The Impact of Vertical Line Extensions on Parent Brand Evaluation
— Perspective of Product Innovation

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ABSTRACT
The objective of this study is to examine the impact of vertical line extensions on the evaluation of the parent brand from the perspective of product innovation. A 2(extension: upward and downward) x 2(innovation information: with and without) x 2(extension degree: price increase/decrease 25% and 50%) x 2(price class: high and low) between-subjects factorial design was employed to test consumers' responses to vertical line extensions. Students at a University in central Taiwan were recruited via convenience sampling, resulted to 758 valid samples. The results showed that the upward line extension without product innovation information has positive impact on parent brand evaluations only in 50% price increase but not on 25%, while the negative impact of the downward extension also only happens in 50% price decrease but not for 25% price decrease. However, adding product innovation information to downward extension products can change the negative evaluations of parent brand to positive evaluations significantly for both 25% and 50% price decrease.

Key Words: Vertical Line Extensions, Product Innovation, Brand evaluation

INTRODUCTION
The vertical line extensions have been identified as one of the brand growth strategies by marketers via providing a price range of products under an existing brand name (Keller 1993). It usually extends to different variants in the same product category, but at different price points. Note that upscale/downscale extensions do not infer "superior" or "inferior" quality compared to other products in the same segment, but products with higher/lower prices, and more/fewer features compared to the parent brand. In practice, line extensions are more frequently used by the marketers than category extensions or new brand launches (Keller 1999; Kirmani, Sood and Bridges, 1999). In contrast, academic research has focused mainly on category extensions
(Nijssen, 1999) and line extensions are still an under-researched area. On the other hand, a substantial amount of studies on reciprocal transfer from extension product to the parent brand under category extension context (Broniarczyk and Gershoff 2003; Morrin 1999), but little research has been conducted from line extensions perspective (Randall, Ulrich, and Reibstein 1998).

Most of previous researches suggest that vertical extensions have a directionally consistent impact on price image, such that upscale extensions increase price image and downscale extensions decrease price image (Kim, Lavack, and Smith 2001; Lei, de Ruyter, and Wetzels 2008). We speculate that the key reason might be the price information is the single cue which has been used in the experiment of the research. In practice, the new vertical line introduction usually accompany the product innovation either adding new sophisticated feature for its upscale extension or reducing some trivial attributes but strengthening on new key feature. However, not only few study focus on the impact of product innovation on the vertical line extension, but the information of product innovation was often missed in the manipulation statement of experiment. According to Sinapuelsas and Sisodiya’s (2010) recent study on retail packaged goods, the higher the level of innovativeness of a new line extension, the higher is the parent brand equity. Boisvert’s (2012) findings in the service context show that extension innovativeness partially mediates the effect of extension quality on attitudes toward the parent brand, while parent brand innovativeness moderates the effect of extension innovativeness. Therefore, the objective of this study is to examine the impact of vertical line extensions on the evaluation of the parent brand from the perspective of product innovation.

**LITERATURE REVIEW**

By broader definition, brand extension is defined as using the same brand name to introduce different products either in the same or different categories. But from the narrower perspective, the brand extension is limited to the different category extension only (Keller and Aaker, 1992; Kim and Lavack, 1996; Kirmani, Sood, and Bridges, 1999; Sullivan, 1990). For the same category extensions, it is defined as another term call (product) line extensions which include either vertical extensions or horizontal extensions. Vertical line extension normally attempts to use different prices either upward or downward to enter different market segments, whereas horizontal line extensions involve line stretching (at the same price) by simply providing a new version, flavor, package, or new feature for meeting consumer’s need for variety. By means of upscale extensions, a superior version of the main product can target the
premium sector of the market. On the other hand, downscale extensions often entail both a lower quality level and a lower price point that suits the necessities of the value market (Aaker, 1997; Kirmani et al., 1999; Liu, 2002).

