Does effects of brand origin misperception jeopardize brand equity?

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Abstract

Purpose – The purpose of this study is to examine the effects of brand origin (BO) misperception (hereafter BOM) or non-identification on brand equity. Besides, the current study investigates the moderating role of brand strength in the relationship between BOM and brand equity.

Design/methodology/approach – The current study adopted a 4 (BO identification: favorable BOM vs adverse BOM vs non-identification vs correct identification) × 2 (brand strength: strong vs weak) between-subjects design. A total number of 547 participants performed assessments on the automotive brand. The current study selected three strong brands and three weak brands for tests. In the experiment, respondents had to associate the brand with its country of origin. The assignment of BO conditions was based upon respondents' natural responses provided. ANOVA was used for data analysis.

Findings – The results indicate that as compared to correct BO identification, BOM (either adverse or favorable) or non-identification exerts a more negative impact on brand equity. Moreover, the study demonstrates that brand strength moderates the effect of perceived BO on brand equity.

Originality/value – This study provides empirical support to the notion that BOM is detrimental to brand equity. Specifically, when adverse BOM occurs, a strong brand suffers more from the negative consequences resulted than a weak brand does. Conversely, when consumers misattribute the BO to a country with a stronger image than its real origin (i.e. favorable BOM), the resulting negative effect is reversed. Moreover, the non-identification of BO hurts the brand equity of both strong and weak brands.

Keywords Brand origin misperception, Country image, Brand strength

Paper type Research paper

1. Introduction

Brand equity depends on consumers' knowledge about a brand (Aaker, 1991). It is a valuable intangible asset that provides firms with a sustainable competitive advantage (Liu *et al.*, 2017, 2019). Country of origin (COO) is an essential factor determining a consumer's brand equity (Hamzaoui-Essoussi *et al.*, 2011). Schooler first published the seminal article about the COO effect in 1965. Since then, COO has become a widely discussed and researched topic in the academy with more than 1,000 publications (Samiee and Chabowski, 2012). The COO image refers to "the overall perception consumers form of products from a particular country, based on their prior perceptions of the country's production and marketing strengths and weakness" (Roth and Romeo, 1992, p. 480). COO serves as an essential basis for product evaluation (Kim *et al.*, 2017; Lascu *et al.*, 2020). According to the Nielsen (2016) survey, nearly 75% of global consumers make their purchase decisions based on COO information. Most research has revealed that consumers use country-related product associations as a summary

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cue to evaluate similar products from the target country (Swaminathan *et al.*, 2007). Given the globalization and prevalence of hybrid products, consumers often fail to identify the brand's real origin, a phenomenon that is denoted as brand origin misperception (BOM) (Balabanis and Diamantopoulos, 2008).

From the firm's perspective, the COO plays an equally important role. As companies get aware that consumers pay attention to the "made in" labels, firms try to manage their COO communication. To illustrate, Nespresso is "de-Swissified" by choosing George Clooney as the brand endorser. The purpose of adopting these strategies is to leverage the positive or reduce the negative spillover effect from the associated brand origin (BO) (Usunier, 2011). However, in reality, consumers may find information other than the BO being presented together simultaneously (Liu *et al.*, 2017). When a weak brand is coupled with a strong BO or vice versa, duality in information valence exists. The present study adopts the congruence theory and examines how country-related information (i.e. perceived BO) interacts with other information (i.e. brand strength) to affect consumers' attitudes.

Congruency refers to how two or more cues fit with each other, thus influencing the third variable, for instance, behavior, cognition or emotion (Morrin and Chebat, 2005). Krishna *et al.* (2010, p. 410) define cue congruence as "the degree of fit among characteristics of a stimulus." Mattila and Wirtz (2001) further concur that a match between products' paring can create preference and lead to positive emotional or behavioral outcomes. Incongruent cues result in lower perceived unity. When the incongruity levels exceed a certain threshold, the individual's ability to accommodate the object diminishes exponentially (Meyers-Levy and Tybout, 1989). The task to process extreme contradiction is taxing and results in negative evaluations (Mandler, 1982). Existing studies have well documented the congruency effect in the context of advertising (Liu and Liu, 2020), brand extension (Nkwocha *et al.*, 2005), atmospheric environment (Mattila and Wirtz, 2001) and product design (Noseworthy *et al.*, 2018). Yet, its application to examine the BOM effect remains limited. The current study examines how the multi cues interplay with each other and affect consumer's brand evaluation.

