together (Aaker & Keller, 1990). The second reason is that a poor fit may not only detract from the transfer of positive associations but may actually stimulate undesirable beliefs and associations (Aaker & Keller,

1990). Aaker and Keller (1990) proposed three dimensions of fit. The first measure, *complement*, indicates the extent to which consumers view two product classes as complements or how consumers view both products could use jointly for a particular need. The second fit measure, *substitute*, is the extent to which consumers view two product classes as substitutes or how consumers view that they could use one product instead of another for a particular need. The third fit measure, *transfer*, reflects the perceived ability of any firm operating in the first product class to make products in the second product class or ability of a firm to transfer the skills and abilities for producing a product to another product class. If the fit between the original and the extension brand is good, the image is expected to be transferred from the original brand to the extension (Chowdhury, 2007). Therefore, the hypothesis is

H₅: The brand's perceived quality is enhanced when the two product classes is similar or fit together. When the fit is bad, the transfer is inhibited.

Difficulty

Aaker and Keller (1990) proposed that consumers perceive brand extension

evaluation in a positive way if consumers think the extended product category is difficult to make or not easy to produce and unworthy if the product is easy to produce. Therefore, the proposed hypothesis is

H₆: When the perceived difficulty of the extension product category is high, brand extension evaluation will be positive. This is true in the case of durables, non-durables, and services.

Methodology

Selection of product categories, parent brand and extensions. Three qualitative pre-tests were used to develop stimuli for the concerned study. The objectives of these qualitative pre-studies were to develop stimuli in the product category, brand name, and extensions. Pre-study had three main objectives:

- To select a product category that has high consumer familiarity, satisfying the pre-classification criteria of durables, non-durables, and services;
- To select the parent brand from the selected product category; and
- To select the extension for the parent brands in three product categories.

The method used in these pre-studies was focus group interview and questionnaire.

Pretest 1. The first pretest mainly aimed to identify the product categories for the parent brand. The basic idea behind selection of product category for the mother brand was to confirm the selection of the category that should have high consumer familiarity, as well as the product category satisfying the pre-classification criteria of durables, non-durables, and service. This was done through a focus group interview of six management research scholars in INC Research Staff College, Hyderabad, India (INCRSC). After the selection of product categories in the areas of durables, non-durables, and services, familiarity was checked using a question for each product category in a seven point Likert scale (1 = highly unfamiliar, 7 = highly familiar) among 25 management students. The level of familiarity and involvement were assessed through the mean value of each product category. Those product categories showing the highest mean value were selected as product categories for this study.

From the focus group interview, ten product categories were selected. The product category *color television* got highest mean value in durable and *dental*

cleaning got highest mean value in non-durable, and *financial services* got highest mean value in services were selected.

Pretest 2. The second pretest was conducted with the aim of identifying appropriate brand for these selected product categories. The same criteria was used in Pretest 1 (focus group interview for brands from selected product category) were used to identify the brand as well. After the identification of brands in durables, non-durables, and service, quality of the selected brands were checked using a question indicating the perceived quality of the selected brands in a scale (1 = very low quality, 7 = very high quality) using 25 management students. From that, one brand was selected from each category (durables—Sony, non-durables—Colgate, and service—ICICI) having high quality. High quality brands were selected though assessing the mean value.

Pretest 3. This pretest was done to find real extensions of selected brands in Pretest 2. The same method as used in the Pretests 1 and 2 were used to find the extensions from the selected brands (focus group interview). After the selection of real extensions of each category like durable, non-durables, and services, a sample of 25 management students were asked to evaluate the

similarity of the extension with the parent brand through a question in a scale of one to seven (1 = highly dissimilar, 7 = highly similar). This procedure was employed for confirming the relatedness of each brand extension with the parent brand. For each brand one extension were selected by assessing the mean value of response. The brand extensions of high mean value were selected for the study. From the result, it clear that extension *Sony Vaio* received highest mean value in durables; extension *Colgate Max fresh* received highest mean value in non-durable; and extension *ICICI prudential* received highest mean value in services.

