In Brands We Trust? A Multicategory, Multicountry Investigation of Sensitivity of Consumers' Trust in Brands to Marketing-Mix Activities

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The essence of a brand is that it delivers on its promises. However, consumers' trust in brands (CTB) has declined around the world in recent decades. As a result, CTB has become a major concern for managers. The authors examine whether CTB is influenced by marketing-mix activities (i.e., advertising, new product introduction, distribution, price, and price promotion) implemented by brands. The authors propose and show that the sensitivity of CTB to marketing-mix activities is moderated by consumer, category, and country characteristics, using a multisource data set consisting of a survey of 15,073 respondents and scanner panel data on 589 brands in 46 CPG categories across 13 countries (including the four largest emerging markets), which collectively account for half of the world's population. The authors find strong positive effects for advertising and new product introduction intensity, weak positive effects for price and distribution intensity, and a minor negative effect for price promotion intensity on CTB. Furthermore, the authors find that the effect of marketing-mix activities on CTB is moderated by consumers' personality traits, consumers' reliance on brands in a category, and countries' secular-rational and self-expression cultural values.

Keywords: consumer trust, brand trust, marketing mix, branding, information economics, international marketing

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INTRODUCTION

For many firms, brands are among their most valuable assets. According to brand consultancy Kantar Millward Brown, the value of the 100 most valuable global brands alone stood at $4.4 trillion in 2018 (Millward Brown 2018). What makes brands so valuable? Consider the definition of *brand* proposed in the literature. One such definition, proposed by Kotler (2002, 593), is "a seller's promise to deliver a specific set of features, benefits and services consistent to the buyers." If consumers trust the brand to deliver on these promises, this eases their decision making, reduces costs of information gathering and processing information, reduces their purchase risk, and increases expected utility (Erdem and Swait 1998, 2004). Thus, trust is a key factor to consider in brand success.

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Kantar Millward Brown (2016) found that business-to-business (B2B) brands that rated high on brand trust grew 80% in brand value in the last decade, while less trusted brands grew only 25%. As another example, Nanda (2014) reported that when it comes to convincing consumers to pay more, brand trust trumps other brand qualities.

Given the importance of consumer trust in brands, it is worrying that industry evidence indicates that consumers' trust in brands is slipping. Young & Rubicam (2017) analyzed a fairly constant set of well-known brands and reported that the proportion of brands that customers said they trusted has fallen from 44% in 2001 to a low of 18% in 2017. The 2017 Edelman Trust Barometer found that in nearly half of the countries surveyed, the percentage of people that mistrust brands' owners exceeds the percentage of people that trust them (Edelman 2017). Given these results, it is not surprising that consumer trust has moved to the top of management's priority list. In 2015, when the CEOs of leading consumer goods firms such as P&G, Nestlé, and PepsiCo gathered for the 59th Consumer Goods Forum's annual summit, "Trust as a Foundation for Growth" was their main topic of discussion (Consumer Goods Forum 2015).

Consumer researchers have recognized the importance of consumers' trust in brands (CTB), defined as the consumer's belief that the brand is willing and able to deliver on its promises (Chaudhuri and Holbrook 2001; Erdem and Swait 2004). The focus of this stream of research has largely been on the *consequences* of CTB (see next section).

We build upon and extend previous work in three meaningful ways. First, we shift the lens from the consequences of CTB to its antecedents. More specifically, we are interested in the effects of marketing-mix activity on CTB. We examine how CTB is influenced by five key marketing instruments: advertising intensity, new product introduction intensity, price, price promotion, and distribution intensity. Second, we examine the sensitivity of CTB to the marketing-mix activities on a global basis. Various academics have urged marketing scholars to investigate consumer behavior issues on an international basis (Erdem et al. 2006). Are conclusions regarding the effects of marketing activities on CTB globally generalizable? Third, we examine boundary conditions to the findings within and across countries. We investigate whether the sensitivity of CTB to the marketing-mix activities systematically across context, where we distinguish between three context factors: consumer, according to their personality traits (Inman, McAlister, and Hoyer 1990); (product) category, in terms of consumers' reliance on brands in a category (Fischer, Völckner, and Sattler 2010); and country, according to their national culture (Inglehart and Wetzel 2005).

We put together a unique cross-sectional data set from multiple sources, which contains primary (survey) data as well as secondary (household panel, country) data from 15,073 respondents on 589 brands in 46 consumer packaged goods (CPG) categories. Our data set covers 13 countries, including the US; European countries such as France, Germany, and Italy; and the four leading emerging markets, Brazil, China, India, and Russia. Marketing-mix instruments are derived from surveys and household panels operated by Kantar Worldpanel, GfK, and IRI. The study findings provide managers with strategic direction on how their marketing-mix activities affect consumer trust in one of their most valuable assets and how their marketing activities have differential impact on CTB across different consumers, categories, and countries.

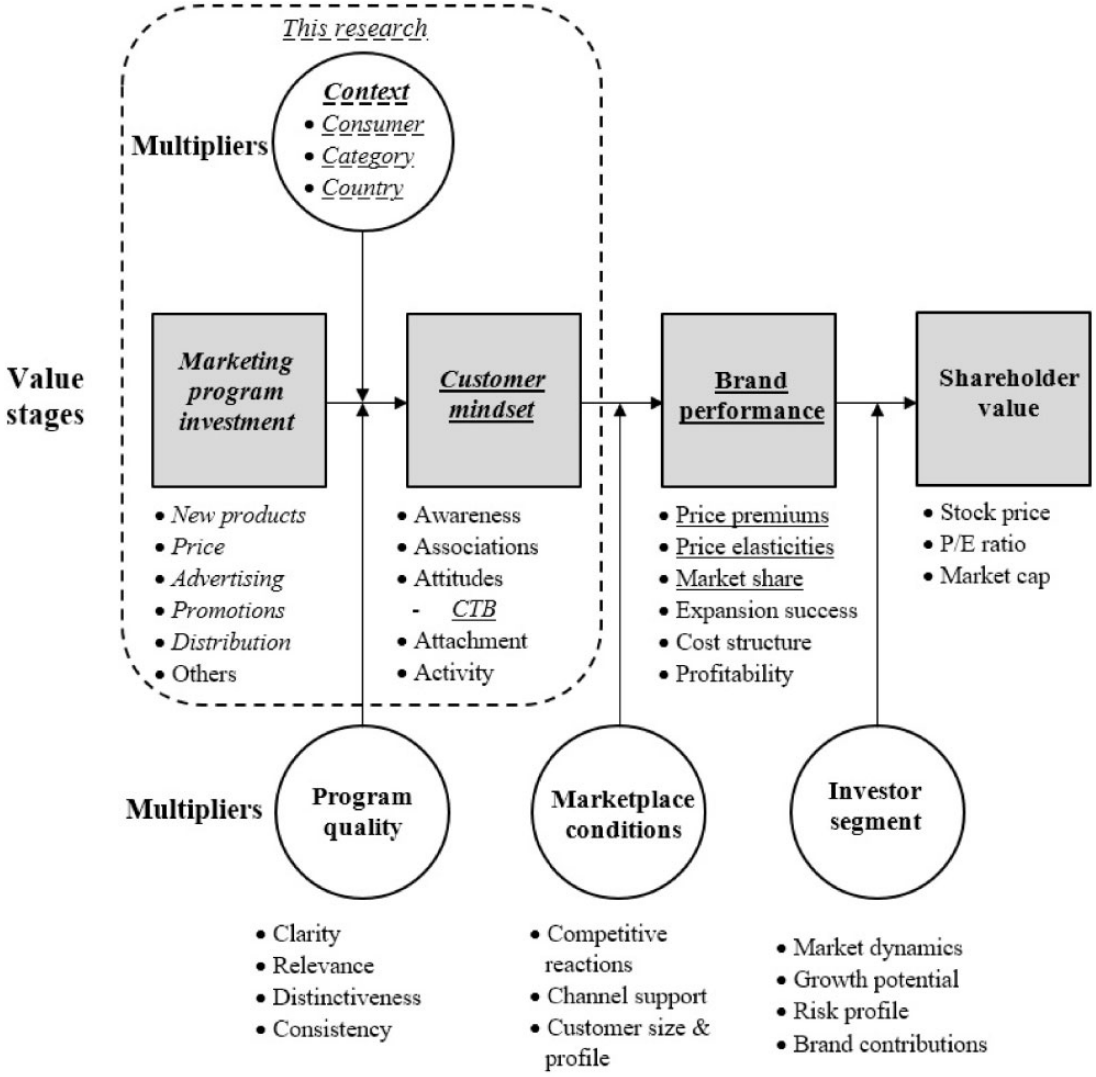
PREVIOUS RESEARCH

In order to delineate the position of CTB within the branding literature and highlight our contribution vis-à-vis past research on CTB, we use Keller and Lehmann's (2003) brand value chain framework (figure 1). According to this framework, the brand-value-creation process begins when the firm invests in a marketing program targeting actual or potential customers. The marketing activity associated with the program influences the customer mindset with respect to the brand—that is, what they know and feel about the brand. This mindset, across a broad group of customers, then results in brand performance in the marketplace, which is the aggregate of individual customer actions regarding quantity purchased and the price that they pay. Finally, the investment community considers brand performance in valuing the company. The brand-value-chain model further specifies multipliers that strengthen or weaken the link between two successive stages, in terms of the value of these multipliers. These moderating factors determine how value created at one stage transfers or "multiplies" to the next stage (Keller and Lehmann 2003, 28).

