Direct and Indirect Effects of Product Innovation and Product Quality on Brand Image: Empirical Evidence from Automotive Industry

Jalal Hanaysha, Haim Hilman, Noor Hasmini Abdul-Ghani
School of Business Management, Universiti Utara Malaysia, Malaysia

Abstract- This study examines the effect of product innovation and product quality on brand image with brand trust as mediator. Past studies paid less attention to empirically determine the relationship between the said variables on brand image and using brand trust as mediator between such independent and dependent variables. Therefore, this study aims to fill up this gap and contribute to the body of knowledge by examining the relationship between them. Data is collected using questionnaire from 287 passenger car users at shopping malls in Northern region of Malaysia. Specifically, systematic sampling procedure was followed during data collection. The data is analyzed using structural equation modeling (AMOS). The findings indicate that product innovation and product quality have significant relationship with brand image. The findings also reveal that product innovation and product quality have significant relationship with brand trust. Additionally, brand trust mediates the relationships between product innovation and brand image. It is also found that brand trust mediates the relationship between product quality and brand image. Based on these findings, several conclusions were made with some recommendations for future researches to strengthen our understandings toward the process of developing brand image.

Index Terms- Brand image, brand trust, product innovation, product quality.

I. INTRODUCTION

Due to the high competition in business markets, it has become very important for organizations to focus on branding mechanisms of their products. Particularly, building brand equity is regarded as the key determinant of the strength of a brand and its surveillance is considered to be the primary step in successful brand management (Aaker, 1991). Brand image is one of the key assets of brand equity which forms the overall evaluation of customers toward a brand (Keller, 1993). No doubt, building favourable brand image is one of the main objectives for several organizations. This is because organizations with favourable brand image can obtain higher market share, charge premium price, and further increase their profit margins. In business scenario, brand image forms the basis for making better strategic marketing decisions about targeting certain market segments and product positioning (Lee, James, and Kim, 2014).

Based on the review of past literature, it shows that several factors contribute to the development of brand image. However, this study focuses on product innovation, product quality, and brand trust as key determinants of brand image. This is because empirical research on the relationship between the said variables is limited. Moreover, it is rare to find a study that came across examining the relationship between product innovation and product quality on brand image with brand trust as a mediator between them in one research framework. Therefore, this study aims to fill up this research gap and provides an empirical evidence on the effect of product innovation and product quality on brand image. It also aims to test the relationship between product innovation and product quality with brand trust, because previous studies have somewhat ignored the relationship between them. Based on the above statement, this research gathers significance because of the unprecedented combination of the variables opted in this empirical research.

In order to accomplish the objectives of this study, the automotive industry in Malaysia is selected. This is because the industry contributes significantly to the economy of the country. As for Malaysia’s strategic plans for the next years, this industry is expected to contribute to higher percentage of GDP and create greater demand for new vehicles (Ahmad, 2014; Malaysian Automotive Association [MAA], 2014). The government of Malaysia is also working hard to create positive brand image of local industries in international markets, besides making the country as base for global automotive manufacturing. Therefore, this research is designed to help this industry to achieve its targets through its findings and recommendations. The preceding section reviews the literature on the variables selected in this study and explain how they relate with each other.

II. LITERATURE REVIEW

Brand Image

Brand image is one of the key elements of brand equity which forms the basis of brand success (Keller, 1993). It refers to the set of associations related to a brand developed in customer’s mind. A relative advantage of brand image is represented in the entrance barrier to any market, as customers mainly prefer brands with a strong image during their purchasing decisions (Nikhashemi, Paim, Sidin, and Osman, 2013). Keller (2001) conceptualized brand image in terms of brand associations, brand performance, brand imagery, consumer judgments, and consumer feelings shaped in the minds of customers. On the other hand, Aaker (1991, 1996) thought about brand image as unique set of associations that brand strategist aspires to build or sustain. Ross, James, and Vargas (2006) further described brand image as the
thoughts that come to consumers’ minds immediately when a brand is mentioned.

