

Brands as Signals: A Cross-Country Validation Study

This article tests how well the information economics view of brand equity explains consumer brand choice in countries that represent different cultural dimensions. In this empirical analysis, the authors use survey and experimental data on orange juice and personal computers collected from respondents in Brazil, Germany, India, Japan, Spain, Turkey, and the United States. The results provide strong empirical evidence across countries for the role of brands as signals of product positions. In addition, the positive effect of brand credibility on choice is greater for consumers who rate high on either collectivism or uncertainty avoidance. Credible brands provide more value to collectivist consumers because such consumers perceive these brands as being of higher quality (i.e., reinforcing group identity). Credible brands provide more value to high-uncertainty-avoidance consumers because such brands have lower perceived risk and information costs.

A brand—understood to be “a name, term, sign, symbol, or design, or a combination of them, [that] is intended to identify the goods and services of one seller or a group of sellers and to differentiate them from those of competitors” (Kotler 1997, p. 443)—can potentially play many roles in consumer decision making and choice behavior. Underlying many of the brand effects is consumer uncertainty about product attributes and/or benefits. This uncertainty arises from the imperfect and asymmetric information state that characterizes most product markets (i.e., firms are more informed about their own products than are consumers).

The many roles that brands play in consumer decision making can materialize through multiple mechanisms, such as psychological (e.g., associative network memory), sociological (e.g., brand communities), and economic (e.g., brands as signals under uncertainty) processes (Keller 2002). Prior work on brands as signals under uncertainty (e.g., Erdem and Swait 1998; Wernerfelt 1988) focuses on the influence of imperfect and asymmetric information on consumer choice processes. Specifically, Erdem and Swait (1998) suggest that the clarity and credibility of brands as signals of product positions increase perceived quality, decrease consumer perceived risk and information costs, and thus increase consumer expected utility. They also dis-

cuss the antecedents to credibility and clarity. In this framework, the key characteristic of a brand signal is its credibility. “Brand credibility” (the credibility of a brand as a signal) is defined as the believability of the product position information contained in a brand, which depends on the willingness and ability of firms to deliver what they promise.

Most previous work using information economics frameworks to explain brand credibility and brand equity focuses only on the United States. The validity of existing frameworks in predicting consumer behavior in regard to brands as signals and outcomes outside the United States is not clear. With the growing trend in the globalization of marketing activities and the importance of brands in accomplishing many of these activities, there is a pressing need to address explicitly whether existing frameworks are compatible with consumer behavior outside the United States and, if not, to delimit their scope of application. Despite this practical impetus and growing theoretical interest, relatively little work examines the use of signals or extrinsic cues to judge quality across countries and/or cultures.

The purpose of this article is twofold. First, we test how well the information economics view of brand equity explains consumer brand choice and brand equity formation in different countries. Specifically, we assess the applicability of Erdem and Swait’s (1998) framework across countries representing different cultural dimensions.¹ Second, we highlight some differences across countries. More specifically, we explore differences in the way brands as signals operate across countries and link any such differences to consumers’ cultural orientation. We believe that three of Hofstede’s (1980) cultural dimensions (collectivism/individualism, uncertainty avoidance, and power dis-

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¹Note that Erdem and Swait (1998) collected survey data on consumer self-reports of perceptions and purchase intentions and estimated a structural equation model (SEM) based on these survey data to assess the impact of brands as signals of expected utility, omitting price effects. In this article, using surveys, we collected consumers’ self-reports of their perceptions and experimental data about their choices, and we estimated SEMs and brand choice models; for the latter, we also incorporated price effects.

tance) may particularly affect the way consumers use and think about brands as signals.

We conducted our analysis using survey and experimental data on orange juice and personal computers (PCs). We collected data on consumer brand perceptions, choices, and cultural dimensions from respondents in Brazil, Germany, India, Japan, Spain, Turkey, and the United States. We chose these countries to represent a wide range of Hofstede's (1980) cultural dimensions. All respondents were undergraduates in business schools (except for about half of the Brazilian sample, who were undergraduate engineering students) and participated in exchange for course credit. The results we obtained provide strong empirical evidence for brands as signals of product positions in general and for Erdem and Swait's (1998) framework in particular across countries that vary along the previously mentioned cultural dimensions. However, some interesting differences emerge in terms of both total credibility effects on choice and the mechanisms through which brand credibility effects on utility operate.

We organize the rest of the article as follows: In the next section, we review the relevant literature and discuss the conceptual framework. We then develop several hypotheses to be tested and describe the empirical approach and the data collection. The last section outlines the implications of our findings and discusses avenues for further research.

Literature Review and Conceptual Framework

Brands Under Uncertainty

The effect of uncertainty about brand attributes (in more general terms, a brand's position in the attribute space) on consumer choice has been the focal point of economics approaches to brand effects. Uncertainty affects consumers' perceptions of brand attributes, the variance of their attribute beliefs, and their information costs. The literature in both economics and marketing has focused on quality uncertainty, which is conceptualized and measured as a multidimensional construct (as a summary statistic of a brand's position in the space for attributes that are imperfectly observable). Aaker (1991) suggests that, all else being equal, strong brands are associated with higher perceived quality, which refers to mean beliefs about quality. Uncertainty about quality also implies that there is variance with consumer beliefs about quality for a given consumer (if consumers knew quality exactly or believed that they knew it exactly, the variance would be zero). This creates consumer perceived risk, and consumers tend to be risk averse in most contexts. Risk aversion affects consumers' decision making in various ways (e.g., Rao and Bergen 1992; Shimp and Bearden 1982). Risk-averse consumers feel threatened by ambiguous and uncertain product assessments. In this context, the literature suggests that brands can reduce perceived risk by becoming credible and consistent symbols of product quality (Erdem and Swait 1998; Montgomery and Wernerfelt 1992).

When there is quality uncertainty, especially in the presence of risk aversion, consumers tend to search for more information about product quality before making a decision

(Money, Gilly, and Graham 1998; Shimp and Bearden 1982).² However, such information may often not be available or may not be credible if it is available. If it is available and credible, consumers may not be willing to bear large information costs, because utility decreases with increasing information costs. Consequently, consumers may resort to extrinsic cues, such as price, advertising, or channel choice, to infer product quality (Zeithaml 1988). For example, brand as a cue of quality could be particularly useful in countries (e.g., India) in which the quality of the products may vary widely in a given product category (Maxwell 2001).

The signaling literature in economics focuses on which conditions cause these cues to become credible signals (i.e., manipulatable attributes or activities of economic agents to convey information about their characteristics; see, e.g., Spence 1974). A firm can use various marketing-mix elements to signal product quality (e.g., charging a high price, offering a certain warranty, distributing through certain channels). Each of these actions may or may not be credible depending on market conditions, including competitive conditions and consumer behavior. However, what sets brands apart from the individual marketing-mix elements as credible signals is that the former embody the cumulative effect of prior marketing-mix strategies and activities. The historical notion that credibility is based on the sum of prior behaviors has been referred to as "reputation" in the information economics literature (see Herbig and Milewicz 1995).

Credibility is broadly defined as the believability of an entity's intentions at a particular time. Credibility is posited to have two main components: expertise and trustworthiness (Rao and Ruekkert 1994; Wernerfelt 1988). Thus, brand credibility is the believability of the product information contained in a brand, which requires that consumers perceive the brand as having the ability (i.e., expertise) and willingness (i.e., trustworthiness) to deliver continuously what has been promised (brands can function as signals because if and when they do not deliver what is promised, their brand equity will erode). All else being equal, the credibility of a brand has been shown to be greater for brands with greater marketing-mix consistency over time and greater brand investments (Erdem and Swait 1998). Consistency refers to the degree of harmony and convergence among the marketing-mix elements and the stability of marketing-mix strategies and attribute levels over time. Brand investments are resources that firms spend on brands to (1) assure consumers that brand promises will be kept and (2) demonstrate long-term commitment to brands (Klein and Leffler 1981). Furthermore, it has also been shown that the clarity (i.e., lack of ambiguity) of the product information contained in a brand is an antecedent to brand credibility (Erdem and Swait 1998).