Past research has focused on the causal link between different stages in the brand value chain, including the effect of marketing-mix instruments on consumer mindset (Srinivasan, Vanhuele, and Pauwels 2010), consumer mindset on marketplace performance (Datta, Ailawadi, and Van Heerde 2017), and marketplace performance on financial market performance (Srinivasan et al. 2009). Other research has focused on relations between customer mindset metrics, which, according to Keller and Lehmann (2003, 29), exhibit an "obvious hierarchy." This stream of research has distinguished between different customer mindset metrics within a broader category. In this stream of research, brand awareness (Hoyer and Brown 1990) supports brand associations, which drive brand attitudes and overall brand evaluations (Wilkie and Pessemier 1973) that lead to brand attachment (brand attachment, love, attitudinal loyalty, brand-self connection; Batra, Ahuvia, and Bagozzi 2012; Park et al. 2010), and brand activity (behavioral loyalty, word of mouth [WOM]; Chaudhuri and Holbrook 2001).

FIGURE 1

EXPANDED BRAND VALUE CHAIN



Adapted from Keller and Lehmann (2003).

NOTE.—In italics are the constructs included in the current study; constructs that were examined in previous research on CTB are indicated with continuous underlines; constructs that are added to the value chain are indicated with dotted underlines.

Where does trust fit into the brand value chain? Following Chaudhuri and Holbrook (2001), we argue that CTB is a type of brand attitude that involves "a process that is well thought out and carefully considered" (Chaudhuri and Holbrook 2001, 82). Thus, we view CTB as a cognitive component of brand attitude (see web appendix A for a comparison between CTB and related consumer mindset metrics in marketing).

Past research on CTB has extensively examined the impact of CTB on other consumer mindset metrics, such as brand consideration (Erdem and Swait 2004), purchase likelihood (Erdem, Swait, and Valenzuela 2006; Herbst et al. 2011), attitudinal loyalty, and behavioral loyalty (Chaudhuri and Holbrook 2001). Other research has investigated the effect of CTB on brand performance metrics, such as market share and price premium (Chaudhuri and Holbrook 2001) and consumer sensitivity to brand price (Erdem, Swait, and Louviere 2002). See table 1 for a summary of past research on CTB.

TABLE 1

SUMMARY OF PAST RESEARCH ON CTB

Study	Data	Marketing-mix as drivers of CTB	Findings
Erdem and Swait (1998)	Survey from students	Brand investments	Brand investments have a positive effect on CTB. CTB is an integral element of brand equity. CTB leads to higher perceived quality and lower perceived risk.
Delgado-Ballester and Munuera-Alemán (2001)	Survey from consumers	—	CTB generates consumers' commitment, especially in situations of high involvement.
Chaudhuri and Holbrook (2001)	Surveys from consumers and managers	—	CTB positively influences purchase loyalty and attitudinal loyalty. CTB indirectly leads to increases in market share and price premium.
Erdem et al. (2002)	Surveys from students	—	CTB lowers consumers' price sensitivity. The negative effect depends on the level of uncertainty associated with the product category.
Erdem and Swait (2004)	Surveys from students	—	CTB impacts brand choice and consideration set formation, especially in contexts with high uncertainty.
Erdem et al. (2006)	Survey from students in seven countries	—	The positive effect of CTB on choice is greater for consumers who rate high on either collectivism or uncertainty avoidance.
Sung and Kim (2010)	Surveys from students	—	Certain brand personality dimensions (e.g., ruggedness, sincerity) influence CTB more than brand affect.
This study	Survey on 15,073 consumers and scanner panel data in 13 countries	Advertising, innovation, distribution, price, price promotion	Advertising, innovation, distribution, and price positively affect CTB. Price promotions negatively affect CTB. CTB is more sensitive to marketing mix in categories low on brand relevance, and countries high (low) on secular-rational values (self-expression values).

Using the value chain framework, our research adds to the literature on brand building by introducing CTB into the value chain, and more particularly, by examining how CTB is affected by the marketing program investments.[1] Further, we extend this framework by introducing context as a multiplier of marketing program investments on customer mindset metrics.

CONCEPTUAL BACKGROUND

Marketing-Mix Instruments as Signals

Inspired by Kirmani and Rao (2000), we use signaling theory as the theoretical lens to understand why marketing-mix investments affect CTB. A considerable body of marketing studies has documented the signaling role of brand-specific investments. More specifically, past research shows that advertising expenditures (Kirmani 1990), high price (Rao and Monroe 1988, 1989), product warranties (Boulding and Kirmani 1993; Wiener 1985), brand name (Erdem 1998), price promotions (Yoo, Donthu, and Lee 2000), and distribution outlets (Chu and Chu 1994) effectively serve as signals that consumers use to make inferences regarding the characteristics of products and brands (see Kirmani and Rao 2000 for an overview of past research on the signaling role of marketing-mix instruments). While past research primarily focuses on consumer attributions regarding overall product superiority (i.e., product quality), some research has found that marketing-mix instruments shape consumer beliefs regarding specific product and brand attributes, such as reliability (Wiener 1985) and credibility (Erdem and Swait 1998).

Marketing-Mix Activities as Signals for Brand Trust

The essence of CTB is consumers' belief that a brand delivers on its promises, time and time again. The nature of these promises can vary from physical attributes (e.g., organic ingredients) to functional benefits (taste of coffee) to self-expressive benefits (e.g., "smart shopper," brand CSR). But what should hold a brand back from reneging on its promises (e.g., selling products with nonorganic ingredients, using cheaper coffee beans, not being involved in CSR)? And how can the consumer trust the brand to deliver on its promises?

Signaling theory, which is grounded in information economics (Klein and Leffler 1981, Milgrom and Roberts 1986), provides an explanation (Kirmani and Rao 2000). Signaling theory recognizes the asymmetrical information

1 Erdem and Swait (1998) examine the effect of general brand investments on CTB. Their research, however, does not distinguish between different marketing-mix instruments.

structure of the market and proposes that brands can use market signals to convey information to imperfectly informed consumers. Klein and Leffler (1981) demonstrate analytically that market prices above the competitive price (i.e., price premium) are a means of enforcing brand promises. Klein and Leffler (1981) further discuss that brand-specific expenditures on advertising that are observable to consumers are lost if the brand cheats. Large advertising expenditures inform consumers of the magnitude of sunk costs and hence the opportunity cost to the brand if it cheats. This provides another incentive for firms to keep their promises.

Although Klein and Leffler (1981) focus on advertising as brand-specific marketing program investment, their analytical conclusions apply to any kind of observable brand-name expenditures (Milgrom and Roberts 1986, 799–800), including new product introductions under a given brand name (Milgrom and Roberts 1986) and distribution (Rao and Mahi 2003). New product introductions help a brand differentiate itself with its competitors. The innovative brand relies on consumers' repeat purchases to recoup R&D, new packaging, and other innovation-related costs. Thus, innovative brands signal to consumers that they are motivated to deliver on their promises; otherwise, they would incur great losses (fixed cost of innovation) (Milgrom and Roberts 1986). Similarly, a brand with an extensive distribution network is viewed as a strong and resourceful brand that has been able to attract interest from multiple retailers. Consumers interpret a brand's ubiquitous presence as a sign of its consistent performance across different markets. Extensive distribution costs—associated with high expenditures on slotting allowances, in-store promotion material, and other expensive retail investments—would be lost if the brand does not deliver on its promises (Rao and Mahi 2003).

In sum, signaling theory proposes that consumers use the extent of investments in various marketing program elements (high price, advertising activity, new product activity, distribution coverage) as signals that the brand will deliver what it promises (i.e., that it can be trusted). But what is the role of price promotions? Price promotions lead to lower price premiums. According to the information economics perspective, the lower price premiums caused by frequent price promotions indicate that the brand is more likely to cheat on its promises. Marketing offers a complementary explanation on the negative impact of price promotions on consumer attitude. Blattberg and Neslin (1989) argue that heavy price promotions raise suspicions in consumers' minds regarding the capability of brands. When exposed to frequent price promotions by a brand, the consumer "questions why it is necessary to keep promoting the product and concludes there is something wrong with the product" (Blattberg and Neslin 1989, 90).

We acknowledge that information economics makes strong assumptions, which are not always realistic (e.g., rationality of firms and consumers). The value of this theory is that it is able to explain many real-world outcomes. As Boulding and Kirmani (1993, 121–122) argue, "the power of the signaling framework lies in its ability to make predictions based on a single behavioral assumption—rational firms and consumers. [. . .] However, it says nothing about the underlying processes by which consumers make such inferences or even whether they actually do so."[2] What, then, is the empirical evidence on consumer use of marketing instruments for CTB? Erdem and Swait (1998) find that brand investments (measured with two items: "This brand spends lots of money on ads, commercials, promotions, event sponsorships, celebrity endorsements, etc.," and "This brand has spent a lot on the community over the years") have a significant effect on CTB. Other empirical support for the use of marketing-mix activity on CTB is largely indirect; the customer mindset metric studied was perceived quality, not brand trust. Nevertheless, as quality is essential to the ability of a brand to fulfill its promises—there are few brands that do not make quality promises—this work is informative for our purposes. A large body of marketing studies shows that consumers use price (Dawar and Parker 1994; Rao and Monroe 1989) and advertising (Kirmani 1990; Kirmani and Wright 1989) as signals of product quality. Past research in marketing has further found that price promotions damage brand attitude (Yi and Yoo 2011), brand loyalty (Papatla and Krishnamurthy 1996), and brand equity (Yoo et al. 2000). Based on the above discussion, we expect that CTB is positively affected by the brand's advertising intensity, new product introduction intensity, distribution intensity, and price, and negatively affected by the brand's price promotion intensity.