According to Saydan (2013), brand image is essential for marketing experts and customers. Particularly, he indicated that marketing experts use brand image in differentiating, positioning, and extending the brand, besides establishing favourable attitudes and feelings towards the brand and providing the benefits of purchasing and selecting that brand. Practically, consumers utilize brand image to process, organize, and recall the data in their memories about it to form purchasing decision (Aaker, 1991). Therefore, in order to clearly convey the company’s goal and to position its brand, proper brand images are essential (Lee et al., 2014). Moreover, the creation of well-defined and well-addressed brand image will as a result empower practitioners to improve brand equity, which is the ultimate goal of any organization.

Therefore, creating a positive brand image is considered as the initial and most essential step in positioning a brand in the targeted marketplace (Andrews and Kim, 2007; Park, Jaworski, and MacInnis, 1986). Evidently, brand image is a significant concept that should not be overlooked by organizations at any phase of the brand’s life cycle. Roth (1995) indicated that a brand image strategy must be designed to correctly position a product for the targeted market segment. This is because a positive brand image provides several benefits such as higher revenues and improved customer loyalty. In addition, a positive brand image can enhance marketing communication effectiveness (Keller, 1993). Andrews and Kim (2007) indicated that it is important to establish a positive brand image at earlier stages in order to facilitate handling future problems and issues that may happen without significantly hindering organization’s overall growth.

**Product Innovation**

Product innovation is one of the key factors in the success of several brands. It was described by Vazquez-Brust and Sarkis (2012) as new product design launched by a brand for profitable purposes that aim to promote the quality and features of products which basically stem from the creative designs during production process. Product innovation covers several aspects such as new product development, improvement in design of established products, or utilization of new resources or components in the creation of established products (Policy Studies Institute [PSI], 2010). In general, product innovation comes from a brand’s ability to bring something new to the marketplace which enhances the degree and quality of products.

For several organizations, successful product innovation is an engine of growth (Pauwels, Silva-Risso, Srinivasan, and Hanssens, 2004). This is because products with unique and differentiated features provide additional value to customers, and thus, influence their purchasing decision. In large organizations which successfully managed to build trustworthy brand names worldwide, innovation is becoming their common practice to create positive perception among customers. One of the possible means to ensure innovations comes from a firm’s ability to come up with quality products and attractive product designs such as the case of automotives. Moreover, product innovation occurs when a firm creates something unique that makes competitors hard to copy or imitate such as technological features attached with a product to enhance its value.

Product development and innovation are essential to firm’s success (Yalcinkaya, Calantone, and Griffith, 2007). Especially in high-tech industries (Kim, and Huarr, 2011; Madhok, and Osegwitsch, 2000). Product development and innovation allows companies to gain competitive advantage, attract new customers, retain existing customers, and strengthen the relationships with their distribution channels (Keller, 2003). Besides, Pauwels et al., (2004) found out that innovation through new product introductions enhances long-term financial performance and brand value. Deloitte (2006) demonstrated that the long-term success of global brands in emerging markets depends on innovative product offerings. He concluded that to be successful in international markets, firms need to completely improve their products to fulfill the expectations of customers and meet market conditions.

According to Andrews and Kim (2007), a brand can influence customer’s purchasing decision through introducing new innovative products with unique features in comparison with other brands. They demonstrated that innovations such as the introduction of new features and enhancements are some of the most common methods for differentiating products and protecting brand image. Undoubtedly, innovation can improve the quality of products, enhance brand image, reinforce customer loyalty, and attract possible customers (Ottenbacher, and Gnoth, 2005). Moreover, certain scholars believe that product innovation represents a key consideration factor in affecting consumers when making a purchase (Boyd, and Charlotte, 1999; Shiau, 2014).

