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From Placebo to Panacea: Exploring the Influence of Price, Suspicion, and Persuasion Knowledge on Consumers' Perception of Quality

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**FROM PLACEBO TO PANACEA: EXPLORING THE INFLUENCE OF PRICE,
SUSPICION, AND PERSUASION KNOWLEDGE ON CONSUMERS' PERCEPTION OF
QUALITY**

by

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ABSTRACT

FROM PLACEBO TO PANACEA: EXPLORING THE INFLUENCE OF PRICE, SUSPICION, AND PERSUASION KNOWLEDGE ON CONSUMERS' PERCEPTION OF QUALITY

Vahid Rahmani
Old Dominion University, 2017
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Consumers' associate higher prices with higher levels of quality. Nevertheless, the relationship between price and objective quality (i.e., real quality) in the marketplace is not always strong or even positive. This seemingly paradoxical phenomenon could be explained by either consumers' lack of access to the product information (which is unlikely as we live in the age of information) or their reluctance/inability to assimilate the available information and modify their price-quality judgments. The current research is built on this latter assumption and attempts to answer two substantive questions that remain to be fully addressed in the pricing literature: First, how can we alter consumers' price-quality judgments? Second, what is the effect of gender on consumers' price-quality perceptions?

Essay 1 attempted to answer these questions using 12 main studies that employed survey research, experimental research, and observational research methods to achieve methodological triangulation. Samples included a student sample, adult samples, and real-world data and varied from 72 respondents to 222,600 product/day observations in size. Cumulative evidence in Essay 1 suggested that provoking suspicion against a specific brand could undermine consumers' reliance on price to judge the quality of that brand. Whereas, activating persuasion knowledge is likely to elicit a general suspicion against marketing and subsequently increase consumers' tendency to make price-quality judgments. Furthermore, Essay 1 offered empirical evidence that

gender influences consumers' thinking style, price-quality perceptions, and the actual prices that they pay for comparable products in the marketplace.

Given the counterintuitive findings in Essay 1 regarding the positive effect of persuasion knowledge on consumers' tendency to make inaccurate price-quality judgments, Essay 2 attempted to explore the underpinning mechanisms of the persuasion knowledge. In Essay 2, the author synthesized the extant literature on persuasion knowledge and proposed an integrative, process-based framework of consumers' persuasion knowledge (CPK). This framework points out the key role that emotions play in the development and activation processes of persuasion knowledge, which is likely to account for the counterintuitive effect of persuasion knowledge on the accuracy of the price-quality perceptions.

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This dissertation is dedicated to the four people who fill my heart with love and perfuse my life with happiness: My kind mother, supportive brother, caring sister, and loving wife.

This dissertation is also dedicated to the memory of my father, whose love is always alive in my heart.

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ESSAY 1

FROM PLACEBO TO PANACEA: EXPLORING THE INFLUENCE OF PRICE, SUSPICION, AND PERSUASION KNOWLEDGE ON CONSUMERS' PERCEPTION OF QUALITY

INTRODUCTION

Decades of research has shown that price influences consumers' perception of quality (Volckner and Hofmann 2007; Zeithaml 1988). More importantly, recent empirical evidence shows that price positively influences the efficacy of the products and consumers' judgments of the products after buying and using them (Plassmann et al. 2008; Shiv, Carmon, and Ariely 2005). For example, studying participants' brain activity via functional MRI, Plassmann and colleagues (2008) observed that purported higher prices increased the pleasure that individuals experienced during the drinking of wine, evident from an increase in "blood-oxygen-level-dependent activity in medial orbitofrontal cortex" (p. 1050).

Although consumers often associate higher prices with higher levels of quality (e.g., Dawar and Parker 1994; Rao and Monroe 1989), the effect of price on consumers' perceptions and behavior is not homogenous across all consumer groups (Lichtenstein, Ridgway, and Netemeyer 1993; Tellis and Gaeth 1990). For example, Tellis and Gaeth (1990) showed that individuals could be categorized into three groups of price-seeker, price-averse, and value-seeker buyers. Furthermore, research shows that many factors including psychological distance (Bornemann and Homburg 2011), culture (e.g., Myung-Soo and Sarigollu, 2007) and product type (Lichtenstein and Burton 1989) moderate consumers' reliance on price to judge the quality.

The ability to identify the factors that influence price-quality judgments and to understand how and why consumers' price-quality judgments change are of paramount

importance for practitioners. Since both underestimating and overestimating price-quality perceptions could have severe consequences. For example, underestimating consumers' reliance on price to judge quality and hoping to increase market share, Energizer's managers decided to price their Energizer Advanced Formula battery lower than the price of their main competitor's new product, Duracell's Ultra brand AA alkaline battery. Despite its higher objective quality, Energizer's new product never gained the targeted position in consumers' minds, resulting in a significant market-share loss for the company (Kerin, Hartley, and Rudelius 2015). As another example, overestimating price-quality perceptions has been conjectured as one of the main factors behind the failure of Amazon's Fire Phone product. In 2014, the unsuccessful launch of the Fire Phone cost Amazon 170 million dollars in inventory charges alone and forced the company to drastically cut the price of the Fire Phone as much as \$200 only one month after its launch (Mangalindan 2014; Soper 2014).

In the current research, the underlying mechanisms that influence and change price-quality perceptions were investigated. First, addressing a surprising gap in the literature, the role of gender in influencing consumers' price-quality judgments was examined. Building on the selectivity model (Meyers-Levy and Maheswaran 1991; Meyers-Levy and Sternthal 1991), it was posited then that relative to men, women should have a greater aptitude to recognize the true relationships between price and quality. Since the relationship between price and objective quality (i.e., actual quality) is not always strong or even positive (Boyle and Lathrop 2009; Lichtenstein and Burton 1989), it was argued that compared with men, women should be less likely to have a high general-price-quality perception. This proposition is in line with the anecdotal evidence that women seem to have a more positive attitude toward discount department stores than men do.

Second, building on the expected utility model (Schoemaker 1982), the prospect theory (Kahneman and Tversky 1979), and the reference-dependent preferences model (Gneezy, Gneezy, and Lauga 2014; Kőszegi and Rabin 2006), a reference-dependent utility model of consumers' thinking style was developed. This model predicts the effect of price on consumers' overall consumption utility given the fact that price affects both consumers' consumption utility and their gain-loss utility.

Third, the influence of persuasion knowledge as an underlying mechanism that could change consumers' price-quality perceptions was investigated. Persuasion knowledge is an "important interpretive belief system" that allows individuals to recognize and resist the outside agents' intelligent and purposeful manipulation attempts (Friestad and Wright 1999, p.186). Based on the cumulative evidence in the persuasion knowledge literature and pricing literature, it was argued that consumers' persuasion knowledge should influence their price-quality judgments.

Fourth, the effect of eliciting brand-related suspicion on consumers' price-quality perceptions was studied. Evidence in the literature suggests that activating the persuasion knowledge would result in a general suspicion against marketing. Therefore, the effect of persuasion knowledge could be different from the effect of brand-specific suspicion. A general suspicion about marketing practice could influence consumers' general price-quality perceptions, whereas, provoking suspicion about a specific brand could result in a biased assessment of that brand regardless of the available information (including price information) about that product. The findings of twelve studies offered support regarding the moderating effect of gender and the main effect of brand-specific suspicion in influencing consumers' reliance on price to judge quality. Studies one and two revealed that gender influences consumers' thinking style and their

ability to accurately judge the quality of the products based on the available information. Specifically, women seemed to be more prone to assimilate the available information in forming product judgments than men were. Studies three and four showed that compared with women, men have a significantly stronger general-price-quality perception.

Using large samples of real world data, studies 5a-5e showed that the average prices of products in men product categories were significantly higher than the average prices of the comparable products in women product categories. Further analysis revealed that this difference was not attributable to the manufacturing cost, available online review information, product quality, sales volume, sales promotions, and consumers' perception of the hedonic, utilitarian, and symbolic value of the products. Furthermore, in the study 5 posthoc analysis, a reference-dependent utility model of consumers' thinking style was developed. Based on this model, the data collected in studies 5a-5e was used to show that consistent with the findings of studies 1-4 gender indeed influenced consumers' thinking style and their price-quality perceptions.

Studies six and seven investigated the effect of persuasion knowledge on consumers' price-quality perceptions. Contrary to what had been anticipated, findings suggest that priming persuasion knowledge activate consumers' defense goals (rather than their accuracy goals), resulting in a higher reliance on heuristics (including price-quality heuristics) to judge quality. Finally, study eight investigated the effect of brand-specific suspicion, as opposed to the activation of general persuasion knowledge, on consumers' price-quality perceptions. This study showed that when consumers become suspicious about a certain company, the prices set by that company will no longer have a positive effect on consumers' perception of quality.

The findings of the above-mentioned studies make several theoretical and practical contributions. First, to the author's knowledge, this paper is the first to illustrate the moderating

role of gender on consumers' price-quality perceptions. Second, these findings provide further support for the selectivity model by showing that women indeed process the information more accurately than men do. Third, to the author's knowledge, this paper is the first to investigate the effect of the activation of persuasion knowledge on price-quality judgments. Fourth, to the author's knowledge, this paper is the first to show the distinction between the effect of persuasion knowledge versus brand-specific suspicion on price-quality perceptions. Based on this distinction, effective advertising campaigns could be devised to either enhance or undermine consumers' price-quality perceptions. Fifth, the developed reference-dependent utility model in this study offers an effective tool in predicting the effect of consumers' price-quality perceptions on their shopping behavior given their product knowledge and thinking styles. Finally, these findings have important practical implications: They suggest that different pricing strategies should be used for brands and products that are specifically targeting women or men. Furthermore, this paper help practitioners better understand consumers' price-quality perceptions and develop more effective strategies to influence their reliance on price to judge quality.

THEORETICAL BACKGROUND

The Price-Quality Relationship

General price-quality perceptions. Numerous studies have investigated the relationship between price and consumers' perceptions of quality. Extant literature suggests that consumers generally make positive price-quality judgments (e.g., Dawar and Parker 1994; Rao and Monroe 1989; Volckner and Hofmann 2007). Dawar and Parker (1994) concluded that consumers' use of price as a signal for quality is a marketing universal; that is, the effect of price on perceived quality is invariant across all cultures. More importantly, recent evidence in the literature suggests that the effect of price transcends consumers' perception of quality and affects their post-consumption product evaluations. For example, Shiv, Ziv, and Ariely (2005) showed that purported higher prices of an energy drink could create a placebo effect in consumers. After consuming the energy drink, participants who believed that the price of the product was high showed greater physical and mental performance (measured by workout intensity and the number of puzzles solved) compared to those who believed that the price was low.

Despite the strong general effect of price on consumers' perceptions, beliefs, and behaviors, research suggests that price-quality perceptions are not homogeneous among all consumers and could be influenced by a range of factors. For example, extant literature shows that advertisements (Simmons and Schindler 2003), sales discounts (e.g., Grewal et al. 1998), consumers' frugality (Pettit, Sawa, and Sawa 1985), psychological distance (Bornemann and Homburg 2011), product warranties (Miyazaki, Grewal, and Goodstein 2005), country of origin (Miyazaki, Grewal, and Goodstein 2005), culture (e.g., Myung-Soo and Sarigollu, 2007), price

order (Kwanho, Jiheo, Lichtenstein 2012), and product type (Lichtenstein and Burton 1989) moderate the relationship between price and perceived quality. Furthermore, individual differences in terms of information processing thinking style significantly affect people's reliance on price to make quality judgments (Lalwani and shavitt 2013).

Consumer involvement and price-quality perceptions. Consumer involvement is defined as “a person's perceived relevance of the object based on inherent needs, values, and interests” (Zaichkowsky 1985, p.342). Higher levels of product involvement will increase consumers' motivation to adopt a systematic thinking style and collect a wide range of information about the product before making a purchase decision. When the level of involvement is low, on the other hand, consumers are more likely to make quick purchase decisions based on heuristics. For example, for most consumers buying a pack of milk is a routine task that requires minimum cognitive engagement and is made based on price or similar heuristics. Whereas, buying a new car is a cognitively taxing activity that demands a substantial amount of time and effort for collecting a wide range of product-related information to develop consideration sets before making a final decision.

In an online-shopping context, where consumer-generated and company-generated product information is abundant, consumers are more likely to make an effort to examine the available information for high-involvement products than for low-involvement products. In this scenario, buyers will be more inclined to read the customer reviews and analyze the deal value of the product of interest versus the deal value of competitors' products. Furthermore, other consumers' shared experiences about a product are more reliable sources of information than company-generated information. So, for high-involvement products, consumers should be more

inclined to examine available online review information, and this should decrease the effect of company generated stimuli such as advertisement and price on consumers' perception of quality.

Extant literature shows that the same product category can be a high involvement product for one group of consumers and a low involvement product category for others, depending on a product's pleasure value/symbolic value and the purchase risk (Laurent and Kapferer 1985). So, if shoes, for example, were considered a high involvement product by women and a low involvement product by men, this could influence the amount of time that men and women would spend to explore the existing products in the marketplace and the average prices that they would be willing to pay for the product.

Product type and price-quality perceptions. Utilitarian versus hedonic attributes of the products are another factor that could influence consumers' price-quality perceptions. Utilitarian products are characterized by their functionality or the benefits that they seek to satisfy. Hedonic products, on the other hand, are characterized by satisfying consumers' need for pleasure or self-expression (Park and Moon 2003). Research shows that when consumers purchase utilitarian products, they are more likely to think rationally, behave carefully, and collect objective information about products than when they shop for hedonic products (Park and Moon 2003). When purchasing hedonic products, consumers are more likely to rely on their feelings and use heuristics to make decisions that they suspect would maximize their joyful experiences.

The symbolic attribute of the products could also influence consumers' price-quality perceptions and the average price of the products in the marketplace. Various products could be associated with one of the following three attitude functions: utilitarian, social identity, and self-esteem (Shavitt 1990). Non-symbolic and functional products are likely to be associated with a limited number of well-defined quality criteria (Monga and John 2010). Whereas symbolic

(and/or prestigious) products are likely to be associated with a wide range of abstract brand concepts (Monga and John 2010) and multiple associations with quality (Lalwani and Shavitt 2013). Therefore, price-quality thoughts should be more accessible for symbolic products than for non-symbolic products, as in the case of non-symbolic products consumers should be able to clearly judge a product based on its well-defined functional attributes. For example, if an athletic shoe is considered a non-symbolic product, then consumers should be more likely to judge the quality of the product based on its functional attributes such as comfort or the breathability of the shoe. However, if an athletic shoe is considered a symbolic product, then it will provoke a wide range of abstract quality associations such as prestige and style. Therefore, price-quality thoughts should be more accessible when consumers consider athletic shoes as a symbolic rather than a functional product.

The accuracy of price-quality perceptions. The accuracy of price-quality perceptions refers to the difference between objective and subjective price-quality relationships. Perceived quality is defined as “consumer's judgment about a product's overall excellence or superiority,” and it is different from objective quality which refers to “measurable and verifiable superiority on some predetermined ideal standard or standards” (Zeithaml 1988, pp. 3-4). Because consumers generally do not retain the needed ability or motivation to accurately assess objective quality (Pechmann and Ratneshwar 1992), their judgments of product quality is usually influenced by heuristics and external signals such as advertisements, store name, brand name, and price (e.g., Kalwani and Yim 1992; Rao and Monroe 1989).

Lichtenstein and Burton (1989) studied the relationship between objective and perceived price-quality. They noted that in a sample of fifteen products, the objective price-quality correlations of eight products were either near zero or negative. Their findings revealed that

consumers' perceptions of quality based on price were only modestly accurate, and product type moderated this relationship; more specifically, price-quality perceptions were less accurate for durable products than for non-durable products. It must be noted that the analysis of Lichtenstein and Burton (1989) is based on Spearman's rank order correlations. Therefore, the reported higher accuracy of price perceptions for nondurable products, compared with durable products, should not be construed as accurate price-quality perceptions for non-durable products in general. For example, the objective price-quality correlations were negative for four out of seven non-durable products. Evaluating these products, respondents were either neutral toward- or somewhat agreed with- the statement that "the higher the price of the product, the higher the quality of the product" (Lichtenstein and Burton 1989, p. 432). Boyle and Lathrop (2009) repeated Lichtenstein and Burton's (1989) study and observed that in their sample of fifteen products, the objective price-quality relationships were either negative or near zero for eight products. Their analysis showed that consumers continued to have inaccurate price-quality perceptions, and this effect was stronger for non-durable products than for durable products.