For the category extension, Loken and John (1993) report that lower-quality extensions have negative brand evaluation regardless of brand fit with the new category. Ahluwalia and Gürhan-Canli (2000) have similar findings which indicate that lower-quality brand extensions have neutral to negative effects on brand evaluation, whereas higher-quality extensions have neutral to positive effects. However, the different finding from Zimmer and Bhat (2004) indicate that neutral to positive effects happen across brand extensions of varying quality levels and fit.

The perceived fit of category brand extension plays a key role for the extension evaluation. However, despite the perceived fit between original and extended categories is missed for line extension, the up and down price extensions create different impact for the brand evaluation. Lei, De Ruyter, and Wetzels’s (2008) findings from two empirical studies in the hotel industry indicate that consumers perceive higher risks in step-up extensions than in step-down extensions, but a parent brand receives more positive evaluations after the introduction of a step-up extension than that of a step-down extension. Furthermore, they find that a higher-quality upward extension improved brand evaluation, whereas a lower-quality downward extension reduced it. Kirmani, Sood, and Bridges (1999) report that the evaluations of line extension happen differently due to the ownership effects and brand positioning. For prestige brand like BMW, owners rate it higher but nonowners rate it lower when upward extension. However, for non-prestige brand like Acura, owners rate it the same but nonowners rate it higher. Randall, Ulrich, and Reibstein (1998) find that a bicycle brand’s quality levels were sometimes correlated with a price-based brand-equity proxy but that the number of product versions within a product line was negatively correlated with that proxy. As for horizontal line extensions (same quality but new flavor, version or size), most of the research report the positive effects on helping building business growth (Berger, Draganska, and Simonson 2007; Draganska and Jain 2005).

An empirical investigation using a survey methodology conducted by Boisvert (2012) indicate that extension innovativeness positively mediate the relationship between the new extension and the parent brand. In addition, high equity brands benefit more from innovative line extensions while low equity brands benefit more from the solo advertising of their line extensions. Furthermore, parent brand perceived
innovativeness negatively moderates the impact of extension innovativeness on attitudes toward the parent brand.

A substantially lower or higher price for the extension product can provide the signal to the consumer that the new extension product is totally different market segment from the existing products. But this also provides different image of the quality–price perception for the parent brand. Musante (2007) argues that “the greater the difference between the brand's traditional price range and the price positioning of the new product, the less the perceived fit is.” In the upscale extension, Musante finds that a new product closer in price to the original offering achieves higher rating than a substantially more expensive alternative.

HYPOTHESES

H1a : Without product innovation information, upward line extension will have positive impact on its parent brand evaluation.
H1b : Without product innovation information, downward line extension will have negative impact its parent brand evaluation.

H2 : With product innovation information, both upward and downward line extension will all have positive impact on its parent brand extension.

H3a : Without product innovation information, the positive impact of upward line extension will increase when the extension range increase.
H3b : Without product innovation information, the negative impact of downward line extension will increase when the extension range increase.

H4 : The positive impact of stating product innovation information for both upward and downward line extension will increase when the extension range increase.

H5 : For upward/downward line extension, the positive impact of product innovation information will be higher significantly than that without product innovation information.
METHODOLOGY

A 2(upward and downward extensions) x 2(innovation information: with and without) x 2(extension degree: price increase/decrease 25% and 50%) x 2(price class: high and low) between-subjects factorial design was employed to test consumers' responses to vertical line extensions. Two control groups of two products were used as base line to check the effects of the experiments. Motorcycle (US$2,667) and TV game player (US$333) were chosen to represent high and low price products respectively. A fictitious brand name YSH was used for the experimental products to avoid possible impact of original brand image. Students at a University in central Taiwan were recruited as research subjects via convenience sampling, resulted to 758 valid samples which were randomly assigned to the experimental conditions.