As Aaker (1991) also suggests, higher perceived (or expected) quality, lower information costs, and lower risks associated with credible brands can increase consumer

²Specifically, in cross-cultural contexts, consumers in cultures that rate high in collectivism and uncertainty avoidance have been shown to use personal information sources more often than those that rate low on these two cultural dimensions (Dawar, Parker, and Price 1996).

evaluations of brands. Using structural equation models (SEMs), Erdem and Swait (1998) show that expected utility increases with perceived quality and decreases with perceived risk and information costs; in turn, these are anteceded by brand credibility.

Brand Effects Across Countries and Cultural Dimensions

Few previous studies examine the use of signals or extrinsic cues to judge quality across countries and/or cultures. Dawar and Parker (1994) find that there are few differences in the use of price to signify quality for a highly homogeneous segment of consumers across both Western countries and Japan. McGowan and Sternquist (1998) compare Japanese and U.S. consumers in terms of their price-quality schema, prestige sensitivity, and value consciousness. The results indicate that price-inference behaviors may be market universal. However, these studies focus on comparing consumer price-quality perceptions across developed markets. In inefficient markets, such as those of less-developed countries, consumers may believe in the price-quality relationship to a lesser extent because price information is less credible (Zhou, Su, and Bao 2002). As a result, consumers in such markets may need to rely more on certain other signals to infer quality because the usual product information is less available or less reliable.

Prior research has also attempted to link brand choice to several cultural dimensions (e.g., Cray and Mallory 1998; Trompenaars and Hampden-Turner 1997; Voich 1995). Particularly, Hofstede's (1980, 1984) influential work on cross-cultural value systems identifies three aspects of cultures that can be related to brand choice: collectivism/individualism, uncertainty avoidance, and power distance.³ Although Hofstede conducted his research in organizational settings, the values he identifies have often been associated with consumer behavior, such as consumer tipping behavior (Lynn, Zinkhan, and Harris 1993), country-of-origin effects on product evaluations (Gurhan-Canli and Maheswaran 2000), value-attitude relationships (Gregory, Munch, and Peterson 2002), persuasion effects (Aaker and Maheswaran 1997), consumer innovativeness (Steenkamp, Hofstede, and Wedel 1999), and behavioral intention models (Lee and Green 1991).

The marketing literature has been particularly keen in examining the cultural dimensions of collectivism and individualism. The collectivism/individualism dimension relates brand usage to social motivations (Hofstede 1980). Cultures that are high in individualism tend to seek variety and hedonistic experiences, whereas cultures that are high in collectivism correlate more with conformity and group behavior. Roth (1995) finds support for the hypotheses that

³Hofstede had a fourth dimension, masculinity, and later added time orientation as a fifth dimension. We chose not to focus on masculinity, because the scale he developed combines two separate (though related) components: (1) attitudes toward gender roles and (2) attitudes toward quality of life. No straightforward expectations can be generated about how these might affect brand credibility effects. We pretested the impact of time orientation. However, there was not enough variation across countries on this dimension to study it further.

collectivist cultures consider brands that reinforce group membership and affiliation more attractive, whereas individualistic cultures favor brands that reinforce their independence and provide individual gratification. Furthermore, collectivist societies value consensus, which makes them loyal to the dominant brand (Robinson 1996). Research into the symbolic meaning of brands indicates that brand names are an important symbol of group identity in collectivistic societies (Johansson, Ronkainen, and Czinkota 1994). Finally, previous literature has found that the degree to which other people influence the consumer purchase decision is a factor that may affect brand attitudes across national cultures. Particularly, Nicholls, Roslow, and Dublin (1997) show that a collectivist subculture (Hispanic consumers in the United States) tends to be more susceptible to social influence than an individualistic subculture (their Anglo counterparts). For example, collectivist consumers considered the influence of friends in the choice of a favored brand very important.

In this article, and given our focus on brands as signals, it is likely that the most relevant cultural mechanism is uncertainty avoidance. Uncertainty avoidance refers to "the extent to which people feel threatened by ambiguous situations and create beliefs and institutions that try to avoid these" (Hofstede and Bond 1984, p. 418). This concept captures the cultural pattern of seeking stability, predictability, and low risk rather than change and new experiences (Hofstede 1984). Consequently, consumers in cultures that are high in uncertainty avoidance tend to favor credible and consistent brands (Dawar and Parker 1994; Robinson 1996).

Another cultural dimension, power distance, describes the extent to which a culture fosters social inequality. Cultures that are high in power distance tend to emphasize prestige and wealth in shaping boundaries or vertical relationships between social and economic classes, such as rich/poor and superiors/subordinates (Hofstede 1984; Inkeles 1960). If the aspects of cultural power distance are related to consumer needs, it appears that social brand images should be the best fit for high-power-distance cultures. Prior research confirms that consumers in high-power-distance cultures attach more importance to products' brand names than consumers in low-power-distance cultures (Bristow and Asquith 1999; Robinson 1996; Roth 1995). However, when power distance is high, consumers also tend to "distrust" authority (Hofstede 1980). In turn, greater distrust of authority may diminish brand credibility effects, counterbalancing the stronger positive impact of the relationship between social status and brand names.

Applicability of the Information Economics Perspective to Brand Effects Across Countries and Cross-Cultural Differences in the Use of Brands as Signals

Erdem and Swait (1998) show that brand credibility (1) increases perceived quality, (2) decreases perceived risk, and (3) decreases information costs, all three of which (4) increase consumer (expected) utility. We expect these main relationships to hold across countries but to be moderated

by cultural dimensions. Uncertainty avoidance is the cultural dimension that is most clearly related to brand effects as signals. Consumers from high-uncertainty-avoidance cultures are more likely to be risk averse and should have lower tolerance for ambiguity. This type of consumer tends to perceive more risk from product consumption and therefore adheres to historically tested patterns of behavior (Verhage, Yavas, and Green 1991). Thus, as we already indicated, consumers from high-uncertainty-avoidance cultures may use brands as signals more than consumers from low-uncertainty-avoidance cultures. In addition, perceived risk may be a relatively more important source of the brand signaling effect in such cultures. Specifically, we expect that the impact of brand credibility through perceived risk on consumer utility is greater in cultures with high uncertainty avoidance (Douglas and Craig 1997). However, we also expect that high uncertainty avoidance decreases sensitivity to information costs and increases willingness to collect information. Thus:

H₁: Brand credibility's impact on consumer utility through perceived risk and information costs saved is larger than its impact through perceived quality under high uncertainty avoidance than under low uncertainty avoidance.

H₂: Brand credibility's overall impact on consumer brand choice increases with uncertainty avoidance.

The collectivist/individualist distinction is a more complex phenomenon in regard to its possible moderating effects on brand signals. Collectivist societies subordinate individual goals to the goals of a few large in-groups (Triandis and Gelfand 1998). In individualistic societies, the social fabric and group norms are much looser. Collectivism should result in more reliance on the brand choice of the group as a whole. Therefore, all else being equal, reliance on brands, especially in forming quality perceptions, may be more important in highly collectivist societies because the positive impact of credibility on perceived quality and the impact of perceived quality on choice could become elements that enhance belongingness to the group. However, culture conditions the way consumers search for product information (Dawar, Parker, and Price 1996). Collectivist cultures tend to exhibit more information search than individualist cultures, but they rely more on interpersonal information exchange or word of mouth (Money, Gilly, and Graham 1998), which reduces the impact of information costs. This may have two consequences: (1) a dampening of the total credibility effects and (2) brand credibility effects operating more strongly through perceived quality than through perceived risk and information costs.