Consistent with the rational perspective underlying signaling theory, the above discussion abstracts from the context in which the formation of CTB judgments take place. However, from a behavioral point of view, judgment formation is affected by the psychological makeup of the *consumer* in question, characteristics of the *category* involved, and characteristics of the *country* in which the consumer lives. We propose that these three "context" multipliers strengthen or weaken the effect of marketing-mix activities on CTB (see figure 2).

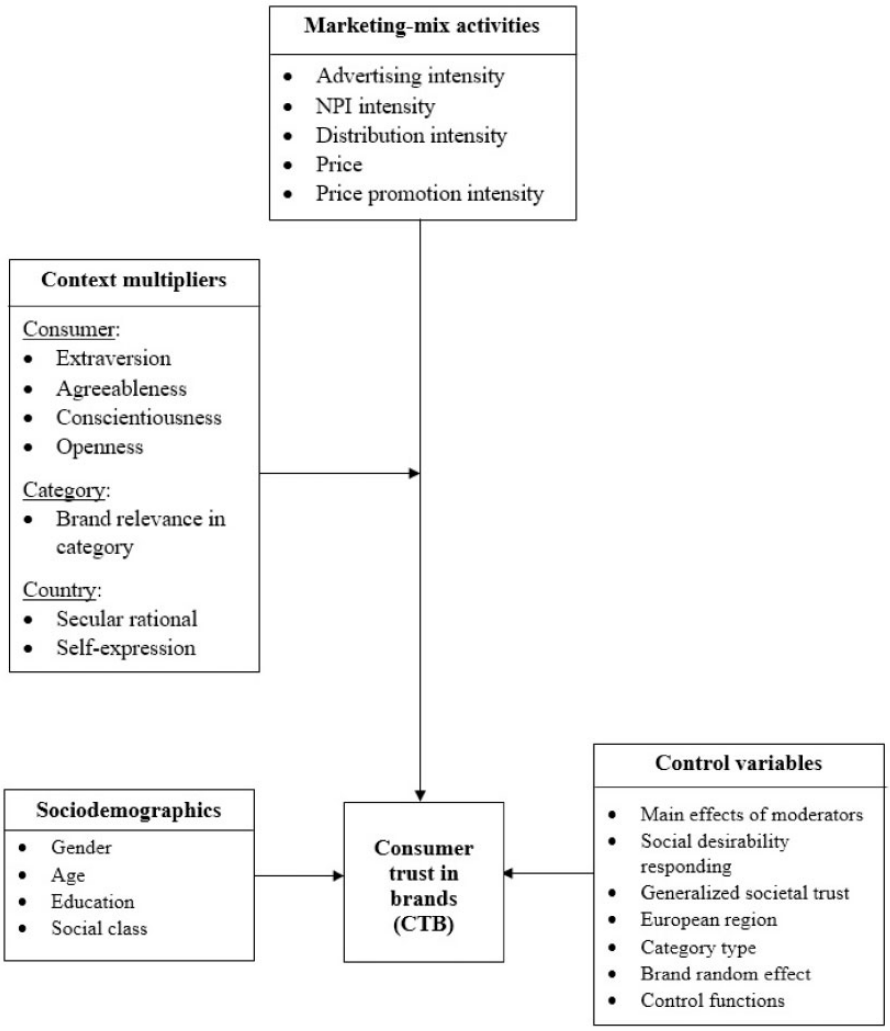
Moderating Role of Personality Traits

We start by examining variation in the sensitivity of CTB to marketing-mix activities in terms of the personality profile of the consumer (Baumgartner 2002). Personality traits are "dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and actions" (McCrae and Costa 1990, 29). These traits are exhibited by individuals across a wide range of situations,

2 We thank an anonymous reviewer for raising this point.

FIGURE 2

RESEARCH FRAMEWORK



such as child rearing, work interactions, and personal consumption. In the last few decades, the Big Five has emerged as the most influential personality trait model (McCrae and Costa 2008). The Big Five framework distinguishes between five fundamental traits: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism.

These personality traits can be linked to information processing styles. People have habitual tendencies, commonly called *thinking styles* (Epstein et al. 1996), to approach various problems in consistently similar ways. These thinking styles vary between people, are stable over time (Scott and Bruce 1995), and are related to people's personality (Epstein et al. 1996). Epstein and colleagues (1996) distinguished between two thinking styles: analytical-rational and intuitive-experiential. An analytical thinking style is characterized by deliberate, slow, analytic information processing. An intuitive thinking style is characterized by automatic and quick information processing and is associated with the use of heuristics. This suggests that intuitive thinking is associated with greater reliance on market signals as heuristics in CTB, while analytical thinking is associated with less reliance on market signals. The two thinking styles supplement each other because attitude formation and behavior are a joint function of both modes of processing (Epstein et al. 1996, 392).

Subsequent empirical research examined the relationship between these thinking styles and the Big Five personality

traits (Pacini and Epstein 1999; Riaz, Riaz, and Batool 2012), finding that the tendency to engage in rational, analytical thinking is related to openness to experience and conscientiousness, while the intuitive thinking style is associated with agreeableness and extraversion. Neuroticism did not exhibit consistent relations with either thinking style. Thus, we expect marketing-mix activities to have larger effects on CTB for consumers who are high on extraversion and agreeableness and smaller effects on CTB for consumers who are high on conscientiousness and openness to experience.

Moderating Role of Brand Relevance in Category

The thinking-style perspective describes modes of information processing that are generalized across situations. However, ever since the work of Belk (1974), consumer researchers have been aware that attitude formation can be (more) strongly affected by the actual judgment situation. Past consumer research has studied the role of various category characteristics in attitude formation, such as category risk, involvement, utilitarian versus hedonic, and purchase frequency. We believe that a relatively recently introduced construct, "brand relevance in a category" (Fischer et al. 2010), is particularly useful for the purposes of the present study. Implicit in the information economics perspective is that consumers can—and do—rely on brands in their decision making. After all, if consumers do not care about brands, they will not closely follow the brands, and, therefore, will not notice brands' marketing activities. Fischer et al. (2010) have shown that the role of the brand in consumer decision-making processes systematically varies by product categories. They further showed that brand relevance in a category (BRiC) varies between consumers.

If the BRiC is high, brands are of greater relevance to the consumer. According to the Elaboration Likelihood Model of persuasion (Petty and Cacioppo 1986), this would suggest that the consumer is more likely to thoughtfully follow brands' product and ethics-related actions and communications (as well as assessing those actions against brands' promises) and weigh peripheral cues less—that is, follow the central route of persuasion. On the other hand, if the BRiC is low, the Elaboration Likelihood Model suggests that the consumer relies more on peripheral cues. Note that the Elaboration Likelihood Model parallels Epstein et al.'s (1996) two thinking styles with the important difference that the Elaboration Likelihood Model makes situation-specific predictions.

Yet there is a compelling rival theory on situational information processing: Accessibility-Diagnosticity Theory (Feldman and Lynch 1988), where the focus is less on central versus peripheral information than on the accessibility of information. According to Accessibility-Diagnosticity Theory, the likelihood that an input will be used for judgment is determined by accessibility of the input in memory (i.e., ease of retrieval), perceived diagnosticity of the input (i.e., attribute relevance), and availability of other inputs in memory. Factors that increase the accessibility of an input will increase the probability that the input is used in judgment formation (Herr, Kardes, and Kim 1991).[3] Drawing on Accessibility-Diagnosticity Theory, several studies have shown that when the accessibility of brand-related information increases, the likelihood that consumers use such information as an input for brand evaluations increases (Li and He 2013; Menon and Raghubir 2003). We argue that when BRiC is high, brands are important to consumers, and consumers are paying close attention to the marketing activities of these brands (Fischer et al. 2010). As a result, brand-related information is more accessible to them and hence CTB is more likely to be influenced by marketing activities when BRiC is high. In sum, while the Elaboration Likelihood Model leads to the prediction that marketing activities have larger (smaller) effects on CTB when BRiC is low (high), Accessibility-Diagnosticity Theory leads to the prediction that marketing activities have larger (smaller) effects on CTB when BRiC is high (low).

Moderating Role of National Culture

For studying the multiplier effect of the country context on the effect of marketing-mix activities on CTB, we take a cultural approach. According to Tse et al. (1988, 82), national culture influences consumers' "rules for selective attention, interpretation of environmental cues, and responses." This suggests that consumers' utilization of marketing signals varies predictably across countries depending on prevailing cultural values (Aaker 2000).

The best-known national-cultural systems include the frameworks proposed by Hofstede, Inglehart, Schwartz, and Triandis (see Vinken, Soeters, and Ester 2004 for an overview). Given that brands are a key element, and carrier, of the materialistic culture (Holt 2002; McCracken 1986), Inglehart's framework (Inglehart and Baker 2000; Inglehart and Welzel 2005), which is the only framework that is explicitly grounded in (post)materialism, is the most useful for our purposes. For previous marketing applications of Inglehart's theory, see Steenkamp and de Jong (2010) and Steenkamp and Geyskens (2012, 2014).