Thinking style and price-quality perceptions. Lalwani and Shavitt (2013) showed that interdependent (vs. independent) self-construals are more holistic (vs. analytical) and consequently they are more (less) prone to making price-quality judgments. Bornemann and Homburg (2011) showed that temporal distance and social psychological distance affect price-quality perceptions. In four studies, they illustrated that when people consider purchasing a product in the distant future or buying a gift for others, they think schematically and associate higher prices with higher quality (i.e., positive perception of price). Conversely, when people think about purchasing a product in the near future or for themselves, they think systematically

and associate higher prices with a higher level of monetary sacrifice (i.e., negative perception of price).

Based on these findings, it is posited that an analytical thinking style should enable individuals to notice and assimilate the negative or near zero objective-price-quality correlations across different product categories. Hence, it is argued that an analytical thinking style should result in a less general-price-quality perception across different industries and a more accurate price-quality perception for any specific product group; more so for high-involvement products for which individuals have a higher motivation to employ an extensive search process than for low-involvement products. Conversely, a schematic or holistic thinking style is likely to decrease individuals' ability to notice the belief-inconsistent evidence regarding a low or near zero correlation between price and objective quality, resulting in a high general-price-quality perception and less-accurate price perceptions.

Gender Differences and Price-Quality Inferences

According to the selectivity model, men and women differ in the way that they process the information (Meyers-Levy and Maheswaran 1991; Meyers-Levy and Sternthal 1991). Women tend to engage in a more detailed elaboration of information and are more likely to recognize subtle cues in a message, while men are inclined to engage in schematic information processing and tend to miss subtle cues (Darley and Smith 1995). As a result, women (vs. men) have a more (less) positive attitude toward objective ad claims (Darley and Smith 1995) and show a greater emotional response to advertisements that are complex (vs. simple) (Putrevu 2004). Furthermore, men are more susceptible to use readily available information to judge

brands, while women are more sensitive to the comprehensiveness of information to draw any conclusions (Kempf, Laczniak, and Smith 2006).

Based on these findings, it is posited that compared with men, women should be more prone to pay attention to readily available information, and they should have a greater aptitude to identify the relationship between various product attributes and the product quality. Therefore, the following hypotheses are offered:

H1a: Compared with men, women are more likely to pay attention to readily available information

H1b: Compared with men, women are more likely to accurately identify the relationship among various product attributes.

Gender and general-price-quality perceptions. Consumers' inferences of a positive relationship between price and quality are attributable to their individual experiences and a general belief that "you get what you pay for." Nevertheless, as discussed before, in many product categories higher prices do not translate into higher levels of quality (Boyle and Lathrop 2009; Lichtenstein and Burton 1989). Modifying the positive price-quality mental schema requires the ability to recognize the weak or negative correlations between price and quality in different product groups. Furthermore, recognizing weak or negative correlations is an extremely challenging task and requires a systematic and effortful processing of the available information (Broniarczyk and Alba 1994).

Given women's tendency to process information systematically and to pay attention to details and subtle cues, it is argued that they should have a greater aptitude to recognize the weak

price-quality correlations across different product categories. Conversely, men's tendency to process the information schematically should hinder their ability to recognize the weak price-quality correlations and modify their biased price-quality beliefs. Therefore, compared with men, women should be more likely to have modified their biased perception that "you get what you pay for" and should have a lower general price-quality perception. As a result, the following hypothesis is posited:

H2: Compared with women, men are more likely to associate higher prices with a higher level of quality.

Gender and the average price of products in the marketplace. In many product categories, while consumers retain strong price-quality perceptions, the relationship between price and objective quality is near zero or even negative. For example, Boyle and Lathrop (2009) observed that while consumers associated higher prices of laptop computers, laundry appliances, and cell phones with higher levels of quality, the objective price-quality correlations in those product categories were 0.03, 0.00, and -0.06, respectively.

It is postulated here that the reported differences between objective and subjective price-quality relationships in the literature are due to consumers' inability to accurately judge the quality of the products after purchasing and using them. Because in that case, consumers' price-quality perceptions will decrease the price elasticity of demand and increase companies' profit margins if they raise prices regardless of the objective quality of the products; hence, the higher the consumers' reliance on price to judge the quality, the higher the likelihood that companies would use price premiums regardless of the objective quality of the products.

The notion that high price-quality perceptions will result in low price elasticity of demand is built on the premise that consumers' purchase decisions depend on their perception of the deal value. Price plays a dual role in influencing the perceived value by positively affecting both the perceived benefit of using the product and the perceived sacrifice of acquiring the product (Zeithaml 1988). So, when consumers' price-quality perceptions are high enough, the effect of price on perceived benefit becomes greater than the effect of price on the perceived sacrifice. Subsequently, increasing the price will increase consumers' deal value and purchase intentions. When the price-quality perceptions are low, the effect of price on perceived sacrifice will be greater than the effect of price on perceived quality, and an increase in price will decrease consumers' deal value perceptions and purchase intentions.

Based on the above arguments, it is postulated that the average prices of men's products should be higher than the average prices of comparable women's products. Because compared with women, men should have a higher price-quality perception. So, an increase in the price of men's products is likely to increase men's perception of the deal value; whereas, an increase in the price of women's products is likely to decrease women's perception of the deal value. Therefore, companies are more likely to achieve a higher overall profit by charging men a price premium and offering women a price discount. Assuming that companies have the required expertise to adjust their pricing strategies to maximize their overall profit, the following hypothesis is offered:

H3: The average price of men's products is higher than the average price of comparable women's products in the marketplace.

Men are more inclined than women to be competitive and status conscious (Paris et al. 2009). As expensive products signal higher levels of prestige and social status, it could be argued that men's higher price-quality perceptions are attributable to their propensity to associate overall quality with prestige and social status. My contention is that men's high price-quality perceptions are the result of both their schematic thinking style and their high concern for social status. Higher prices satisfy consumers' social status motives when products are conspicuous and allow buyers to be seen (Griskevicius, Tybur, and Van Den Bergh 2010). Therefore, it is expected that the difference between men's and women's price-quality perceptions and subsequent actual prices in the marketplace will be more pronounced for conspicuous products and products that are considered to be symbolic by men. As a result the following hypothesis is offered:

H4: The price difference between men's products and women's products will be greater in product categories that are considered symbolic by men.

Persuasion Knowledge, Suspicion, and Price-Quality Inferences

Persuasion knowledge is an essential cognitive trait that enables people to cope with others' manipulative behaviors (Friestad and Wright 1994). People start to learn the persuasion knowledge from preschool years via recognizing that other people's intentions and thoughts are different from their own (McAlister and Cornwell 2009). The persuasion knowledge learning process continues throughout life via people's interactions with their family members, co-workers, peers, media, and their experiences with various brands, companies, salespeople, and marketers (Friestad and Wright 1994, 1999).

Extant literature shows that persuasion knowledge has equipped consumers with the ability to identify and resist marketers' persuasion attempts (Campbell and Kirmani 2000; Kachersky 2011; Kachersky and Kim 2011; Kirmani and Zhu 2007; Nelson, Wood, and Paek 2009). Activation of persuasion knowledge results in a negative attitude toward advertisements with manipulative claims (Campbell 1995, Kirmani and Zhu 2007), salespeople with manipulative motives (Campbell and Kirmani 2000), brands engaged in covert marketing (Wei, Fischer, and Main 2008), video news releases (Nelson, Wood, and Paek 2009), brand slogans (Laran, Dalton, and Andrade 2011), and manipulative pricing tactics (Hardesty, Bearden, and Carlson 2007; Kachersky and Kim 2011).

Persuasion knowledge and general price-quality perceptions. The effect of persuasion knowledge on price perceptions has only recently attracted the attention of scholars. Hardesty, Bearden, and Carlson (2007) were the first scholars who investigated the effect of persuasion knowledge on price inferences. They proposed that consumers possess a contextual persuasion knowledge, called pricing tactic persuasion knowledge (PTPK), which enables them to identify and resist company manipulative pricing tactics. The findings of their studies showed that individuals with higher (lower) levels of PTPK are less (more) influenced by quantity surcharges and tensile pricing tactics (e.g., up to 80% off). Kachersky (2011) showed that content reduction (i.e., reducing the content of the package while keeping the package size and price the same) is more likely to provoke a negative brand attitude in consumers with high levels of PTPK than in consumers with low levels of PTPK. Finally, Kachersky and Kim (2011) showed that in response to inclusive versus partitioned pricing tactics, consumers tend to have a less favorable attitude toward the pricing format that they perceive as having more persuasive intent.

Price signaling is a persuasion attempt to manipulate consumers' perception of quality regardless of the objective quality of the products (Hardesty, Bearden, and Carlson 2007). Therefore, it is speculated here that consumers' persuasion knowledge will eventually enable them to identify price signaling as a manipulation tactic and result in a negative attitude toward companies or brands that employ this tactic. For example, when an individual pays a premium price to purchase a certain brand of laptop computer, (s)he expects high quality in terms of superior utilitarian benefits (e.g., hardware specifications) and/or hedonic benefits (e.g., style and design). If future comparisons between the purchased product and a friend's cheaper laptop computer reveal a lack of superiority or even the inferior quality of the more expensive product, the consumer will experience strong cognitive dissonance. The intensity of the experienced cognitive dissonance will depend on the importance of the product in terms of its effect on social status and the relative perception of the paid price in terms of share of wallet. If consumers experience similar incidents often enough, they will start reexamining their prior beliefs, including the belief that price is a good indicator of the quality.

In a meta-analysis of the price-quality literature, Volckner and Hofmann (2007) concluded that in the past two decades the relationship between price and perceived quality has decreased. The Persuasion Knowledge Model (Friestad and Wright 1994) could provide an explanation for the observed trend of decreasing general-price-quality perceptions. Advances in information technology and the internet have increased peoples' ability to communicate and connect with each other at an unprecedented rate. Furthermore, online customer reviews that share peers' post-purchase product experiences, as well as independent forums and websites that analyze and review products, are reliable sources of information that could facilitate the acquisition of persuasion knowledge. Therefore, it is conjectured that in the past two decades

consumers' persuasion knowledge has increased significantly, and this has negatively affected peoples' general- price-quality perceptions.

Persuasion knowledge and accuracy of price-quality perceptions. Research shows that the activation of persuasion knowledge results in provocation of negative emotions such as suspicion (e.g., Kirmani and Zuo 2007; Scott, Mende, and Bolton 2013). Evolutionary theory in psychology and discrete emotions theory suggest that moderate levels of arousal of negative emotions such as suspicion or fear will result in a higher level of vigilance and deeper processing of environmental information (Lench et al. 2011). This is because of the evolutionary adaptive function of negative emotions in increasing the chance of survival by affecting cognition (e.g., focusing the attention on a predator approaching from the distance), judgment (e.g., the risk is imminent), behavior (e.g., tendency to run), and physiology (e.g., increasing the heart rate and preparing the muscles to utilize their maximum power to flee).

Recent evidence from neuromarketing reveals that moderate levels of suspicion result in disproportionately greater levels of brain activity as compared with the neutral or intense emotional states (Craig et al. 2012). Furthermore, research shows that negative mood increases the likelihood of processing information systematically (e.g., Bodenhausen, Sheppard, and Kramer 1994; Edwards and Weary 1993), paying attention to details in an argument (Bless et al. 1990), and making more accurate judgments (Sinclair 1988). Therefore, in line with previous arguments, it is conjectured that activation of persuasion knowledge will result in a higher level of price-quality perception accuracy via a) prompting an analytic thinking style and facilitating systematic processing of information and b) enabling individuals to identify manipulative pricing strategies and therefore to judge the quality of the products based on more reliable sources of information. As a result, the following hypothesis is posited:

H5: Activation of persuasion knowledge will increase the accuracy of price-quality judgments based on available information.

As previously discussed, cognitive dissonance plays a crucially important role in the acquisition and activation processes of persuasion knowledge. *Self-affirmation* (Steele 1988) and *motivated reasoning* (Kunda 1990) theories suggest that when buyers experience cognitive dissonance, they will selectively comprehend, assimilate, and recall belief consistent information to reduce the aroused negative emotions. In other words, contrary to what has been hypothesized above, experiencing negative emotions could activate defense goals rather than accuracy goals.

The effect of persuasion knowledge on price-quality perceptions depends on the type of coping mechanism that it activates. If activation of persuasion knowledge elicits accuracy goals, it will result in systematic thinking style and subsequently in more accurate price-quality perceptions based on the available information. In contrast, if persuasion knowledge activates defense mechanisms, it will bring about a schematic thinking style and increase the likelihood that consumers rely on their heuristics (such as price-quality heuristic) to make quality judgments and purchase decisions. Therefore, activation of persuasion knowledge will make them more vulnerable to cognitive biases such as the primacy effect of easily accessible information and will increase their reliance on price to judge the quality. In other words, if persuasion knowledge activates defense goals, consumers will try to protect themselves against marketers by relying on their firmly held beliefs such as “you get what you pay for.” So, they will be more likely to be willing to pay a little more to make sure that they get a high-quality product. As a result, the following hypothesis is presented:

H5_{alternative}: Activation of persuasion knowledge will make people more susceptible toward cognitive biases.

Brand-specific suspicion and accuracy of price-quality perceptions. Although persuasion knowledge entails a general suspicion against marketers, it is argued that persuasion knowledge and brand-specific suspicion will have different effects on price-quality perceptions. Unlike persuasion knowledge, suspicion about a specific company will result in mistrust and a negative bias against that company. Consistent with this argument, Darke and Ritchie (2007) showed that when participants noticed a deceptive advertisement from a company, they had a negative attitude toward that firm's future advertisements whether they were deceptive or not. Building on this evidence, it is postulated here that suspicion against a certain company will have a negative effect on consumers' judgments about the product quality of that firm regardless of the available information about the product. In other words, it is posited that when consumers become suspicious about a specific brand, they will no longer use price to judge the quality of that brand, whether higher prices mean higher objective quality or not. The following hypothesis is thereby presented:

H6: Eliciting brand-related suspicion will eliminate consumers' reliance on price to judge the quality of the distrusted brand.

The above hypotheses were tested in twelve empirical studies, the result of which is discussed next. Diverse types of research (i.e., survey research, experimental research, and observational research) were conducted, using different samples of participants (i.e., student and

adult samples) as well as different product categories (including digital cameras, running shoes, dress shoes, suits, blazers, socks, and wine) to increase the generalizability of the findings.

Figure 1 presents an overview of the studies.

[Place figure 1 about here]

STUDY 1: GENDER AND ATTENTION TO THE AVAILABLE INFORMATION

Based on the selectivity model, it was posited that compared with men, women should be more prone to pay attention to readily available information. Building on this notion, it was postulated that in the context of print advertisements, when consumers are faced with a highly deceptive advertisement message, women should be more likely than men to notice the deceptive message of the ad; consequently, women should have a more negative attitude toward the deceptive advertisement than men. Study 1 was designed to test this assumption.

Method

Sample. Respondents were 63 adults who were recruited using Amazon MTURK and participated in exchange for monetary compensation (57.1% percent female; $M_{age} = 39.06$). Empirical evidence from multiple comparative studies shows that participants on MTURK behave similarly to participants in physical laboratories (Horton, Rand, and Zeckhauser 2011), data collected from MTURK meet or exceed the psychometric standards associated with published studies (Buhrmester, Kwang, and Gosling 2011), and MTURK is a reliable source for obtaining experimental data (Paolacci, Chandler, and Ipeirotis 2010).

Measures and Procedure. Study 1 was a between-subject experiment, in which respondents were randomly assigned to one of two advertisements about a fictitious brand of digital camera, called Rumax. Both advertisements were titled “Introducing Rumax Digital Camera” followed by a picture of the Rumax camera that had been created by Photoshop

¹ At the time of this writing, according to Google Scholars, the studies of Buhrmester, Kwang, & Gosling (2011) and Paolacci, Chandler, & Ipeirotis (2010) have been cited 4764 and 2476 times, respectively.

software (see Appendix A). Below the picture of the camera, both advertisements contained two paragraphs of information about the camera and ended with the footnote message that “For more information, visit us at www.rumax.com.” Manipulation of the degree of the deceptiveness of the advertisements was achieved by changing the information in the first paragraph of the ads. In the control condition, the ad stated: “A recent test performed by Consumer Reports showed that RUMAX produced better quality pictures than leading brands, such as Canon and Nikon.” In the treatment condition, the ad stated: “We performed tests that showed our camera produced better quality pictures than one of the leading brands.” The second advertisement was deceptive because a) it reported a study conducted by the company itself rather than an independent third party (i.e., biased source of information) and b) it did not mention the name of the “leading brand” that was being compared to Rumax (i.e., ambiguous reference point). Everything else was identical in both ads.