We expect brand credibility's role in enhancing quality perceptions and, thus, belongingness to the group to dominate the dampening impact of reliance on interpersonal information exchange. We believe that this will be the net effect because the importance of belonging to a group is the driver of behavior in collectivist societies. Thus:

H₃: Brand credibility's impact on consumer utility through perceived quality is more pronounced than its impact through perceived risk and information costs in high-collectivist cultures than in low-collectivist cultures.

H₄: Brand credibility's overall impact on consumer brand choice increases with collectivism.

High-power-distance cultures tend to be hierarchic in their interpersonal relationships and decision making, whereas low-power-distance cultures tend to be egalitarian. Power distance influences active opinion leadership behaviors by causing consumers to distrust others (Dawar, Parker, and Price 1996). In addition, power distance should make consumers distrust brands. In this sense, enhancements on brand credibility and clarity could have a lower effect on perceived quality, perceived risk, and information costs saved. However, high-power-distance cultures tend to emphasize the importance of prestige and wealth in vertical relationships between social classes (Hofstede 1980). If this aspect of cultural power distance is related to consumer needs, it appears that brands as signals of positions that are related to social status should be most important in high-power-distance cultures because people are highly motivated by status and affiliation norms (Roth 1995). Thus, brands as signals may have a larger effect on perceived quality, perceived risk, and information costs saved in high-power-distance cultures than in low-power-distance cultures. Given the counteracting factors that determine the impact of power distance on brand credibility effects, power distance may not have an effect on how brand credibility affects choice, or if one of the two major mechanisms (distrust versus importance of authority) dominates, it may decrease or increase total brand credibility effects. Consequently, we do not propose any hypotheses about the directionality of the moderating effects of power distance and leave the open empirical question for further analysis.

Empirical Investigation of Brand Signaling Across Cultures

Using a sample of U.S. university students, Erdem and Swait (1998) establish the validity of brand signaling (specifically, through brand credibility) as the basis for positive brand effects on product evaluations. We argue that certain basic relationships they postulate would be moderated across different cultures, particularly in terms of three important cross-cultural constructs: uncertainty avoidance, collectivism/individualism, and power distance.

We collected comparable samples of respondents in seven different countries, which we specifically chose because they differ across these cultural constructs. Sekaran (1983) identifies two primary ways to achieve sample comparability: drawing nationally representative samples or selecting matched samples on the basis of some set of characteristics of interest. Because of budgetary constraints that prevented representative sampling, we matched samples by recruiting undergraduate business student respondents in all countries. (Because of recruitment difficulties in Brazil, we used engineering undergraduates for about half of the sample.) Although this is a potential limitation to the generalizability of our results, Erdem and Swait (1998) first tested their model using undergraduate student samples, and therefore we can best establish cross-cultural generalizability with samples that have similar characteristics. We also expect that differences in age, sociodemographics, relative income, and so forth, are small when we use undergraduate student samples, making possible a clearer attribution of

substantive theoretical differences among countries to cultural differences. Finally, the use of student samples constitutes a conservative test of the impact of cultural constructs. University students are one of the most globally homogeneous segments of consumers, and thus, any cultural difference may be amplified if data are collected by means of a more inclusive group of respondents.

We made cross-country comparisons in two ways: First, we estimated and compared country-level SEMs; second, we used mixed multinomial logit (MNL) choice models based on an experimental design to test the role of brand and cultural constructs in the choice process. We selected two product classes for testing the robustness of brand signaling across cultures. We used orange juice to represent low-involvement, low-cost product categories, and we used PCs to represent high-involvement, high-price categories.

The Structural Model

Figure 1 presents our SEM. With the exception of the relative price (RP) construct, this is essentially the same model as that which Erdem and Swait (1998) implement. We postulate that brand credibility (Cr) increases perceived quality (PQ), which increases information costs saved (ICS), which decreases perceived risk (or, conversely, increases its com-

plement, lower perceived risk [LPR]); in turn, we expect that these latter constructs increase product consideration and purchase (C&P).

In addition to Erdem and Swait's (1998) brand constructs, the model includes an RP construct. We included this for two reasons: First, Erdem and Swait do not include price in any form in the SEM, and we believed that its addition would be an interesting extension of their work to control for purely economic effects on C&P. Second, rather than price itself, which would be country and time specific, we opted to use RP to capture the relative price positioning of the brands in each country. The RP positioning is likely to be a function of brand credibility because consumers are likely to perceive the firm as charging a premium if their brand is strong and visible in the market. This leads to our expectation that the path from Cr to RP will be positive. However, we expect that the effect of RP on C&P is negative: The greater the relative price of the brand, the less the brand should be considered and, thus, the less attractive it should be.

The Measurement Model

We used a total of 19 items (see Table 1) to implement the measurement model that supports the SEM in Figure 1. We

FIGURE 1
The SEM Relating Brand Credibility to Product Utility

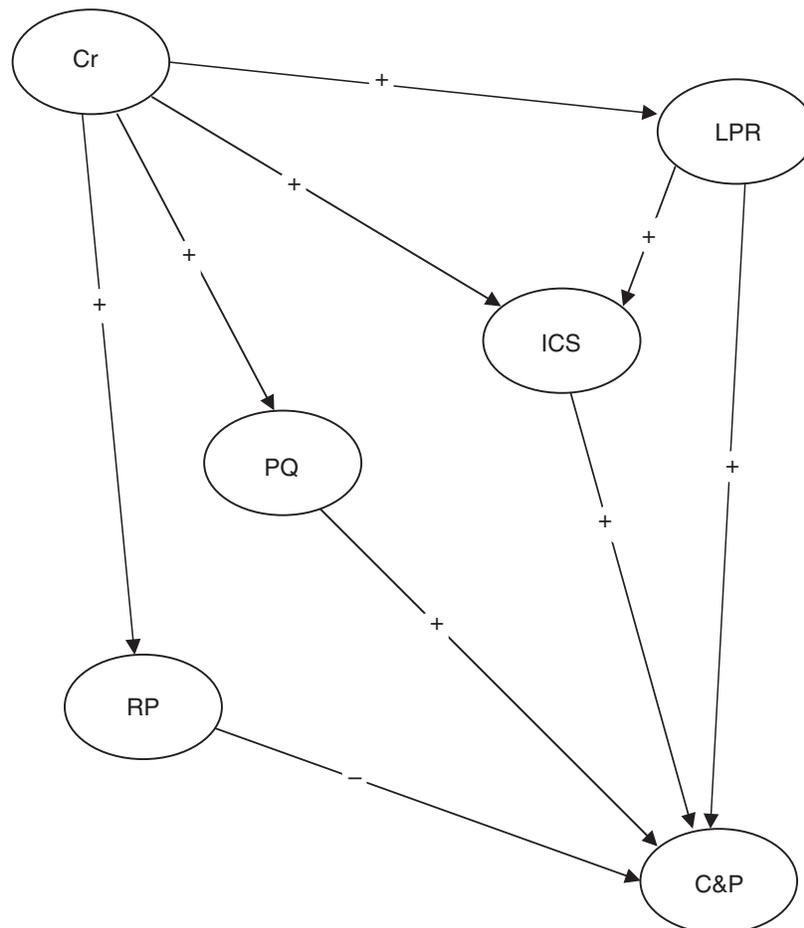


TABLE 1
Brand Constructs Measurement Model

Construct	Measurement Items	SMC Juice	SMC PC
Cr	1. This brand delivers what it promises.	.51	.56
	2. This brand's product claims are believable.	.41	.4
	3. Over time, my experiences with this brand have led me to expect it to keep its promises, no more and no less.	.41	.43
	4. This brand is committed to delivering on its claims, no more and no less.	.32	.36
	5. This brand has a name you can trust.	.53	.69
	6. This brand has the ability to deliver what it promises.	.54	.58
PQ	7. The quality of this brand is very high.	.72	.74
	8. In terms of overall quality, I'd rate this brand as a70	.73
ICS	9. Knowing what I'm going to get from this brand saves me time shopping around.	.30	.36
	10. This brand gives me what I want, which saves me time and effort trying to do better.	.79	.75
LPR	11. I need lots more information about this brand before I'd buy it. (R)	.39	.45
	12. To figure out what this brand is like, I'd have to try it several times. (R)	.45	.51
RP	13. I never know how good this brand will be before I buy it. (R)	.34	.51
	14. This brand is more expensive than the average brand in this category.	.63	.69
C&P	15. Compared to other brands, this brand is more expensive.	.63	.70
	16. I would never buy this brand. (R)	.30	.37
	17. I would seriously consider purchasing this brand.	.49	.53
	18. How likely would you be to purchase this brand?	.80	.74
	19. If you were to buy nine [product] at one time, how many of each brand would you buy to reflect your relative preference for each brand (assume these are the only brands available)?	.39	.33