Measures

The questionnaire was constructed for each of the extensions of the brands (three extensions) and divided into seven parts covering *perceived quality*, *parent brand reputation*, *knowledge*, *innovativeness*, *similarity*, *difficulty*, and *overall extension evaluation*. The study used scales empirically tested and employed by several researchers in the area of brand extension (e.g., Aaker and Keller, 1990; Keller & Aaker, 1992; Broniarczyk & Alba, 1994; Smith & Park, 1992; Loken & John, 1993; Bettman & Park, 1980; Park & Lessig, 1981; Johnson & Russo, 1984; Alba & Hutchison, 1987). All the measures used in this study

are reflective in nature as used in other contexts. A pilot study was conducted for testing the questionnaire with a view to avoid the potential problems. A model questionnaire for the study was distributed among 40 Research Scholars in INCRSC to understand possible problems in question content, wording, sequence, form, layout, etc., using convenient sampling. After the collection of responses from the subjects regarding the problems of the questionnaire, the study made some changes in the form and content in the questionnaire and made a modified version of the questionnaire for the study. Appendix A shows the items used in this study.

The study adapted five items for measuring perceived quality of the parent brand (Aaker & Keller, 1990; Keller & Aaker, 1992; Broniarczyk & Alba, 1994) and used items such as the perceived overall quality of the brand (Mother Brand) is good, expect the brand to be high quality, superiority, reliability, trust worthiness of the brand is good.

For measuring brand reputation, four items were used in a seven point Likert scale ranging from “totally disagree (1) to “totally agree” (7) adapted from Aaker and Keller (1990), Smith and Park (1992), and Loken and John (1993). The items used under reputation measured the positive attitudes of

respondents toward brand, satisfaction with brand, and reputation with the particular brand.

For measuring consumers' knowledge about the extension product category two items were used in a seven point Likert scale anchoring from "totally disagree" (1) to "totally agree" (7). This is taken from Bettman and Park (1980), Park and Lessig (1981), Johnson and Russo (1984), Alba and Hutchison (1987), and Smith and Park (1992).

Consumers' innovative-ness was measured using five items in a six point likert scale and anchored by "totally disagree" (1) to "totally agree" (7) from Stenkamp and Baumgartner (1995). These items measured the respondents' ability to seek new ideas and experiences, ability to accept new and unfamiliar experiences, ability to do things involving danger, and ability of accepting change and novelty.

Similarity was measured using four items from Aaker and Keller (1990); Smith and Park (1992); and Bush et al. (1987) in a six point Likert scale ranging from "highly dissimilar" (1) to highly similar" (7). These items measured overall degree of similarity between extension and parent brand, transferability, complementarity, and substitutability. The difference between Aaker and Keller (1990) and the

present study in terms of similarity factor is that, instead of taking the transfer, complementarity, and substitutability separately, this study combined all the three variables and included them under one factor called similarity.

The difficulty of making the extension category was measured using three items in a seven-point Likert scale varying from "not at all difficult" (1) to "very difficult" (7). These items are taken from the past researches of Aaker and Keller (1990) and Keller and Aaker (1992) and made some changes according to durables, non-durables, and services industry.

To measure overall brand extension evaluation, a five item, seven-point Likert scale, was used. This instrument based upon the works of other researchers (e.g., Aaker & Keller, 1990; Keller & Aaker, 1992; and Broniarczyk & Alba, 1994).

Data Collection Procedures and Sample

The present study was conducted in two business schools in Hyderabad, India: *Adam Smith Institute of Management* and *IBS*; 634 postgraduate students participated in the survey. Out of those, 207 were in durables, 218 in non-durables, and 209 in services. The surveys were administered during the class hour using random sampling techniques and

took nearly 15 minutes to complete. Due to incomplete responses, 14 questionnaires were excluded, yielding a relevant sample size of 620.

During the class hour, each questionnaire was handed over with a cover letter mentioning the purpose of the study. The cover letter stated that the study aimed to identify the relative importance of factors in three industries—durables, non-durables, and services. For detailed understanding, the cover letter also included a detailed description of the brands and their extensions.

Demographic Profile of the Respondents

The study is based upon three product classifications—durables, non-durables, and services—with the sample respondents divided into three parts. For durables, data from 207 questionnaires were collected and out of that, 202 questionnaires were found to be complete. Of those 202 respondents, 75 were male respondents. For non-durables data of the 218 questionnaires, 214 were found to be complete. In that sample, 114 respondents were male. For services, data from 209 questionnaires were collected and with 204 being complete. Of those 204 respondents, 125 were male.