As for the relationship between product innovation and brand image, Tidd et al. (1997) believed that innovation and brand image are related terms used by organizations in their pursuit of survival and growth, which permit them to create new values for their assets. Moreover, Shiau (2014) indicated that product innovation had significant positive impact on brand image. He further added that good product innovation allows customers to perceive the superiority of product functions, which in turn enables them to develop a sense of satisfaction. The company on the other hand will have a sound brand image in the heart of its customers. Similarly, Dimyat (2011) found out that product innovation has significant relationship with brand trust. Based on the above discussion, the following hypotheses are presented:

H1: Product innovation has significant relationship with brand image.

H2: Product innovation has significant relationship with brand trust.

**Product Quality**

Product quality is an important positioning factor where customers’ intentions to purchase and repurchase a product reflect the quality level of the performance of that product. Danaee and Andalib (2013) defined product quality as consumer’s evaluation toward the overall value of a product according to the desired objectives. Similarly, Keller (2003) referred product quality to the customer's perception of the overall quality or advantage of a certain product in comparison with other products from same category under different brands. Product quality was described in past literature as the customer’s evaluation the product’s reliability, functionality, and
customization (Walter, Muller, Helfert, and Ritter, 2003). Product quality includes the attributes and features of a product that bears on its ability to satisfy and meet customers’ expectations (Yee, and Sidek, 2008).

Aaker (1991) argued that perceived quality can show the salient differentiation of a product and becomes a selective brand in consumers’ mind. A brand’s perceived product quality results from the overall evaluation made by consumers’ about aspects and elements relevant to the quality of its products [2001]. According to Nikhashemi, Paim, Sidin, and Osman (2013), the key elements which cover product quality include: performance, features, conformance, reliability, durability, and serviceability. Product quality directly affects purchasing decisions, especially when a customer is provoked or capacitated to generate a detailed evaluation of the purchase. Another relative advantage of product quality is the possibility to maintain a premium price, increase brand’s profitability and equity (Aaker, 1998).

Existing literature shows that perceived product quality of a brand is related positively to the extent to which the brand is distributed through stores with a good image (Yoo, Donthu, and Lee, 2000). Besides, Walter el al. (2000) demonstrated that the most effective way for a brand to develop trust among its customer is to provide them with positive experiences through the elements of honesty, benevolence, and competence. Particularly, if customers have already experienced that a brand is providing them with high quality products, they will be willing to trust that brand (Ganesan, 1994, Walter et al, 2003). Based on the discussion made above, the following hypothesis is presented:

H3: Product quality has significant relationship with brand image.

H4: Product quality has significant relationship with brand trust.

Brand Trust

Brand trust is one of the key concepts in brand relationship quality and it has received significant attention in past literature. It was defined by Chauduri and Holbrook (2001, p.82) as “The willingness of the average consumer to rely on the ability of the brand to perform its function Stated.” Morgan and Hunt (1994) declared that trust is a key variable in developing an enduring desire to keep a a long term brand relationship e.g. this relationship might be developed due to the trusting relationship that the customer has about that brand. Certain scholars (Shariff, Setyawati, and Kristina, 2012; Sheth, and Parvatiyar, 1995)suggested that brand trust is based on the idea of a customer’s brand relationship which is seen as an alternate for human contact between brands and their customers. They added that in current business scenario, trust becomes the most critical factor in the relationship between a brand and its customers. This is because trust requires long-term process for forming the relationship between both parties (Pavlou, 2003).

Brand trust arises from customer experience with regard to different behavioural elements such as confidence, honesty and reliability (Morgan, and Hunt, 1994). Similarly, Doney and Cannon (1997) argued that trust consists of two aspects: perceived credibility and benevolence. Particularly, consumers’ belief in the reliability and honesty of a brand increase their trust, and these beliefs may arise from familiarity with or understanding of the brand according to previous experiences i.e., the relationship with the brand (Bianchi, Drennan, and Proud, 2012). Specifically, trust reduces the uncertainty in an environment in which consumers feel especially vulnerable, because they know they can rely on the trusted brand (Gefen, Karahanna, and Straub, 2003).