Notes: We measured all items on nine-point "strongly disagree/strongly agree" scales, except Items 8 (nine-point "low quality/high quality" scale), 18 (nine-point "very unlikely/very likely" scale), and 19 (allocation of nine objects among brands to reflect preference). (R) after an item indicates that we reversed it for inclusion in the model. SMC = squared multiple correlation, or the percentage of item variance explained by the model; we based this number on the pooled sample across countries.

refer the reader to the work of Erdem and Swait (1998) for the items of all constructs except RP, which we specifically formulated for this study.

We established convergent and discriminant validity using Anderson and Gerbing's (1988) procedures. For convergent validity, pooling data across countries and product categories to yield a sample of 882 respondents and 5292 brand evaluations (as the procedure requires), we found that the construct coefficients in all item equations are statistically significant at the 95% level. This is reflected in Table 1 by the appreciable squared multiple correlation levels for all items. In terms of discriminant validity, we found that the hypothesis that the correlation between every pair of constructs is equal to one (i.e., there is no discrimination between the constructs in question) is rejected for all pairs of constructs in Figure 1 at a level of 95% or higher. The smallest chi-squared statistic is 34.1 (d.f. = 1), and it occurs between Cr and ICS, for which the estimated correlation is .91 (SE = .014). Thus, we established both convergent and discriminant validity at the pooled level.

Cultural Constructs

We used the 13 items in Table 2 to characterize the four cultural constructs of interest: uncertainty avoidance, collectivism/individualism, and power distance (Hofstede 1980). We developed these items using the following procedure: We used Hofstede's (1980) original organizational values survey items and Triandis's (1995) horizontal and vertical collectivism/individualism items, which we slightly modified to improve their applicability to a general consumer context. After we collected cultural identity data by country

from our sample, we ran confirmatory factor analyses for each country to identify whether any item did not load high enough (our cutting point was factor loadings greater than .50) on a single factor. There were minimal discrepancies in the factor structure by country. Our final cultural construct specification excluded a total of 5 items from the original set (1 in the power-distance construct, 2 in the uncertainty-avoidance construct, and 2 in the collectivism/individualism construct) that did not load high overall on the specific cultural construct. This procedure ensured reasonable levels of scale reliability at both the overall level and country by country (all Cronbach's $\alpha > .60$). Table 2 shows the final factor loadings and reliability coefficients using data at the aggregate level. Henceforth, whenever we refer to these constructs in terms of inclusion in a statistical model, it should be understood that we operationalized the cultural constructs as the simple average of the respective item responses for each individual respondent.

Data Collection Methodology

The survey we administered to the respondents has several sections: (1) elicitation of the measurement model items (nine-point "strongly disagree/strongly agree" scale; see Table 1) for three brands in each of two product classes; (2) elicitation of the degree of confidence (seven-point "very low confidence/very high confidence" scale) in evaluating a new brand in each product class; (3) an association task linking ("yes/no" scale) product class to items describing familiarity, risks of purchasing, benefits offered, involvement levels, and so forth (Erdem, Swait, and Louviere 2002); (4) a brand/price experimental choice task for each

TABLE 2
Cultural Constructs

Construct	Items	Factor Loadings
UA ($\alpha = .692$)	1. Security is an important concern in my life.	.772
	2. Life is so uncertain that one must continuously be on the alert so as not to be caught at a disadvantage.	.784
	3. It is important to consider dissenting views when making personal and social decisions.	.808
C/I ($\alpha = .735$)	4. I like sharing little things with my neighbors.	.537
	5. Being a unique individual is important to me. (R)	-.804
	6. Decisions reached in groups are better than those reached by single individuals.	.587
	7. I usually sacrifice my self-interest for the benefit of my group.	.597
	8. I'd rather depend on myself than on others. (R)	-.728
	9. It is important to me to be useful to others.	.758
PD ($\alpha = .628$)	10. One's boss is a person just like oneself. (R)	-.633
	11. Bosses are always inaccessible and distant.	.782
	12. The way to change a society is to make everyone equally powerful. (R)	-.619
	13. Other people are a threat to one's power and cannot be trusted.	.723

Notes: We measured all items on nine-point "strongly disagree/strongly agree" scales. (R) after an item indicates that we reversed it before use. We obtained the factor loadings from principal components single-factor analysis. PD = power distance, C/I = collectivism/individualism, and UA = uncertainty avoidance.

product class, involving 17 choice sets that each elicited choice among three brands and a no-choice alternative (the experimental design used all brands present in every choice set, and the same four levels of price applied to all brands; this is the same design that Erdem, Swait, and Louviere [2002] use); (5) elicitation of the cultural constructs (nine-point "strongly disagree/strongly agree" scale; see Table 2); and (6) some simple demographics (age, sex, household income, citizenship status, and number of times traveled abroad).

Originally developed and tested in U.S. English, the final survey instrument was then translated and back-translated into Spanish, Portuguese, Japanese, Turkish, and German for respondents in Spain, Brazil, Japan, Turkey, and Germany to ensure comparability across countries (for a description of cross-country experimental controls, see the Appendix). Respondents in the United States and India were given the original U.S. English survey, duly customized for local conditions (e.g., brands, prices). In the case of India, our recruiter examined the survey for understandability. We selected these countries to represent a wide range of uncertainty-avoidance, collectivism/individualism, and power-distance dimensions (Hofstede 2003). Table 3 shows Hofstede's (2003) original country ratings by dimension for these countries.

In each country, we selected three brands in each product class (orange juice and PCs) to represent different levels of market power and price/quality positioning.⁴ We required all brands selected to have high levels of consumer brand recognition. We also ensured that at least one local brand and one regional or global brand were always included. Thus, the brands used in the study could be local, regional, national, or multinational/global, but to the extent possible,

⁴We also controlled for the potential of certain brands to communicate more individualistic values and others to communicate social values. In addition, we believe that such discrepancy is not as prevalent in the two product categories under study.

TABLE 3
Country Ratings by Cultural Dimension
(Hofstede 2003)

Country	PD	C/I ^a	UA
Brazil	69	38	76
Germany	35	67	65
India	77	48	40
Japan	54	46	92
Spain	57	51	86
Turkey	66	37	85
United States	40	91	46

^aA higher score on the C/I dimension represents higher levels of individualism.

Notes: Hofstede analyzed a large database of IBM employees' value scores collected between 1967 and 1973 that covered more than 70 countries. In the editions of Hofstede's work since 2001, scores are listed for 74 countries and regions, partly based on replications and extensions of the IBM study on different international populations. To collect these scores, Hofstede used surveys that were designed for measuring culture-determined differences among matched samples of respondents from different countries and regions. It consists of 20 content questions and 6 demographic questions. The answers are grouped into cultural value scores. Value scores range from 0 to 100. Scores closer to 100 denote stronger agreement with a particular cultural value. PD = power distance, C/I = collectivism/individualism, and UA = uncertainty avoidance.

we selected them to cover the spectrum of market share (lower, average, higher), thus introducing greater potential heterogeneity in the brand constructs of interest. In the choice experiments, we used country- and product-specific price levels expressed in the local currency. We established average price levels across stores using price audits by country with the cooperation of our recruiters.