After the first stage, respondents’ judgment of the advertisements’ manipulative intent was measured using a three-item Likert scale anchored by 1 = strongly disagree and 7 = strongly agree (i.e., “In my opinion, the advertisement was attempting to persuade by [inappropriate means], [unfair means], [manipulative means]”). Next, attitude toward the advertisement was measured using a four-item seven-point semantic differential scale (i.e., “As you were reviewing the advertisement on the previous page, did you find it: [1= extremely ambiguous, 7= not at all ambiguous]; [1= not truthful, 7= truthful]; [1= deceptive, 7= non-deceptive]; [1= unbelievable, 7= believable]”). Finally, participants answered a number of demographic questions.

Results and Discussion

In H1a it was hypothesized that compared to men, women are more likely to pay attention to readily available information. Subsequently, women were expected to be more likely than men to notice the deceptive advertisement claim and react to it. To test this hypothesis, a GLM analysis was performed with the respondents' judgment of the advertisement's manipulative intent as the dependent variable, gender and the type of ad (i.e., manipulative advertisement vs. non-manipulative advertisement) as independent variables, and age as a covariate. The effect of age on the dependent variable was not statistically significant at $\alpha = 0.05$. Results did not reveal any significant main effect, but the interaction between gender and type of advertisement was significant ($F(1, 59) = 4.53, p < .05$).

Follow-up pairwise comparisons showed that under non-manipulative advertisement condition both men and women judged the advertisement as non-deceptive ($M_{\text{women}} = 1.96, M_{\text{men}} = 2.30; t(30) = -.786, p > .1$). When participants were assigned to the manipulative ad condition, however, women were significantly more suspicious about the ad than men were ($M_{\text{women}} = 3.27, M_{\text{men}} = 2.15; t(29) = 2.11, p < .05$). From another perspective, the type of advertisement did not influence men's attitude toward the ad ($M_{\text{manipulative ad}} = 2.15, M_{\text{non-manipulative ad}} = 2.30; t(26) = .319, p > .1$). Whereas, women's judgment of the manipulative intent of the ad corresponded with the treatment that they were assigned ($M_{\text{manipulative ad}} = 3.27, M_{\text{non-manipulative ad}} = 1.96; t(33) = -2.73, p = .01$). Although these findings provide empirical support for H1a, it must be noted that even women's judgment of advertisements' manipulation intent in the manipulative advertisement condition was lower than the midpoint of 4, indicating that the majority of them did not judge it as a manipulative ad! This finding suggests that although women did a better job

than men did in paying attention to the advertisement, the judgment of the majority of the women regarding the manipulation intent of the ad was not accurate.

In a second GLM analysis, the effect of type of advertisement on participants' attitude toward the ad was measured. Attitude toward the advertisement was used as the dependent variable, gender and the type of ad (i.e., manipulative advertisement vs. non-manipulative advertisement) as independent variables, and age as a covariate. The interaction between gender and the type of advertisement was marginally significant ($F(1, 59) = 3.20, p < .1$). Follow-up pairwise comparisons showed that type of advertisement did not influence men's attitude toward advertisement ($M_{\text{manipulative ad}} = 4.88, M_{\text{non-manipulative ad}} = 4.65; t(26) = -.44, p > .1$). But women had a more positive attitude toward the non-manipulative advertisement than the manipulative advertisement ($M_{\text{manipulative ad}} = 3.62, M_{\text{non-manipulative ad}} = 4.65; t(33) = 2.17, p < .05$).

As shown in Figure 2, study 1 revealed that women's judgment of the manipulative intention of the advertisement and subsequently their attitude toward advertisement corresponded with the type of advertisement that they viewed. Whereas, the type of advertisement did not influence men's judgments or attitude toward the advertisement. Since identifying the manipulation intention was a simple task, study 1 shows that women are more likely to pay attention to readily available information in advertising to form product/advertisement judgments than men are.

[Place figure 2 about here]

STUDY 2: GENDER AND ABILITY TO PROCESS COMPLEX INFORMATION

Study 1 showed that as compared to men, women are more likely to pay attention to available information. Nevertheless, it offered no insight regarding the potential effect of gender on peoples' ability to process complex information and identify the relationship between various product attributes. Study 2 was designed to investigate whether gender influences consumers' ability to make accurate judgments of the product quality based on the available product information.

Method

Sample. The initial sample included 138 undergraduate students from a public university on the east coast who participated in the study for extra credits. 14 respondents failed to disagree with the attention check statement, "I am not reading the questions. I just randomly choose different options," and were subsequently removed from the study. Furthermore, four respondents were dropped from the sample because their answers revealed that they did not pay any attention to the study. Respondents were asked to rate the quality of ten fictitious brands of digital camera based on the information that they had received in the study, and the evaluations of the four respondents who were dropped from the study fell into the following pattern: 10, 20, 30, ..., 80, 90, 100. This reduced the sample size to 120 (56.7% percent female; $M_{age} = 24$).

Design and procedure. Respondents were asked to review the information of twenty-five brands of digital camera presented in one of two tables (Appendix B). Both tables included the following information: Brand name (e.g., Nikon S33), optical zoom (e.g., 14x), optical-sensor-

resolution (OSR; e.g., 14.1 MP), price, and quality rating, in the same order. Quality ratings were purported to be independent expert evaluations on a scale of 1 to 100, where higher numbers indicated a higher level of quality. The study had a between-subject design, in which respondents were randomly assigned to one of two different conditions of the high OSR-quality correlation ($r = 0.8$) or low OSR-quality correlation ($r = 0.1$). All the other correlations among variables in both conditions including correlations among price, OSR, and optical zoom were kept at $r < 0.1$ and $p > .1$. The price and quality rating correlations were kept low in both conditions to a) control for people's prior beliefs regarding the existence of a positive relationship between price and quality and b) to evaluate whether participants had the ability to identify subtle relationships among variables other than price and quality.

After the first step, participants were asked to judge the quality of ten fictitious models of a digital camera (e.g., STA-410F), purported as new models of an existing brand of digital camera in the marketplace. The provided information for each model was similar to what participants had reviewed in the first table. Finally, participants answered questions regarding their level of involvement in the study (i.e., "when I was reviewing the information, I was [involved], [engaged], [interested];" adopted from Kirmani and Zhu 2007), product knowledge, and their demographic characteristics. Consumers' ability to pay attention to details and accurately identify the main factor that influenced the quality ratings in the first table (i.e., OSR) was measured by calculating the correlations between their evaluation of the quality and the presented OSR information in the second table. If respondents' judgments were accurate, it would result in a proportionate change in participants' perceptions of OSR-quality relationships based on the objective OSR-quality correlations in the two treatments ($r = .8$ versus $r = .1$).

Results and Discussion

Hypothesis 1b stated that “compared with men, women are more likely to accurately identify the relationship between various product attributes.” If H1b was true, one would expect to see a proportionate change in women’s judgment of quality rating based on the presented information that they had reviewed. Whereas for men, one would expect to see no difference in their evaluations based on the information that was presented to them in either condition.

A univariate GLM analysis was performed with the subjective OSR-quality rating correlations (i.e., participants’ judgment of the relationship between OSR and quality) as dependent variable, gender and objective OSR-quality rating condition (i.e., OSR-quality rating correlations presented in the first table: high, low) as independent variables, and the level of involvement and age as covariates. Results showed that the moderating effect of involvement was significant ($p < 0.05$). Furthermore, the results showed a significant main effect of gender in the model ($M_{\text{men}} = 0.42$, $M_{\text{women}} = 0.27$; $F(1, 113) = 4.28$, $p < 0.05$).

Although the interaction between gender and camera information was not statistically significant, follow-up analysis revealed that when objective correlations were low, calculated subjective correlations were lower for women than for men ($M_{\text{men}} = 0.43$, $M_{\text{women}} = 0.18$; $F(1, 113) = 6.08$, $p < 0.05$). Under the condition that objective correlations were high, on the other hand, calculated subjective correlations were not significantly different between men and women ($M_{\text{men}} = 0.41$, $M_{\text{women}} = 0.37$; $F(1, 113) = .2$, $p > 0.1$). From a different perspective (see Figure 3), consistent with H1b, women’s judgments of the relationship between quality and OSR were significantly higher when the actual correlations were high as opposed to low ($M_{\text{high}} = .37$, $M_{\text{low}} = .18$; $F(1, 113) = 4.05$, $p < .05$); whereas, men’s judgements of the relationship between quality

and OSR were not influenced by the actual information presented in the study ($M_{\text{high}} = .43$, $M_{\text{low}} = .41$; $F(1, 113) = .02$, $p > .1$). These findings suggest that unlike men's, women's evaluations corresponded with the presented available information. A GLM analysis with a Fisher's z statistic (as opposed to Pearson correlations) as the dependent variable, resulted in similar findings, which indicated the robustness of these findings with respect to the statistical distribution of the dependent variable.

[Place figure 3 about here]

It must be noted that although women's estimations of the relationship between quality and OSR seemed more in tune with the presented information than those of men, neither group's judgments were accurate by any means. For example, when the presented information entailed a strong relationship between OSR and quality, both group's estimates were significantly lower than the actual correlations (both $p < .001$). Therefore, study 5 shows that when faced with the task of processing complex information, both men and women are inaccurate in identifying the true relationship between given variables, albeit men more so than women.

STUDY 3: GENDER AND PRICE-QUALITY PERCEPTIONS

Studies 1 and 2 showed that women are more likely to pay attention to available product information than men. Based on these findings, and as discussed in H2, compared with men, women should be less likely to associate higher prices with higher levels of quality. Study 3 was designed to provide an initial examination of the potential effect of gender on the general-price-quality perceptions.

Method

Participants and design. Respondents were adults who were recruited using Amazon Mturk and participated in the study for monetary compensation. Initial sample included 84 respondents, but twelve respondents failed to detect the attention check question and were removed from the study. This reduced the sample size to 72 participants (47.2 % females, $M_{\text{age}} = 34.44$).

Participants answered a battery of questions measuring price-quality perception, self-confidence in the persuasion knowledge, pricing tactic persuasion knowledge, and demographic characteristics. Follow-up analysis revealed that eliminating respondents did not change any of the findings of the study. This was perhaps due to the placement of the attention check question in the middle of the measurement of the pricing tactic persuasion knowledge, which was a relatively long and cognitively taxing task positioned at the end of the survey before the demographic questions. Whereas, price-quality schema questions were asked at an earlier stage of the survey.

Measures. Pricing tactic persuasion knowledge (PTPK) was measured using a 16-item, true- false scale developed by Hardesty, Bearden, and Carlson (2007). Consumer self-confidence in persuasion knowledge was measured using a six-item, seven-point scale developed by Bearden, Hardesty, and Rose (2001). The price-quality schema was measured via a four-item, seven-point scale ($\alpha = .90$) developed by Lichtenstein, Ridgway, and Netemeyer (1993). The items (anchored by 1 = strongly disagree and 7 = strongly agree) included “The old saying ‘you get what you paid for’ is generally true” and “The price of a product is a good indicator of its quality.”

Results and Discussion

The grand mean of general-price-quality perceptions (calculated as the average of four items) was significantly above the midpoint of 4.0 ($M = 4.61, t(71) = 4.4, p < .001$). This finding is consistent with the findings of previous studies that people generally associate higher prices with higher quality (Rao and Monroe 1989, Volckner and Hofmann 2007). An Independent Sample t-test revealed that as compared with women, men perceived a significantly stronger price-quality relationship ($M_{\text{men}} = 4.87, M_{\text{women}} = 4.33; t(70) = 1.97, p = .05$). Follow-up analysis revealed that the average price-quality perception score of men was significantly above the midpoint value of 4.0 ($M_{\text{men}} = 4.87; t(37) = 4.76, p < .001$), whereas the average score of women was not significantly above the midpoint value of 4.0 ($M_{\text{women}} = 4.33; t(33) = 1.6, p > .1$). This provides statistical support for H2.

The above findings indicate a significant gender gap in the way that price potentially influences consumers’ perceptions of quality and subsequently their purchase intentions. These

findings show that price has a positive effect on men's perception of quality, and subsequently will have a mixed effect on their purchase intentions by positively influencing their perceived benefits of the products and negatively influencing their perceived cost of acquiring the product. The non-significant effect of price on women's perception of quality indicates that price will have a negative effect on women's purchase intentions by only influencing their perception of cost without creating any positive effect on their perception of the product benefits. The calculated average scores of the age, household income, pricing tactic persuasion knowledge, and self-confidence in persuasion knowledge for men and women were not significantly different from each other (all $p > .1$).

STUDY 4: GENDER AND THE PLACEBO EFFECTS OF MARKETING

Study 3 offered initial support for H2. Nevertheless, the findings of study 3 were vulnerable to acquiescence bias (Cronbach 1946) and social desirability bias (Fisher 1993). The goals of study 4 were threefold. First, it provided further evidence regarding the generalizability of the findings of study 3 by employing a more rigorous research method (i.e., experimental design instead of survey research). Second, it offered a measurement of consumers' actual evaluation of the quality rather than their expectation of quality in a hypothetical situation. Hence, study 4 could show the placebo effects of pricing on consumers' experiences. Third, it offered more insight regarding the moderating role of gender in the relationship between price and consumers' perceptions of deal value and subsequently their purchase intentions.

Method

Participants and design. Participants were 134 adults who were recruited from Amazon MTURK. Nine respondents failed to answer the attention check question correctly and were removed from the analysis. This resulted in 125 respondents (51.2% female, $M_{\text{age}} = 36.34$). The study employed a between-subjects (price: high, low) experimental design.

Procedure. Participants were randomly assigned to one of two conditions. In the 'price high' condition they reviewed the information of three brands of digital camera in a table. The information of the target brand, Rumax, which was a fictitious brand purported as a new product in the marketplace, was shown in the first line. The other two brands, namely Canon and Nikon, offered baseline price information. The prices of the three brands were Rumax \$130, Canon

\$110, and Nikon \$100. Other than the price information, participants were presented with the technical information about the three brands including resolution, optical zoom, the size of the memory card, and the type of the battery. The technical specifications of the three brands were very similar (see Appendix C). The information of the two real brands including their price and hardware specifications were taken from Amazon.com. In the ‘price-low’ condition everything was the same as ‘price-high’ condition with the exception that the price of the target brand, Rumax, was \$80 instead of \$130.

After reviewing the brand information, participants were asked to examine two photos ostensibly taken by Rumax in day and night time conditions (Appendix D). They were then asked to evaluate the quality of the pictures and the quality of the Rumax camera and indicate their judgment of the deal value and their purchase intentions if they were to buy a digital camera. Finally, respondents answered a couple of control questions (e.g., “What was the price of the RUMAX camera?” and “Do you currently own, or have you ever owned, either a Nikon or a Canon brand of digital camera?”) and demographic questions.

Measures. Consumers’ judgments of the quality of the pictures that they reviewed were measured in two ways: a) As an average of four seven-point items, that asked respondents if they found pictures to be “sharper,” “more realistic,” “more natural,” and “having a higher quality” than the average (Cronbach’s $\alpha = .95$). The items were derived from expert reviews on digital cameras that were available online. b) Using a ten-point single-item scale, “in general, how would you evaluate the quality of the pictures that you viewed on the previous page?” which was anchored by 1 = very bad and 10 = very good. The quality of the camera was measured as an average of three seven-point items that were adopted from the literature (Kirmani and Zhu 2007) and included “I believe the quality of the Rumax DMC-EH8 is higher than the average camera,”

“I believe Rumax DMC-EH8 is more reliable than the average camera,” and “I believe Rumax DMC-EH8 is more dependable than the average camera,” (Cronbach’s $\alpha = .93$). All three questions were anchored by 1 = strongly disagree, and 7 = strongly agree. Perception of deal value and purchase intention were measured by two single-item scales: “I believe Rumax DMC-EH8 offers greater value for the money than the average camera does,” and “if I was going to buy a new digital camera, Rumax DMC-EH8 would be among my top choices,” respectively.

Results

An initial chi-square analysis revealed the gender did not influence consumers’ ability to accurately recall the price information ($\chi^2 = .35, p > .5$). Next, an analysis of variance (ANOVA) with the average of the four picture quality items as the dependent variable and gender and price condition as independent variables revealed a main effect of price ($M_{\text{price-high}} = 5.16, M_{\text{price-low}} = 4.68; F(1,121) = 3.95, p < .05$) as well as an interaction between price and gender ($F(1,121) = 3.95, p < .05$). Follow-up analysis showed (see Figure 4) that price significantly influenced men’s judgment of the picture quality, and they found the quality of the pictures that they thought were taken by a more expensive camera as significantly higher than the quality of the pictures that they believed were taken by a less expensive camera ($M_{\text{price-high}} = 5.43, M_{\text{price-low}} = 4.41; t(59) = 3.05, p < .005$). In contrast, the price had no significant effect on women’s judgment of the quality of the pictures ($M_{\text{price-high}} = 4.88, M_{\text{price-low}} = 4.95; t(62) = -.19, p > .8$).