Brand trust acts as an important mediating factor between customer behavior before and after purchasing a product (Liu, Guo, and Lee, 2011). It can lead to long-term loyalty and strengthens the relationship between a brand and its customers (Singh, and Sirdeshmukh, 2000). Particularly, when a customer trusts an brand, he or she has the confidence in its product quality. In the commitment-trust theory, Morgan and Hunt (1994) indicated that relationship quality concepts such as trust and commitment mediate the relationship between variable. They further recommended to examine their mediating effect in future studies. However, in this research we are interested in the direct effects of trust, as components of relationship quality on brand image besides its mediating effect on the relationship between product innovation and product quality on brand image. Therefore, the following hypotheses are presented:

H5: Brand trust has significant relationship with brand image.

H6: Brand trust mediates the relationship between product innovation and brand image.

H7: Brand trust mediates the relationship between product quality and brand image.

III. METHODOLOGY

This research follows quantitative approach whereby the data is collected through self-administered questionnaire from respondents. Specifically, the population of this study is comprised of passenger car users in Northern region of Malaysia. According to the official department of road and transport in Malaysia, the total number of passenger cars on road in Northern Malaysia as for the year of 2014 exceeds one million. Therefore, based on the suggestions of Krejcie and Morgan table (1976) for sample size determination, a sample of 384 is best suited for this number of population. Thus, 384 questionnaires were distributed personally to passenger car users at several shopping malls in Northern Malaysia. This study employs systematic sampling technique while collecting the data, whereby every 10th leaving customer is approached at the entrance to participate in filling the questionnaire.

There are four constructs in this study: brand image, product innovation, product quality, and brand trust. The measurement items of the constructs are adapted from previous studies. Particularly, the dependent variable which is brand image is measured using five items adapted from Nigam and Kaushik (2011) to fit the context of this study. As for product innovation, the measurement scale including seven items is adapted from Stock (2011). The items were reported at an acceptable reliability with Cronbach’s alpha of more than 0.7. Similarly, product quality is measured using 5 items adapted from Kennedy, Ferrellb, and LeClair (2001). Finally, brand trust is measured using five items adapted from Mohammad (2012) with some modification to fit the context of this study. The items were validated in past studied and had acceptable value of Cronbach’s
alpha. All items are measured on seven-point Likert scale ranging from 1= strongly agree to 7= strongly disagree. This scale has been accepted in past studies to be highly valid in measuring variables [Henard and Dacin, 2010; Ok, Choi, and Hyun, 2011; Zehir, Sahin, Kitapçi, and Ozsahin, 2011].

The collected data is analyzed on structural equation modeling using AMOS 18. At first, the reliability of constructs is calculated using Cronbach’s alpha. Besides, the measurement model was drawn to run confirmatory factor analysis (CFA) and calculate the factor loadings of items. Validity tests were further generated through discriminant validity and convergent validity. Then structural model based on the final results of CFA was drawn in order to test the hypothesized relationships between constructs. Based on the regression table, the hypothesis results were obtained.