Questionnaires were administered in classroom during the first or the last 10 minutes of the class. We asked participants to imagine that a company tried to launch a new extension product and need their evaluation first. At the first part of the questionnaire, participants would read the basic information of the company, the product function and price. Then, they would see the extension information. For those extensions without mentioning the innovation information were stated with new price and premium or economy versions for upward and downward extension respectively. But the different innovation information was put on each type of extension. For example, new online function and new smell function were the innovation of TV game player for 25% and 50% upward extensions respectively, and adjustable size and portable light design were the innovation for 25% and 50% downward extensions. After viewing the information of new product line introduction, participants were asked to provide their attitude evaluation toward the extension product and parent brand. The measurement of brand attitude was a three-item evaluation included likability, desirability, and attractiveness with 7 points Likert scale range from extreme disagree to extreme agree. The items were averaged to form a composite measure ($\alpha= .94$). For control group, participants just read the basic information the company without any extension information, which provide the base line for examining the experimental effects.
Table 1: The experimental design

<table>
<thead>
<tr>
<th>Products</th>
<th>Extension direction</th>
<th>Extension degree</th>
<th>Price (NT$)</th>
<th>w/o innovation</th>
<th>w/ innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV game player</td>
<td>Upward extension</td>
<td>+25%</td>
<td>12,500</td>
<td>premium</td>
<td>New online function</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+50%</td>
<td>15,000</td>
<td>premium</td>
<td>New Smell function</td>
</tr>
<tr>
<td></td>
<td>Downward extension</td>
<td>-25%</td>
<td>7,500</td>
<td>economy</td>
<td>Adjustable Size</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-50%</td>
<td>5,000</td>
<td>economy</td>
<td>Light and portable</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>Upward extension</td>
<td>+25%</td>
<td>100,000</td>
<td>premium</td>
<td>Satellite GPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+50%</td>
<td>120,000</td>
<td>premium</td>
<td>Air-condition function</td>
</tr>
<tr>
<td></td>
<td>Downward extension</td>
<td>-25%</td>
<td>60,000</td>
<td>economy</td>
<td>Folding function</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-50%</td>
<td>40,000</td>
<td>economy</td>
<td>Carry box design</td>
</tr>
</tbody>
</table>

RESULTS

At the first part, the effect of traditional line extension without stating innovation information was examined. The results reported in Table 2 indicate that the upward extensions have positive impact on the parent brand (versus control group) for both TV game player (4.37 vs. 3.94, t=1.989, P=0.05 for +25% and 4.52 vs. 3.94, t=2.755, P=0.007 for +50%) and motorcycle (4.05 vs. 3.87, t=0.838, P=0.404 for +25% and 4.44 vs. 3.87, t=2.580, P=0.012 for +50%). Meanwhile, consistent with our expectation, the downward extensions have negative impact on the parent brand for both TV game player (3.64 vs. 3.94, t=1.436, P=0.155 for +25% and 3.47 vs. 3.94, t=2.081, P=0.040 for +50%) and motorcycle (3.53 vs. 3.87, t=1.452, P=0.150 for +25% and 3.40 vs. 3.87, t=2.016, P=0.047 for +50%). The significant effects were expressed especially for the 50% price increase and decrease extensions. Thus, both H1a and H1b are supported. It appears that the single cue of price upscale and downscale extension will affect the parent brand image differently.

The second part of the analysis is to assess the effects of stating the innovation information on the manipulation of line extension. From the report shown on Table 2, the upward extensions, as expected, have positive impact on the parent brand for both TV game player (4.40 vs. 3.94, F=3.195, P=0.077 for +25% and 4.90 vs. 3.94, F=21.565, P=0.000 for +50%) and motorcycle (4.26 vs. 3.87, F=2.915, P=0.091 for +25% and 5.01 vs. 3.87, F=29.476, P=0.000 for +50%). The significant effects happened not only for 50% price upward extension but also for 25%. Meanwhile, the
effect of 50% price upward extension was higher than that of 25% price upward extension. On the other hand, the downward extension did not have negative impact, but have positive impact on the parent brand for both TV game player (4.50 vs. 3.94, F=5.238, P=0.025 for +25% and 4.45 vs. 3.94, F=4.544, P=0.036 for +50%) and motorcycle (4.55 vs. 3.87, F=7.305, P=0.008 for +25% and 4.41 vs. 3.87, F=4.504, P=0.037 for +50%). This indicates that stating the innovation information not only reduces the negative dilution image for the downward extension, but also builds significant positive brand image versus control group. Thus, H2 is supported.