[Place figure 4 about here]

An ANOVA with the camera quality as the dependent variable and gender and price conditions as independent variables revealed no main effect but a marginally significant interaction between price and gender ($F(1,121) = 3.32, p < .10$). Follow-up analysis showed that price significantly affected men's perception of the camera quality, and men evaluated the quality of the more expensive camera significantly higher than the quality of the less expensive camera ($M_{\text{price-high}} = 4.90, M_{\text{price-low}} = 4.12; t(59) = 2.32, p < .05$). In contrast, price did not influence women's perception of the quality of the camera ($M_{\text{price-high}} = 4.47, M_{\text{price-low}} = 4.54; t(62) = -.22, p > .8$). These findings are consistent with the findings of study 3 that suggested men believed "you got what you pay for," whereas, women did not, and offered further empirical evidence supporting H2. More importantly, these findings suggest that the effect of price on men's perceptions of quality is so strong that it creates a placebo effect of quality.

As was argued in study 3, if price positively influences men's and not women's perceptions of quality, it should subsequently have the opposite effects on men and women's perception of deal value and their purchase intentions. An ANOVA with the perception of deal value as dependent variable and gender and price conditions as independent variables revealed no main effect but showed a significant interaction between gender and price condition ($F(1,121) = 6.20, p < .05$). Pairwise comparisons (see Figure 5) showed that women's perception of deal value was significantly lower in the high-price condition than in the low-price condition ($M_{\text{price-high}} = 4.67, M_{\text{price-low}} = 5.5; t(62) = -2.44, p < .05$). In contrast, price condition did not significantly affect men's perception of the deal value ($M_{\text{price-high}} = 4.90, M_{\text{price-low}} = 4.5; t(59) = 1.16, p > .2$).

[Place figure 5 about here]

An ANOVA with purchase intention as the dependent variable and gender and price conditions as independent variables revealed similar results and indicated no main effect but a significant interaction between gender and price condition ($F(1,121) = 6.28, p < .05$). Follow-up pairwise comparisons (see Figure 6) revealed that under low-price condition women were more likely to consider buying the camera than men were ($M_{\text{men}} = 4.2, M_{\text{women}} = 4.9; t(61) = -1.70, p < .1$). Whereas, under high-price condition, men were more likely to consider buying the product than women were ($M_{\text{men}} = 5.25, M_{\text{women}} = 4.53; t(60) = 1.85, p < .1$).

[Place figure 6 about here]

Manipulation checks. To test the robustness of the findings regarding the variation that might have been caused by participants' ability to accurately recall the price information, similar analyses as discussed above was performed using only those participants who could accurately remember the price information. Eliminating the respondents who could not accurately recall the price information, did not change the direction or the statistical significance of the reported results. For example, an ANOVA of gender and price conditions on judgments of picture quality resulted in the main effect of price ($M_{\text{price-high}} = 5.07, M_{\text{price-low}} = 4.52; F(1,99) = 3.95, p = .05$) and an interaction effect between price and gender ($F(1,99) = 6.27, p < .05$). Follow up analysis showed that, same as before, price significantly influenced men's judgment of the picture quality ($M_{\text{price-high}} = 5.43, M_{\text{price-low}} = 4.19; t(47) = -3.11, p < .01$), but had no significant effect on women's judgment ($M_{\text{price-high}} = 4.71, M_{\text{price-low}} = 4.85; t(52) = .37, p > .5$).

Discussion

Study 4 provided further empirical support for H2 and offered evidence that the effect of price on the perception of quality and subsequently on the purchase decision varies based on the gender. One of the most noteworthy and surprising findings of study 4 was that men believed that the more expensive camera offered them a greater value for the money than the exact same camera that was priced at a lower level (i.e., \$130 versus \$80). If the findings of studies 3 and 4 are generalizable, companies should be able to charge men higher prices than what they charge women for selling them very comparable products. The next five studies will shed light on this relationship.

AN OVERVIEW OF STUDIES 5A-5E

Studies 1 and 2 showed that women have more aptitude to make accurate judgments about a product or an advertisement than men. Furthermore, studies 3 and 4 suggested that men are more likely than women to associate higher prices with higher quality. More specifically, study 4 showed that price created a placebo effect in men by positively affecting their evaluations of the pictures that they believed had been taken by a more expensive camera. Whereas, women seemed to be immune to the effect of price in both studies. Based on these findings, it is argued here that the average prices of men's products should be higher than the average prices of the comparable women's products. As discussed in the development of H3, this argument is built on the premise that consumers' purchase decisions depend on their perception of the value. Price plays a dual role in influencing the perceived value by simultaneously increasing the perceived benefit and the perceived sacrifice (Zeithaml 1988). So, if the effect of price on the perceived benefit is stronger for men than for women, higher prices should have a more positive effect on men's perceptions of the deal value and subsequently their purchase intentions than on those of women. Consequently, companies could maximize their profit by charging men a price premium.

Studies 5a, 5b, 5c, 5d, and 5e were designed to test the above assumption (i.e., H3). In these studies, large samples of real-world data were collected about five product categories, namely athletic shoes, formal shoes, suits, blazers, and socks from Amazon.com. With a revenue of 135.98 billion dollars in 2016, Amazon.com is the largest online retailer in the world; furthermore, Amazon uses a proprietary dynamic pricing algorithm that calculates the price elasticity of demand for each product category in real time and frequently modifies the prices

based on several variables including customer characteristics and competitors' prices (Weisstein, Monroe, and Kukar-Kinney 2013). These factors make Amazon an ideal source of information to examine the price differences in various product categories.

The choice of the product categories was based on two major considerations: First, since this study used secondary data, product categories were selected that could be safely assumed were predominantly purchased by either men or women. Second, a range of products were included in the study that varied based on their average prices in the marketplace, hedonic attributes, utilitarian attributes, symbolic attributes, the level of consumer involvement, and the rate at which consumers purchased them. Extant literature suggests that these factors could influence price-quality perceptions and the average prices in the marketplace.

Pretest Studies

Three pretest studies were conducted to measure product involvement, symbolic attributes, hedonic attributes, utilitarian attributes, and purchase frequency of each of the five product categories in studies 5a-5e. To keep the size of the questionnaire short, the questions were divided into three studies that are briefly discussed below. The results of all three pretests are reported in table 1.

[Place table 1 about here]

Pretest 5-1. Participants in pretest 5-1 were 126 adults who were recruited from Amazon MTURK and participated in the study for monetary compensation (45.2% female, $M_{\text{age}} = 39.60$).

In pretest 5-1, product involvement and participants' perception of utilitarian and hedonic attributes of athletic and formal shoes were measured. Product involvement was measured as the sum of 20 seven-point semantic differential items developed by Zaichkowsky (1984; e.g., "important/unimportant," "of no concern/of concern to me," "irrelevant/relevant," "means a lot to me/means nothing to me," "useless/useful"; Cronbach's $\alpha > .97$ for both athletic shoes and formal shoes). The hedonic and utilitarian attributes of products were measured using the HED/UT scale developed by Voss, Spangerberg, and Grohmann (2003). HED/UT included ten seven-point semantic differential items that included "effective/ineffective," "helpful/unhelpful," "functional/not-functional," "necessary/unnecessary," and "practical/impractical" for measuring the functional attribute of products (Cronbach's $\alpha = .91$ and $.94$ for athletic and formal shoes, respectively); as well as "not fun/fun," "dull/exciting," "not delightful/delightful," "not thrilling/thrilling," and "enjoyable/unenjoyable" for measuring hedonic attribute of the products (Cronbach's $\alpha = .91$ and $.96$ for athletic and formal shoes, respectively). Hedonic and utilitarian scores of each product were calculated as the average of the five related items in the HED/UT scale.

Pretest 5-2. Pretest 5-2 was identical to pretest 5-1, except that the target products were suits, blazers, and socks rather than shoes. Participants in pretest 5-2 were 122 adults who were recruited from Amazon MTURK (44.3% female, $M_{\text{age}} = 37.61$). Participants were instructed to consider suits and suit separates interchangeably. Furthermore, they were asked to consider sports coats, blazers, and suit jackets interchangeably. An initial principal components exploratory factor analysis (EFA) with an orthogonal rotation on involvement scale for socks resulted in three factor components with Eigenvalues greater than 1 that explained 49.2%, 16.5%, and 5.3% of the variance respectively. Further analysis revealed that factor loadings of 10

out of 20 items on the first factor were .5 or smaller. These items were subsequently dropped from the measurement of involvement for socks. Subsequent analysis revealed that all measurements exhibited adequate scale reliability. Cronbach's α for each item was as follows: Involvement-suits = .98, involvement-blazers = .98; involvement-socks = .94; utilitarian attribute-suits = .93, utilitarian attribute-blazers = .95, utilitarian attribute-socks = .95; hedonic attribute-suits = .96, hedonic attribute-blazers = .97, hedonic attribute-socks = .94.

Pretest 5-3. In pretest 5-3, participants' judgments regarding the symbolic value of the five product categories and the frequency at which they purchased those products were measured. Participants in pretest 5-3 were 124 adults who were recruited from Amazon MTURK (36.3% female, $M_{\text{age}} = 35.65$). The symbolic attribute of each product category was measured as an average of two seven-point items adopted from Escalas and Bettman (2005). Items included "To what extent does a brand of [name of the product category] communicate something specific about the person who uses it?" anchored by "does not communicate a lot/communicates a lot," and "How much does a brand of [name of the product category] symbolize what kind of person uses it?" anchored by "not at all symbolic/highly symbolic." Cronbach's Alpha scores for athletic shoes, formal shoes, suits, blazers, and socks were .95, .96, .94, .96, and .97, respectively. Two separate items were used to measure shopping frequency. One of the questions asked respondents to report the number of products that they had purchased in the past year for socks, past two years for athletic and formal shoes, and past five years for suits and blazers. The time-frame was changed because it was expected that the shopping frequencies of the five product categories were substantially different. The second question stated, "In general, how often do you buy [name of the product category]?" This question was an eight-point multiple choice question. Anchors varied based on the product category (TABLE 1). The second question

provided further support regarding the consistency of the answers and eliminated the potential problem of outliers.

Results of three pretest studies showed that the selected product categories entailed a wide range of product attributes both in terms of between-subject difference among the five product categories and within-subject differences between the male and female segments in each product category. For example, formal shoes were significantly more hedonic for women than for men ($M_{\text{men}} = 3.58$, $M_{\text{women}} = 4.43$; $F(1, 124) = 9.24$, $p < .01$). Whereas, suits were significantly more hedonic for men than for women ($M_{\text{men}} = 4.04$, $M_{\text{women}} = 3.25$; $F(1, 120) = 7.77$, $p < .01$).

STUDY 5A: GENDER AND THE PRICE OF ATHLETIC SHOES ON AMAZON.COM

Method

Pretest 5-4. A pretest of 130 adult Americans who were recruited from Amazon MTURK (50% female) revealed that 58% of them had purchased at least one pair of shoes from Amazon in the past; furthermore, 76% of those who had purchased a pair of shoes from Amazon reported that the last time that they made the purchase, they had shopped for themselves. Finally, results showed that the mean and median sizes of shoes for women were 8.3 and 8.5 respectively, while the mean and median sizes of shoes for men were 10.3 and 10.5, respectively.

Data collection. In study 5a, the data collection process included retrieving the information of 2100 men's athletic shoes and 2100 women's athletic shoes that were sold on Amazon.com for 53 days, including 45 consecutive days and 8 non-consecutive days, during the last four months of 2016. This resulted in a sample of 222,600 product/day observations. The following information of each brand was collected: brand name, retail price, discount, price, online review star rating, number of online reviews, number of answered questions, product title, product description, sales rank on Amazon, sales rank in the specific product category (i.e., athletic shoes), availability of the product, availability of the scarcity message (e.g., only two left in the inventory), and the prime status.

To have two homogenous and comparable product categories, it was necessary to control for the variation in prices caused by the size of the shoes. Nevertheless, comparing the prices of the same sizes of shoes between the two product categories was not the best approach. Since Amazon uses a dynamic pricing strategy and its pricing algorithm sets the final prices based on

the supply and demand for each product (Weisstein, Monroe, and Kukar-Kinney 2013). Therefore, as demonstrated by pretest 5-5, the price of each size of a given brand of shoe is determined by its supply and demand, and there is no correlation between price and the size of the shoes sold on Amazon.com. Hence, to control for the variability of the price based on the size of the shoe, size 8 for women and size 10.5 for men were chosen, which were the average shoe sizes for men and women in the US (Holladay 2002; Pretest 5-4).

Pretest 5-5. Pretest 5-5 was conducted to calculate the correlation between the size of a shoe and its price on Amazon. Ten products in the men's athletic shoe category and 10 products in the women's athletic shoe category were randomly selected, and the price information of all the available sizes on Amazon was collected. This resulted in a sample of 460 size/price observations comprised of the 23 available sizes for each of the 20 products. Calculated Pearson correlations between price and shoe sizes in men's and women's product categories showed that in both product categories the correlations were small and not significant at a statistical level of $\alpha = .05$ ($r_{\text{men}} = .066, p > .1$; $r_{\text{women}} = .138, p > .1$; $r_{\text{whole sample}} = -.01, \text{all } p > .5$).

Results and Discussion

Table 2 summarizes the statistics related to the variables of interest in the study. H3 stated that "the average price of men's products is higher than the average price of comparable women's products in the marketplace." An independent-samples t-test revealed that the average list price and final prices that men paid for a pair of athletic shoes on Amazon.com were significantly higher than the average prices that women paid. The average list price of a pair of athletic shoes for men on Amazon was \$89.14, while the average list price of a pair of athletic

shoes for women was \$76.99 ($t = 76.99, p = .000$). The final price that men paid for a pair of athletic shoes (i.e., list price minus discount) was \$81.12, whereas women on average paid \$68.83 for a pair of athletic shoes ($t = 74.34, p = .000$). This means that companies on average charged men a premium of 17.85% (i.e., $\frac{81.12-68.83}{68.83}$) compared to women. To control for the variation in price caused by the day of the data collection, a Hierarchical Linear Modeling (HLM) analysis was conducted with the following equation:

$$(1) \quad p_{id} = \beta_{0id} + \beta_{1id} g_{id} + t_d + e_{id}$$

[Place table 2 about here]

In the above model, p_{id} is the price of product i and day d , g_{id} is the dummy variable for the product category, and t_d is the day d number. Results revealed that the coefficient of the dummy variable of product category was -12.29 ($t = -62.4, \sigma_{\bar{x}} = .20$). suggesting that after controlling for all the variation caused by the day number, men's athletic shoes on average were \$12.29 (17.85%) more expensive than women's shoes. This provides initial empirical support for H3.

It could be argued that the observed price difference above was a product of differences in 1) the popularity of the products, 2) the sales volume of the products, 3) online reviews' valence (i.e., average star-rating of online reviews), 4) online reviews' volume (i.e., the number of online reviews), 5) the available information about the products, 6) manufacturing cost of products, g) and the effect of brand name.

To rule out alternative explanations, a vector of the following control variables, namely X_{id} , was added to Equation 1: the product's sales rank in product category (as a proxy for the popularity of the product), the product's sales rank on Amazon (as a proxy for the sales volume), online review valence, online review volume, the number of words in the product title, the number of words in the product description, shipping fee, and the number of answered questions. The number of words in the product title, the number of words in the product description, and the number of answered questions captured the amount of available information about products:

$$(2) \quad p_{id} = \beta_{0id} + \beta_{1id}g_{id} + \beta_{2id} X_{id} + t_d + e_{id}$$

An HLM analysis revealed that adding the control variables did not make a noticeable difference in the main effect for the product category. The beta coefficient of the product category in the model was -12.77 ($t = -57.78$, $\sigma\bar{x} = .22$). This indicates that controlling for all the variation caused by boundary variables, the average price of men's athletic shoes that were sold on Amazon was \$12.77 (18.55%) more expensive than women's athletic shoes.