Data Analysis and Results

A maximum likelihood estimation procedure for analyzing the moment structures (AMOS 5.0) was used as a method for data analysis. The study employed the two step procedure proposed by Anderson and Gerbing (1988) to ensure an adequate measurement and structural model, meaning the analysis started with the first step of examining the measurement model, usually a confirmatory factor analysis (CFA) of all measured variables in which the factors are allowed to inter correlate freely. Once a satisfactory measurement model was obtained, the theoretical relationship structure was then tested.

Measurement model testing and results. The joint confirmatory factor analysis (CFA: with all constructs included simultaneously) employed for all three product categories. The results showed that, in durables, the chi-square for the overall model is 481.93 ($p < .01$), in non-durables the chi-square for the over all model was 532.91 ($p < .01$), and in services the chi-square for the overall model is 483.15 ($p < .01$). Other fit indices in durables, non-durables, and services was, including the comparative fit index (CFI = .914, .983 and .993) (NFI = .903, .995 and .932) and (RMSEA = .054, .057 and .048) were satisfactory because they

are equal to or better than recommended values. Thus, proposed model provides a reasonable explanation of the observed covariance among the constructs.

Construct validity.

Before the assessment of the hypothesized relationship, the study assessed dimensionality, reliability and validity using confirmatory factor analysis (CFA) for each product category (Bentler, 1995). Reliability is considered to be the indicator of convergent validity (Hair et al., 2009). To check reliability, the study measured internal consistency through Cronbach's Coefficient alpha (1954) and construct reliability through CFA. The results of CFA include the covariance between factors, loadings of the indicators to the respective factor and amount of measurement error for each indicator to each indicator. The coefficient alpha of each construct exceeded the cut off level of 0.60 for all product categories. Even though coefficient alpha is a commonly used measure it may underestimate reliability (Hair et al., 2009). Therefore the study calculated composite reliability through CFA. It is usually computed from the squared sum of factor loadings for each construct and the sum of the error variance terms for a construct. Reliability estimate is that 0.7 or

higher suggests good reliability (Bagozzi & Yi, 1988). Another set of measures that represent convergent validity is average variance extracted (AVE). AVE of 0.5 or higher suggests adequate measure of convergence. For each set of factors, the standardized loadings were found to be higher than the recommended 0.6 cutoff and were statistically significant at the .05 level, confirming the convergent validity (Bagozzi and Yi, 1988; Hair et al., 2009)(see Table 3). From the study, it is clear that the constructs confirm to convergent validity. The results are given in the Table 1.

Discriminant validity.

The study examined discriminant validity in two ways as suggested by Hair et al. (2009). The first way of assessing discriminant validity requires series of CFAs. In this procedure, first, the correlation between any two constructs can be fixed as one, meaning all the items in any of the two constructs would represent as one construct & will assess the goodness of fit of the CFA (one factor model). Then in the second stage, they will represent as two separate construct and will allowed correlate each other (two construct model). If the fit of the two-construct model is significantly better than that of one construct model, then discriminant validity is sufficient. From the study it is clear that in

Table 1
Results of CFA- Evidence of Construct reliability

Factor	Durables		Non-Durables		Services	
	CR	AVE	CR	AVE	CR	AVE
F1	.81	.65	.88	.70	.77	.62
F2	.82	.58	.82	.59	.80	.45
F3	.80	.57	.88	.63	.85	.53
F4	.87	.61	.86	.70	.84	.55
F5	.86	.66	.87	.67	.83	.61
F6	.83	.62	.85	.72	.88	.66

Note: CR = Composite reliability; AVE = Average variance extracted. F1 = Perceived Quality, F2 = Brand Reputation, F3 = Knowledge, F4 = Innovativeness, F5 = Similarity, F6 = Difficulty

all cases the fit for the two construct model (unconstrained) was significantly better than the fit of the one construct model (constrained)(see Table 2).