We then programmed the surveys for execution on the Internet, which ensured method invariance. We provided recruiters at each institution of higher learning with a list of

identifiers and corresponding passwords (to enhance survey security), which they provided to their students for voluntary participation in the survey. In general, these recruiters were instructors of undergraduate business courses, except in Brazil, where we used both business and engineering undergraduates because of recruitment difficulties. The respondents have similar demographic profiles: They are young (average age varies from 18 years in India to 25 years in Germany; 79% of all respondents are 22 years of age or younger) and mainly middle class. The gender split varies somewhat more than age: The male/female split is about even in the United States and India; there are approximately 40% males/60% females in Germany, Spain, and Turkey; and there are approximately 55% males/45% females in Brazil and Japan. We excluded foreign exchange students from the sample. Students were given course credit for survey completion and were urged to complete the survey in one sitting (approximately 30 minutes); however, if the session was interrupted, respondents could subsequently resume the survey at the point of interruption.

Data collection occurred from October 2002 to April 2003, depending on the country. This extended data collection period was necessary to obtain reasonable sample sizes for our statistical tests. Despite our best efforts, sample sizes by country vary significantly because of factors outside our control: Brazil (126 respondents), Germany (57), India (161), Japan (114), Spain (155), Turkey (126), and the United States (143).

Country-Specific SEMs

Table 4 presents the standardized SEM coefficients for each country and product class and the averages of cultural constructs for each country. We used the Amos 5 software program to obtain model estimates (Byrne 2001). Overall, the models display a modest, though acceptable, level of goodness-of-fit (for details, see Table 4). All statistically significant coefficients in both product classes are in the expected direction, with a single exception: The LPR → ICS path, which we expected to have a positive coefficient, has a negative and statistically significant effect in Japan for PCs. Otherwise, it seems that, in general, the model structure from Figure 1 holds across the different countries.

That is not to say that the countries are homogeneous in terms of the path coefficients. In the juice category, for example, the impact of Cr on C&P is through the PQ construct in Brazil and Turkey. In Spain, however, the ICS and LPR constructs are also mediators of the impact of Cr on C&P, indicating that Spanish respondents displayed a more nuanced response to the brand in the evaluation of product utility, considering the role of the brand in risk reduction and information acquisition enhancements to the utility of the brand. India, the United States, and, to a lesser extent, Germany are more similar to Spain than to Brazil and Turkey in overall structure in the juice category. Note that, in general, the RP construct is not statistically significant at the 95% significance level in this product category, except for in Spain. In the PC category, PQ is again the main mediator between Cr and C&P for Brazil, Germany, and Turkey. The impact of Cr on C&P in India, Japan, Spain, and the United States occurs through paths involving LPR and ICS.

The total impact of Cr on C&P, as estimated through the SEMs in Table 4, is remarkably consistent across countries: Brazil (.806, .738 for juice and PC, respectively), Germany (.815, .732), India (.847, .831), Japan (.773, .66), Spain (.724, .712), Turkey (.862, .880), and the United States (.803, .855). The smallest impact for juice is found in Spain, and for PCs, it is found in Japan. In both categories, Turkey displays the largest impact of Cr on C&P (and India is a close second in both categories). As we pointed out previously, however, these effects and their magnitudes come about through different pathways in Figure 1.

To undertake a more systematic exploration of between-country differences in the path coefficients, we plotted the estimated coefficients as a function of cultural identity constructs. The averages of cultural constructs (see bottom of Table 4) suggest that Germany ($M = 5.31$) scores lowest on uncertainty avoidance, whereas Brazil ($M = 6.72$) and Spain ($M = 6.57$) score highest. Among the seven countries we studied, Spain ($M = 5.18$) and Brazil ($M = 5.22$) scored highest on collectivism, whereas India ($M = 4.55$) and the United States ($M = 4.69$) scored lowest. Power distance seems to be lowest in Germany ($M = 3.88$) and highest in Japan ($M = 4.99$). These ratings are consistent with Hofstede's (2003) original findings (see Table 3), except for India and Turkey, which seem to rate more moderately in our current data than in Hofstede's work. A possible reason for this divergence is that we collected these cultural values using university students, who are more likely to have an international mind-set, and therefore ratings may tend to equalize those of reference countries in the Western world, such as the United States and Europe.

Figure 2 shows three plots that depict the coefficient estimates for the Cr → LPR → ICS → C&P paths as a function of uncertainty avoidance (UA) averages for each country. These paths are shown because they depict UA's moderating pattern relatively clearly: The higher the country on the UA scale, the stronger the first two paths become. This implies that as UA increases, Cr lowers risk perceptions more strongly and leads to greater ICS. This impact on risk is mitigated in part by the decreased reliance on the brand to save on information costs in decision making, as is evidenced by the downward trend in the strength of the ICS → C&P path as a function of increased UA (because UA decreases sensitivity to information costs). Furthermore, the PQ → C&P path strength does not vary systematically with UA. These combined results suggest that the moderating role of UA in regard to the impact of Cr on C&P is more through the LPR → ICS path than through the PQ path. Thus, we find evidence in support of H_1 .

Figure 3 shows two plots of the coefficient estimates for the Cr → PQ → C&P paths as a function of the collectivism/individualism (C/I) construct. These paths depict a different moderating pattern for C/I. Although Cr → PQ path coefficients do not change significantly, there is a discernible positive trend in PQ → C&P path coefficients with increasing collectivism (Spain is an exception to this pattern). Conversely, the sequence of paths Cr → LPR → ICS → C&P is also found to be a function of the C/I construct. The higher a country scores on the C/I scale (implying a more collectivist culture), the larger are the standard-

TABLE 4
SEM Estimation Results by Country

Path	Standardized Coefficients						
	Brazil	Germany	India	Japan	Spain	Turkey	United States
PCs							
Cr → LPR	.612**	.314**	.325**	.057	.559**	.579**	.347**
Cr → PQ	.851**	.885**	.953**	.798**	.849**	.973**	.972**
Cr → ICS	.801**	.564**	.848**	.69**	.728**	.703**	.735**
Cr → RP	.538**	.488**	.768**	.538**	.815**	.754**	.455**
LPR → ICS	.034	.053	-.074	-.127*	.189**	.1	.014
LPR → C&P	.033	.023	.194**	.102*	.144**	.01	.01
ICS → C&P	.137	.117	.231**	.242**	.134	.051	.216**
RP → C&P	-.18**	-.109	.004	-.188**	-.096	.068	-.043
PQ → C&P	.825**	.803**	.603**	.74**	.704**	.801**	.732**
Juice							
Cr → LPR	.664**	.276**	.365**	.014	.375**	.507**	.382**
Cr → PQ	.968**	.879**	.95**	.937**	.877**	.972**	.955**
Cr → ICS	.76**	.775**	.827**	.67**	.7*	.805**	.674**
Cr → RP	.644**	.489**	.416**	.514**	.454**	.76**	.604**
LPR → ICS	-.022	.031	-.076	-.072	.219**	-.016	.03
LPR → C&P	.004	-.013	.116**	-.005	.092	.082	.129**
ICS → C&P	.098	.262**	.178**	.134	.231**	.09	.105
RP → C&P	-.082	.059	.017	-.104	-.124**	-.083	-.052
PQ → C&P	.808**	.664**	.69**	.786**	.645**	.836**	.747**
Number of respondents	126	57	161	114	155	126	143
Number of brand observations	378	171	483	342	465	378	429
Cultural Constructs (Averages)							
UA	6.16	5.01	5.66	5.72	6.13	5.92	5.53
C/I ^a	5.41	5.03	4.90	5.07	5.54	5.29	5.05
PD	4.03	3.82	4.16	4.82	4.01	4.27	4.51