The present study contributes to the existing COO literature in two ways. First, prior studies have examined how COO relates to different dimensions of brand equity and how such relationships are moderated by other variables (Hamzaoui-Essoussi *et al.*, 2011). However, most of these COO studies reside on the implicit assumption that consumers can correctly identify a brand's origin. Thus far, there is relatively scant research examining the effects of BOM. The present study attempts to fill this research gap by examining the effect of BOM on brand equity. Second, contrary to the dominant view that the association with favorable COO will positively affect brand evaluation, drawing from the cognitive dissonance (Festinger, 1957) and congruity theory (Mandler, 1982), the present study documents a situation where its effect might be detrimental. During the decision-making process, consumers are likely to receive multiple information cues. The different pieces of information may not covey a congruent view about the particular brand. The current study examines how the match (vs mismatch) between perceived BO and the other information cue may influence consumers' brand evaluation.

2. Literature review and hypotheses

2.1 Country of origin (COO) and its dimensions
A large body of research has well documented the COO effect on consumers' evaluations and decisions (Kim *et al.*, 2017; Lascu *et al.*, 2020). COO information often serves as an extrinsic cue adopted by consumers to make inferences about product quality and mitigate perceived risk (Schätzle and Jacob, 2019).

Nagashima (1970, p. 68) defines the COO image as "the picture, the reputation, the stereotype that businessmen and consumers attach to products of a specific country." This image is composed of multiple variables, including representative products, national characteristics, economic and political background, history and traditions. Han (1989, 1990) further defines the COO image as consumers' general perceptions about the quality of product offerings made in a specific country and investigates the COO effect using two causal models: the halo model and the summary construct model.

Nagashima (1970) depicts the COO image as a profile comprised of five dimensions: (1) price and value, (2) service and engineering, (3) advertising and reputation, (4) design and style, (5) consumers' profile. Roth and Romeo (1992) identify four dimensions that consistently appear across most COO constructs: innovativeness, design, prestige and workmanship. Besides, Parameswaran and Pisharodi (1994) conceptualized COO as a multi-faceted construct composed of – general country attributes (GCA), general product attributes (GPA) and specific product attributes (SPA).

2.2 Brand origin misperception (BOM)

Various studies have similarly documented that consumer's BO accuracy is unexpectedly low (Liefeld, 2004; Magnusson *et al.*, 2011). When consumers assign wrong (vs correct) COO to the brand, they may differ in terms of brand evaluations and purchase decisions (Balabanis and Diamantopoulos, 2008). Such BOMs may arise as one of the following forms:

(1) Adverse BOM, consumers mistakenly perceive the brand as belonging to a country with a weaker image than its true origin.

(2) Favorable BOM, consumers mistakenly perceive the brand as belonging to a country with a stronger image than its true origin.

Apart from BOM, another prevalent phenomenon is the non-identification of brands to any COO. When consumers lack sufficient information about the brand, they may feel it difficult to identify similarities or apply categorization rules to classify the focal brand to the appropriate COO. Moreover, the brand's linguistic or phonological properties may not provide sufficient information for consumers to associate the brand with any country. Therefore, consumers may be unable to use it as a cue to make inferences (Balabanis and Diamantopoulos, 2008). Non-identification of the brand may weaken the brand association with COO and negatively affect consumer evaluation (Balabanis and Diamantopoulos, 2011).

2.3 Brand equity (BE) and it measures

Brand equity refers to "the set of associations and behavior on the part of a brand's customers, channel members and parent corporation that permits the brand to earn greater volume or greater margins than it could without the brand name" (Wood, 2000). Prior work by Aaker (1991, 1996) and Keller (1993) has great significance in giving guidelines in building the brand equity construct. Aaker (1991, 1996) defines brand equity as the set of brand assets and liabilities linked to a brand, its name and symbol that add or subtract from the value provided by a product or service to its customers. The author further delineates brand equity into five dimensions: brand loyalty, brand awareness, perceived quality, brand association and other proprietary brand assets. By contrast, Keller (1993) adopts a customer-based approach and defines brand equity as the differential effect of brand knowledge on consumers' reactions toward its marketing strategies. Brand knowledge is an associative network that consists of brand awareness and brand image.

There appear to be various forms and definitions for brand equity. An essential consensus among these definitions is that brand equity is the incremental utility or value added to the

product by its brand name (Yoo and Donthu, 2001). It is a valuable intangible asset that has positive effects on a firm's long-term profit (Stahl *et al.*, 2012), consumer's willingness to pay for premium prices (Keller, 1993) and the firms' ability to attain and sustain a competitive advantage (Hussain *et al.*, 2020). Although the perspective of customer-based brand equity has been proposed for over two decades, it is still frequently adopted by many marketing researchers (e.g. Sürücü *et al.*, 2019; Liu *et al.*, 2017).