Inglehart identifies two bipolar cultural dimensions: traditional versus secular-rational values, and survival versus self-expression values. Countries that score high on the secular-rational dimension are characterized by

3 Moreover, Menon and Raghubir posit that accessibility of an input can "be used as a reasonable proxy for the diagnosticity of the input" (Menon and Raghubir 2003, 231). Thus, factors that increase accessibility of an input also influence attitude by increasing diagnosticity value of that input.

materialistic secularism (Inglehart and Welzel 2005, 26, 31). Brands—as one of the most visible exponents of a materialistic world (McCracken 1986)—are expected to be of greater relevance in these societies (Rindfleisch, Burroughs, and Wong 2009; Steenkamp and de Jong 2010). Applying the tenets of Accessibility-Diagnosticity Theory in this context suggests that brand-related marketing-mix activity is more accessible to consumers in countries high on secular-rational values and hence more likely to be used in attitude formation. The Elaboration Likelihood Model predicts the opposite effect. Because of the greater relevance of brands in secular-rational countries, consumers are less likely to use peripheral cues such as marketing-mix variables in attitude formation.

According to Inglehart (Inglehart and Welzel 2005, 115), "Materialist/postmaterialist values are a key component of the survival/self-expression dimension." Countries that score high on the self-expression dimension are characterized by a relative deemphasis of materialistic ideologies and emerging post-materialist ideologies. In these societies, "the 'quality of experience' replaces the quantity of commodities as the prime criterion for making a good living" (Inglehart and Welzel 2005, 25). Maximizing well-being rather than maximizing material possessions becomes a guiding motivation to people, and their interest in the marketplace for achieving life goals declines. Postmaterialist priorities are associated with reduced importance of brands (Holt 2002). According to Accessibility-Diagnosticity Theory, in countries low on self-expression values (i.e., high on survival values), marketing-mix activities are expected to be more accessible to consumers and as such have greater impact on consumers' attitude and their trust in brands. The Elaboration Likelihood Model again offers the opposite perspective. Table 2 gives an overview of the directional effects.

TABLE 2

DIRECTIONAL EFFECTS

Variable	Expected direction
Marketing-mix activities	
Advertising	+
New product introductions	+
Distribution	+
Price	+
Price promotion	−
Multiplier effects	
Consumer	
Marketing-mix activities × extraversion	Strengthens marketing-mix effects[a]
Marketing-mix activities × agreeableness	Strengthens marketing-mix effects
Marketing-mix activities × conscientiousness	Weakens marketing-mix effects[b]
Marketing-mix activities × openness to experience	Weakens marketing-mix effects
Category	
Marketing-mix activities × brand relevance in a category	Weakens (ELM)/strengthens (ADT) marketing-mix effects
Culture	
Marketing-mix activities × secular-rational culture	Weakens (ELM)/strengthens (ADT) marketing-mix effects
Marketing-mix activities × self-expression culture	Strengthens (ELM)/weakens (ADT) marketing-mix effects

NOTE.—ELM = Elaboration Likelihood Model; ADT = Accessibility-Diagnosticity Theory.

[a]That is, − for price promotion, + for the other marketing-mix activities

[b]That is, + for price promotion, − for the other marketing-mix activities

Sociodemographics

Four sociodemographics are included in our framework (figure 2) and analyses. Although they are not the focus of this study, CTB could systematically vary across age, gender, social class, or education of the respondent. We cannot make predictions as to their likely effect since most previous research used student samples (table 1). However, factual findings for these variables might be of interest to applied researchers. Moreover, controlling for these variables provides for a stronger test of our focal effects.

METHOD

Data

We combine consumer survey data, scanner data, and country data to examine the proposed main and moderating effects. The individual-level survey data was collected via the internet by the global market research agencies GfK and Kantar Worldpanel in 2015 in 13 countries, including nine developed countries (Denmark, France, Germany, Great Britain, Italy, Netherlands, Spain, Sweden, and the United States) and four emerging markets (Brazil, China, India, and Russia). In each country, respondents—the person in the household that was responsible for grocery purchases—answered questions regarding a maximum of three brands of consumer product goods in a product category. The selected brands were the top three national brands in their category in 2013 (based on annual volume market share). The total number of different product categories included in the survey was 46. The specific categories included varied across countries to reflect usage patterns and the needs of GfK and Kantar Worldpanel.

The questionnaire was developed in English and translated into local languages using the back-translation method. Respondents answered questions regarding the marketing activities of a brand and their trust in it. In the survey, advertising and new product introduction intensity were operationalized with two items each, using items developed by Steenkamp and Geyskens (2014). CTB was operationalized using two items drawn from Chaudhuri and Holbrook (2001). Respondents answered questions regarding BRiC with the four-item scale developed by Fischer et al. (2010). The Big Five personality traits were

measured using items developed by Donnellan et al. (2006). Additionally, respondents reported their sociodemographic information (i.e., gender, age, education, social status). Social desirability responding tendencies were measured using items developed by Hays, Hayashi, and Stewart (1989).

We obtained household scanner data for all 13 countries from GfK, Kantar Worldpanel, and IRI. Specifically, we acquired average shelf price (price per volume for a brand), distribution intensity (percentage of retailers that sold a brand, weighted by retailers' annual market share), and price promotion intensity (the brand's annual value sold on promotion divided by the brand's total annual sales) during 2014. To render the measure for price comparable across categories, we compute *z*-scores for brand price based on the price of the top 10 national brands in each category. To ensure temporal separation the scanner data are from 2014 so that they lag the brand trust measure collected in 2015.

Country data on Inglehart's cultural values were obtained from World Values Survey. We also obtained a measure of generalized societal trust from World Values Survey to control for cross-country variations in disposition to trust. Variables and operationalizations are summarized in table 3.

We merged the scanner data with consumer survey data to construct our final data set. Our final sample consisted of 35,028 observations from 15,073 respondents and 589 brands across 46 distinct CPG categories in 13 countries (average of 26 categories in each country). Web appendix B presents category-country combinations in our data set (as well as grouping them into low, medium, and high categories with respect to average BRiC ratings). We provide examples of low, medium, and high average brand trust (compared to country mean) in web appendix C.

Cross-National Measurement Validation

Following Steenkamp and Baumgartner (1998), first we establish the cross-national invariance of measurement instruments. Results of the measurement invariance analyses (reported in web appendix D) support metric and scalar invariance for CTB and metric invariance for the survey-based marketing-mix instruments, BRiC, personality traits, and social desirability responding.[4] Figure 3 shows country means for CTB, with their 95% confidence intervals. The three countries where mean CTB is highest—Brazil, India, and China—are all emerging markets. Noteworthy is that the US is significantly higher on CTB than any other developed market.

4 Since we do within-country mean-centering for our predictor variables in our main analysis, establishing scalar invariance is not required for advertising, new product introduction, brand relevance in a category (BRiC), personality traits, and social desirability responding.

Model and Estimation

Our model consists of variables at three levels: brand, consumer, and country. We model consumers' trust in brands as a function of marketing-mix instruments and their interactions with category and country-level moderators. Web appendix E gives details on model development. Our estimation equation is:

$$\begin{aligned} CTB_{ijk} = {} & \delta_{000} + \delta_{100}ADV_{ijk} + \delta_{200}NPI_{ijk} + \delta_{300}DIST_{ik} \\ & + \delta_{400}PRICE_{ik} + \delta_{500}PROM_{ik} + \sum_{p=1}^{p=5}\delta_{0p0}PRSN_{pjk} \\ & + \sum_{q=1}^{q=5}\sum_{p=1}^{p=4}\delta_{qp0}MKTMIX_{qijk} \times PRSN_{pjk} \\ & + \delta_{060}BRIC_{jk} + \sum_{q=1}^{q=5}\delta_{q60}MKTMIX_{qijk} \times BRiC_{jk} \\ & + \delta_{001}SECRAT_{k} + \sum_{q=1}^{q=5}\delta_{q01}MKTMIX_{qijk} \\ & \times SECRAT_{k} \; + \delta_{002}SELFEXPR_{k} \\ & + \sum_{q=1}^{q=5}\delta_{q02}MKTMIX_{qijk} \times SELFEXPR_{k} \\ & + \sum_{p=7}^{p=11}\delta_{0p0}SOCIO_{pjk} + \sum_{p=12}^{p=15}\delta_{0p0}CATTYPE_{pjk} \\ & + \delta_{003}STR_{k} + \delta_{004}EUR_{k} + \Psi_{ijk} \end{aligned} \quad \textbf{(1)}$$

where i denotes the brands, j denotes the consumers, and k denotes the countries in our data. CTB_{ijk} denotes the trust that consumer j in country k has in brand i. ADV_{ijk}, NPI_{ijk}, $DIST_{ik}$, $PRICE_{ik}$, and $PROM_{ik}$ (collectively $\sum_{q=1}^{q=5} MKTMIX_{qijk}$) refer to advertising intensity ($q = 1$), new product introduction intensity ($q = 2$), distribution intensity ($q = 3$), price ($q = 4$), and promotion intensity ($q = 5$).[5] $\sum_{p=1}^{p=5} PRSN_{pjk}$ denotes the Big Five personality traits extraversion ($p = 1$), agreeableness ($p = 2$), conscientiousness ($p = 3$), openness to experience ($p = 4$), and neuroticism ($p = 5$). $BRiC_{jk}$ represents consumer j's reliance on brands in category k. $SECRAT_k$ and $SELFEXPR_k$ refer to the secular-rational and self-expression dimensions, respectively. We include several sociodemographic variables ($\sum_{p=7}^{p=11} SOCIO_{pjk}$) to control for heterogeneity across consumers. The $SOCIO$ variable captures gender ($p = 7$), age ($p = 8$), education ($p = 9$), social class ($p = 10$), and social desirability responding tendency of the consumer ($p = 11$). We include four category dummies ($\sum_{p=12}^{p=15} CATTYPE_{pjk}$) to account for five different types of product categories:

5 $DIST_{ik}$, $PRICE_{ik}$, and $PROM_{ik}$ do not vary across survey respondents (hence, they have no j subscript).