To test the effect of the brand on the average price of the athletic shoes sold on Amazon a third level variable was added to Equation 2:

$$(3) \quad p_{ibd} = \beta_{0ibd} + \beta_{1ibd}g_{ibd} + \beta_{2ibd} X_{ibd} + b_{bd} + t_d + e_{ibd}$$

In Equation 3, p_{ibd} is the price of product i , brand b , and day d , and b_{bd} is brand b and day d . Results showed that by adding the brand effect, the beta coefficient of the product category was changed to -8.85 ($t = -46.68$, $\sigma\bar{x} = .19$). This indicates that even after controlling for the

brand effect, men on average pay a price premium of \$8.85 (12.85%) on Amazon.com. Follow up random effects analysis revealed that out of 93 brands that had athletic shoes for both men and women in their product lines only 22 (23.6%) priced their women's athletic shoes higher than their men's athletic shoes and, with only one exception, the price differences in all of them were not statistically significant (all $p > .1$). The only exception was a brand named Pearl-iZUMi that was selling 18 different models of women's athletic shoes and 12 different models of men's athletic shoes ($M_{\text{men}} = 103.27$, $M_{\text{women}} = 118.30$; $F(1,27) = 10.40$, $p < .01$; $t(28) = 1.25$, $p > .1$). It must be noted that all the major brands including Adidas, Nike, Asics, New-Balance, and Puma were charging men more than they did women. For example, Adidas was selling 121 different models of women's athletic shoes and 252 models of men's athletic shoes on Amazon and on average was charging men 15.15% more than women ($M_{\text{men}} = 78.88$, $M_{\text{women}} = 68.50$; $t(371) = 2.62$, $p < .01$).

Finally, the above findings could be used to rule out cost as the main reason behind the observed price differences between men's and women's product categories. Total cost could be divided into marketing cost and manufacturing cost. Marketing cost is reflected in the brand effect. As reported above, most brands and all the major brands charged men more than women. Furthermore, manufacturing cost could also be ruled out because as pretest 5-5 showed there is no correlation between the size of the shoes sold on Amazon and their final prices, and size of a shoe strongly correlates with its manufacturing cost.

Robustness checks. To test the robustness of the findings, several HLM analyses were conducted by replacing the dependent variable and moderating variables with the Natural Logarithms and the standardized values of those variables. Furthermore, a logit regression analyses was performed on product category as the dependent variable and price and control

variables as independent variables. The direction and the statistical significance of the price effect were unchanged in all the analyses.

Overall, study 5a offers strong empirical support for H3 and shows that the average prices of men's and women's products are significantly different from one another in the marketplace. Moreover, since despite controlling for the variation caused by all the boundary variables, the price difference between men's and women's product categories remained significant, study 5a offers indirect support for H2. In other words, disregarding the endogeneity issue, the only plausible explanation for the observed price difference that was not ruled out was the moderating effect of gender on the relationship between price and consumers' perception of the quality.

STUDY 5B: GENDER AND THE PRICE OF FORMAL SHOES ON AMAZON.COM

Study 5a provided strong empirical support for H3 and showed that gender influences the average price that companies charge for their products. Nevertheless, the support for H2, and the conclusion that the observed price difference in the product categories was the result of men's stronger price-quality perceptions than women's was susceptible to the endogeneity problem. As pretests 5-1 showed, athletic shoes were considered significantly more symbolic by women than by men (5.69 vs. 4.70).

As discussed in H4, the price-quality perceptions should be stronger when products are considered symbolic than non-symbolic. Therefore, it could be argued that women's higher perception of the symbolic value of the athletic shoes had increased (rather than decreased) their price-quality perceptions, and subsequently mitigated (rather than caused) the observed price differences in study 5a. The goals of study 5b were twofold: First, to rule out women's higher judgments of the symbolic value of the athletic shoes as the underlying cause of the observed price differences in study 5a. Second, it allowed the testing of H4.

Data collection. In study 5b, the information of 1900 men's formal shoes and 1900 women's formal shoes that were sold on Amazon was collected for 53 days. This resulted in a sample of 201,400 product/day observations. The data collection time, procedure, and the type of collected data were identical to that of study 5a.

Results and Discussion

Table 3 summarizes the statistics related to the variables of interest in study 5b. Two independent-samples t-tests revealed that both the average list price (\$106.23 vs. \$62.38; $t = 141.23$, $p = .000$) and the average final price (\$95.66 vs. \$51.79; $t = 147.35$, $p = .000$) of formal shoes sold on Amazon were significantly higher for men than for women.

[Place table 3 about here]

Similar to study 5a, to resolve the problem associated with the error correlations caused by the repeated sampling procedure, an HLM analysis was performed using the model in which day id number (i.e., t_d) represented a higher-level variable:

$$(1) \quad p_{id} = \beta_{0id} + \beta_{1id} g_{id} + t_d + e_{id}$$

The beta coefficient of the HLM analysis for the dummy variable of the product category (with women's athletic shoes coded as 1) was - 43.86 ($t = -141.8$, $\sigma_{\bar{x}} = .30$). This suggests that after controlling the variation caused by the day of the data collection, men's formal shoes were on average \$43.86 (84.68%) more expensive than women's formal shoes. Next, to control for the variation caused by control variables, the following model was tested:

$$(2) \quad p_{id} = \beta_{0id} + \beta_{1id} g_{id} + \beta_{2id} X_{id} + t_d + e_{id}$$

The same control variables as in study 5a were added to the model. The beta coefficient of the product category in the above equation was -30.25 ($t = -66.39$, $\sigma_{\bar{x}} = .45$), suggesting that after controlling for all the variation caused by boundary variables (except for the brand), men's formal shoes were on average 58.4% more expensive than women's formal shoes. Next, the effect of brand on the observed price differences was tested:

$$(3) \quad p_{ibd} = \beta_{0ibd} + \beta_{1ibd}g_{ibd} + \beta_{2ibd} X_{ibd} + b_{bd} + t_d + e_{ibd}$$

Adding the brand variable to the model changed the beta coefficient of the product category to -33.87 ($t = -36.60$, $\sigma_{\bar{x}} = .92$). Follow-up random effect GLM analysis revealed that among the twenty brands that had both men's and women's formal shoes in their product line, nineteen priced their men's formal shoes higher than women's formal shoes. The only exception was a small brand called Jambu that priced its women's shoes at a higher level than its men's shoes ($M_{men} = 52.98$, $M_{women} = 80.46$; $t(4) = 1.06$, $p > .1$). Meanwhile, major brands like Aldo charged men premiums as high as 91% ($M_{men} = 90.65$, $M_{women} = 47.29$; $t(63) = 5.099$, $p = .000$). These findings show that the majority of the brands that sell formal shoes to both men and women charge men higher prices, and the observed price difference between product categories is not attributable to the effect of the brand name.

The above findings offer strong empirical evidence that companies charge men higher prices than women for selling them comparable products. Hence, it offers further empirical support for H3. Furthermore, as anticipated, study 5b showed that the observed price difference in study 5a was not attributable to women's higher perception of the symbolic value of the athletic shoes compared with men's perception. Because as pretest 3 showed (see table 1TABLE

1), the men's and women's perception of the symbolic value of the formal shoes were not significantly different from one another, and the observed price difference increased rather than decreased in study 5b.

H4 stated that the price difference between men's products and women's products would be greater in product categories that are considered symbolic by men. Recall that pretest 3 showed women's perception of the symbolic value of athletic shoes were significantly stronger than men's perceptions; while men's and women's perceptions of the symbolic value of the formal shoes were not significantly different from each other. Furthermore, in pretest 5-3, a repeated measures GLM analysis was conducted with gender as the between-subject factor, the symbolic value scores of formal and athletic shoes as the within-subject factors, and age, education, and income as covariates. All four statistics of within-subject effects revealed a significant interaction between gender and the symbolic scores of the formal and athletic shoes (all $p < .07$). Follow-up analysis showed that for women the symbolic value of athletic shoes and formal shoes were not significantly different from one another (5.56 vs. 5.32; $p > .4$); whereas, for men compared with athletic shoes, formal shoes had a significantly higher symbolic value (5.3 vs. 4.7; $F(1, 119) = 4.92, p < .05$). This provides empirical support for H4. Because as findings revealed the price difference between men's and women's product categories was more salient in formal shoes product category than in athletic shoes product category. Furthermore, the average price of men's formal shoes was significantly higher than the average price of men's athletic shoes (95.66 vs. 81.12, $p = .000$); whereas, the average price of women's formal shoes was significantly lower than the average price of women's athletic shoes (51.79 vs. 68.83, $p = .000$).

STUDY 5C: GENDER AND THE PRICE OF SUITS ON AMAZON.COM

Study 5a and study 5b provided empirical support for H3 and H4. Nevertheless, the conclusion that the observed price differences in the shoe product category were the result of men's and women's price-quality perceptions was still vulnerable to the endogeneity problem. As findings in pretest 1 suggested (see table 1), formal shoes were significantly more hedonic for women than for men. Extant research suggests that price-quality perceptions should be stronger for hedonic products than for utilitarian products. Therefore, it could be argued that women's higher evaluations of the hedonic value of the formal shoes mitigated (rather than caused) the observed price difference in study 5b. Nevertheless, to find evidence and to further establish the generalizability of the findings, a different product category, namely suits, was chosen in study 5c. In contrast to study 5b, as pretest 2 showed, suits were considered significantly more hedonic by men than by women (4.4 vs. 3.25). Therefore, study 5c would enable a further investigation into the effect of product type on consumers' price-quality perceptions.

Data collection. In study 5c the information for 389 women's suits and 392 men's suits from Amazon.com was collected in the March of 2017. As studies 5a and 5b showed, although prices on Amazon.com change frequently, the average prices were stable across lengthy periods of time. Therefore, the information was collected in a single day. Type of the collected data was like studies 5a and 5b, with the exception that instead of the price of the average size the minimum price and the maximum price of each product was collected. This was due to the assumption that in suits, prices should vary significantly based on the size of the product.

Results and Discussion

Summary statistics are presented in table 4. To control for the effect of size on price, the price variable (which is used in all the analyses henceforth) was defined as women suits' maximum price and men suits' minimum price. Independent t-test analysis showed that men's suits were significantly more expensive than women's suits (145.83 vs. 122.41; $t(770) = 3.10$, $p < .01$). This indicates that the average of the minimum prices of men's suits were 19.13% more expensive than the average of the maximum prices of women's suits.

[Place table 4 about here]

As in the studies 5a and 5b, in Equation 2 the effects of the available product information, including the online review volume, the online review valence, the number of answered questions, the number of words in the product title, the number of words in the product description, Amazon rank, and group rank were controlled for:

$$(1) \quad p_i = \beta_{0i} + \beta_{1i}g_i + \beta_{2i} X_i + e_i$$

OLS regression analysis showed that adding the control variables reduced the price difference to \$12, which reflected a minimum of 9.8% price premium on men's products. Please note that the method of defining the price variable was excessively conservative. Had the price variable been defined as the average price for both product categories, the price difference would have increased to \$59.33, which would have meant a 52% premium for men's suits compared with women's suits. Even considering a perfect positive correlation between the size of a suit and

its price, it is highly unlikely that men's suit on average requires 52% more fabric than women's suits. So, these findings indicate that the observed price difference in product categories is not fully attributable to the control variables or the size of the product. Finally, the variation caused by brand was controlled for by adding the brand as a second level variable to the model:

$$(2) \quad p_{ibd} = \beta_{0ib} + \beta_{1ib}g_{ib} + \beta_{2ib} X_{ib} + b_b + e_{ib}$$

The findings of the HLM analysis revealed that the new beta coefficient of the product category was -57.03 ($t = -.7$, $\sigma\bar{x} = 81.06$). The low value of the t-statistic indicates that the findings are not generalizable. This is due to the small number of companies that sell both men and women suits under the same brand name. Overall, these findings offer further support for H3.

STUDY 5D: GENDER AND THE PRICE OF BLAZERS ON AMAZON.COM

The findings of pretest 5-2 (see TABLE 1) suggested that men consider the suit a significantly more important product category than do women. Furthermore, a repeated measure GLM analysis with gender as a between-subject factor and calculated scores of the level of involvement for suits and jackets as the within-subject factor resulted in a significant interaction between gender and product category. Further analysis showed that men consider suits a significantly more important product than jackets (85.11 vs. 79.80; $F(1, 120) = 4.19, p < .06$). In contrast, women reported a significantly higher level of involvement for jackets than suits (75.85 vs. 70.11; $F(1, 120) = 3.89, p = .05$).

As discussed before, a high level of involvement should decrease consumers' reliance on price to judge the quality. Because consumers will have a higher level of motivation to engage in a cognitively taxing process and search for product information, form consideration sets, and consider a wide range of product attributes to make a purchase decision. To test this assumption, in study 5d, the information for 442 women's and 467 men's blazers, sports coats, and suit jackets were collected. The goals of study 5d were twofold. First, it attempted to investigate the effect of product involvement on price-quality perceptions. If the level of involvement reduced consumers' price-quality perceptions, the price difference between men's and women's product categories should be greater in the jacket product category than in the suit product category. Because men's lower level of involvement should increase their reliance on price to judge the quality, and subsequently decrease their price-sensitivity. And as discussed previously, this should increase companies' motivation to charge men a premium price. For women, the opposite

would be true. Second, using jackets instead of suits allowed further controls for the variation in price caused by the size of the product and cost of production.

Results and Discussion

Summary statistics are presented in table 5. As with study 5c, to control for the variation in the price caused by the size of the product, the price variable was defined as the minimum price in men's and the maximum price in women's product categories. Independent t-test analysis showed that men's jackets were significantly more expensive than women's jackets (130.30 vs. 88.75; $t(830) = 3.34, p < .01$). This indicates that the average of the minimum prices of men's jackets was 46.81% higher than the average of the maximum prices of women's jackets. Next, similar to study 5c, the influence of control variables on the price variable was tested. This resulted in a beta coefficient of 26.71 for the product category dummy variable. Therefore, after accounting for all the variation caused by the control variables, men's jackets were at least \$26.71 (30%) more expensive than the women's jackets. Finally, as with the previous three studies, the brand variable was added to the model. The result of an HLM analysis revealed that the value of the beta coefficient increased to 81.09 ($t = -1.49, \sigma_{\bar{x}} = 54.33$); given the low value of the t-statistic, causation must be warned with the generalizability of this finding.

[Place table 5 about here]

Overall, study 5d showed that a change in the level of involvement of consumers is likely to affect the average prices that companies charge consumers. Note that in the suit product

category the initial price difference between men and women products was 19.13%, which after controlling for the variation caused by boundary variables was reduced to 9.8%; however, in the jacket product category those numbers were 46.81% and 30%, respectively.

STUDY 5E: GENDER AND THE PRICE OF SOCKS ON AMAZON.COM

In studies 5a-5d, the products that were examined were all relatively high-priced and high-involvement products. In study 5e, an inexpensive and low-involvement product category, namely socks, was chosen. Recall that in developing H4, it was argued that men's price-quality perceptions were the result of both their thinking style and their high concern for social status. Therefore, it was anticipated that in non-conspicuous product categories, such as socks, there should be a price difference between men and women product categories, but the size of the difference should be less salient than for conspicuous product categories. Study 5e provided further insights in this regard.

In study 5e the information for 897 women's casual socks and 740 men's casual socks were collected. To control for the variation caused by size, only the information of size "M" for both product categories were collected. All the specialty items that were sold in single pairs were eliminated from the sample because their average price was about four times greater than the price per pair of the products that were sold in multiple pairs (14.31 vs. 3.77). This reduced the sample size to 385 and 212 for women and men product categories, respectively.

Results and discussion. Table 6 presents the summary statistics. An analysis of variance (ANOVA) showed that the average price of socks did not vary by product categories ($M_{\text{men}} = 14.36$, $M_{\text{women}} = 14.16$; $p > .5$). Nevertheless, the average price per pair of men's socks was significantly more expensive than women's (4.05 vs. 3.62; $t(589) = -1.74$, $p < .1$; $F(1,589) = 7.56$, $p < .01$). Next, the variation in price caused by online review volume, online review valence, Amazon rank, group rank, the number of words in the product title, and the number of words in the product description were controlled for. The beta coefficient for the product category was

0.65 ($t = 2.23, p < .05$). This finding suggests that controlling for all the variation caused by boundary variables, the price per pair of men's casual socks was on average 65 cents (18%) more expensive than that of women's. Study 5e shows that even in non-conspicuous and cheap product categories, companies charge men a premium, offering further empirical support for H3.

[Place table 6 about here]

POST HOC ANALYSIS: A REFERENCE-DEPENDENT UTILITY MODEL

In studies 5a-5e, it was argued that the observed price differences were the result of the men's higher price-quality perceptions compared with those of women. Although every plausible explanation for the observed price difference except for the men's price-quality heuristics was ruled out, it was not possible to establish a direct relationship. Note that the online review valence is the result of customers' post-purchase evaluations rather than their pre-purchase expectations. Therefore, although, for example, the correlations between price and average customer reviews in shoe product categories were higher in men's products than in women's products, this does not establish a direct link between price and the perception of quality.