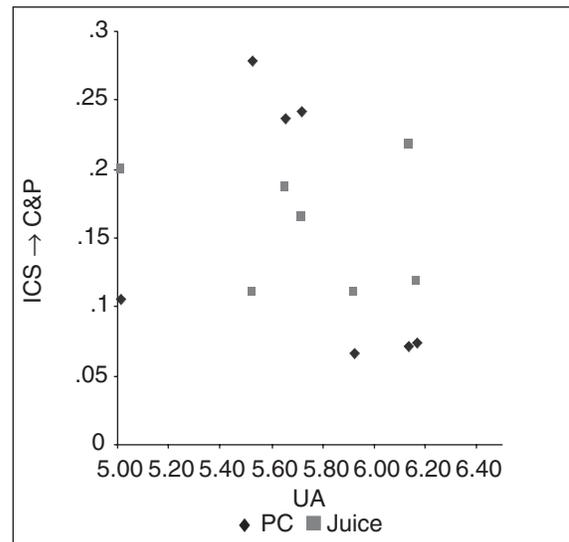
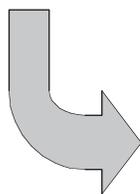
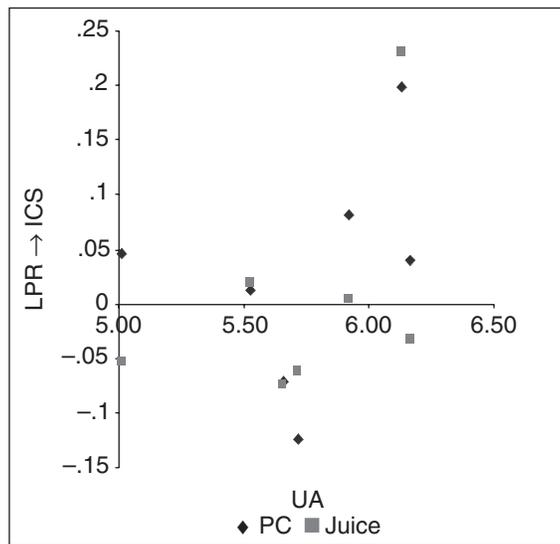
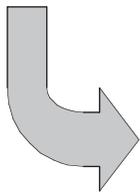
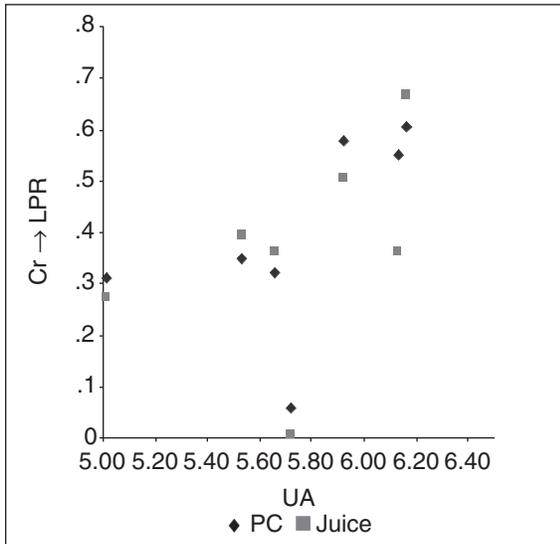
* $p < .05$.

** $p < .01$.

^aA higher score on the C/I dimension represents higher levels of collectivism.

Notes: $\chi^2 = 11333.6$, d.f. = 2052; $\chi^2/d.f. = 5.52$, goodness-of-fit index = .83, comparative fit index = .83, root mean square error of approximation = .029, PD = power distance, C/I = collectivism/individualism, and UA = uncertainty avoidance.

FIGURE 2
Plot of Cr → LPR → ICS → C&P SEM Coefficients as a Function of UA



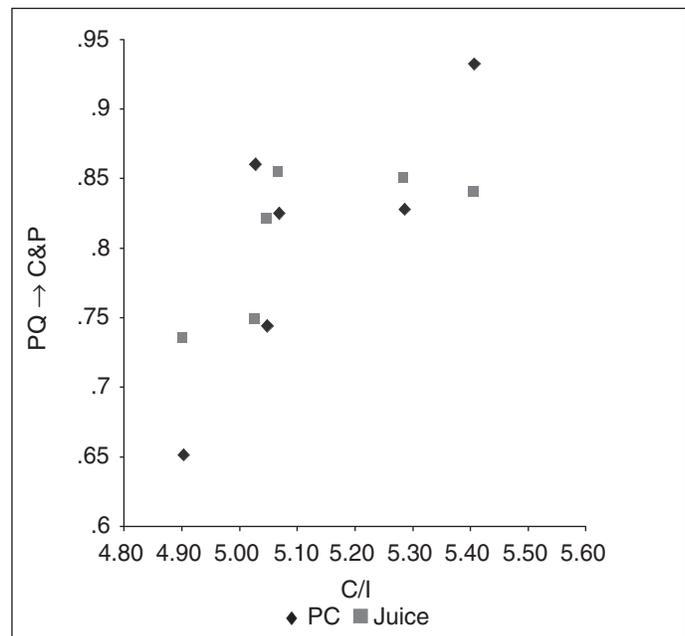
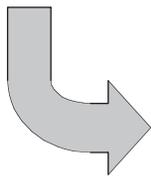
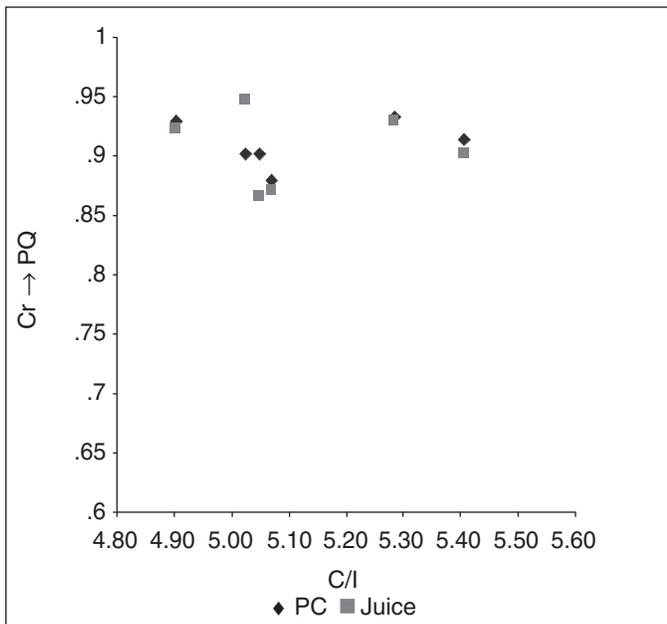
ized coefficients for $Cr \rightarrow LPR$ and $LPR \rightarrow ICS$, and the smaller is the $ICS \rightarrow C\&P$ path coefficient, with an almost null overall effect. These results suggest that in collectivist countries, the impact of Cr is felt more directly through the PQ route than through the information acquisition route ($LPR \rightarrow ICS$). This seems intuitive because it is reasonable that in collectivist cultures, sources of information, such as word of mouth, may be more easily available and more

often used. Thus, we find evidence in support of H_3 . Notably, the last cultural construct under study (power distance [PD]) does not seem to explain any of the differences between path coefficients.

Evidence from the Choice Modeling Results

To analyze the overall impact of credibility on choice in various countries (while controlling for price effects) and to

FIGURE 3
Plot of $Cr \rightarrow PQ \rightarrow C\&P$ SEM Coefficients as a Function of C/I (Except Spain)



test H_2 and H_4 , we also estimated brand choice models. The final statistical results we present are based on mixed MNL (McFadden and Train 2000) specifications, using the experimental choice data we mentioned previously. These data resulted from eliciting 17 choices for each product class. We always presented three brands in each country and product category and a no-choice alternative; each brand was associated with a four-level price variable, which had the same range for all brands in the same country and product class. Note that 17 choice sets are more than what is considered minimally necessary for identification of parameters, but we did this to maintain compatibility and comparability with prior studies (especially Erdem, Swait, and Louviere 2002).