The second way of assessing discriminant validity is to compare the variance extracted percentages of any two constructs with the square of the correlation estimate between these two constructs if the variance-extracted is greater than the squared correlation estimate provide evidence of discriminant validity (Fornell & Larcker, 1981; Hair et al., 2009). In all cases, the results showed that AVE was greater than the squared correlation estimate. In this study, these two ways of assessing discriminant validity recommended by Hair et al. (2009) supported discriminant validity. Therefore, the measurement model meets all the psycho-

metric property requirements.

Structural model results.

To analyze the goodness of fit of the hypothesized model, the measurement model is re-specified by imposing the structure of each model in three categories. The fit indices of the structural model indicated a good fit to the data. In durables (Chi-square = 670 [318], $p = .000$, CFI = .830, IFI = .834, RMSEA = .074), in non-durables (Chi-square = 555.15 [318], $p = .000$, CFI = .934, IFI = .938, RMSEA = .054), and in services (Chi-square = 405 [87], $p = 0.000$, CFI = 0.916, IFI = .922, RMSEA = .03). The results showed no evidence of improper solutions. To summarize all, the fit indices in this model are found to be good and supporting the hypothesized model fit. The study tested each hypothesis by examining path coefficients. Tables 4–6 show the SEM

results of the hypothesized model in durables, non durables and services.

Tests of Hypotheses

Tables 4–6 provide the results of hypotheses testing via structural equation modeling. H_1 proposed that perceived quality of the parent has a positive impact on brand extension evaluation in all three categories (durables, non-durables, and services). From the results, it evident that the null hypothesis is rejected ($p = .000$). Hence, H_1 is supported.

H_2 proposed that reputation of the parent brand has a positive impact on brand extension evaluation. From the results of SEM, it is clear that the hypothesis is significant in durables, non-durables and services at $p = .000$. Hence, H_2 is supported.

H_3 proposed that, when consumer knowledge about a particular product category is low, brand extension evaluation would

Table 2
Results of CFA—Evidence of Discriminant Validity

Factors	$\Delta\chi^2 (\Delta df)^a$		
	Durables	Non durables	Services
PQ &R	122.18 (1)*	128.23 (1)*	178.88 (1)*
PQ &K	133.12 (1)*	144.12 (1)*	190.99 (1)*
PQ &I	145.23 (1)*	166.12 (1)*	188.77 (1)*
PQ &S	121.33 (1)*	111.12 (1)*	146.11 (1)*
PQ &D	98.44 (1)*	155.11 (1)*	123.33 (1)*
R & K	94.11 (1)*	132.13 (1)*	155.65 (1)*
R &I	135.22 (1)*	116.32 (1)*	172.77 (1)*
R &S	132.88 (1)*	161.14 (1)*	153.34 (1)*
R & D	101.11 (1)*	112.34 (1)*	166.10 (1)*
I& K	99.23 (1)*	155.76 (1)*	176.65 (1)*
I& S	112.12 (1)*	124.16 (1)*	114.99 (1)*
I&D	103.11 (1)*	119.11 (1)*	187.85 (1)*
K &S	143.33 (1)*	143.22 (1)*	165.99 (1)*
K&D	163.77 (1)*	132.78 (1)*	165.77 (1)*
S&D	111.11 (1)*	144.18 (1)*	143.88 (1)*

Note: ^a The Figures reported in the table shows $\Delta 2$ values between a two factor model and a one-factor model. Figures in parenthesis are Δdf values between a two factor model and a one-factor model. * $p < .001$: PQ = Perceived quality, R = Reputation, K = Knowledge, I = Innovativeness, S = Similarity and D = Difficulty.

Table 3
Results of CFA—Fit Statistics and Standardized Parameter Estimates

	Durables	Non-Durables	Services
(i) Fit Statistics			
N	202	214	204
χ^2	481.93	532.91	483.15
CFI	.914	.983	.993
NFI	.903	.995	.932
RMSEA	.054	.057	.048
(ii) Standardized Parameter Estimates			
<u>Perceived Quality of the Parent Brand</u>			
V1	.762	.768	.808
V2	.701	.802	.751
V3	.779	.844	.854
V4	.879	.738	.743
V5	.780	.713	.744
<u>Perceived Quality of the Parent Brand</u>			
V6	.886	.854	.766
V7	.825	.695	.799
V8	.767	.834	.844
V9	.741	.855	.998

**Table 3
(continued)**

	Durables	Non-Durables	Services
Consumers' Knowledge			
V10	.931	.644	.844
V11	.979	.766	.846
Consumers' Innovativeness			
V12	.601	.717	.716
V13	.722	.678	.833
V14	.701	.616	.830
V15	.691	.617	.838
V16	.776	.777	.766
Similarity or Fit			
V17	.681	.708	.879
V18	.601	.706	.724
V19	.729	.756	.818
V20	.749	.609	.640
Difficulty Making the Product Category			
V21	.644	.773	.908
V22	.696	.649	.842
V23	.699	.713	.751

All the standardized regression weights are significant at $P < .001$.