2.4 Brand origin misperception, brand strength and brand equity

Recent research has started to cast doubt on the effect of COO on consumer behavior and suggest its influence may not be as extensive as prior research has assumed (Usunier, 2011). Due to globalization, it becomes difficult for consumers to identify the brand's real COO. Consequently, consumers may view COO information as less critical and salient (Chen *et al.*, 2020). Thus, there is an increasing consensus that consumer's perceived country of association (COA), as opposed to the brand's actual origin, may play a more crucial role in determining consumer perception and behavior (Zhou *et al.*, 2010). Some researchers further assert that "the focus in COO research should be shifted away from the objective accuracy of consumers' brand origin knowledge to the relevance of consumers' perceived COO associations" (Magnusson *et al.*, 2011, p. 457).

However, research relating to the consequences of BOM remains relatively scant, and the results are somewhat mixed. Balabanis and Diamantopoulos (2011) revealed an intriguing phenomenon: BOMs are mostly detrimental, irrespective of whether it is adverse (i.e. wrong association with a weak origin) or favorable (i.e. wrong association with a strong origin). Other researchers propose an alternative perspective. Magnusson *et al.* (2011) revealed that brands can benefit (vs suffer) from being mistakenly attributed to COO that has a stronger (vs weaker) image than their actual COO. Zhuang *et al.* (2008) examined the BOM effect on Chinese consumer's brand preferences. Their results show that the more a local brand is perceived as a foreign brand, the more positive brand preference resulted.

The present study tries to reconcile the seemingly conflicting view by introducing brand strength as the moderator and explaining the underlying mechanism by the congruence theory. Brand strength refers to the strength of consumers' attachment or associations regarding the brands (Fill and Turnbull, 2019). A strong brand induces more positive associations (e.g. good quality) and brand recall than a weak brand. Moreover, a strong brand reduces product risk perceptions, increases purchase intention and subsequently helps firms attain a larger market share (Stahl *et al.*, 2012; Liu *et al.*, 2013). Brand strength also influences consumer's brand preference (Hoeffler and Keller, 2003). Research establishes the linkage between brand strength and the COO effect. To illustrate, Ahmed *et al.* (2002) find that a positive COO image can compensate for a weak brand. A negative COO image, however, cannot be compensated by a strong brand.

2.5 Congruence theory

2.5.1 The need for congruence. A core assumption of the attitude theories is that people wish to pursue congruence in their behaviors over time. The motivation to strive for congruence is well supported by social psychological research, including the self-perception theory (Bem, 1972), cognitive dissonance theory (Festinger, 1957) and the attribution theory (Gilbert and Malone, 1995). The cognitive dissonance theory documented that people experienced discomfort when their actions and cognitions conflict. The incongruency subsequently makes their decisions less justifiable (Festinger, 1957). Similarly, the self-perception theory postulates that people learn about their preferences by observing the choices they have made over time. Once the person acknowledges the formation of preferences, he/she will seek

consistent decisions to affirm this preference (Bem, 1972). Congruency also relates to familiarity, security and positive feelings (Zajonc, 2001).

2.5.2 The cognitive dissonance theory. Festinger (1957) defined inconsistency as "*x* and *y* are dissonant if not-*x* follows from *y*" (p. 13). Cognitions are elements of knowledge that people have about their behavior, attitudes and the environment. Consonance occurs when one cognition follows logically from the other, and dissonance occurs when they go in the opposite direction. Consonance leads to confirmation of one's prior knowledge or perception. By contrast, dissonance is psychologically uncomfortable and motivates individuals to engage in inconsistency reduction behaviors (Harmon-Jones and Mills, 1999). The action-based dissonance model (Harmon-Jones *et al.*, 2009) further proposes that cognitions have implications for behavior; when there are inconsistencies between cognitions and actions, dissonance occurs because unconflicted and effective action cannot happen.

2.5.3 The congruence effect. Congruence refers to the "match" between the cognitive elements. Congruence breeds coactivation and leads to fluency (Winkielman *et al.*, 2012). Incongruence induces negative feelings (Elliot and Devine, 1994), signals error and incompatibility (Fernandez-Duque *et al.*, 2000). Besides, congruence affects the believability of an argument. More coherent relations are more likely to be accepted (Thagard, 2000). When there is a conflict between information, consumers are more likely to perceive the product as a counterfeit (Majid, 2017). Tseng *et al.* (2018) examine the role of ethnic product typicality in explaining the inconsistencies between explicit and implicit domestic country bias.

2.6 Model development

COO information itself can either be congruent or incongruent. Leclerc *et al.* (1994) examined the effect of congruence between COO and brand name on consumer's perceptions. Their results indicated that congruent information (i.e. brand name and COO information referred to the same country) did not affect product beliefs and attitudes. The rationale is that when the two pieces of information are congruent, they are likely to be redundant in terms of their impact on product perceptions. Conversely, incongruence between brand name and COO information may diminish consumer's hedonic perceptions toward the products. Hui and Zhou (2003) further documented that country-of-manufacture (COM) information exerted an impact on consumer's evaluations only when there was incongruence between COM and the BO.