In this section, we examine whether the impact of credibility on preference differs in magnitude between countries or, more specifically, whether the impact of brand credibility on choice is moderated by the cultural constructs used in the previous two sections. To this end, we calibrate two mixed MNL models, one per product category, which allow for stochastic heterogeneity of brand and price effects at the country level. The utility function also includes the Cr construct and its interactions with UA, C/I, and PD. Precisely, the utility functions are given by the following expression:⁵

$$(1) U_{icn} = \alpha_{icn} + \beta_{icn} \times \text{LN}(p_{ic}) + \delta \times Cr_{icn} + \gamma_1 \times UA_{icn} \times Cr_{icn} + \gamma_2 \times (C/I)_{icn} \times Cr_{icn} + \gamma_3 \times PD_{icn} \times Cr_{icn} + \epsilon_{icn},$$

where i , c , and n are index brand, country, and respondent, respectively; p_{ic} is a country-specific price for the good in question; ϵ_{icn} is the brand–country–person stochastic utility, which we assume to be independent and identically Gumbel distributed across brands and respondents within country but is allowed to have different scale/variance by country (Swait and Louviere 1993); α , β , δ , and γ are parameter vectors; and all other quantities have been previously defined. Note that the α and β parameter vectors are subscripted by respondent, reflecting that these coefficients are allowed to have stochastic distributions (we provide more details with results in Table 5).

We did not give the coefficient vectors for Cr and its cultural construct interactions stochastic distributions, and we assumed that they were comparable across countries. To support this specification, we established that the Cr construct has partial metric invariance across countries at the 95% confidence level by using Steenkamp and Baumgartner's (1998) test; this result holds for both product categories. The Cr construct has six measurement items in total; we established partial metric invariance with, at most, two items being country specific. This test shows that the construct is homogeneous and robust across the countries tested (for orange juice: $\chi^2 = 26.0$, d.f. = 18, $p = .10$; for PCs: $\chi^2 =$

⁵Note that an alternative utility specification would include the successors of credibility only (i.e., perceived quality, perceived risk, and information costs saved). Previous research has shown that credibility does not have a direct effect on utility, and its effects are mediated through these three antecedents (Erdem and Swait 2004). Therefore, there is no need to put credibility and the antecedents together in the utility function. We decided to put credibility rather than its antecedents in the utility to assess the total impact of Cr on choice and obtain a clearer and simpler picture of total Cr effects across countries.

34.4, d.f. = 23, $p = .06$). This also implies that comparing credibility scores across countries is empirically supported in our data, so making the γ and δ parameters in Equation 1 equal across countries is consistent with empirical evidence.

The resulting product class models appear in Table 5. Note that there is strong support for Erdem and Swait's (1998) contention that Cr increases product attractiveness/utility: Across all countries, there is a positive and significant main effect of Cr in both product classes. This result is robust because we allow for substantial country- and respondent-level differences through brands, prices, and stochastic taste distributions at the country level. Note that because of scale differences (i.e., error variance differences) across product classes, it is not appropriate to compare juice and PC coefficients directly; only parameter ratios or elasticities should be compared. The coefficients of substantive interest here are the interactions between Cr and the cultural constructs (i.e., δ , γ_1 , ..., γ_4). In both product classes, we found that PD has no substantive impact on the main effect of Cr on utility, because γ_3 and γ_4 are not significantly different from zero at the 95% significance level; this is in agreement with prior analyses we previously reported, but it is based on SEMs. Of greater interest is the consistent finding across both product classes that UA increases the impact of Cr in both the juice and the PC categories (coefficient γ_1 in both categories), as we previously argued. The marginal impact of UA is relatively greater for PCs than for juice, as would seem reasonable, but it is statistically significant and increasing in both. Thus, we found evidence in support of H_2 in both the PC and the juice categories. Finally, increasing C/I also leads to the increased importance of Cr but only in the juice category (see coefficients γ_2 in Table 5). A possible reason for this finding is that brands as symbols of collective behavior are more often embraced in high-frequency, low-involvement purchases for which decision time pressure is high and the financial risk of making a wrong choice is low. Thus, we find evidence in support of H_4 only in the juice category. Note that the impact of C/I is significantly greater than that of UA in the juice category. It is difficult to discern the relative importance of these two cultural constructs across product classes because they are subject to different error term scales.

Discussion, Conclusions, and Further Research

In this article, we investigated the effects of brand credibility on consumer choice through perceived quality, perceived risk, and information costs saved across seven countries in Asia, Europe, and North and South America. These countries have been shown to vary across the cultural dimensions of uncertainty avoidance, collectivism, and power distance (Hofstede 1980). We found strong support for Erdem and Swait's (1998) framework of brand effects on choice under consumer uncertainty. More specifically, we found that brand credibility, the key construct in information economics–based approaches to brand equity, affected consumer choice in all the countries we studied. Although the paths through which credibility operated differed somewhat across countries, we found that the general framework of

TABLE 5
Mixed MNL Parameter Estimates

Utility Function^a	Juice (Asymptotic t-Statistics)^b	PCs (Asymptotic t-Statistics)^c
Brazil		
Brand 1	-2.73 (-14.9) 3.643 (6.96)	44.569 (12.66) .201 (5.47)
Brand 2	-.571 (-2.78) .789 (5.26)	44.223 (12.67) .201 (—)
Brand 3	-3.241 (-16.61) 4.727 (6.42)	43.246 (12.67) 1.718 (6.03)
-LN(price)	1.784 (27.03) .371 (10.73)	—
LN(price)	—	-5.875 (-12.87) .049 (5.15)
Germany		
Brand 1	-36.172 (-1.23) 1739.369 (.56)	44.449 (57.78) 4.6 (6.27)
Brand 2	3.723 (.63) 234.583 (.55)	46.086 (58.38) 2.706 (5.66)
Brand 3	-46.155 (-1.22) 641.065 (.55)	43.053 (57.02) 4.853 (3.72)
-LN(price)	3.815 (4.23) .996 (6.66)	—
LN(price)	—	-5.952 (-60.46) .053 (2.41)
India		
Brand 1	4.881 (13.28) 1.155 (6.18)	29.546 (10.78) 3.007 (5.03)
Brand 2	6.106 (13.83) 1.673 (9.06)	31.852 (10.78) .391 (5.21)
Brand 3	6.189 (13.61) .117 (3.83)	31.211 (10.77) .391 (—)
-LN(price)	1.188 (21.93) .067 (15.27)	—
LN(price)	—	-3.586 (-11.21) .09 (4.95)
Japan		
Brand 1	1.188 (21.93) .067 (15.27)	22.384 (12.85) .122 (4.97)
Brand 2	26.54 (17.74) .067 (—)	22.036 (12.84) .432 (5.52)
Brand 3	26.066 (17.73) 1.766 (8.42)	22.22 (12.87) .234 (5.13)
-LN(price)	1.881 (36.1) .004 (12.84)	—
LN(price)	—	-3.439 (-13.25) .037 (5.82)
Spain		
Brand 1	7.482 (14.47) .356 (6.87)	8.605 (6.96) .118 (2.42)
Brand 2	6.863 (14.01) 2.934 (7.17)	7.444 (6.27) 2.125 (4.18)
Brand 3	7.974 (15.12) .356 (—)	8.736 (6.96) .023 (1.01)
-LN(price)	.886 (16.55) .049 (11.03)	—
LN(price)	—	-1.198 (-7.85) .056 (2.88)
Turkey		
Brand 1	64.338 (31.79) .204 (2.91)	22.577 (56.94) .095 (3.74)
Brand 2	65.109 (31.79) .886 (11.48)	24.321 (54.12) .095 (—)
Brand 3	64.384 (31.6) .114 (2.97)	24.499 (53.09) .36 (6.67)
-LN(price)	1.484 (54.48) .262 (8.36)	—
LN(price)	—	-2.581 (-37.19) 1.398 (13.06)
United States		
Brand 1	-.664 (-2.56) 1.607 (5.84)	13.147 (10.79) .467 (3.82)
Brand 2	-1.188 (-5.47) 1.055 (4.95)	13.374 (10.73) .374 (4.82)
Brand 3	-.398 (-1.47) .409 (3.86)	13.318 (10.65) .149 (3.09)
-LN(price)	1.716 (23.2) .529 (10.46)	—
LN(price)	—	-2.148 (-11.92) .045 (4.26)
Cr (δ)	.438 (6.47)	.448 (5.4)
Cr \times UA (γ_1)	.009 (2.03)	.025 (5.28)
Cr \times C/I (γ_2)	.064 (7.84)	.000 (.03)
Cr \times PD (γ_3)	-.002 (-.41)	-.006 (-1.02)
LN(Scale Function)		
Brazil	-.193 (-3.12)	.581 (7.31)
Germany	-1.498 (-1.68)	.0 (—)
India	-.125 (-2.49)	-.115 (-1.3)
Japan	.238 (4.45)	.661 (8.7)
Spain	.087 (1.66)	.164 (1.71)
Turkey	.0 (—)	.0 (—)
United States	.862 (12.32)	.813 (9.76)