IV. ANALYSIS OF RESULTS

Out of 384 questionnaires distributed, only 287 were returned back representing 72.6% of the response rate. The demographic profile indicated that out of 287, 136 (47.4%) were male and 151 (52.6%) were female. With regard to age, 12% of the respondents were less than 25 years old, while the majority representing 48.8% were between 25 and 35 years. Those whose age between 35 and 45 accounted for 16% of total response, where 22.6 belong to the age category of 45 years and above. Most of the respondents (75.3%) are Muslims; while 14.6% are Buddhists, 4.5% Hindu, 4.9% Christians, and 0.7% belong to other religions. On the education level, 43.2% obtain high school certificate, 21.6% have diploma, 25.4% have bachelor degree, 8% have postgraduate degree, and 1.7% have other certificate. Additionally, the reliability is conducted to determine the internal consistency among constructs. The results indicated that the Cronbach’s alpha of constructs exceeded the cut off value of 0.70 as recommended by Hair et al. (2010). Particularly, the Cronbach’s alpha of brand image is equal to 0.842, whereas product innovation and product quality had a Cronbach’s alpha of 0.905 and 0.926, respectively. Likewise, the Cronbach’s alpha of brand trust is equal 0.920 which is acceptable. To support the structural model and research hypotheses were evaluated after validating the measurement model. The structural model exhibited a good fit for the data whereby the chi-square ($\chi^2$) is significant at 196.059. Other fit indices were also used to support the chi-square ($df = 164, GFI = 0.919, AGFI = 0.884, CFI = 0.960, TLI = 0.951, and RMSEA = 0.068$). Based on the regression results of structural model, the hypotheses were tested. The results indicated that product innovation has significant relationship with brand image ($\beta= 0.258, CR= 2.872, p= <0.05$), thus H1 is supported. The relationship between product innovation and brand trust is also significant ($\beta= 0.189, CR= 2.454, p= <0.05$), thus H2 is also supported. Furthermore, the results indicated that product quality has significant relationship with brand image ($\beta= 0.291, CR= 2.991, p= <0.05$), therefore, H3 is also accepted. Likewise, the relationship between product quality and brand trust is significant ($\beta= 0.646, CR= 9.447, p= <0.05$), which means that H4 is supported.

Besides, brand trust has significant relationship with brand image ($\beta= 0.268, CR= 3.253, p= <0.05$), thus, H5 is confirmed. Meanwhile, product innovation and product quality explained 56% of total variance in brand trust. Besides, product innovation, product quality, and brand trust explained 32% of overall variance in brand image.

In order to test the mediation effect of brand trust between the independent variables and the dependent variable, Bootstrapping procedure was followed by testing the indirect effect according to the recommendations of Preacher and Hayes (2008). Bootstrapping is a powerful statistical method for testing indirect effects and computes better accuracy for confidence intervals (CI) of indirect effects in comparison with other statistical methods, such as the causal steps strategy (Baron, and Kenny, 1986) and Sobel test. In this study, both direct and indirect estimates of the generated model were calculated to test the mediating effect of brand trust between product innovation and product quality with brand image (Preacher and Hayes, 2008) with 1000 bootstrap samples. As presented in Table 1, bias-corrected confidence intervals were reported at the level of 95%.

The procedure for testing mediation as presented in Table 1 showed the significant direct effect of product innovation on brand image (0.007, 95% CI) and a significant indirect effect (0.022). Hence, the partial mediation is confirmed. Similarly, the results presented in the below table showed the insignificant direct effect of product quality on brand image (0.394, 95% CI) and a significant indirect effect (0.002). Therefore, full mediation was confirmed. This means that brand trust mediates the relationship between the independent variables; product innovation and product quality and the dependent variable; brand image, therefore, H6 and H7 are supported.
Table 1: Indirect effects of product innovation and product quality on brand image

| Mediating Effect | Bootstrapping | BC 95% CI | Mediation Test | | |
|------------------|---------------|-----------|----------------|---|
|                  | Estimate      | Std. Error | Direct Effect  | Indirect Effect|
| Product innovation | 0.191         | 0.026      | 0.007          | 0.022          |
| Product quality   | 0.048         | 0.081      | 0.002          | 0.002          |

V. DISCUSSION AND CONCLUSION

This study examined the effect of product innovation and product quality on brand image in addition to testing the mediating effect of brand trust between them. The results indicated that product innovation has significant relationship with brand image. This result was support by certain previous studies (Nemati, 2009; Shiah, 2014) which reported a significant relationship between product innovation and brand image. This means that product innovation plays an important role in enabling firms to develop strong brand image. Moreover, this study provides an evidence of the significant relationship between product innovation and brand trust. The result was supported by Dimyati (2011) who demonstrated that innovation creates a sense of trust among customers toward the manufacturing brand in delivering its products and services as expected. Thus, organizations cannot overlook the important role of product innovation in strengthening their brands.