**Table 4
SEM Result of Hypothesized Model in Durables—Sony Vaio**

			Unstandardized				Standardized
			Estimate	SE	CR	p	Estimate
EE	<---	QTY	.081	.040	2.047	.041	.146
EE	<---	REP	.279	.051	5.485	***	.541
EE	<---	KNOW	.064	.083	.768	.442	.128
EE	<---	INNOV	.234	.073	3.218	.001	.281
EE	<---	SIMI	.180	.068	2.653	.008	.229
EE	<---	DIFF	.016	.051	.308	.758	.024

*** shows significant at 1%

Table 5
SEM Result of Hypothesized Model in Non-Durables—Colgate Max Fresh

			Unstandardized				Standardized
			Estimate	SE	CR	p	Estimate
EE	<---	QTY	.136	.026	5.150	***	.474
EE	<---	REP	.090	.024	3.707	***	.224
EE	<---	KNOW	.069	.018	3.843	***	.156
EE	<---	INNOV	.016	.011	1.532	.126	.072
EE	<---	SIMI	.023	.009	2.385	.017	.116
EE	<---	DIFF	.001	.009	.114	.909	.005

*** shows significant at 1%

Table 6
SEM Result of Hypothesized Model in Services—ICICI Prudential

			Unstandardized				Standardized
			Estimate	SE	CR	p	Estimate
EE	<---	QTY	.118	.035	3.352	***	.214
EE	<---	REP	.243	.044	5.468	***	.543
EE	<---	KNOW	-.045	.031	-1.444	.149	-.104
EE	<---	INNOV	.033	.027	1.218	.223	.070
EE	<---	SIMI	.321	.060	5.344	***	.666
EE	<---	DIFF	.033	.038	.884	.377	.055

*** shows significant at 1%

Note: QTY = perceived quality, REP = Reputation, KNOW = Knowledge, INNOV = Innovativeness, SIMI = Similarity, DIFF = Difficulty and EE = Extension evaluation

be positive. From the results of SEM, except in non-durables, the null hypothesis is not able to be rejected. Hence, H₃ is partly supported.

H₄ proposed that innovativeness of consumers has a positive impact on brand extension evaluation. From the results

of SEM, it is clear that, except in durables, in all other two cases (non-durables, the null hypothesis is not able to be rejected. Hence, H₄ is partly supported.

H₅ proposed that when a similarity fit between the parent brand and its extension exists, brand

extension would be positive. The SEM result shows that, in durables, non-durables, and services, similarity fit has a positive impact. The null hypothesis is rejected. Hence, H₅ is supported.

H₆ proposed that, when there is difficulty of making a particular product category, the brand

extension evaluation would be positive. The result shows that in durables, non-durables, and services the difficulty does not have any significant impact, and so the null hypothesis is not able to be rejected in the three product categories. Hence, H_6 is not supported.

Measurement invariance.

The study examined measurement equivalence across three product categories, durables, non-durables, and services, using Multiple-group analysis (MGA) as suggested by Steenkamp and Baumgartner (1998). Table 7 shows the five factor extension evaluation CFA (measurement model) using data from all three product categories simultaneously. In Table 7, the first row represents the hypothesized model (Model 1). In this model, no equality constraints were imposed. As noted in the table, the X^2 value of 2049.89, with 465 degrees of freedom, provides the base line value against which all subsequent tests for invariance will be compared. The CFA and RMSEA values of 0.811 and 0.063, respectively, are indicative that the hypothesized three-factor model of brand extension evaluation (three product categories) is well-fitted across the three product categories, indicating factor structure invariance or configural invariance across product categories. The

study then tested another five-factor brand extension evaluation model on all three product categories simultaneously, after constraining the loading estimates to be equal across the three product categories. Though resulting fit indices for this model were adequate ($X^2 = 2351.01[523]$, $p < .001$; CFI = 0.782; RMSEA = 0.064), the change in chi-square between the two models was significant, indicating factor loading or metric non-invariance among the three product categories ($\Delta X^2 = 301.12[58]$; $P < .001$).