TABLE 3

VARIABLES AND DESCRIPTIONS

Variable	Operationalization	Reference	Source
Consumers' trust in brands ($\bar{\alpha}$=.79) [CTB]	1) Brand *m* is a brand I trust. 2) Brand *m* delivers what it promises.	Chaudhuri and Holbrook (2001)	Consumer surveys
Advertising intensity ($\bar{\alpha}$=.87) [ADV]	1) Brand *m* is heavily advertised in newspapers, magazines, TV, or internet. 2) Brand *m* advertises a lot.	Steenkamp et al. (2010)	Consumer surveys
New product introduction intensity ($\bar{\alpha}$=.84) [NPI]	1) Brand *m* frequently introduces new products. 2) Brand *m* has many new product introductions.	Steenkamp et al. (2010)	Consumer surveys
Distribution intensity [DIST]	Percentage of retailers that sold brand *m* during a year, weighted by retailers' market shares in the previous year.	Sotgiu and Gielens (2015)	Scanner data
Price [PRICE]	Value sales of brand *m* divided by its volume sales, averaged over all purchase occasions, in the previous year. For comparability across categories and countries, based on price of the top 10 brands in category *n*, we computed *z*-scores for brand prices.	Sotgiu and Gielens (2015)	Scanner data
Price promotion intensity [PROM]	Total absolute value sales sold on promotion by brand *m*, divided by total absolute value sold by brand *m*, per year (in the previous year).	Sotgiu and Gielens (2015)	Scanner data
Brand relevance in a category ($\bar{\alpha}$=.89) [BRiC]	1) In category *n* the brand plays—compared to other things—an important role. 2) In category *n* I focus mainly on the brand. 3) In category *n* it is important to purchase a brand name product. 4) In category *n* the brand plays a significant role as to how satisfied I am with the product.	Fischer et al. (2010)	Consumer surveys
Traditional versus secular-rational values [SECRAT]	Country scores derived from responses to multiple items in large representative surveys. Scores range from –2.0 to 2.0. Higher scores indicate a stronger secular-rational culture.	Inglehart and Welzel (2005)	WVS – Wave 5
Survival versus self-expression values [SELFEXPR]	Country scores derived from responses to multiple items in large representative surveys. Scores range from –2.5 to 2.5. Higher scores indicate a stronger self-expression culture.	Inglehart and Welzel (2005)	WVS – Wave 5
Extraversion [$PRSN_1$] ($\bar{\alpha}$=.78)	I see myself as someone who 1) is the life of the party 2) talks a lot 3) talks to a lot of different people at parties.	Donnellan et al. (2006)	Consumer surveys
Agreeableness [$PRSN_2$] ($\bar{\alpha}$=.75)	I see myself as someone who 1) sympathizes with others' feelings 2) feels others' emotions 3) is really interested in others.	Donnellan et al. (2006)	Consumer surveys
Conscientiousness [$PRSN_3$] ($\bar{\alpha}$=.65)	I see myself as someone who 1) gets chores done right away 2) likes order 3) makes a mess of things (reverse-coded).	Donnellan et al. (2006)	Consumer surveys
Openness to experience [$PRSN_4$] ($\bar{\alpha}$=.71)	I see myself as someone who 1) has a vivid imagination 2) is interested in abstract ideas 3) has a good imagination.	Donnellan et al. (2006)	Consumer surveys
Neuroticism [$PRSN_5$] ($\bar{\alpha}$=.68)	I see myself as someone who 1) has frequent mood swings 2) is relaxed most of the time (reverse-coded) 3) gets upset easily.	Donnellan et al. (2006)	Consumer surveys
Gender [$SOCIO_1$]	What is your gender?		Consumer surveys
Age [$SOCIO_2$]	What is your age?		Consumer surveys
Education [$SOCIO_3$]	Which of these best describes your highest level of education? (No formal education; Education up to age: 12, 14, 16, 18; Higher education; University)		Consumer surveys
Social class [$SOCIO_4$]	If people in our society are divided into upper, upper middle, middle, lower middle, working, and lower classes, which class do you think you belong to?		Consumer surveys
SDR [$SOCIO_5$] ($\bar{\alpha}$=.64)	1) I sometimes feel resentful when I don't get my way 2) I sometimes try to get even rather than forgive 3) There have been occasions when I took advantage of someone.	Hays et al. (1989)	Consumer surveys

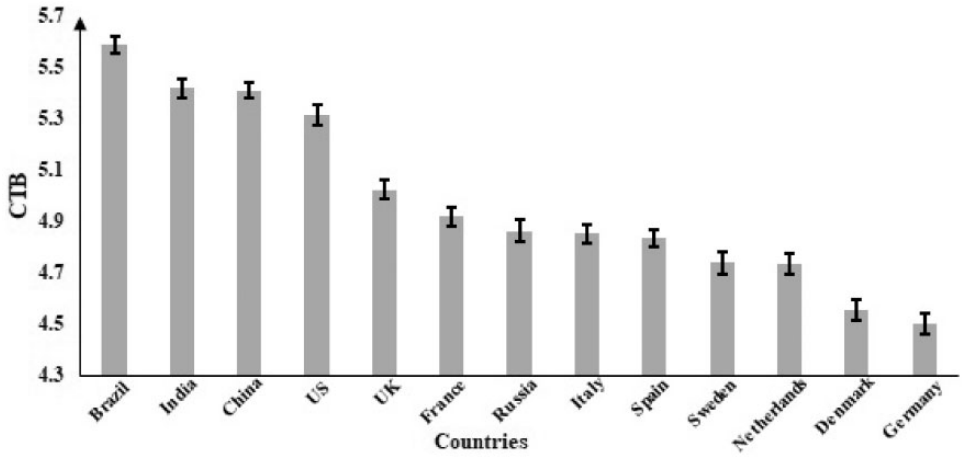
TABLE 3 (*CONTINUED*)

Variable	Operationalization	Reference	Source
Societal trust [STR]	Self-reported trust in others, constructed as the percentage of respondents answering yes to the question "generally speaking, would you say that most people can be trusted?"		WVS – Wave 5
Product category type [CATTYPE]	General product category specification (0 = food; 1 = beverage; 2 = household care; 3 = personal care; 4 = animal food)		Consumer surveys

NOTE.—CTB, ADV, NPI, $PRSN_1$–$PRSN_5$, BRiC, and SDR were scored on a seven-point scale where 1 = "very strongly disagree," 2 = "disagree," 3 = "somewhat disagree," 4 = "neither agree nor disagree," 5 = "somewhat agree," 6 = "agree," and 7 = "very strongly agree." Our initial analysis showed that for personality traits and social desirability responding, some of the original items (which were reverse-coded) did not correlate well with other items or exhibited lack of measurement variance across countries. We dropped those items.

FIGURE 3

MEAN CTB ACROSS THE COUNTRIES



beverage ($p = 12$), personal care ($p = 13$), household care ($p = 14$), and pet food ($p = 15$), with food as the baseline category. We also include two country-level control variables in our model: STR_k and EUR_k. STR_k captures generalized trust in others in a country. In our data, we have nine European countries; therefore, we include a dummy variable (i.e., EUR_k) to capture unobserved region-specific effects.

δ_{100}, δ_{200}, δ_{300}, δ_{400}, and δ_{500} represent the main effect of marketing-mix instruments on CTB. $\sum_{q=1}^{q=5}\sum_{p=1}^{p=4}\delta_{qp0}$ capture the moderating impact of the four personality traits on the effectiveness of marketing activities on CTB. Retaining all 20 interactions between marketing-mix instruments and personality traits might lead to multicollinearity and unstable results. Therefore, we retain only interactions that are significant at the .10 level (see Steenkamp and Geyskens 2014 for a similar practice). δ_{160}, δ_{260}, δ_{360}, δ_{460}, and δ_{560} represent the moderating effect of BRiC on the sensitivity of CTB to the marketing activities. δ_{101}, δ_{201}, δ_{301}, δ_{401}, and δ_{501} represent the moderating effect of secular-rational values on the sensitivity of CTB to the marketing-mix instruments. Finally, δ_{102}, δ_{202}, δ_{302}, δ_{402}, and δ_{502} test the moderating impact of self-expression values on the sensitivity of CTB to the marketing-mix instruments.

Ψ_{ijk} is the composite error term that includes a cross-classified brand random effect ν_{ik}^{brand}, which is normally distributed with zero mean and variance σ_2^2. ν_{ik}^{brand} captures brand-specific unobserved heterogeneity that might impact CTB. We use grand-mean centering for country-level variables and within-group centering for other variables that vary within consumers and across consumers. Since we examine relationships at multiple levels simultaneously, we use iterative maximum likelihood.