Next, the different effects between 25% and 50% upward and downward extension were examined. We found that there was significant difference between 25% and 50% upward extension for both TV game player (4.40 vs. 4.90 F=4.009, P=0.042) and motorcycle (4.26 vs. 5.01, F=7.978, P=0.000) when stating innovation information. However, the impact was not significantly different between 25% and 50% downward extension for both TV game player (4.50 vs. 4.31) and motorcycle (4.55 vs. 4.41), when stating innovation information. As for those groups without stating information, the impact of parent brand attitude did not have any significant difference between 25% and 50% upward and downward extensions, even though the effects of 50% upward and downward extensions had significant higher than the control group but not for the groups of 25% upward and downward extensions. Thus, both H3a and H3b are not supported, but H4 is partially supported.

Finally, we compare the differences for upward and downward extensions between stating innovation information and without stating innovation information. For upward extension, the positive impact was not significantly difference between with and without innovation information for both TV game player (4.40 vs. 4.37, F=0.009, P=0.924) and motorcycle (4.26 vs. 4.05, F=0.984, P=0.324) when the price was up 25%. However, when the price was up 50%, the effects of stating innovation information were significantly higher than without stating group for both TV game player (4.90 vs. 4.52, F=3.418, P=0.068) and motorcycle (5.01 vs. 4.44, F=8.749, P=0.004). This indicates that the impact of stating innovation information will be bigger when the degree of upward extension bigger (from 25% to 50%). Thus, H5 is partially supported.
Table 2 The results of analysis

<table>
<thead>
<tr>
<th></th>
<th>Low price</th>
<th>High price</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>w/o Inno</td>
<td>w/ Inno</td>
<td>w/o Inno</td>
<td>w/ Inno</td>
</tr>
<tr>
<td>Upward +50%</td>
<td>4.52*</td>
<td>4.90**</td>
<td>4.44*</td>
<td>5.01**</td>
</tr>
<tr>
<td>Upward +25%</td>
<td>4.37*</td>
<td>4.40*</td>
<td>4.05</td>
<td>4.26*</td>
</tr>
<tr>
<td>Control</td>
<td>3.94</td>
<td>3.94</td>
<td>3.87</td>
<td>3.87</td>
</tr>
<tr>
<td>Downward -25%</td>
<td>3.64</td>
<td>4.50*</td>
<td>3.53</td>
<td>4.55**</td>
</tr>
<tr>
<td>Downward -50%</td>
<td>3.47*</td>
<td>4.31*</td>
<td>3.40*</td>
<td>4.41*</td>
</tr>
</tbody>
</table>

Ps The statistics demonstrate the significant difference vs. control group.

* P<0.05, **P<0.01
CONCLUSIONS AND IMPLICATIONS

The results showed that the upward line extension without product innovation information has positive impact on parent brand evaluations only in 50% price increase but not on 25%, while the negative impact of the downward extension also only happens in 50% price decrease but not for 25% price decrease. However, adding product innovation information to downward extension products can change the negative evaluations of parent brand to positive evaluations significantly for both 25% and 50% price decrease. As for upward extension, the reinforcement effect of product innovation only happens for 50% price increase but not for 25% price increase. The situation is almost the same for both two products in different price level.

Theoretically, this study brings new insights as well as closing an important theoretical gap in the literature regarding the complex dynamic effects of innovativeness in a context of a vertical line extension during launch as it reciprocally impacts attitude toward the parent brand. In practice, marketers must be careful to communicate the innovativeness of a new product because that can dynamically influence reciprocal attitudes toward the parent brand.

Reference upon request