In this research, significant relationship between product quality and brand image in automotive industry is also supported. This result is in line with some previous studies (Serrao, and Botelho, 2008; Tan, Liw, William, Michelle, and Tan, 2012), which reported a significant relationship between product quality and brand image. For example, Toyota is an automotive brand which successfully managed to create positive brand image among customers worldwide through high quality productions. Kaplan (2009) emphasized the significance of innovation in building strong brands and on the judgment of an innovative brand. This implies that in the automotive industry, there is a close relationship between product quality and brand image. Besides, this study found out that product quality has significant positive relationship with brand trust. This result was confirmed by certain scholars (Hameed, 2013; Jakpar, Na, Johari, and Myint, 2012) indicating that a brand which introduces high product quality would as a result gain higher levels of trust from customers in comparison with that of lower quality.

This study provides further evidence of the significant relationship between brand trust and brand image. This means that a brand which is perceived to be trustworthy in delivering what is promised to its customer would as a result lead to favourable brand image. The results of this study also contribute to the body of knowledge by providing an empirical evidence the mediating effect of brand trust between product innovation and brand image. Brand trust in this study also mediates the relationship between product quality and brand image. Based on these findings, it shows that brand trust plays a key mediating role between variables and it has significant effect on enhancing overall brand image.

This study has some limitations which would indeed open opportunities for future research. For example, this study has focused only on one product category which automotive, therefore, future studies can test the variables in different industry contexts. Moreover, this study focused only on car users in Northern region of Malaysia, thus, future research can look into the possibility of conducting similar work in other regions with larger sample size. Besides, this study is cross-sectional in nature, longitudinal data may yield different result. As for this study, quantitative research was employed to generate the findings, therefore, future research can utilize qualitative methodologies to gain better insights on the factors that matter to brand image. Finally, future studies can examine the effect of other factors such as after sale service and marketing communication on brand image.

REFERENCES


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Appendix: Measurement Scale of Constructs

**Brand Image**
1. This car brand has created a distinct image in my mind.
2. This car brand has given me whatever it promised to me.
3. This car brand provided me a better lifestyle.
4. This car brand I’m using is associated with the manufacturer’s image.
5. The staff of this car brand is able to build strong brand relationship with me.

**Brand Trust**
1. The car brand I’m using is trustworthy.
2. The car I’m using is reliable.
3. The car I’m using is being delivered on time.
4. The car I’m using is safe.
5. The car I’m using is beyond my expectations.

**Product Innovation**
1. This car brand is highly innovative compared to other car brands in the market.
2. This car brand is frequently updated with new models.
3. This car brand provides new alternatives for the customers.
4. This car brand is frequently supplemented with new features and specifications for the customers.
5. This car brand differs from competing models in the market.
6. This car brand frequently comprises new features which are meaningful to the customers.
7. This car is considered to be innovative in terms of product design.

**Product Quality**
1. The workmanship of the car brand appears to be of quality.
2. This car has good quality.
3. This car is functionable.
4. This car is dependable.
5. This car is durable.

**AUTHORS**
First Author - Jalal Hanaysha, Universiti Utara Malaysia, College of Business, E-mail: jalal.hanayshi@yahoo.com
Second Author - Haim Hilman, Universiti Utara Malaysia, College of Business, E-mail: hilman@uum.edu.my
Third Author - Noor Hasmini Abdul-Ghani, Universiti Utara Malaysia, College of Business, E-mail: hasmini@uum.edu.my
Corresponding Author - Jalal Hanaysha, Universiti Utara Malaysia, College of Business, E-mail: jalal.hanayshi@yahoo.com

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