Common Method Bias and Endogeneity

While we are interested in examining the effect of marketing-mix instruments on CTB, one could argue that the observed relationships between the marketing-mix instruments and CTB could be because the level of CTB influences managerial strategy in setting the level of marketing-mix activities. For example, if price promotions are used frequently by a brand in a particular country, is it because the brand has problems in that country (e.g., low CTB), or did the price promotions reduce CTB? Moreover, there could be unobserved variables that influence both marketing-mix activities and CTB (e.g., access to capital, managerial talent, suppliers, and social media capabilities). Hence, the effect of marketing-mix instruments on CTB might be overstated if, for example, managerial talent drives both. Additionally, the same individuals who rate CTB also rate advertising intensity, new product introduction intensity, and BRiC. This could lead to common method bias.

In order to address the common method bias and endogeneity concerns, we generate instrumental variables. We exploit the multimarket nature of our data set to construct valid Hausman-style instruments. We obtain meaningful instrumentation for marketing-mix instruments by using a brand's average marketing-mix values in the same category across other countries (see web appendix F for a detailed description of our IV approach). Similarly, for BRiC, we use average values across consumers in other countries. The instruments are sufficiently strong, as evidenced by the first-stage R-squared and F-statistics. Across the six scenarios, we obtain an average R-squared of 30%, and all incremental F-values exceed the common threshold of 10 (on average, the incremental F-values are 3,021). We estimate six predicted residuals from the first-stage regressions and then add the estimated residuals as control functions to the main model (Petrin and Train 2010). The instruments that we use are obtained from responses by other respondents in different countries. Therefore, our instruments not only address the endogeneity concerns, but also account for the common method bias.

RESULTS

Main Effects of Marketing-Mix Activities

Parameter estimates for the model specified in equation 1 are reported in table 4.[6] Note that we report unstandardized coefficients. In multilevel modeling, standardized coefficients are problematic because variance is partitioned across different levels. Advertising intensity ($\gamma_{100} = .063$, $p = .037$), new product introduction intensity ($\gamma_{200} = .381$, $p < .001$), distribution intensity ($\gamma_{300} = .182$, $p = .025$), and price ($\gamma_{400} = .028$, $p = .008$) have a significant positive effect on CTB, while price promotion intensity negatively impacts CTB ($\gamma_{500} = -.241$, $p = 058$). These results are consistent with our predictions regarding the effects of marketing activities on CTB.

Figure 4 illustrates the magnitude of these effects by presenting observed mean CTB scores for observations that are at least one standard deviation above (below) the mean of the marketing-mix instrument in question.[7] The largest difference is found for new product introduction intensity. CTB for brands low on this marketing-mix instrument is on average 4.41 versus an average CTB score of 5.93 for brands high on this instrument. Cohen's d for this effect is 1.44, which meets the cutoff for a large effect size.[8] Advertising also has a large effect (Cohen's $d = .80$): CTB for brands low (high) on advertising is on average 4.56 (5.47). Price has a small effect ($d = .23$), while the effects of distribution ($d = .15$) and price promotion ($d = .09$) are below the cutoff for a small effect size.

The Moderating Role of Personality Traits

Consistent with our earlier discussion, we find that the effect of advertising ($\gamma_{110} = .010$, $p = .003$) and new product activity ($\gamma_{210} = .006$, $p = .088$) is larger for consumers high on extroversion. Moreover, the effect of advertising is smaller for consumers that are higher on openness to experience ($\gamma_{140} = -.017$, $p < .001$), which is in line with our predictions. Mixed support is found for conscientiousness. Consistent with our expectations, the effect of advertising is lower for consumers high on this trait ($\gamma_{130} = -.014$, $p = .001$). However, new product activity has a more positive effect on CTB for more conscientious consumers ($\gamma_{230} = .020$, $p < .001$). This might be explained by the cognitive nature of new product activity. By their very nature, new products introduce some new information in the market, which takes some effort to process. Conscientious people may be more prone to do that and, based on their processing of this information, feel that the brand is trying to improve and better meet consumer needs, which increases brand trust. Finally, we find that advertising has a larger effect on CTB for more agreeable consumers ($\gamma_{120} = -.010$, $p = .009$), which contradicts our prediction. Steenkamp and Maydeu-Olivares (2015) argued that individuals high on agreeableness have more positive attitudes toward advertising. This might explain the positive effect we find in this study.

To get a sense of the magnitude of these interaction effects, figure 5 (panel A) provides the observed mean

6 Out of the 20 interactions between marketing-mix instruments and personality traits, we retain and report only those interactions that are significant at $p < .10$.

7 Everywhere in the results section, when we talk about high versus low values on a variable, it refers to one standard deviation above or below the mean.

8 The cutoff value for a small, medium, and large effect size is .2, .5, and .8, respectively (Cohen 1988).

TABLE 4

RESULTS

Covariate	Parameter	Expected sign	Estimate	*p*-value
Intercept	γ_{000}		5.347	$< .001$
Main effects marketing-mix activities				
Advertising intensity (ADV)	γ_{100}	+	.063	.037
New product introduction intensity (NPI)	γ_{200}	+	.381	$< .001$
Distribution intensity (DIST)	γ_{300}	+	.182	.025
Price (PRICE)	γ_{400}	+	.028	.008
Price promotion intensity (PROM)	γ_{500}	−	−.241	.058
Interactions with personality traits				
Extraversion × ADV	γ_{110}	+	.010	.003
Extraversion × NPI	γ_{210}	+	.006	.088
Agreeableness × ADV	γ_{120}	+	−.010	.009
Conscientiousness × ADV	γ_{130}	−	−.014	.001
Conscientiousness × NPI	γ_{230}	−	.020	$< .001$
Openness to experience × ADV	γ_{140}	−	−.017	$< .001$
Interactions with brand relevance in category				
BRiC × ADV	γ_{160}	ELM(−), ADT(+)	.021	$< .001$
BRiC × NPI	γ_{260}	ELM(−), ADT(+)	.017	$< .001$
BRiC × DIST	γ_{360}	ELM(−), ADT(+)	.063	.014
BRiC × PRICE	γ_{460}	ELM(−), ADT(+)	.015	$< .001$
BRiC × PROM	γ_{560}	ELM(+), ADT(−)	.007	.839
Interactions with national culture				
SECRAT × ADV	γ_{101}	ELM(−), ADT(+)	−.011	.364
SECRAT × NPI	γ_{201}	ELM(−), ADT(+)	.076	$< .001$
SECRAT × DIST	γ_{301}	ELM(−), ADT(+)	.017	.919
SECRAT × PRICE	γ_{401}	ELM(−), ADT(+)	.057	.001
SECRAT × PROM	γ_{501}	ELM(+), ADT(−)	−.733	.006
SELFEXPR × ADV	γ_{102}	ELM(+), ADT(−)	−.061	$< .001$
SELFEXPR × NPI	γ_{202}	ELM(+), ADT(−)	−.043	$< .001$
SELFEXPR × DIST	γ_{302}	ELM(+), ADT(−)	.141	.180
SELFEXPR × PRICE	γ_{402}	ELM(+), ADT(−)	−.026	.071
SELFEXPR × PROM	γ_{502}	ELM(−), ADT(+)	.121	.573
Sociodemographics and controls				
Gender (male: 0, female: 1)	γ_{070}		−.026	.056
Age	γ_{080}		−.002	.008
Education (in years)	γ_{090}		−.006	.184
Social class	γ_{0100}		.002	.642
Extraversion	γ_{010}		.004	.509
Agreeableness	γ_{020}		.084	$< .001$
Conscientiousness	γ_{030}		.078	$< .001$
Openness to experience	γ_{040}		.038	$< .001$
Neuroticism	γ_{050}		−.031	$< .001$
Brand relevance in category (BRiC)	γ_{060}		.191	$< .001$
Secular-rational culture (SECRAT)	γ_{001}		−.123	.331
Self-expression culture (SELFEXPR)	γ_{002}		−.116	.041
Socially desirable responding tendency	γ_{0110}		.008	.130
Generalized societal trust (STR)	γ_{003}		−.001	.730
European countries dummy (EUR)	γ_{004}		−.441	$< .001$
Category type (CATTYPE)	γ_{0120}–γ_{0150}		Included	
Six control functions and brand random effect			Included	

NOTE.—$N = 35{,}028$; *p*-values are one-sided for hypothesized effects and two-sided for others; ELM = Elaboration Likelihood Model; ADT = Accessibility-Diagnosticity Theory.

CTB score for low versus high level of the marketing-mix instrument in question—and the associated Cohen's *d*—for low versus high value of the moderator. To assess the effect size of the interaction, the difference between the two Cohen's *d*s (Δd) is informative. The figure shows that the strongest effect sizes are associated with extraversion. Comparing the effect of advertising between consumers low on extraversion ($d = .55$) and high on extraversion ($d = .92$) for a difference of .37 indicates that the interaction is of small-medium effect size. The interaction between extraversion and new product activity is associated with Δd of .33. The only other interaction that meets the cutoff for a small effect size is between advertising and openness to experience ($\Delta d = .21$).

The Moderating Role of Brand Relevance in a Category

We proposed rival explanations regarding the moderating role of BRiC as Accessibility-Diagnosticity Theory and the Elaboration Likelihood Model of persuasion posit diametrically opposing effects. We find that advertising intensity ($\gamma_{160} = .021$, $p < .001$), new product introduction intensity ($\gamma_{260} = .017$, $p < .001$), distribution intensity ($\gamma_{360} = .062$, $p = .014$), and price ($\gamma_{460} = .015$, $p < .001$) have a stronger impact on CTB when BRiC is high compared to when it is low. The effect for price promotion is not significant. Thus, we find strong support for Accessibility-Diagnosticity Theory's predictions. Figure 5 (panel B) again provides observed mean CTBs. It highlights that the interaction effects are mostly substantial. For advertising, $\Delta d = .69$, a medium-large effect, for new products and price, the effect is close to medium ($\Delta d = .45$). The effect for distribution is more modest: $\Delta d = .28$.