Given the consumer's vague sense of the actual geographic origin of brands and the proliferation of hybrid products (Chen *et al.*, 2020), the present study primarily focuses on examining the effect of consumer's perceptions of BO on brand equity. Perceived BO and brand strength each can represent a distinctive piece of information. In line with the previous research, we draw on the congruence theory to explain the BOM effect on brand equity. The current study hypothesizes that the (in)congruity between BO and brand strength information may affect consumer brand equity. Indeed, prior research has provided ample support for the importance of (in)congruity effect in the consumer decision-making process. First, based on the cognitive dissonance theory, dissonance leads psychological discomfort (Festinger, 1957). Consumers tend to prefer cognitive elements that are in coherence with each other (Noseworthy *et al.*, 2018). Second, the attitude theory suggested that the coexistence of conflicting beliefs or evaluations about an object results in ambivalence (Thompson *et al.*, 1995). Individuals display a higher level of resistance for items that generate conflict (Otnes *et al.*, 1997) or give less favorable evaluations to persuasion appeals that involve conflicting emotions (Williams and Aaker, 2002). Lastly, category coherence, which refers to the extent to which features of a category matches prior knowledge, has been proven to facilitate category construction and learning (Rehder and Hastie, 2004).

Therefore, the current study hypothesizes that when the country image delivered by perceived BO is congruent with the brand image conveyed by brand strength (e.g. strong BO/strong brand, weak BO/weak brand), a redundancy effect may result. Conversely, cognitive dissonance may arise when perceived BO image is incongruent with the projected brand image (e.g. strong BO/weak brand, weak BO/strong brand). The incongruence subsequently may result in a detrimental effect on brand equity. To conclude, the full impact of both favorable and adverse BOM on brand equity will be negative (Table 1). Based on the above discussion, we derive the following hypotheses:

H1. Favorable BOM will generate a lower level of brand equity than the correct identification of BO.

H2. Adverse BOM will generate a lower level of brand equity than the correct identification of BO.

Intuitively, consumers may form a more favorable evaluation when the cues are congruent (i.e. the match-up hypothesis; Kamins, 1990). However, research on the schema incongruity supports an opposing view to this intuitive prediction. Under Mandler's (1982) model of schema congruity, the levels of schema incongruity affect one's response toward the object (e.g. a product). A schema refers to an individual's knowledge structure of an object and serves as a reference frame in making the judgment. The level of schema congruity affects the valence (positive/negative) and degree (intense/mild) of the evaluation.

There are three different evaluation processes associated with each distinctive level of schema congruity. The first level is high congruity, which occurs when there is a perfect match between the schema and the target object. High congruity results in no significant change in consumer evaluation because such an information match is perceived as not surprising (Ozanne *et al.*, 1992). Incongruity (both moderate and high level), however, represents surprise and increases the amount of cognitive elaboration and affective arousal. A reasonable level of incongruity can quickly be resolved and result in a positive response. Unlike moderate incongruity, consumers cannot easily resolve high incongruity. They may subsequently experience a higher level of frustration and misattribute such negative feelings to product evaluations (Clemente *et al.*, 2014).

Following the above line of reasoning, the complete match between perceived BO image and brand image represents a high congruity. Such congruity means that the new information is familiar to consumers and confirms their current expectations. Therefore, the perfect match between BO and brand image may cause no change in consumer's brand evaluation. To put it more specific, the pairs of favorable BOM coupled with a strong brand (i.e. Scenario I) and adverse BOM coupled with a weak brand (i.e. Scenario IV) should produce little or no effect on brand equity. On the contrary, the discrepancy between perceived BO image and brand image represents a strong mismatch (i.e. Scenarios II and III). This high incongruity can hardly be reconciled or resolved. When reconciliation is unsuccessful, consumers may experience frustration. This negative feeling, in turn, will be misattributed to the focal object under evaluation and result in a decrease in brand equity. Thus:

	Strong brand (1)	Weak brand (2)	Net effect (1) + (2) = (3)
Favorable BOM	*Scenario I* Congruent (No effect)	*Scenario II* Incongruent (Negative effect)	Negative effect
Adverse BOM	*Scenario III* Incongruent (Negative effect)	*Scenario IV* Congruent (No effect)	Negative effect

Table 1.
The aggregated effect of BOM on brand equity

H3. Brand strength will moderate the effect of BOM on brand equity.

H3a. For the weak (strong) brand, favorable BOM will exert a significant negative (an insignificant) effect on its brand equity.

H3b. For the strong (weak) brand, adverse BOM will exert a significant negative (an insignificant) effect on its brand equity.