According to Steenkamp and Baumgartner (1998), full measurement invariance seldom holds (Pappu & Quester, 2010). Hence they recommend the researchers test partial measurement invariance. Table 7 (Rows 4–9) shows testing of measurement invariance of each factor across product categories. From the analysis, it is found that for three factors the chi-square difference was insignificant, indicating metric invariance among the three product categories in terms of these three factors. This is the same case for both measurement and structural model shown in Table 8. From the results it can be concluded that there are differences in evaluation between these three product categories in terms of knowledge, similarity and difficulty.

Discussion, Implications and Directions for Future Research

This research has examined consumers' evaluation of brand extensions with a view to identifying the relative importance of factors in durables, non-durables, and services and differences in evaluation mechanisms with respect to the factors in these product categories. The overall results of the confirmatory factor analysis demonstrated consumers' evaluation of brand extension is a six dimensional construct. The hypothesized six factor model fits the data well for three product categories. From the identification of relative importance of factors in three product categories, it found that in durables reputation having the more impact on extension evaluation. In non-durables, quality has more impact, and, in services, it is similarity.

From the results it is evident that if any company or brand going for extension in durables, brand reputation is an important matter. Therefore, it is considered that a consumer would buy a durable extension product mainly on the basis of reputation that the parent brand has already created in the market or in the minds of customers. Another important factor is consumer innovativeness.

Table 7
Measurement Model Invariance Results for Durables, Non-Durables, and Services Groups

Model Description	Comparative Model	X²	DF	ΔX²	Δdf	Statistical Significance	CFI	RMSEA
1. Hypothesized Model (Model 1)	Model 1	2049.89	465	—	—	—	.811	0.063
2. Factor Loadings, Variances, and Covariance Constrained to Equal (Model 2)	Model 1	2351.01	523	301.12	58	Sig	.782	0.064
3. Factor Loadings Constrained Equal (Model 3)	Model 1	2204.75	493	154.86	28	Sig	.795	0.064
4. Factor Loading of Quality Constrained Equal (Model 4)	Model 1	2061.24	471	11.35	6	Sig	.810	0.063
5. Factor Loading of Reputation Constrained Equal (Model 5)	Model	2167.95	471	118.06	6	Sig	.797	0.065
6. Factor Loading of Knowledge Constrained Equal (Model 6)	Model 1	2054.95	467	5.06	2	NS	.810	0.063
7. Factor Loading of Innovativeness Constrained Equal (Model 7)	Model 1	2064.25	469	14.73	4	Sig	.810	0.063
8. Factor Loading of Similarity Constrained to Equal (Model 8)	Model 1	2054.62	471	4.73	5	NS	.811	0.063
9. Factor Loading of Difficulty Constrained Equal (Model 9)	Model 1	2051.62	469	1.73	4	NS	.811	0.063
10. Covariance Constrained Equal (Model 10)	Model 1	2179.52	495	129.63	30	Sig	.799	0.063

Notes: Table 7 shows measurement invariance tests through a CFA constrained at several levels: X² = Chi Square; ΔX² = difference in Chi Square; DF = degrees of freedom; Δdf = difference in degrees of freedom between models; CFI = comparative fit index; and RMSEA = root mean square error, Sig = significant; NS = Non-Significant.