TABLE 5
Continued

Utility Function ^a	Juice (Asymptotic t-Statistics) ^b	PCs (Asymptotic t-Statistics) ^c
Goodness-of-Fit		
Log-likelihood at 0	-20,786.1	-20,758.4
Log-likelihood at convergence	-10,339.1	-11,985.0
Rho-squared	.5026	.4226
Number of respondents	882	881
Number of choices	14,994	14,974

^aPrices are in currency of the respective country.

^bHeterogeneity specification: Numbers represent independent normal distributions for brand effects and independent log normal distributions for prices. For brand effects, presentation format is mean|variance of distributions, and t-statistics are in parentheses; for price effects, presentation format is mean|variance of the normal distribution of the natural logarithm of taste coefficients, and t-statistics are in parentheses. To use the latter coefficients in the utility function, note that the taste coefficients will multiply the *negative* of price. We used the log normal distribution for this category's price coefficients because the specification led to higher goodness-of-fit than the normal distribution.

^cHeterogeneity specification: Numbers represent independent normal distributions for brand and price effects. Presentation format is mean|variance of distributions, and t-statistics are in parentheses.

Notes: We used 100 Halton quasi-random numbers for simulation estimator.

brand credibility effects was empirically robust across the countries we studied.

To explore whether cultural constructs that have been linked to consumer choice behavior and brand effects in previous research moderated these effects, we investigated whether uncertainty avoidance, collectivism, and power distance explain any differences across the countries in regard to mechanisms through which brand credibility effects on consumer brand choice materialize. We expected that uncertainty avoidance and collectivism would increase total credibility impacts, and our results confirmed this. Given counterbalancing considerations in the case of power distance, we deemed its net effect to be an empirical question; we did not find any moderating effects of this construct in either analysis (SEM or choice model). Note, however, that this does not mean that this construct does not influence brand credibility effects. It merely indicates that given that many factors are at play in confounding directions, these factors may cancel out, and it may not be possible to observe any total net effect. Indeed, a necessary area for further research is to map out these different factors more carefully by measuring and testing them separately, for example, with the inclusion of a new construct that denotes brand perceived prestige (Steenkamp, Batra, and Alden 2003).

The results we obtained through the choice models estimated suggest that uncertainty avoidance amplifies the net effect of credibility on choice. We found that the effect was stronger for PCs than for juice, which we expected because PC is a more complex, higher-involvement product category than juice. We found that collectivism amplified the brand credibility effects as well, but only in juice. This might be due to the conspicuous consumption nature of juice, a more frequently purchased, low-ticket item for which a brand's value as a group identity symbol would be more important than for PCs, for which functional features prevail.

The results we obtained through the SEMs suggest that as uncertainty avoidance increases, brand credibility lowers risk perceptions and increases information costs saved. However, it also decreases the reliance on the brand to save on information costs. The same pattern of influence is true

as collectivist tendencies increase. We believe that uncertainty avoidance and collectivism decrease the impact of information costs on consumer choice because of the increased willingness of consumers to engage in active search (in case of uncertainty avoidance) and the ability to use other low-cost information sources, such as word of mouth (in the case of collectivism). Conversely, increasing collectivism leads to a stronger path for the effect of perceived quality on brand consideration and purchase. This is consistent with the notion that collectivist consumers perceive credible brands as better quality and prefer them because they reinforce their belongingness to the group. Overall, these findings suggest that collectivism moderates the impact of brand credibility on consumer utility (consideration and purchase) by increasing the effect of perceived quality, whereas uncertainty avoidance causes the credibility impact to operate mainly through the reduction of perceived risk and information costs.

These findings have important managerial implications. Returns on a company's efforts to establish brand credibility depend on consumers' cultural values. Establishing a brand's credibility seems to be especially effective when consumers have more aversion to risky choices and, thus, consider brands a way to choose "the sure thing" and when consumers strongly need to reinforce their belongingness to a group through the consumption of symbols that reflect such identity. In addition, companies could take advantage of cultural differences in brand equity formation in many ways. For example, companies could work with product positionings that match cultural values (e.g., emphasizing brand attributes that invoke either risk reduction or social acceptance). Companies could also execute communication campaigns that reinforce a brand's ability to either reduce risk or generate group identification (e.g., showing brand consumption occasions in which such ability comes into play). These communication campaigns could also add elements that represent a brand's trustworthiness (e.g., messages with ideas such as "you can always count on brand X" for high-uncertainty-avoidance countries or "you will always be part of it" for high-collectivist countries). Finally,

brand extensions could be perceived as categories in which either risk or collective identity matters.

There are many avenues of further research to pursue. Because the original body of empirical research in the United States is based on student samples and because taking relatively homogeneous samples across countries makes it easier to control for factors such as age, income, education, and other items that may lead to between-country differences, our study constitutes a conservative analysis of cultural differences. We expect that in more heterogeneous consumer samples, the effects of cultural constructs would be amplified. Testing the model on more heterogeneous consumer samples and with other product categories will also enhance the generalizability of our results. Another avenue for further research would be to investigate the

influence of cultural dimensions other than Hofstede's (1980), which have been criticized on the basis of their descriptive nature and organizational focus, in the validity and applicability of the model.

In this study, we focused on brand credibility and its antecedents. However, factors that underlie brand credibility (e.g., temporal consistency of brand positioning) and sub-dimensions of such factors may be moderated by cultural constructs as well. A better understanding of underlying dimensions of consistency, brand investment perceptions, and the like has important branding and brand management implications in international markets. Indeed, the success of globalization strategies depends on assumptions about the commonalities in mechanisms by which brands affect consumers, regardless of their cultural identity.

APPENDIX

Cross-Country Experimental Controls

Functional equivalence (Sekaran 1983)	To control for functional equivalence, our survey requested responses to similar problems in every culture. There was a comparable context or work setting in every country.
Survey instrumentalization (Steenkamp, Hofstede, and Wedel 1999)	We used back-translation to control for vocabulary equivalence, idiomatic equivalence, and grammatical and syntactical equivalence in our survey.
Conceptual equivalence (Adler 1983)	To control for conceptual equivalence, we pretested equivalence of the brands selected for the analysis and chose product categories that are purchased often, are equally available, and have the same function for consumers in each country of interest.
Construct equivalence (Steenkamp and Baumgartner 1998)	Although we do not present partial metric invariance because of space limitations, we established it using multiple-group SEMs for a subset of countries. This suggests cross-country comparability of path coefficients.
Response equivalence (Adler 1983)	We controlled for response equivalence by using uniform data collection procedures (Internet collection) and identical instructions.
Subject pool equivalence (Alden, Steenkamp, and Batra 1991)	We controlled for the equivalence in educational background in three ways: First, the universities we chose were all top-tier universities in their countries. Second, participants were all students in business or engineering. Third, we analyzed sample characteristics to verify the match in terms of age, sex, and social class.
Currency equivalence (Roth et al. 1991)	We controlled for currency equivalence by using organic prices in each country (i.e., current price averages across retail stores).

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