Apart from BOM, another consumer's commonly encountered episode during the BO identification process is the non-identification of the BO. Categorization refers to the process of how people assign objects to the same categories (Zentall *et al.*, 2002). Category schemas are organized in a hierarchical structure with the more inclusive members at the superordinate level and the more specific members at the subordinate level (Rosch *et al.*, 1976). Consumers draw inferences about the target object from the properties of other associate members of the same category (Markman and Ross, 2003). More importantly, the COO label can be treated as a category (Tseng and Balabanis, 2011). Consumers rely on the category information (i.e. the perceived BO image associated with the brand) to make predictive inferences for specific brand attributes, such as product quality (Liu *et al.*, 2014). This categorization allows the transfer of the BO image to brand image and subsequently influence consumer's attitude toward the focal brand. When a brand cannot provide sufficient cues for consumers to make inductive inferences about its BO, it hinders consumers' ability to categorize BO or even makes the categorization impossible. Consumers' inability to categorize the origin may weaken the brand association with a country image and result in a negative effect on consumer's evaluation (Balabanis and Diamantopoulos, 2008, 2011). The current research posits that non-identification has a similarly harmful effect on brand equity, thus:

H4. Non-identification of BO (compared with correct BO identification) will result in a lower level of brand equity (Figure 1).

3. Methodology
3.1 Measurements
The current study adopts definitions and measurements of variables, including BO image, BOM, brand equity and brand strength from the existing literature (Table 2).

3.2 Design
The current study adopted 4 (BO identification: favorable BOM vs adverse BOM vs non-identification vs correct identification) × 2 (brand strength: strong vs weak) between-subjects design. Participants were college students from a university in Taiwan. Student participants share a homogenous profile (in terms of demographics and life experiences) and have a higher inter-sample homogeneity level (Martinez *et al.*, 2008). Therefore, the inter-group differences
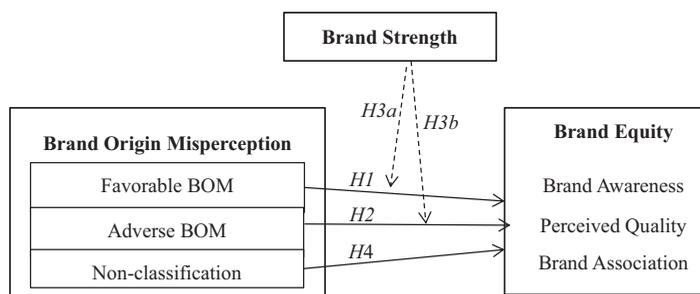
Figure 1.
Research framework

Variable	Dimension	Measurement/reference
BO image	Innovativeness Design Prestige Workmanship	Adopted from Roth and Remo (1992)
BOM	Adverse BOM Favorable BOM Non-identification of BO	Participants were asked to form a subjective evaluation of the BO according to the brand name and symbol provided (Balabanis and Diamantopoulos, 2008, 2011)
BE	Brand awareness Perceived quality Brand association	The critical drivers for brand loyalty are consumer's knowledge and liking toward the focal brand. Hence, brand loyalty was considered inapplicable to the current context and excluded from the study (Aaker, 1991, 1996)
Brand strength	Brand strength	By referring to "Management Magazine" pretest results, researchers classified the brand as a strong brand or a weak brand (Keller, 1993; Liu *et al.*, 2017)

cannot be attributed to sample characteristics but rather to the experimental manipulation itself (Calder *et al.*, 1982). The current research invited a total of 600 students to participate in the study. A total number of 53 questionnaires were incomplete or not filled out duly, leaving 547 valid responses. Besides, the ratio of male to female respondents was 4:6.

The automobile was selected as the product category under test for two main reasons. First, the automobile has a high penetration rate in the local market. Taiwan has a total population of 23.8 million people in 2020 and experienced rapid population growth over the past two decades. The passenger car ownership rate in Taiwan at the end of the year 2020 was 34.8 per 100 people (DGBAS, 2020). In a nation-wide survey conducted by the Ministry of Transportation and Communication of Taiwan, 75.5% of the sampled households reported ownership of both car and motorcycle (Chen *et al.*, 2013). Second, college students are often car users, and they have a high level of product familiarity. According to a recent study that examined car ownership patterns and motivations among undergraduate students in Taiwan, the results indicated that 90.6% of the Taiwanese college students grew up with a car in the household, 77.7% have a driving license and 41% are car users (Belgiawan *et al.*, 2014). Even though some respondents are not car users, they may be potential future consumers. Accordingly, 66.9% of Taiwan college students have the intention to purchase a car within the next ten years (Belgiawan *et al.*, 2014).