Table 8
Structural Model Invariance Results for Durables, Non-Durables, and Services Groups

Model Description	Comparative Model	X²	DF	ΔX²	Δdf	Statistical Significance	CFI	RMSEA
1. Hypothesized Model (Model 1)	Model 1	5348.53	957	—	—	Sig	.638	.073
2. Factor Variance on All the Dimensions	Model 1	5419.99	969	71.46	12	Sig	.633	.073
2. Factor Variance on Quality Constrained Equal	Model 1	5630.10	689	11.57	2	Sig	.637	.073
3. Factor Variance on Reputation Constrained Equal	Model 1	5373.16	959	24.63	2	Sig	.636	.073
4. Factor Variance on Knowledge Constrained Equal	Model 1	5309.29	959	-39.24	2	NS	.641	.073
5. Factor Variance on Innovativeness Constrained Equal	Model 1	5360.67	959	12.14	2	Sig	.637	.073
6. Factor Variance on Similarity Constrained Equal	Model 1	5316.25	959	-32.28	2	NS	.640	.073
7. Factor Variance on Difficulty Constrained Equal	Model 1	5315.95	959	32.58	2	NS	.640	.073

Notes: Table 8 shows Structural Model Invariance tests at several levels: X² = Chi Square; ΔX² = difference in Chi Square; DF = degrees of freedom; Δdf = difference in degrees of freedom between models; CFI = comparative fit index; and RMSEA = root mean square error, Sig = significant; NS = Non-Significant.

In the market, several products are available in the same product category, and so, if a product is newly introduced in the market, consumers will use their innovativeness. In this study Sony was selected as the parent brand. It was considered to be one of the cult brands and so the consumer would think or expect something different or a more advanced version of the product. Consumers' innovativeness would work as an important factor that determine the extension evaluation in durables.

The SEM results in non-durables have shown that perceived quality as the important factor that influences consumer evaluation of brand extensions. In non-durables, Colgate was considered as the parent brand and the toothbrush as its extension. If a consumer had an intention to buy an extension product in non-durables he or she would consider the quality of the parent brand because the consumer would not have any information other than quality of the parent brand. In short, the consumer will depend solely on the perceived quality. The second important factor is reputation, Colgate is a reputed brand and as the consumer does not have any idea about the extension, the evaluation depends completely on quality and reputation of the parent brand. Knowledge about the

product category and similarity fit also had a significant impact on evaluating an extension. If a consumer does not have any knowledge about particular product category that he or she proposes to buy, the risk associated with the buying decision is very high. Hence, the consumer will depend on the brand having good quality and reputation. In the same way, the consumer will think about the brand extension in the same or related product category. In non-durables, it was found that the "innovativeness" and "difficulty of making the particular product category" had no significant impact.

The SEM results in services show that quality, reputation, and similarity have a significant impact in consumer evaluation of brand extensions. Among these, similarity is the important factor that influences the extension evaluation. Services are intangible in nature and so the consumer would consider similarity characteristics of the services that occur in three ways (transfer, substitutability, and complementarity). The study considered ICICI banking services and ICICI Prudential as the parent brand and extension service respectively. Rather than considering quality and reputation as prime factors, consumers will think of the similarity of the parent

brand service and its extension brand service. This research showed that innovativeness and difficulty did not have any significant impact on consumer evaluation of brand extensions.

The study also offers methodological improvements over the existing brand extension literature through identifying the differences in consumer evaluation mechanism in three product categories via multi-group causal modeling and results showing that in terms of some factors the consumer evaluation is different in different product categories. From a managerial perspective, it is important to note that, even if a durable company is attempting a non-durable extension, it can understand the differences and introduce a product in the market not in terms of factors influence in durables but in terms of factors in non-durables.

Limitations and Avenues for Future Research

Despite its conclusive nature, the present study faced some limitations which must be addressed by future research. The first concern relates to generalization across product categories and parent brand: this study considered only a limited number of product categories and parent brand and so it is difficult to

generalize with the limited number of product categories. From a practical standpoint, it is important that generalizations across extension and product categories are achieved by performing large number of comparisons. The results of some replication studies (e.g., Sunde & Brodie, 1993) emphasized the need for generalizations across product categories and parent brands.

The second concern relates to generalization across consumers; consumers are considered heterogeneous in nature. Some earlier studies showed differences in consumer evaluation across cultures. The current study conducted in the Indian context; therefore, there is a difficulty in generalizing the study across other cultures.

A third concern relates to the student sample; as students are only a small portion of the consumer make-up. An exact brand extension study requires consumers who are actually decision makers. Therefore, the study failed to consider that aspect.

A fourth concern relates to failure to consider a larger number of factors; the study considered only six factors that determine consumer evaluation of brand extension. From the goodness of fit measures in durables, it is clear that the study required more factors in evaluation as well as a need to simultaneously evaluate the influence of

other factors in extension evaluation.