The Moderating Role of National Culture

We proposed rival predictions regarding how the secular-rational and self-expression cultural dimensions moderate the sensitivity of CTB to the marketing-mix activities. Consistent with the arguments of Accessibility-Diagnosticity Theory, we find that higher new product introduction intensity ($\gamma_{201} = .076$, $p < .001$), higher price ($\gamma_{401} = .057$, $p = .001$), and lower price promotion intensity ($\gamma_{501} = -.733$, $p = .006$) have a stronger impact on CTB in countries high on secular-rational values compared to countries low on secular-rational values. The interactions for advertising and distribution intensity are not significant.

We find significant interactions for self-expression culture in the direction specified by Accessibility-Diagnosticity Theory, albeit not for all marketing-mix instruments. Consistent with Accessibility-Diagnosticity Theory, advertising intensity ($\gamma_{102} = -.061$, $p < .001$), new product introduction intensity ($\gamma_{202} = -.043$, $p < .001$), and price ($\gamma_{402} = -.026$, $p = .071$) have a weaker impact on CTB in countries high on self-expression values. The other two interactions are not significant.

Figure 5 (panel C) depicts mean CTBs associated with the significant interaction effects. Four interaction effects exceed the cutoff for a small effect size. The strongest effects by far are found for the interactions between self-expression values and advertising intensity ($\Delta d = .72$) and new product activity ($\Delta d = .75$).

Sociodemographics and Control Variables

We find that women have lower trust in brands ($\gamma_{070} = -.026$, $p = .056$) and that CTB declines with age ($\gamma_{080} = -.002$, $p = .007$). We also find that CTB is lower in European countries ($\gamma_{004} = -.441$, $p < .001$). This finding is in line with the fact that private labels command a larger market share in Europe than in any other continent.

We included the main effects of our moderators for proper interpretation of the interactions. Although they are not the focus of our study, they yield some interesting results. We find that people high on the trait of agreeableness exhibit higher CTB ($\gamma_{020} = .084$, $p < .001$). This is consistent with past research that identified the trait of trust as a subscale of agreeableness (McCrae and Costa 2008). We also find that consumers scoring high on conscientiousness ($\gamma_{030} = .078$, $p < .001$) and openness to experience ($\gamma_{040} = .038$, $p < .001$) are higher on CTB, while neuroticism has a negative effect on CTB ($\gamma_{050} = -.031$, $p < .001$). This finding is consistent with the notion that an individual holding a neurotic personality has a pessimistic attitude toward individuals and objects, which makes it difficult for him/her to trust individuals/entities (Tan and Sutherland 2004).

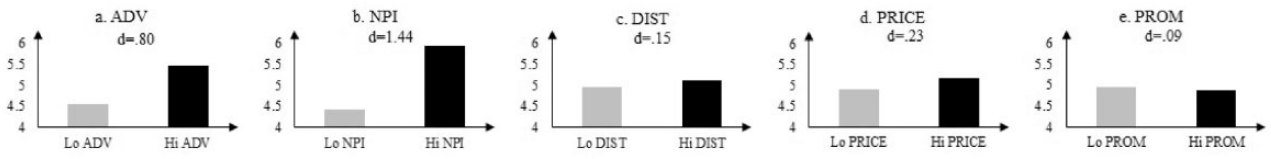
The main effect of BRiC is positive and significant ($\gamma_{060} = .191$, $p < .001$), suggesting that CTB is higher when in a particular product category, and brands are more important to a consumer. We find that consumers have lower trust in brands in countries high on self-expression values ($\gamma_{002} = -.116$, $p = .041$). This finding is consistent with previous research, which argued that brands are expected to do worse in postmaterialistic countries (Holt 2002; Steenkamp and Geyskens 2014).

Robustness Checks

We conducted a series of checks to assess the robustness of our findings, including analyses with median split moderators, and models with manufacturer fixed effects and

FIGURE 4

MEAN CTB AT VARYING LEVELS OF MARKETING-MIX ACTIVITIES



brand fixed effects. We also assessed our model's out-of-sample predictive power across three sets of analyses. The results are reported in web appendixes G–I. The overall conclusion is that our model findings exhibit a high degree of robustness.

Other Country-Level Categorizations

While we focus on country differences using Inglehart's cultural framework, another, managerially more interesting, classification is between developed and emerging markets (Burgess and Steenkamp 2006). Our set of countries includes the four most important emerging markets: Brazil, China, India, and Russia. We find that the signaling value of advertising and price is stronger in emerging markets than in developed markets (see Table 5). Compared to developed markets, brands have not been around as long in emerging markets; hence, knowledge about products and brands is generally less deep (Burgess and Steenkamp 2006). In these contexts, advertising fulfills a more important role in creating brand awareness and communicating the brand message (Pauwels, Erguncu, and Yildirim 2013). The larger role of price in emerging markets is consistent with recent research that showed that while consumers in emerging markets are more price conscious, they also rely more on price as an indicator to infer product performance (Zielke and Komor 2015). Distribution has a large effect on CTB in developed markets but not in emerging markets. This may be due to the fact that in emerging markets, informal distribution and small, relatively unsophisticated mom-and-pop shops play a large role, while in developed markets, brands are almost exclusively offered in large, sophisticated, and expensive-looking supermarkets (Child, Kilroy, and Naylor 2015). Such outlets have more characteristics of expensive brand-specific capital expenditures.

We use the richness of our data set to explore possible differences in the effects of marketing-mix activities on CTB across different country-level categorizations (e.g., Hofstede's cultural dimensions, country's religion, country's economic well-being) in an exploratory fashion. We use median values to categorize countries into low and high on different factors and run separate analyses on countries that are above versus below the median on a particular characteristic, with only the marketing-mix activities as regressors. We report the results of those analyses in web appendix J. The results confirm the importance of new product introduction intensity as the most important driver of CTB; its effect on CTB is significant across all country-level categorizations. Advertising is also generally an important driver of CTB; however, in certain contexts it does not significantly influence CTB (e.g., countries low on uncertainty avoidance or low on power distance). Overall, the results highlight interesting patterns that could be of interest to marketing managers and researchers. Discussing the possible underlying mechanisms behind these results is outside the scope of this article, but our findings may offer inspiration for future research.

DISCUSSION

The brand value chain (Keller and Lehmann 2003) has emerged as a useful framework to understand the chain of events through which brands create value. The key first link in this framework is that marketing activity of the firm

FIGURE 5

MODERATING ROLE OF PERSONALITY TRAITS, BRAND RELEVANCE IN CATEGORY, AND NATIONAL CULTURE

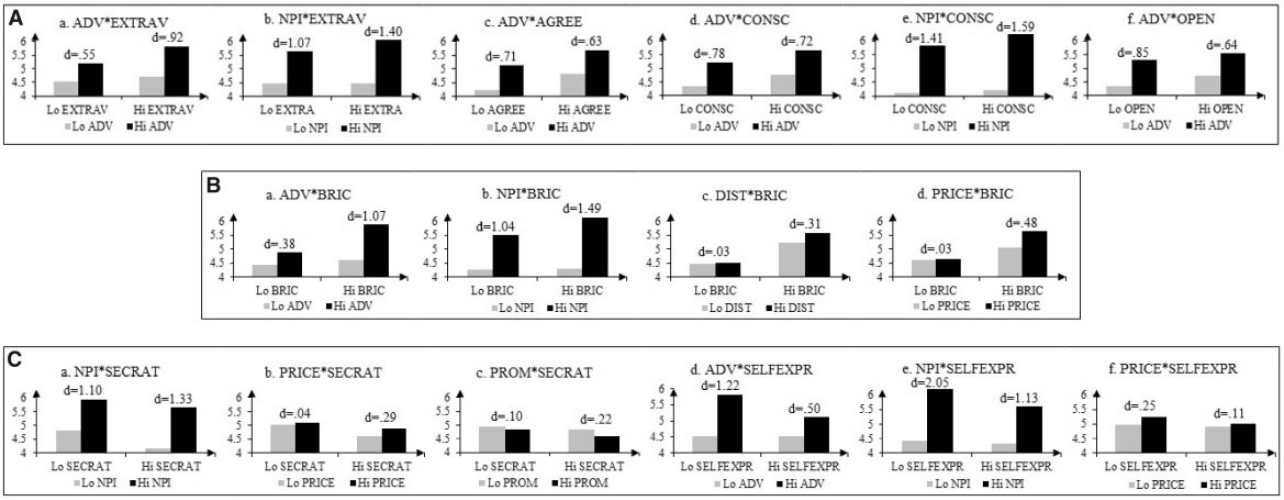


TABLE 5

THE EFFECT OF MARKETING-MIX ON CTB ACROSS

	Emerging Markets	Developed Countries	*p*-value (difference)
Advertising	.133 (< .001)	.034 (.039)	.018
New products	.419 (< .001)	.417 (< .001)	.966
Distribution	−.037 (.651)	.270 (< .001)	.001
Price	.045 (.133)	.007 (.523)	.234
Price promotion	−.271 (.179)	−.308 (.009)	.872

NOTE.—Numbers in parentheses are two-sided *p*-value.

influences the consumer mindset with respect to the brand. If the firm is ineffective in affecting the customer mindset with its marketing, the subsequent links in the framework become moot. Our study elaborates and extends the brand value chain. First, it expands the framework by introducing brand trust as an important customer mindset element. CTB has become a top managerial concern and has also spawned a considerable amount of academic research, documenting its effect on various brand performance metrics. Second, we extend the brand value chain by identifying the context in which the firm operates as a key multiplier, intervening between marketing activity and customer mindset. We specify three context domains: consumer, category, and country. We develop arguments regarding the main effects of five marketing-mix activities on CTB as well as the multiplier effects of personality traits (consumer), brand relevance in a category (category), and secular-rational and self-expression values (country). The effects were examined using a dedicated data set that combined consumer surveys, household scanner data, and country data across 589 brands in 46 CPG categories, across 13 countries, which collectively account for half of the world's population. The cross-national data used in this study provide a strong test of the generalizability of the findings. Consistent with the expanded brand-value-chain framework, marketing-mix activity affected CTB, and the judgment context acted as a systematic multiplier, weakening or strengthening the effects of marketing program investments on CTB.