Researchers generated a list of automobile brands based on information obtained from the annual "Best Consumer Brands Ranking" released by a famous local magazine ("Management Magazine"). As the magazine only listed out the top three brands in the product category. Therefore, we further conduct a pretest to select three weak brands. In the pretest, respondents first selected the brands they could recognize from a brand list (Table A1) and rated them accordingly (rank value 1 = strongest brand). For brands that respondents could not recognize at all, they needed not to do the ranking. Eventually, three strong brands (Toyota, BMW, Mercedes-Benz) were selected based on the magazine ranking and three weak brands (Honda, Chrysler, Luxgen) were selected according to the pretest results.

In the main study, we asked respondents to categorize the automobile brand to one of the eight BOs. Besides, a response with "do not know" was provided to eliminate the possibility that participants do the classification based on pure guess. Following the existing literature approach (Balabanis and Diamantopoulos, 2011), we compared the participants' responses with the actual BO and classified participants into: correct identification, misclassification and non-identification.

Participants then answered a set of questions measuring brand equity (Aaker, 1991; Ou *et al.*, 2020) and the country image (Roth and Romeo, 1992). All responses were measured on a seven-point Likert scale.

3.3 Reliability and validity
We adopted the country image scale from Roth and Remo (1992). Respondents evaluated the strengths and weaknesses of the associated countries on a four-item, seven-point Likert scale (ranging from not innovative/poor design/bad reputation/poor workmanship to very innovative/good design/good reputation/good workmanship). The Cronbach's α coefficient of all BO image scales exceeded 0.7, indicating that the reliability was acceptable. To minimize the common method bias, we incorporated some reverse-coded items in the questionnaire.

Furthermore, we measured brand equity with a three-dimension version of the brand equity construct (Aaker, 1991; Ou *et al.*, 2020) on a seven-point scale (not agree at all/completely agree). Confirmatory factor analysis indicated a good fit for the measurement model of brand equity ($\chi^2 = 99.21, p = 0.00$; GFI = 0.97; AGFI = 0.92; TLI = 0.97; root-mean-square of approximation (RMSEA) = 0.08). Composite reliabilities were above 0.8, and the average variance extracted was above 0.5. The current research adopted definitions and constructs from existing literature to ensure content validity and relevancy. Finally, discriminant validity assessment was performed following two-step model-building approach (Anderson and Gerbing, 1988) (see Table 3).

4. Data analysis and results
The current study used ANOVA for data analysis. Levene's test result was not statistically significant ($p = 0.09$). In other words, it implied that the assumption of homogeneity of variances was not violated. ANOVA results (Table 4) showed that there was a significant main effect of BO identification ($F (3, 539) = 13.66, p < 0.05$) and brand strength

BO identification	Brand strength	Mean	SD	N
Correct identification	Strong	4.982	1.113	125
	Weak	4.288	0.967	77
Favorable BOM	Strong	4.935	0.955	57
	Weak	3.666	1.054	50
Adverse BOM	Strong	3.755	1.360	56
	Weak	4.041	1.181	66
Non-identification	Strong	4.423	0.761	53
	Weak	3.651	1.176	63

Table 3.
Means and standard deviations of brand equity

Source of variation	Sum of squares	df	F	Sig	Partial η^2
Intercept	9015.130	1	7613.636	0.000	0.934
BO identification	48.507	3	13.655	0.000	0.071
Brand strength	47.482	1	40.100	0.000	0.069
BO identification × Brand strength	36.945	3	10.401	0.000	0.055
Error	638.217	539	1.184		
Total	10960.290	547			

Table 4.
ANOVA results for the overall model

(F (1, 539) = 40.1, p < 0.05) on brand equity. Moreover, the interaction effect of BO identification and brand strength on brand equity was also significant (F (3, 539) = 10.40, p < 0.05).

Examination of the *post hoc* results indicated that brand equity in the favorable BOM condition (mean = 4.30) was significantly lower than in the correct BO identification condition (mean = 4.64, p <0.05). Therefore, H1 is supported. Brand equity in the adverse BOM condition (mean = 3.90) was also significantly lower than in the correct identification condition (mean = 4.64, p <0.05). Moreover, brand equity was also found to be lower in the non-identification condition (mean = 4.04) than in the correct BO identification condition (mean = 4.64, p < 0.05). H2 and H4 are, thus, supported.

To have a closer inspection of the moderating effect of brand strength, we performed two separate ANOVA tests on brand equity within each BOM condition. First, a 2 (BO identification: favorable BOM vs correct identification) × 2 (brand strength: strong vs weak) ANOVA was performed on brand equity (Table 5). The main effect of BO identification was significant (F (1, 305) = 7.06, p < 0.05), which indicated that favorable BOM significantly reduced brand equity, and this effect was moderated by brand strength (F (1, 305) = 5.24, p < 0.05). Specifically, for weak brand, favorable BOM (mean = 3.67) produced a lower level of brand equity than correct BO identification condition (mean = 4.29, t = 3.42, p < 0.01). Conversely, for strong brand, favorable BOM (mean = 4.94) revealed the hypothesized redundancy effect and did not significantly affect brand equity (mean = 4.98, t = 0.273, p > 0.1, Figure 2). H3a is supported.