In order to directly examine the effect of gender on price-quality perceptions using the secondary data collected in 5a-5e, a reference-dependent utility model of consumers' thinking style was developed. This model was developed based on the reference-dependent utility model proposed by Kőszegi and Rabin (2006). They argued that expected utility was the sum of gain/loss utility [$n(q|r)$] as was predicted by prospect theory (Kahneman and Tversky 1979)] and reference-dependent consumption utility [$m(q|r)$]:

$$U(q|r) = m(q|r) + n(q|r)$$

In this model, when $m(q) - m(r) > 0$, consumers will experience a gain utility equal to $\eta[m(q|r) - m(r)]$. In contrast, when $m(q) - m(r) < 0$, consumers will experience a loss utility of $\eta\lambda[m(q|r) - m(r)]$. λ is always greater than one because as proposed by Kahneman and Tversky (1979) losses have a greater influence on consumers' experienced utility (a strong negative

effect) than gains. Furthermore, Kőszegi and Rabin (2006) argued that the consumption utility itself will depend on a reference point. As an example, driving a C-Class Mercedes-Benz would create a higher consumption utility when the reference product of the driver is a Toyota Camry than when it is a Rolls-Royce. This notion is consistent with the placebo effect of the price that was observed in study 4.

Following the arguments put forward by Gneezy, Gneezy, and Lauga (2014), the starting point was consumers' expectations of the product quality before purchasing the product. As studies 3 and 4 showed price influences consumers' expectations of quality. Alpha was defined as:

$$\alpha = P(rqh) = f(\text{price})$$

In the above equation, rqh is consumers' expectation (r) that product is a high-quality product (qh). Therefore, alpha reflects consumers' price-quality perceptions. Unlike, Gneezy, Gneezy, and Lauga (2014) the alpha was not assumed to perfectly predict $P(qh)$. Because as discussed before, research shows that in many product categories where consumers expect higher prices to indicate higher quality, the relationship between price and real quality is near zero or even negative. It was assumed that for both high-quality and low-quality products, based on the available price information, consumers will have the same price-quality expectations. After using the products, consumers acquire some additional information about the real quality of the product. For high-quality products, if consumers' expectations are consistent with the product quality, the majority of them would judge the quality as high (i.e., s_{qh}). For example, if based on the price information, consumers expect the quality of the wine to be high, and they taste a high-

quality wine, majority of them will judge the quality of the wine as high. A very small percentage of people could have the wrong assumptions about the product quality (e.g., believe that a good wine should taste sweet) and judge the high-quality wine as a low-quality product.

When consumers' expectations of quality are inconsistent with the actual quality of the products, a sizable percentage of them will make the wrong judgment about the quality of the product. For example, as shown by fMRI studies, if consumers believe that they are drinking a high-quality wine, but the actual quality is mediocre, a significant percentage of them will judge the quality of the wine as high. Based on these arguments, β_c and β_i are defined as the probabilities that consumers' will accurately judge the quality when their expectations are consistent and inconsistent with the real quality, respectively. Therefore:

$$\beta_c = P(\text{sqh} | \text{qh and rqh}; \text{sql} | \text{ql and rql}); 1 - \beta_c = P(\text{sql} | \text{qh and rqh}; \text{sqh} | \text{ql and rql})$$

$$\beta_i = P(\text{sqh} | \text{qh and rql}; \text{sql} | \text{ql and rqh}); 1 - \beta_i = P(\text{sql} | \text{qh and rql}; \text{sqh} | \text{ql and rqh})$$

$$0 < \beta_i < \beta_c$$

Given the above conditions, the consumption utility of the high-quality product [i.e., $m(\text{qh}|r)$] and the consumption utility of the low-quality product [i.e., $m(\text{ql}|r)$] can be conceptualized as below:

$$m(\text{qh}|r) = \alpha \times \beta_c \times \text{qh} + \alpha \times (1 - \beta_c) \times \text{ql} + (1 - \alpha) \times \beta_i \times \text{qh} + (1 - \alpha) \times (1 - \beta_i) \times \text{ql}$$

$$m(\text{qh}|r) = \text{ql} + \alpha_h \times (\text{qh} - \text{ql}); \alpha_h = [(\beta_c - \beta_i) \times \alpha + \beta_i]$$

$$m(\text{ql}|r) = \alpha \times (1 - \beta_i) \times \text{qh} + \alpha \times \beta_i \times \text{ql} + (1 - \alpha) \times (1 - \beta_c) \times \text{qh} + (1 - \alpha) \times \beta_c \times \text{ql}$$

$$m(\text{ql}|r) = \text{ql} + \alpha_l \times (\text{qh} - \text{ql}); \alpha_l = [1 + \alpha (\beta_c - \beta_i) - \beta_c]$$

Therefore, the gain loss utility of the model [n (q|r)] could be calculated as:

$$n(q|r) = \{\eta[m(q|r) - m(r)] \mid \alpha_h > \alpha \text{ or } \alpha_l > \alpha; \eta\lambda[m(q|r) - m(r)] \mid \alpha_h < \alpha \text{ or } \alpha_l < \alpha \} \text{ and } \lambda > 1$$

Based on the gain loss utility function, the total utility functions of high-quality [U(qh|r)] and low-quality products [U(ql|r)] could be conceptualized as below:

$$U(qh|r) = \{q_l + \alpha_h (q_h - q_l) + \eta (\alpha_h - \alpha) (q_h - q_l) \mid \alpha_h > \alpha; q_l + \alpha_h (q_h - q_l) + \eta\lambda (\alpha_h - \alpha) (q_h - q_l) \mid \alpha_h < \alpha\}$$

$$U(ql|r) = \{q_l + \alpha_l (q_h - q_l) + \eta (\alpha_l - \alpha) (q_h - q_l) \mid \alpha_l > \alpha; q_l + \alpha_l (q_h - q_l) + \eta\lambda (\alpha_l - \alpha) (q_h - q_l) \mid \alpha_l < \alpha\}$$

Note that if $\alpha > \beta_i/(1 + \beta_i - \beta_c)$ then $\alpha_h > \alpha$. Since $0 < \alpha < 1$ and $0 < \beta_i/(1 + \beta_i - \beta_c) < 1$, we can define the $P(\alpha_h > \alpha) = (1 - \beta_c)/(1 + \beta_i - \beta_c) = \gamma$. Similarly, if $\alpha > (1 - \beta_c)/(1 + \beta_i - \beta_c)$ then $\alpha_l > \alpha$; $0 < (1 - \beta_c)/(1 + \beta_i - \beta_c) < 1$; $P(\alpha_l > \alpha) = \beta_i/(1 + \beta_i - \beta_c) = 1 - \gamma$. Given the calculated values of γ , we can rewrite the expected utility models as:

$$SQA_h = U(qh|r) = q_l + \alpha_h (q_h - q_l) + \eta\lambda (\alpha_h - \alpha) (q_h - q_l) + (1 - \lambda) \gamma \eta (\alpha_h - \alpha) (q_h - q_l)$$

$$SQA_l = U(ql|r) = q_l + \alpha_l (q_l - q_l) + \eta (\alpha_l - \alpha) (q_h - q_l) + \gamma \eta (\alpha_l - \alpha) (\lambda - 1) (q_h - q_l)$$

It can easily be shown that the derivatives of the above utility equations will be as follows:

$$dSQA_h/d\alpha = (q_h - q_l) (\beta_c - \beta_i) + \eta\lambda (q_h - q_l) (\beta_c - \beta_i - 1) + (1-\lambda) \gamma \eta (\beta_c - \beta_i - 1) (q_h - q_l)$$

$$dSQA_h/d\alpha = (q_h - q_l) [\beta_c + \eta (\beta_c - \beta_i - 1) (\gamma - \lambda) (\beta_i + \gamma)]$$

$$dSQA_l/d\alpha = (\beta_c - \beta_i) (q_l - q_h) + \eta (q_h - q_l) (\beta_c - \beta_i - 1) + \gamma \eta (\beta_c - \beta_i - 1) (\lambda - 1) (q_h - q_l)$$

$$dSQA_l/d\alpha = (q_l - q_h) [\eta(\gamma - 1 - \gamma\lambda) + (\beta_c - \beta_i) (1 + \eta + \gamma\eta\lambda - \gamma\eta)]$$

In the above equations, SQA is the subjective quality assessment, and it should resemble the online review valence. Furthermore, note that $dSQA/dp$ equals $dSQA/d\alpha \times d\alpha/dp$. We can directly calculate $dSQA/dp$ from the collected data from Amazon.com. Therefore, using the parameters suggested in the literature, we can use the equations above to predict the effect of price on men's and women's online review ratings and subsequently use the real-world data to test our predictions.

Figure 7 and Figure 8 show the change in the expected utility of the high-quality and low-quality products based on β_i and α . Note that β_i represents people's ability to correct their biased beliefs based on available information. Furthermore, if $d\alpha/dp > 0$, Figure 7 should also be an estimate of $d\text{valence}/dp$. Following Gneezy, Gneezy, and Lauga (2014), values of $\eta = 1$ and $\lambda = 2.5$ were chosen. Furthermore, it was assumed that $\beta_c = .95$. This implies that 5% of people will make wrong quality judgments regardless of the consistency between their expectations and quality.

[Place figure 7 and figure 8 about here]

Studies 1 and 2 suggested that the β_i should be higher for women than for men. Furthermore, studies 3 and 4 suggested that $d\alpha/dp$ should be smaller for women than for men. Therefore, as shown in Figure 9 and Figure 10, using the values of $\beta_i = .2$ for men, $\beta_i = .45$ for women, $[\text{women: } d\alpha/dp] = .9 \times [\text{men: } d\alpha/dp]$, the men's and women's utility functions for low-quality and high-quality products could be estimated.

[Place figure 9 and figure 10 about here]

Figure 10 showed that if β_i of women is greater than β_i of men, and $d\alpha/dp$ (i.e., price-quality perception) of men is greater than $d\alpha/dp$ of women, change in price should increase men's product ratings of low-quality products, while it should have the opposite effect on women. Figure 11 and Figure 12 show the effect of price on valence for men and women using the real-world data in study 5a. Low-quality products were defined as products with online product ratings below the average. In both figures, the x-axis represents price change, and the y-axis represents the mean valence at each price quantile. Figure 11 and Figure 12 show that the expected utility model accurately predicted the effect of price on the valence of low-quality products in both men's and women's product categories.

[Place figure 11 and figure 12 about here]

Figure 9 suggested that increasing the price of high-quality products should significantly increase men's ratings, but it should have a smaller negative effect on women's ratings. Figure 13 and Figure 14 show the effect of price on valence using Amazon data in study 5a. Although

expected utility model accurately predicted the effect of price on valence in men's product category, it failed to make an accurate prediction in women's product category. Overall, these findings provide empirical support for H2 and H3.

[Place figure 13 and figure 14 about here]

STUDY 6: PERSUASION KNOWLEDGE, PRIMACY EFFECT, AND PRICE-QUALITY JUDGMENTS

The findings of the first nine studies provided strong empirical evidence that gender influences consumers' reliance on price to make purchase decisions. Furthermore, they offered some insights regarding the motivational/cognitive factors that could explain the observed gender differences. Nevertheless, a very important question remains: How can companies change men's and women's perception of the price-quality relationship? This is a very important question with practical strategic implications. For example, in retailing, Wal-Mart Stores Inc. strives to convince consumers that the everyday low prices are not a signal of the low quality of its products; whereas, Harris Teeter Supermarkets Inc. tries to accomplish the opposite by reinforcing consumers' beliefs that higher prices indicate higher levels of quality.

The next three studies (namely study 6, study 7, and study 8) will investigate the factors that influence consumers' price-quality heuristics and could be used to predict and change consumers' reliance on price to make quality judgments and purchase decisions. Specifically, the role of persuasion knowledge and suspicion in affecting consumers' price-quality perceptions are investigated.

Study 6 was designed to investigate the effect of persuasion knowledge on consumers' price-quality perceptions. Cognitive dissonance and activation of persuasion knowledge entail the engagement of similar cognitive and emotional processes. Therefore, the effect of persuasion knowledge on price-quality perceptions could vary depending on the type of coping mechanism that it activates. If activation of persuasion knowledge elicits accuracy goals, it will result in a systematic thinking style and subsequently in more accurate price-quality perceptions based on

the available information. In contrast, if persuasion knowledge activates defense mechanisms, it will bring about a schematic thinking style and peoples' price-quality evaluations will depend on their initial judgments based on partial information. So, activation of persuasion knowledge will make them even more vulnerable to cognitive biases such as the primacy effect and price heuristics. Study 6 was designed to investigate the effect of persuasion knowledge on consumers' reliance on price heuristics to judge quality.

Persuasion Knowledge Manipulations

Priming condition design. Considering the lack of a reliable scale to measure the objective persuasion knowledge (for a review, Ham, Nelson, and Das 2015) a priming condition to activate persuasion knowledge (PK) was developed. The developed PK priming condition (Appendix E) was consistent with the instructions available the literature (Kirmani and Zuo 2007; Scott, Mende, and Bolton 2013). The PK priming article introduced the concept of deceptive packaging practices and explained that some companies use packaging to create a positive brand image. For the control condition, an article was presented about the importance of the renewable energy. Importantly, to reduce the demand effect, in the priming condition there was no indication of the pricing strategies being used for manipulation intentions. Two articles had roughly the same count of words (201 ± 6) and were similar in terms of tone, type of font, structure, and number of paragraphs ($n=2$).

Pretest 6-1. Fifty adults were recruited from Amazon MTURK (44% percent female; $M_{\text{age}} = 33.16$) and participated in exchange for monetary compensation. Participants were randomly assigned to one of two priming vs. control conditions. After reading the article, they

were asked to share their thoughts and opinions on the article that they had read. Next, they answered questions measuring the degree to which the information of the article was perceived to be believable (“in my point of view the article was [believable], [interesting], [informative], [meaningful];” $\alpha = .88$), interesting (“when I was reading the article, I was [involved], [engaged], [interested];” $\alpha = .88$), and suspicious (“reading the article made me feel [concerned], [tricked], [fooled], [suspicious];” $\alpha = .86$). All three items were adopted from Krimani and Zhu (2007) and were measured using a 7-point scale (1 = strongly disagree, 7 = strongly agree). Finally, respondents answered demographic questions. The result of an analysis of variance (ANOVA) with priming condition as the independent variable and believability, involvement, and suspicion as dependent variables revealed that the articles were equivalent in terms of believability ($F(1, 48) = 1.19, p > .28$) and involvement ($F(1, 48) = 1.84, p > .18$). But they were significantly different in terms of provoking suspicion ($M_{\text{treatment}} = 4.76, M_{\text{control}} = 2.51; F(1, 48) = 42.93; p < .001$).

Pretest 6-2. Sixty-one adults were recruited from Amazon MTURK (41% percent female; $M_{\text{age}} = 33.69$). As with the pretest 6-1, participants were randomly assigned to one of two priming versus control conditions and were asked to share their thoughts and opinions on the article that they had read. Next, they answered a battery of 20 questions for Positive and Negative Affect Schedule (PANAS; Watson, Anna Clark, and Tellegen 1988). Results of ANOVA revealed that our experiments’ treatments affected neither participants’ positive mood ($M_{\text{experiment}} = 2.98, M_{\text{control}} = 3.29; F(1, 59) = 2.44, p > .1$) nor their negative mood ($M_{\text{experiment}} = 3.77, M_{\text{control}} = 3.90; F(1, 59) = .9, p > .1$).

Method

Participants and design. Respondents were 215 adults who were recruited from Amazon MTURK. Twenty participants failed to meet the two attention-check criteria, discussed in study 2, and were removed from this study. This reduced the sample size to 195 (60% female; $M_{\text{age}} = 44.72$). Further analysis revealed that dropping the 20 respondents from the study did not change the direction or the statistical significance of any of the reported findings of the study. The study was purported to be two separate studies that aimed to measure respondents' opinions on separate issues. The study had a 2 (persuasion knowledge: activated, not activated) \times 4 (objective price-quality correlations among all 25 brands and objective price-quality correlations among the first 6 brands: high-high, high-low, low-high, low-low) between-subjects design.