We find that, with the exception of extraversion, the multiplying role of consumers' personality traits was small to negligible, and also not always consistent with their overall thinking styles. On the other hand, brand relevance in a category (BRiC) had a much larger multiplier effect. This suggests that overall thinking styles are less useful to understand the use of market signals in attitude formation than category-specific measures. This does not detract from the theory of thinking styles but suggests that to understand formation of attitudes toward specific objects (in our case, trust in specific brands), we need more specific measures.

In our theorizing, we discussed rival predictions for BRiC and national culture, based on Accessibility-Diagnosticity Theory and the Elaboration Likelihood Model of persuasion. Our findings across categories and countries consistently supported Accessibility-Diagnosticity Theory. This is interesting; after all, both are established theories of attitude formation. Yet they could be reconciled if, for consumers, firms' marketing activities contain real information that requires some thoughtful consideration. If consumers are economic experts, they would be aware of the information content of the market signals. They would intuitively understand that if firms renege on their promises, they would lose repeat business, and hence, the signals are valid. There are indirect indications that this might be the case. The two marketing-mix activities for which the strongest interactions were consistently found are advertising and new product activity. For advertising, Kirmani (1990) and Kirmani and Wright (1989) provide evidence that consumers may indeed link adverting to quality and sales potential. And for many consumers, new product activity is important, as it can fill relevant niches in the marketplace (Schmalensee 1978). According to Nielsen (2015), almost two-thirds of respondents in a global survey said they like it when manufacturers introduce new products, and more than half said they purchased a new product during their last shopping trip.

We find a strong multiplier role for Inglehart's theory of national culture. So far, his theory has received little attention in the literature. Yet his work is rooted in (post)materialism and (post)modernity, which are concepts that are of great importance to consumer researchers. We believe his theory deserves more attention in marketing and consumer behavior.

Managerial Implications

The brand value chain is a structured means for managers to understand where and how value is created and suggests where to look to improve that process. According to Keller and Lehmann (2003), brand and category marketing managers are likely to be particularly interested in the customer mindset and the impact of the marketing program on customers. They create value through smart investments in their marketing program and by maximizing the multiplier effects to the extent possible. So, what are smart investments, from the perspective of maximizing CTB (i.e., allocating more resources to advertising and new product activity)? These two marketing activities have a large effect (in Cohen's sense) on CTB, while the effect of the other three instruments is small at best. Regarding advertising, this gives brand managers additional leverage to make their case that it should not be evaluated only on sales lift. Advertising builds brand trust, and this message should resonate with the C-suite, as brand trust is top of mind for many CEOs (Consumer Goods Forum 2015). Our findings

also support continued investments in innovation by firms, which is contrary to industry practice, at least for large firms (Steenkamp and Sloot 2019).

We further find that the effectiveness of these two major trust-building marketing activities is substantially (in terms of effect size) moderated by a person's degree of extraversion, category BRiC, and country espousal of self-expression values. Segmenting the market on a personality trait like extraversion is possible, but the likelihood of success is probably not high (Wedel and Kamakura 1998, 16). National culture is a given, too. In this sense, whether these multipliers inhibit or facilitate value creation may be largely out of the hands of the marketer. Yet, as argued by Keller and Lehmann (2003, 31), recognizing their uncontrollable nature is important to help put in perspective the relative success or failure of trust-building programs. Marketers cannot be logically held accountable for context multipliers that they cannot influence. So, if marketers in a brand strategy session are comparing trust in the firm's brand across countries, and they find that CTB is lower in the US than in China, before concluding that the US manager is not doing their job, they need to correct scores to account for the fact that the US rates high on self-expression, while China rates low. Our parameter estimates and the publicly available country scores on the Inglehart dimensions can be used to make the necessary correction.

However, creative managers can do something about brand relevance in a category, either individually or via trade organizations. The two constituent components of BRiC are risk reduction and social demonstrance (Fischer et al. 2010). Advertising can play a major role to highlight the adverse consequences of not selecting your brand—rejection by peers (social demonstrance) or disappointing product performance.[9] This will be most effective if the market leader or multiple brands in the same category do this. In many product categories, and certainly in the CPG industry studied in this article, private labels are the main homogenizing factor reducing BRiC. Individual or collective actions to differentiate the brand (brands) from private labels, then, can help increase BRiC. An example of individual brand action is to communicate to consumers that the brand does not manufacture private labels. Tylenol runs TV ads in which employees make the following promise: "We don't make store brand pain relievers. We make Tylenol." Pledge announces on its packaging in red, bold, capital letters that "THIS FORMULA IS NOT SOLD TO ANY RETAILER AS A STORE BRAND." An example of collective action is the long-running advertising campaign run by the Austrian Association of Brand Manufacturers (which counts companies like Mars, P&G, and Colgate-Palmolive as members), which uses slogans like "Die Marke garantiert den Unterschied" [the brand guarantees the difference] and "Das Original: Achten Sie auf die Marke" [The original: Pay attention to the brand]. The motivation for this campaign was that "many consumers think that PLs and NBs are actually the same product, only in different packaging." The campaign has since been adopted by other European associations of brand manufacturers.

Using advertising to increase BRiC kills multiple birds with one stone. First, it is yet another way in which advertising contributes to the brand value chain. Second, BRiC itself has a direct effect on CTB. Third, higher BRiC (either via increased CTB or directly; this has not been researched yet) is associated with improved brand performance, especially price premiums and brand equity (Fischer et al. 2010).

Limitations and Further Research

Our empirical setting casts a wide net, leading to empirical generalizations. Yet our data are not without limitations, which offers three lines of further inquiry. First, our data are cross-sectional. An interesting question is whether and how CTB changes over time. Addressing this question requires longitudinal data with repeated measurements of CTB on the same people. This allows one to estimate latent change trajectories (Steenkamp and Maydeu-Olivares 2015) and relate the parameters of change to marketing program investments. Second, field experiments or lab experiments can be used for a more detailed causal explanation of the observed regularities in our study. Lab experiments would specifically be helpful in determining the underlying mechanisms at play. Researchers can test the accessibility-diagnosticity mechanism against alternative explanations to detect the underlying mechanism causing the observed relationships between marketing-mix activities and CTB. We speculated that perhaps the Elaboration Likelihood Model and Accessibility-Diagnosticity Theory might be reconcilable if, for consumers, firms' marketing activities contain real information that requires some thoughtful consideration. Future research should investigate this possibility. Third, in our research, advertising intensity and new product introduction intensity were operationalized using survey items developed and validated in past research (Steenkamp, van Heerde, and Geyskens 2010; Steenkamp and Geyskens 2014). Future research should examine whether these findings are replicated with secondary data.

The brand-value-chain model includes program quality multipliers, which were not considered in this study. It remains to be seen whether program quality multipliers interact with the context multipliers we have introduced in strengthening or weakening the effect of marketing-mix activities.

9 We focus on advertising, as Fischer et al. (2010) documented that heavy advertising is associated with higher BRiC. New product activity may be another way to increase BRiC.

In our study, we find that with the exception of extraversion, the moderating role of personality traits is very small. This raises several questions. First, what is special about extraversion that underlies this fairly strong effect? Second, might direct measures of thinking style (Pacini and Epstein 1999) yield stronger results? Third, might consumer traits that are conceptually related to the Big Five (Steenkamp and Maydeu-Olivares 2015) be more pertinent consumer multipliers than personality traits? Future research should look into these questions.

In information economics theory, it is crucial that consumers observe brand-specific investments. The brands in our study were the largest brands in their category. It is likely that their marketing activity is more easily observable than that of minor brands. For example, past research has showed that advertising intensity has differential impacts across well-known brands and lesser-known brands (Campbell and Keller 2003). Future research could extend our work by examining CTB and the role of marketing-mix activities therein for lesser-known brands.

Finally, future research could extend empirical testing to consumer durables. Do marketing-mix activities still play the same trust-building role in these categories? We speculate that this will indeed be the case since the emergence of e-WOM means that any attempt to renege on promises will quickly be known to multitudes of consumers who just entered the market. We believe this topic requires further investigation.

DATA COLLECTION INFORMATION

The individual-level survey data that we used in this study was collected by the global market research agencies GfK and Kantar Worldpanel in 2015. The household scanner panel data, which was used for measures on price, distribution, and price promotion, was collected by GfK, Kantar Worldpanel, and IRI. The authors acquired survey data and scanner panel data from AiMark. The first author conducted all empirical analyses in this study.

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