The second set of ANOVA was performed by selecting the condition of correct BO identification and adverse BOM condition (Table 6). The ANOVA results revealed a significant main effect of BOM (F (1, 320) = 30.87, p < 0.05) and interaction effect of

Source of variation	Sum of squares	df	F-value	Sig	Partial η^2
Intercept	5456.481	1	5043.277	0.000	0.943
BO identification	7.643	1	7.064	0.008	0.023
Brand strength	65.793	1	60.811	0.000	0.166
BO identification × Brand strength	5.664	1	5.235	0.023	0.017
Error	329.989	305			
Total	6908.250	309			

Table 5.
ANOVA results for favorable BOM

Figure 2.
The interaction effect of BOM (favorable) and brand strength
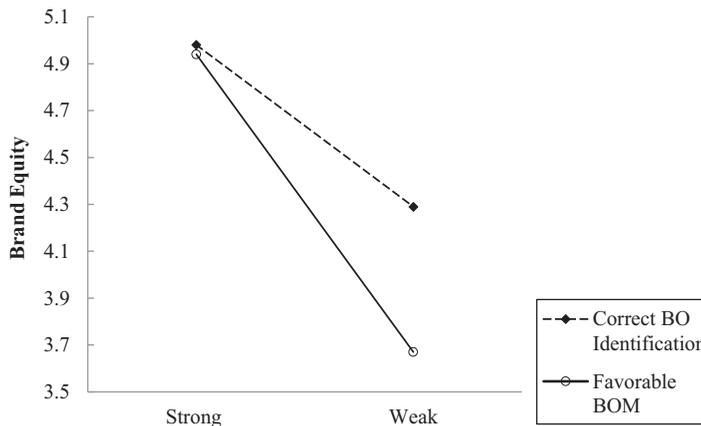
BOM $\times$ brand strength (F (1, 320) = 13.62, $p < 0.05$; Figure 3). Associating a strong brand with a weak BO (mean = 3.76) reduced brand equity substantially as compared to the right BO identification condition (mean = 4.98, $t =$ = 6.386, $p < 0.01$). Conversely, no significant difference was observed between adverse BOM (mean = 4.04) and correct BO identification (mean = 4.29, $t = 1.377$, $p > 0.1$) for weak brand. The results supported H3b.

5. Conclusions
The current study investigates the effect of BOM on brand equity. Research results revealed that as opposed to the right BO identification condition, favorable BOM significantly reduces brand equity. The negative impact is more profound for a weak brand as compared with a strong brand. The results further demonstrated that adverse BOM and non-identification conditions also harm brand equity. Moreover, under the adverse BOM condition, strong brand subjects more to the negative influences of BOM than a weak brand.

5.1 Theoretical contributions
The current research makes several contributions to the existing COO literature. First, the COO effect has been described as "the most researched international aspect of the consumer" (Tan and Farley, 1987). Decades of research scrutiny resulted in an unequivocal conclusion that a product's COO can influence consumer's evaluation and judgment of the product (Pharr, 2005). Yet, some researchers have begun to question the importance of COO and proclaim its loss of relevance (Usunier, 2011). The present study serves as a bridge for

Source of variation	Sum of squares	df	F-value	Sig	Partial η^2
Intercept	5394.033	1	4140.248	0.000	0.928
BO identification	40.219	1	30.870	0.000	0.088
Brand strength	3.079	1	2.363	0.125	0.007
BO identification $\times$ Brand strength	17.745	1	13.620	0.000	0.041
Error	416.905	320			
Total	6802.410	324			

Table 6.
ANOVA results for adverse BOM
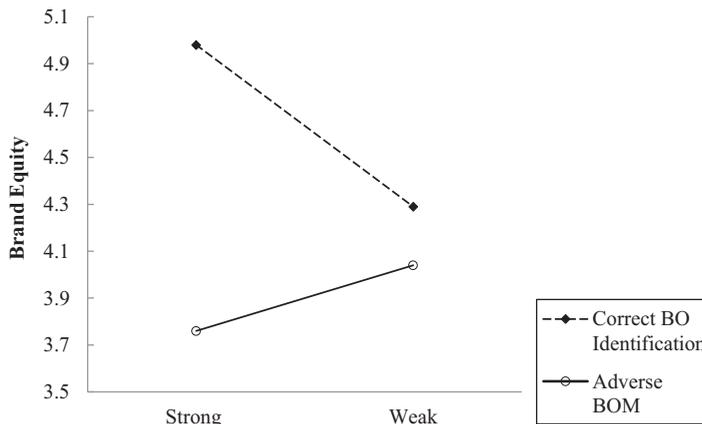
Figure 3.
The Interaction Effect of BOM (Adverse) and Brand Strength