Manipulations. The persuasion knowledge manipulation was achieved using the treatment mentioned in the previous section. To measure the price-quality perceptions, the method proposed by Kardes et al. (2004) was employed. First, respondents were presented with a table containing the brand names, year, type, region, price, and quality information for 25 brands of wine, in the same order from left to right. Next, in a second table, respondents evaluated the quality of ten fictitious brands of wine based on similar information that they had reviewed in the first table. The subjective-price-quality evaluation was measured as the correlation among prices and the evaluated qualities of the ten fictitious brands of wine.

Manipulation of objective-price-quality correlations (OPQ) was achieved by changing the information presented in the first table (see Appendix F). The OPQ correlations among all 25 brands and among the first 6 brands (to test the primacy effect) in the four different treatments

were .8 and 1.0 (high-high), .8 and .04 (high-low), .2 and 1.00 (low-high), and .2 and .04 (low-low), respectively. All other correlations were kept at $r < .3$ and *NS*.

Measures. Consumer risk aversion was adopted from Zhou, Su, and Bao (2002) and measured as an average of three seven-point items (anchored by 1 = strongly disagree and 7 = strongly agree): “I would rather stick with a brand I usually buy than try something I am not very sure of,” “I am cautious in trying new/different products,” and “I never buy something I don’t know about at the risk of making a mistake” ($\alpha = .76$). Risk aversion was measured because Zhou, Su, and Bao (2002) had reported that risk aversion affected consumers’ price-quality perceptions (in China).

Persuasion knowledge was measured in two ways. First, it was captured by evaluating participants’ perception of marketers’ manipulative intent, measured as the average of three seven-point items (anchored by 1 = strongly disagree and 7 = strongly agree) in response to “please indicate the extent to which you agree or disagree with the following statements: I believe companies try to persuade consumers using [inappropriate], [manipulative], [unfair means]” ($\alpha = .87$; adopted from Kirmani and Zhu 2007). Second, by measuring respondents’ price-related persuasion knowledge using a single item (anchored by 1 = strongly disagree and 7 = strongly agree) in response to “please indicate the extent to which you agree or disagree with the following statements: Companies use price as a persuasion technique to mislead consumers regarding the true quality of their products.”

Self-reported level of involvement was measured as the average of three items on a seven-point scale: “As you were evaluating the quality of the wines listed on the previous page, did you feel [involved,] [interested,] [engaged]” ($\alpha = .89$; adopted from Kirmani and Zhu 2007).

Following Kirmani and Zhu (2007) self-reported level of involvement was used as a proxy for the depth of processing the information.

Self-confidence in persuasion knowledge was measured using a six-item scale developed by Bearden, Hardesty, and Rose (2001). Items included “I know when an offer is too good to be true,” “I can see through sales gimmicks used to get consumers to buy,” and “I have no trouble understanding the bargaining tactics used by salespersons.” Items were on a seven-point scale, and they were anchored by 1= strongly disagree, and 7= strongly agree ($\alpha = .86$).

Procedure. Respondents were randomly assigned to one of two PK activated versus PK not-activated conditions. Participants had to spend at least two minutes on this section before they could move to the next page. Next, they were informed that they were about to participate in a separate study about wine. Subsequently, they answered three questions regarding how frequently they drank wine (1= “never,” and 8 = “daily”), how much they were familiar with different varieties of wine, and how much they were familiar with various brands of wine. Afterward, they were randomly assigned to one of the four tables of OPQ correlations among all 25 brands and among the first 6 brands: high-high, high-low, low-high, low-low. Participants had to spend at least two minutes on the page that included the table information before they could proceed to the next page. Then, they evaluated the quality of ten fabricated brands of wine based on the similar information that they had reviewed in the first table. Once more, respondents had to spend at least two minutes on this page to be able to proceed to next page. Finally, they answered the questions that measured risk aversion, persuasion knowledge, the level of involvement, self-confidence in persuasion knowledge, and demographic characteristics.

Results

Manipulation checks. To test the activation of persuasion, a 2 (persuasion knowledge [PK]: activated, not activated) \times 4 (OPQ conditions: high-high, high-low, low-high, low-low) \times 2 (Gender: men, women) analysis of variance (ANOVA) was performed on participants' perceptions of marketers' manipulative intent. Results showed that only the main effect for PK on the dependent variable was statistically significant, and participants who had been assigned to the PK-activated condition were significantly more suspicious about marketers' manipulative intent (4.57 vs. 5.23; $F(1, 179) = 12.78, p = .000$). A similar $2 \times 4 \times 2$ ANOVA on respondents' price-related persuasion knowledge yielded same results. Under the PK-activated condition, respondents were significantly more likely to agree with the statement that "companies use price as a persuasion technique" than under the control condition (5.04 vs. 5.41; $F(1, 179) = 4.17, p < .05$). No other main effect or interaction was significant in the model. A final $2 \times 4 \times 2$ ANOVA on respondents' self-reported level of involvement did not return any significant results, indicating that activation of persuasion knowledge did not influence the depth of processing the information.

A $2 \times 4 \times 2$ analysis of covariance (ANCOVA) on participants' evaluations of the price-quality correlations while controlling for the effects of self-confidence in persuasion knowledge and risk aversion did not return a significant main effect for any of the covariates. Therefore, in the sample of study, participants' risk aversion and their degree of self-confidence in identifying persuasion episodes did not influence their price-quality judgments. Thus, risk aversion and self-confidence in persuasion knowledge were eliminated from any further analysis.

To test H5 (and H5_{Alternative}), a $2 \times 4 \times 2$ ANOVA on participants' evaluations of the price-quality correlations was conducted, which resulted in two significant interaction effects, one between PK and OPQ ($F(3, 179) = 2.99, p < .05$) and another one between gender and OPQ ($F(3, 179) = 3.47, p < .05$). Further analysis showed that when the overall price-quality correlation in the table was low (i.e., OPQ: low-low, low-high), activation of persuasion knowledge resulted in a primacy effect, and consumers' judgments were shaped by the information of the first six brands of wine rather than the information presented in the whole table: In this case, when the price-quality correlation between the first six brands was high, activation of persuasion knowledge increased participants price-quality estimations (.17 vs. .45, $F(1, 179) = 4.47, p < .05$). Whereas, when the price-quality correlation between the first six brands was low, the activation of persuasion knowledge decreased participants price quality estimations (.45 vs. .2, $F(1, 179) = 3.32, p < .1$). When the overall price-quality correlation in the table was high (i.e., OPQ: high-low, high-high), activation of persuasion knowledge did not influence participants' evaluations at a statistically significant level (see Figure 15). These findings failed to provide any support for H5 but they provide partial support for H5_{Alternative}.

[Place figure 15 about here]

The interaction between gender and OPQ was consistent with the findings of studies 3-5e. As shown in Figure 16, men's subjective price-quality correlations in the four OPQ conditions of high-high, high-low, low-high, and low-low were .65, .53, .45, and .19, respectively ($F(3, 179) = 2.724, p < .05$); while, in the same order, women's evaluations were .33, .37, .18, .46 ($F(3, 179) = 1.75, p > .1$). This is consistent with the notion that men associate

higher prices with higher quality and their judgments are influenced by the primacy effect of the first few brands that they review. Women on the other hand, consistently make weak price-quality judgments regardless of the actual information which is available to them.

[Place figure 16 about here]

To further analyze the effect of gender on consumers' price-quality perceptions the OPQ high-high and high-low conditions were combined to form an OPQ high condition and the low-low and low-high conditions were combined to form an OPQ low condition. Furthermore, the accuracy of the price-quality perceptions was calculated as the absolute difference between participants' evaluations of price-quality correlations and the actual correlations that they had reviewed (lower numbers indicated a higher level of accuracy). This measurement calculates the accuracy of price-quality perceptions in terms of the actual numerical difference between objective and subjective price-quality correlations. Therefore, this measurement is likely to be more accurate than the ones used in previous studies (e.g., Boyle and Lathrop 2009; Lichtenstein and Burton 1989).

A GLM analysis was run with PK, OPQ (high, low), and gender as independent variables and the accuracy of the price-quality perceptions as the dependent variable. Results revealed a significant interaction effect between gender and OPQ ($F(1, 187) = 5.31, p < .05$). The interaction effect was consistent with the notion that men have a higher tendency to associate higher prices with a higher level of quality than women do (Figure 17). When OPQ was high, men's judgments of price-quality correlations were more accurate than women's judgments (.53 vs. .35; $F(1, 187) = 6.42, p < .05$). In contrast, when OPQ was low, women's price-quality

perceptions were slightly more accurate than those of men (.36 vs. .41; $F(1, 187) = .46, p > .1$). Although the difference was not statistically significant and the observation made in this sample of study is not generalizable to the general population.

[Place figure 17 about here]

Study 6 provides empirical support that activation of persuasion knowledge promotes a schematic thinking style and strengthens the primacy effect of readily available information on consumers' quality judgments. Furthermore, findings of study 6 are consistent with the findings of the previous studies that men have a higher tendency to make price-quality judgments than women do. The novel finding of study 6 was suggesting that women are biased about their low price-quality beliefs. And even when they are faced with information that suggests that higher prices indicate higher quality, they fail to modify their price-quality judgments. Study 7 was designed to provide further empirical support that a) persuasion knowledge promotes a schematic thinking style and b) women have a negative bias against price.

STUDY 7: PERSUASION KNOWLEDGE AND PRICE-QUALITY JUDGMENTS

Sample. Respondents were 86 adults recruited from Amazon MTURK (57% percent female; $M_{\text{age}} = 35.18$) and who participated in exchange for monetary compensation.

Design. Study 7 was designed to establish the generalizability of the findings of the study 6. The study was purported as two separate studies that aimed to measure respondents' opinions on separate issues. Study 7 employed a 2 (persuasion knowledge: activated, not activated) \times 2 (Objective price-quality correlations in the whole table vs. objective price-quality correlations among the first six brands in the table: high-high, low-high) fractional factorial design.

Measures. Persuasion knowledge manipulation was achieved using the same treatment used in study 6. The subjective-price-quality evaluations, product knowledge, and the level of involvement were also measured similarly as was described in study 6.

Manipulation of the objective-price-quality (OPQ) correlation was achieved by modifying the information presented in the first table. In the OPQ-low condition, the correlations between quality and price, number of bottles sold (NBS), and year were 0.39 ($R^2 = .15$), 0.45 ($R^2 = .2$), and -0.45 ($R^2 = .2$), respectively. The correlations among independent variables were all less than 0.1 ($R^2 \text{ s } < .01$). Furthermore, to achieve the primacy effect, the correlation between price and objective quality among the first six brands was .96. In the OPQ-high condition, price-quality correlation was 0.84 ($R^2 = .7$) and the price-quality correlation among the first six brands was .86 ($R^2 = .74$). Everything else was similar between the two conditions (see Appendix G).

Procedure. Respondents were randomly assigned to one of two PK activated vs. PK not activated conditions. Then they answered a question regarding their thoughts and opinions on the article that they had reviewed. Next, in a purportedly different study about their impressions of

varied brands of wine, they answered the product knowledge questions. Subsequently, they reviewed the information of one of two, low versus high, objective price-quality tables. Then, they evaluated the quality of ten fabricated brands of wine based on the similar information that they had reviewed in the first table. Finally, they answered involvement and demographic questions.

Results and Discussion

A 2 (PK: active, not active) \times 2 (OPQ: high-high, low-high) \times 2 (gender: men, women) analysis of variance on the level of involvement did not result in any main effects. This finding is consistent with the finding of study 6 that activation of persuasion knowledge did not influence participants' tendency to engage in a deeper processing of the available information.

A 2 (PK: active, not active) \times 2 (OPQ: high-high, low-high) \times 2 (gender: men, women) ANOVA on subjective price-quality correlations (SPQ) showed a marginally significant main effect of PK and a significant interaction effect between gender and OPQ ($F(1, 78) = 5.77, p < .05$). In study 7, the activation of persuasion knowledge significantly increased respondents' reliance on price to judge the quality, regardless of the actual information that they reviewed (.18 vs. .38; $F(1, 78) = 3.78, p = .056$). This provides further empirical support for H5_{alternative} by showing that activation of persuasion knowledge promotes a schematic thinking style and increases consumers' reliance on price heuristics to judge the quality.

Furthermore, consistent with the findings of the study 6, follow-up analysis revealed that men's perceptions of the quality were strongly influenced by the primacy effect of the information that they had reviewed ($M_{\text{low-high}} = .49, M_{\text{high-high}} = .17; F(1, 78) = 4.47, p < .05$);

whereas, women's judgements were not significantly influenced by the OPQ information ($M_{\text{low-high}} = .13$, $M_{\text{high-high}} = .30$; $F(1, 78) = 1.52$, $p = .22$). The fact that in the sample of study 7, men's judgments of price-quality correlations in the OPQ-high condition was .17 is surprising, and perhaps it could be attributed to the sampling error in this study. Overall, study 7 provides further evidence that A) activation of the persuasion knowledge increases consumers reliance on price to judge the quality, and B) gender influences consumers' price-quality perceptions.

A 2 (PK: active, not active) \times 2 (OPQ: high-high, low-high) \times 2 (gender: men, women) ANOVA on the accuracy of price-quality perceptions (absolute value of SPQ-OPQ) showed a significant main effect of OPQ and a marginally significant main effect of PK. Results showed that respondents evaluations were generally more accurate when the price-quality correlations were low than high ($M_{\text{OPQ-low}} = .44$, $M_{\text{OPQ-high}} = .44$; $F(1, 78) = 6.74$, $p < .05$). Furthermore, results showed that activation of persuasion knowledge increased the accuracy of the price-quality perceptions ($M_{\text{PK-active}} = .46$, $M_{\text{PK-not-active}} = .60$; $F(1,78) = 3.67$, $p < .1$).

Further analysis revealed that activation of persuasion knowledge significantly improved the accuracy of women's price-quality perceptions ($M_{\text{PK-active}} = .40$, $M_{\text{PK-not-active}} = .62$; $F(1,78) = 3.67$, $p < .05$). Nevertheless, activation of persuasion knowledge did not influence the accuracy of men's perception of quality ($M_{\text{PK-active}} = .52$, $M_{\text{PK-not-active}} = .59$; $F(1,78) = .38$, $p > .1$). Caution must be warned in interpreting these findings. A closer look at the data revealed that in the control condition (i.e., PK not active) women constantly underestimated price-quality correlations ($M_{\text{low-high}} = -.03$, $M_{\text{high-high}} = .184$); whereas, the activation of PK significantly increases women's price-quality estimations in both OPQ conditions ($M_{\text{low-high}} = .3$, $M_{\text{high-high}} = .41$). Therefore, consistent with $H5_{\text{alternative}}$, the observed increase in the accuracy of the perceptions is likely to be the result of the main of effect of the PK on price-quality perceptions.

STUDY 8: SUSPICION AND PRICE-QUALITY PERCEPTIONS

Studies 6 and 7 provided evidence that activation of persuasion knowledge promotes a schematic thinking style and increases consumers' tendency to rely on heuristics and readily available information (captured by the primacy effect of the first six brands) to make price-quality judgments. Furthermore, the findings of studies 6 and 7 suggested that women have a negative price bias and consistently make low price-quality judgments. Study 8 was designed to investigate the effect of suspicion against a specific company on consumers' price-quality evaluations. The goals of study 8 were twofold. First, to provide further support regarding the role of gender in affecting consumers' price-quality judgments. Second, to shed light on the role of suspicion as the antidote to the placebo effect of price on consumers' judgments.

Sample and design. The initial sample consisted 264 respondents who were recruited from Amazon MTURK for monetary compensation. Seventeen respondents failed to notice the attention check question and were removed from the study. Furthermore, two responses were dropped from the study under the suspicion that they were the same participant who had taken the survey using two separate usernames and IP addresses. This reduced the sample size to 245 adults (54.3% female; $M_{\text{age}} = 37.04$). The study had a 2 (advertisement: manipulative, non-manipulative) \times 2 (price: high, low) between-subject experimental design.

Procedure. Respondents were randomly assigned to either a non-manipulative or a manipulative advertisement, which introduced a fictitious brand of digital camera, called Rumax (see Appendix H). The control condition (i.e., non-manipulative ad) was the same ad that was used in study 1. The ad message in the treatment condition was changed into an even more ambiguous message than what was used in the study 1. The manipulative ad in this study stated,

“We performed tests that showed our camera was better than every other camera in the marketplace.” The goal was to create an ad message that both men and women could notice its manipulative intent. Recall that in study 1, only women had a negative attitude toward the manipulative ad.

A pretest of 65 adults (56.9% female; $M_{\text{age}} = 38.92$) revealed that the type of advertisement significantly affected consumers' attitude towards the ad ($M_{\text{manipulative ad}} = 4.43$, $M_{\text{non-manipulative ad}} = 3.34$; $F(1, 61) = 6.22$, $p < .05$). The main effect of gender and the interaction between gender and type of advertisement were not statistically significant ($p > .1$). Attitude toward the ad was measured using the same items used in the study 1 ($\alpha = .89$).