The present study can be more relevant if it had been conducted with a different type of consumers from different countries. This would demonstrate the cultural impact upon brand extension evaluation.

In some brand extension research, reciprocity effects are well-identified (Buchanan, Simmons & Bickart, 1999; Gurhan-Canli & Maheswaran, 1998; Loker & John, 1993). In the case of brand extension, the problem is the negative and positive impact of extension to the core brand (spill over effects). A study is needed to understand the spillover effect of extension to the core brand. In this case, two areas need further consideration—over extension and ownership effects.

Further directions for research may also include the examination of country equity spillover on extension evaluation. Country equity spillover becomes relevant in branding when a brand name is used on two or more products using the parent brand's country images and associations to introduce a new product in the market. Balachander and Ghose (1993) defined two types of spillover effects in branding: forward spillover and reciprocal spillover. If the images and associations of the parent brand (the product that originally used the brand name) are transferring to

the child or extension is called *forward spillover*. On the other hand, if the transfer happens in both ways, from parent brand to extension and vice versa, it is called *reciprocal spillover*. Dwivedi et al (2009) studied the impact of brand extensions on parent brand known as *feedback effect*. Buil et al (2009) used this feedback effect and analyzed the brand extension strategies have on parent brand equity.

Brand knowledge helps consumers recall product information, evokes positive affect toward the brand, and simplifies purchase decisions. Brand knowledge influences consumers' brand choice, preferences, and intention to purchase. Therefore, it is essential to understand how consumers' perceptions of a parent brand are formed and how consumers' brand associations influence brand extension evaluation. Keller's (1998) customer based brand equity model explains the different dimensions of brand knowledge; however, none of the studies made an attempt to explain and investigate how the components of brand knowledge simultaneously impact consumers' evaluations of brand extensions. Keller's (1998) model does not take in to account the different level of involvement in brand knowledge under congruity, moderate incongruity, and

incongruity with parent brand and extension exists.

Recently, marketers have been following several strategies such as co-branding, bundling, dual-branding, etc. Co-branding means two famous brands together coming out with a new brand, bundling refers to marketing of two products or services in a single package for a special price, and dual-branding refers to relationships among retailers sharing a single location. This strategy is very familiar in the fast food industry and retail chains as they make alliances and create dual brands or other forms of multiple brands. The robustness of the study would have been better if the present study was extended to these unexplored areas.

It may be worthwhile for future research to identify a larger number of factors in brand extension evaluation and study the simultaneous effect of these factors in brand extension.

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Appendix A

Measures Used in the Main Empirical Study

Dimensions

Perceived Quality of the parent brand

- The perceived overall quality of the X is good.
- I expect the brand X to be of high quality
- I expect the X to be superior durable Brand
- The reliability of the brand X is good.
- The trustworthiness of the brand X is good

Brand reputation of the parent brand

- Altogether, I am very positive to brand X.
- Altogether, I am very satisfied with brand X.
- Altogether, I associate positive things with brand X.
- As far as reputation is concerned, I am very positive to the brand X.

Knowledge

- If I had to make a decision about buying a laptop, today I would need very little information.
- If a friend asked me about laptop, I could give him a lot of information.

Innovativeness of consumers

- I am continually seeking new ideas and experiences.
- When things get boring I like to find some new and unfamiliar experience.
- I sometimes like to do things involving danger.
- I like surprises.
- I like to experience change and novelty in my daily routine.

Similarity

- I believe there is a strong overall degree of similarity between the X and its extension Y.
- The people, facilities and skills used in developing refining and making of brand X be helpful in making Y.
- The complementarity of the X television and extension product Y is good.
- How would you rate the substitutability of the X television and extension product Y.

Difficulty

- I believe there is difficulty in designing the extension product category.
- I believe there is difficulty in developing the extension product.
- I believe there is difficulty in manufacturing the finished product.

Overall evaluation

- The perceived overall quality of brand extension is good.
- Overall I would be very positive to brand X and its extension Y.
- Altogether my attitude toward brand extension Y would be very favorable.
- Overall evaluation of the brand extension as Y relative to the existing brands in the extension category is one of the best.

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