reconciling these two competing perspectives and suggests that they may not be mutually exclusive. Our findings demonstrate that perceived BO may affect brand equity and provide insights into when and how it exerts the influence. We discover that the BO effect pertains only to consumers who consider BO as a signal of new information and incorporate it into their evaluations. Second, researchers have increasingly advocated the shift of COO research focus from consumers' accurate COO knowledge to consumers' perceived BO (Magnusson *et al.*, 2011). However, research regarding the widespread phenomenon of BOM remains sparse, and the results are somewhat conflicting. Corroborated with Balabanis and Diamantopoulos's (2011) results, the current study demonstrated that BOM (favorable or adverse) mostly negatively impacts brand equity. Third, existing literature has well-documented how schema congruity influences consumer's processing and evaluation. To our best knowledge, the current study represents the first effort to advance understanding of congruence theory in the BOM context. Our results confirmed schema congruity effects as prior findings (Hui and Zhou, 2003; Leclerc *et al.*, 1994; Scheinbaum *et al.*, 2019). Moreover, we extend previous research by examining the moderating role of brand strength. Last but not least, while past studies have given much effort to determine the impact of BOM on consumer's attitudes and purchase intention, little has been done to examine the effects of BOM on brand equity. The current study addresses this gap and put this valuable firm asset under examination.

5.2 Practical implications

Brand equity is a valuable asset to marketers. Firms make a considerable amount of investment for building up and maintaining a reputable brand name. The findings from the current study shed light on the potential effect of BOM on brand equity. Apart from alerting marketers of the destructive influence of BOM, the present study also identifies several possible means to help firms to mitigate the negative effect of BOM. First, firms may educate consumers to recognize BOs through the proper marketing communications. Strong brands must be careful to avoid consumers from forming BOM. Second, firms have to pay special attention to brand naming, which may obfuscate their true origin. Third, some firms may try to associate with strong BO to elevate consumer's evaluation. The findings from the current study suggest that this strategy may sometimes backfire. The presence of conflicting information may induce cognitive dissonance and lead to a less favorable brand evaluation.

5.3 Limitations and future studies

The current study has several limitations. First, we adopt student samples to minimize the interferences of extraneous variables. However, this imposes restrictions on the generalizability of the findings. Future studies may choose a more diversified sample. Second, the present study focuses on a single product category. It is worthwhile to examine the phenomena across different product categories. Third, researchers are encouraged to build a more refined research framework by introducing other novel variables. Finally, future research may extend the present research by performing a direct test on the mediating effect of information incongruity.

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Further reading

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Appendix

Audi	BMW	Opel	Smart	Volvo
Volkswagen	Mercedes-Benz	Buick	Chrysler	LUXGEN
Ford	Chevrolet	Citroën	Peugeot	PROTOLOTUS
Renault	Hyundai	KIA	FIAT	
Honda	Infiniti	Lexus	Mazda	
Mitsubishi	Nissan	Subaru	Suzuki	
TOYOTA	Jaguar	Mini	SAAB	

Table A1.
Brand list for pretest on
brand strength

Items	Measurement items	References
Brand awareness	(1) I am aware of brand X (2) I am familiar with brand X (3) I can recognize the automobile brand X among competing automobile brands (4) Some characteristics of X come to my mind quickly	Aaker (1991, 1996)
Perceived quality	(1) Automobile X is of high quality, compared to competing brands (2) X is highly reliable, compared to competing brands (3) X is a leading firm in the industry	
Brand association	(1) I like the brand image of X (2) X has a very unique brand image (3) The product of brand X offers good value for money	
Country image	How will you perceive the innovativeness of the products of the country?	Roth and Romeo (1992)
Innovativeness	*(Innovativeness is defined as the use of new technology and engineering advances)*	
Country image Design	How will you perceive the design of the products of the country? *(Design includes appearance, style, colors, variety)*	
Country image Prestige	How will you perceive the prestige of the products of the country? *(Prestige refers to exclusivity, status, brand name reputation)*	
Country image Workmanship	How will you perceive the workmanship of the products of the country? *(Workmanship refers to reliability, durability, craftsmanship, manufacturing quality)*	

Note(s): X indicates a brand name
The critical drivers for brand loyalty are consumer's knowledge and liking toward the focal brand. Hence, brand loyalty was considered inapplicable to the current context and being excluded from the study

Table A2.
Measurements

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