Next, as with study 4, participants reviewed the information of three brands of digital camera. One of them was the target brand, Rumax, and the other two (i.e., Nikon and Canon) provided baseline price information. The presented information in both conditions was identical except for the price of the target camera which was either \$80 or \$130. After reviewing the brand information, participants were asked to examine two photos ostensibly taken by Rumax. They were then asked to evaluate the quality of the pictures, the quality of the Rumax camera, and the deal value, and indicate their purchase intentions. Next, respondents were asked whether they ever owned a Nikon or a Conon digital camera and, if yes, report their degree of satisfaction with that product. Finally, participants answered manipulation check questions and demographic questions.

Measurements. Manipulation check questions included a) suspicion against the ad measured as the average of three seven-point items anchored by 1= strongly disagree, and 7 = strongly agree (“the ad was attempting to persuade by [inappropriate], [unfair], [manipulative] means”) and b) attitude towards the ad measured as the average of four seven-point items

anchored by 1= strongly disagree, and 7 = strongly agree (“the ad was [ambiguous], [deceptive], [not truthful], [unbelievable]”). Degree of satisfaction with rival’s products was measured using a single multiple-choice question anchored by 1= extremely dissatisfied, and 7= extremely satisfied (“What is the degree of your satisfaction or dissatisfaction with the Nikon or Canon Camera that you owned before? If you have owned both brands, please consider the one that you owned more recently”). All the measures were identical to the ones described in study 4.

Results and discussion.

Manipulation checks. A 2 (type of advertisement: manipulative, non-manipulative) \times 2 (gender: men, women) ANOVA on suspicion against ad resulted in only the main the effect of type of advertisement ($M_{\text{manipulative ad}} = 2.75$, $M_{\text{non-manipulative ad}} = 2.43$; $F(1, 241) = 3.59$, $p = .059$). Furthermore, a similar ANOVA on attitude towards ad also resulted in only the main effect of type of advertisement ($M_{\text{manipulative ad}} = 2.51$, $M_{\text{non-manipulative ad}} = 1.90$; $F(1, 241) = 10.95$, $p = .001$).

An ANCOVA analysis with advertisement type, price condition, and gender as independent variables, average score of the four items measuring perceived picture quality as dependent variable, and degree of satisfaction with rival products as covariate resulted in the main effect of satisfaction with rival products ($F(1, 156) = 4.84$, $p < .05$) and the main effect of type of advertisement ($M_{\text{manipulative ad}} = 5.06$, $M_{\text{non-manipulative ad}} = 5.56$; $F(1, 156) = 6.75$, $p = .01$). This indicates that provoking suspicion significantly lowered consumers’ evaluations of the quality of the pictures purported to be taken by the suspicious brand.

A second ANCOVA analysis with type of advertisement, price condition, and gender as independent variables, the single-item measurement of the perceived picture quality as dependent

variable, and degree of satisfaction with rival products as covariate resulted in a main effect of type of advertisement and a significant interaction between price and gender ($F(1, 156) = 4.54, p < .05$). Same as before, respondents' evaluations of the picture quality were significantly lower if they thought that the pictures had been taken by a camera that was introduced to them by a deceptive advertisement (8.1 vs. 8.7; $F(1,156) = 5.35, p < .05$). This finding is consistent with the notion that suspicion against a company creates a negative bias that results in lower product quality judgments. Follow-up analysis revealed that consistent with the findings of the previous two studies, higher prices increased men's perception of quality although the difference was not statistically significant (8.13 vs. 8.44; $F(1,156) = .719, p > .1$). In contrast, the higher prices significantly lowered women's perception of the quality (8.93 vs. 8.15; $F(1,156) = 5.12, p < .05$). These findings provide empirical support for H6 which stated, "eliciting brand-related suspicion will eliminate consumers' reliance on price to judge the quality of the distrusted brand."

A GLM analysis with the type of advertisement, price condition, and gender as independent variables, perceived camera quality as the dependent variable, and degree of satisfaction with rival products as covariate resulted in only a significant interaction between price and gender ($F(1, 156) = 4.54, p = .056$). Follow-up analysis revealed that higher prices significantly lowered women's evaluation of the camera quality ($M_{\text{price-high}} = 4.57, M_{\text{price-low}} = 5.00$; $F(1, 156) = 3.45, p < .1$). However, the effect of price on men's evaluation of camera quality was not significant ($M_{\text{price-high}} = 4.83, M_{\text{price-low}} = 4.58$; $F(1, 156) = .89, p > .1$).

Finally, a multiple analysis of variance (MANOVA) with advertisement type, price condition, and gender as independent variables, deal value and purchase intentions as the dependent variables, and degree of satisfaction with rival products as a covariate resulted in only the main effect of the price condition. Follow-up analysis showed that higher prices significantly

decreased both the perception of the deal value ($M_{\text{price-high}} = 4.56$, $M_{\text{price-low}} = 5.11$; $F(1, 156) = 4.72$, $p < .05$) and the purchase intentions ($M_{\text{price-high}} = 4.28$, $M_{\text{price-low}} = 5.66$; $F(1, 156) = 43.00$, $p = .000$).

Overall, the above findings offer further evidence that gender moderates the effect of price on consumers' perception of quality. Furthermore, the findings show that by activating suspicion consumers' will have a negative bias against the brand and they will no longer use the price to judge the quality of that brand.

GENERAL DISCUSSION

Twelve empirical studies examined the potential role of customer related variables (i.e., gender and consumer involvement), product related variables (i.e., hedonic, utilitarian, and symbolic attributes of products), and contextual variables (i.e., persuasion knowledge and provoked brand-specific suspicion) in shaping consumers' price-quality perceptions. These studies offered the following insights:

- 1) Studies 1 and 2 showed that gender influences consumers' thinking style and their inclination to pay attention to product information. These findings were consistent with the research on selectivity model suggesting that men have a schematic thinking style while women are likely to have a systematic thinking style. As a result, women are more adept to pay attention to details, notice suspicious claims in ads, and identify the relationship between various product attributes. Furthermore, findings suggested that women's advantage over men is relative and the judgments of both groups are far from accurate.
- 2) Studies 3 and 4 offered empirical evidence that men are more likely than women to rely on price to judge the quality. Study 4 showed that when men were tasked with judging the quality of two random pictures, they were more likely to see the pictures as "sharper," and "more realistic" if they believed that the pictures had been taken by an expensive camera. Furthermore, findings of study 4 suggested that the price not only created a placebo effect of picture quality, but it elevated men's evaluations of camera quality and deal value as well.
- 3) The findings of studies 5a-5e were fourfold: first, they offered strong empirical evidence that whether selling suits for hundreds of dollars or socks for less than a dollar per pair, companies charge men a price premium compared to what they charge women for very

comparable products. Second, findings showed that symbolic attribute of products significantly influenced the price that men were willing to pay for those products. For example, men on average paid \$95.66 for formal shoes, which they judged as having a high symbolic value, while they paid \$81.12 for athletic shoes, which was judged as less symbolic by men. The type of shoes did not influence women's perception of the symbolic value of the product, and in contrast to men, women paid a significantly lower price for formal shoes than for athletic shoes (51.79 vs. 68.83). Third, findings suggested that a high-level of involvement lowers consumers' price-quality judgments. Finally, results suggested that consumers' price-quality perceptions were likely to be stronger for hedonic products than for utilitarian products.

- 4) Studies 6 and 7 tested two alternative perspectives regarding the potential effect of persuasion knowledge on consumers' price-quality perceptions. The counter-intuitive finding of these two studies was that activating persuasion knowledge increased consumers' reliance on heuristics to make product quality judgments. It was postulated that this was due to the activation of the defense goals rather than the accuracy goals. Studies 6 and 7 found no evidence that activation of persuasion knowledge promoted a systematic thinking style or increased consumers' level of involvement and the depth of information processing. Instead, they showed that activation of persuasion knowledge increased the primacy effect of available information. Finally, consistent with studies 3,4, and 5a-5e, studies 6 and 7 suggested that gender modifies consumers' price-quality judgments.
- 5) Study 8 showed that when consumers became suspicious about the manipulative intent of a specific brand, they no longer relied on price to judge the quality of that brand. In line with previous studies, the findings of study 8 showed a significant interaction between gender and

price. More specifically, findings suggested that eliciting suspicion decreased both men's and women's price-quality perceptions. The effect of suspicion was so strong that men's positive price-quality perceptions became non-significant; while women's non-significant price-quality perceptions became negative. These findings offer important practical implications that are discussed next.

Managerial Implications

The findings offer the following managerial implications:

- 1) When companies target women, they should avoid deceptive advertisement claims. Findings of study 1, showed that women were more likely to have a negative attitude toward deceptive advertisements than men did.
- 2) Higher prices could have a positive effect on men's perceptions of quality but have the opposite effect on women. Interestingly, as we saw in study 4, men were likely to judge the more expensive product as offering a greater value for the money than the less expensive product! These findings suggest that when the target market is men, companies should focus on creating a high-quality brand image by charging men premium prices. More importantly, companies should note that offering a high-quality product at a low price to men could backfire and result in a loss of market share. Because as study 4 showed price creates a placebo effect on men's perception of quality, and consumers, in general, are inept in modifying their prior beliefs based on the available belief-inconsistent information.
- 3) The effect of price on women's perception of quality is either negative or non-significant. Studies 3 and 4 suggested that women do not associate higher prices with higher quality.

Furthermore, study 8 showed that when women were suspicious about a brand, higher prices created a negative bias and significantly reduced their judgment of the product quality. These findings, coupled with the findings of studies 6 and 7, indicate that when the target market is women, companies should focus on creating a high-value brand by offering high quality at low price. Considering the weak effect of price on women's perception of quality, a high initial price will have a small effect on the perceived benefit and a much stronger effect on the perceived cost. Consequently, women should be less likely to consider purchasing more expensive products.

- 4) The findings suggest that product type influences consumers' price-quality perceptions. When the products offer a high symbolic value, companies could maximize their profit by charging a price premium, especially if the target market is men than women. This is the result of the abstract quality associations of symbolic products in consumers' minds. In the same vain, the findings suggest that companies could increase their profit level by charging a price premium for hedonic products.
- 5) Studies 5a-5e showed that the online review valence in all five product categories significantly influenced the final prices. This shows the key role of consumer-generated product information on the overall success and the profit margin of the products in the marketplace. Companies should be proactively responsive to customer reviews to ensure that the average rating of their products remains above the average. This could be a challenging task. Since as studies 5a-5e revealed, the average online review ratings in most product categories were very high (mostly above 4).
- 6) An important question that the current research strived to answer was, "how can companies change consumers' price-quality perceptions?" Studies 6, 7, and 8 offered valuable insights.

Findings of studies 6 and 7 suggested that activation of persuasion knowledge reinforced men's and women's prior price-quality perceptions. Therefore, ads that provoke a general suspicion about marketing practice are likely to increase men's and decrease women's reliance on price to judge the quality.

- 7) For example, when the target market is men, an advertisement that implies the existence of a widespread deceptive marketing practice in the marketplace, could increase men's tendency to use price as an indicator of quality. In this scenario, the advertisement could suggest that "most products in the marketplace are fake" or "most companies cut back on quality to earn a few extra bucks." These messages are likely to activate men's defense goals. Since men strongly believe that "you get what you paid for," they will try to protect themselves from buying fake products by paying a little extra. Extreme caution, of course, must be applied to act in accordance with the marketing ethical norms and standards. For women, such advertising tactics, should have the opposite effect and further decrease their price-quality evaluations.
- 8) Study 8, introduced a powerful tool that could be used to eliminate consumers' perception of a positive relationship between price and quality. Findings of study 8 suggested that when consumers became suspicious about a specific brand rather than the whole marketing apparatus, they no longer relied on price to judge the quality of that brand. Therefore, companies that want to undermine consumers' reliance on price to judge the quality of their competitors' products should focus on provoking consumers' suspicion about their competitor's brands. For example, instead of suggesting that "you can get the same quality at a lower price at our store," companies should try to communicate the message that "prices at store X are high because they failed to use the state of the art technology that we use."

Limitations and Future Research

The current research offered several theoretical and practical contributions; however, it entailed some limitations that represent an opportunity for future research:

- 1) Amazon MTURK Sample: in six of the studies, Amazon MTURK was used to recruit participants in the study. The Amazon MTURK samples have been criticized in the literature for not being adequately representative of the American general population. Future research should use more representative samples to ensure the generalizability of the findings.
- 2) Amazon.com data: in studies 5a-5e real-world data was collected from Amazon.com. As discussed before, Amazon's dynamic pricing strategy offered an opportunity to test the hypotheses of this study. Nevertheless, it is likely that other companies that do not use a dynamic pricing strategy fail to notice the gender effect to modify their prices accordingly. Future research should study other companies, including both online and brick-and-mortar retailers, to provide a more holistic picture of the market prices.
- 3) To test H4, a combination of survey research and real world-data was used. Therefore, the findings are susceptible to the endogeneity bias. Future research should investigate the same hypothesis using an experimental design to establish the generalizability of the findings.
- 4) In studies 6, 7, and 8, it was argued that the effects of persuasion knowledge and suspicion on consumers' price-quality perceptions vary. Nevertheless, those studies did not offer an opportunity to directly compare the effects of persuasion knowledge and suspicion in the same context. Future research should provide further evidence that persuasion knowledge and suspicion have distinct effects on price-quality perceptions.

- 5) With one exception, all the products that were used in this research were relatively high involvement products. Future research should investigate low priced and functional products to establish the generalizability of the findings.

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TABLES AND FIGURES

TABLE 1: THE RESULTS OF PRETEST STUDIES 5-1,5-2, AND 5-3

Product Category	Gender	Involvement Score	Symbolic Score	Hedonic Score	Utilitarian Score	Purchasing Frequency (N)	Purchasing Frequency
Athletic Shoes	Women	106.19 (n=57, SE = 3.58) ¹	5.69 (n=45, SE=.30) ^{3,**}	4.80 (n=57, SE =.16) ¹	6.16 (n=57, SE =.12) ^{1,*}	2.33 (n=45, SE=.27) ^{3,II}	2.73 (n=45, SE=.18) ^{3,V}
	Men	101.66 (n=69, SE = 3.20) ¹	4.70 (n=79, SE= .27) ^{3,**}	4.79 (n=69, SE = .14) ¹	5.85 (n=69, SE = .13) ^{1,*}	2.39 (n=79, SE= .20) ^{3,II}	2.90 (n=79, SE= .14) ^{3,V}
	Total	103.71(n=126, SE = 2.38) ¹	5.06 (n= 124, SE = .21) ³	4.80 (n=126, SE = .10) ¹	5.99 (n=126, SE = .09) ¹	2.37 (n= 124, SE = .16) ^{3,II}	2.84 (n= 124, SE = .11) ^{3,V}
Formal Shoes	Women	92.15 (n=57, SE = 4.63) ¹	5.51 (n=45, SE=.33) ³	4.43 (n=57, SE = .22) ^{1,***}	4.62 (n=57, SE =.24) ¹	2.22(n=45, SE=.32) ^{3,II}	2.42 (n=45, SE=.19) ^{3,V}
	Men	89.0 (n=69, SE = 3.61) ¹	5.19 (n=79, SE= .27) ³	3.58 (n=69, SE = .18) ^{1,***}	4.86 (n=69, SE = .18) ¹	1.63 (n=79, SE= .19) ^{3,II}	2.18 (n=79, SE= .14) ^{3,V}
	Total	90.42 (n=126, SE = 2.87) ¹	5.31 (n= 124, SE = .21) ³	3.97 (n=126, SE = .14) ¹	4.75 (n=126, SE = .14) ¹	1.85(n= 124, SE = .17) ^{3,II}	2.27 (n= 124, SE = .11) ^{3,V}

Product Category	Gender	Involvement Score	Symbolic Score	Hedonic Score	Utilitarian Score	Purchasing Frequency (N)	Purchasing Frequency
Suits	Women	70.11 (n = 54, SE = 4.12) ^{2,***}	5.87 (n=45, SE=.34) ³	3.25 (n = 54, SE = .21) ^{2,***}	4.60 (n = 54, SE = .19) ²	0.87 (n=45, SE=.35) ^{3,III}	1.58 (n=45, SE=.17) ^{3,VI}
	Men	85.11 (n = 68, SE = 3.60) ^{2,***}	5.98 (n=79, SE= .26) ³	4.04 (n = 68, SE = .19) ^{2,***}	4.78 (n = 68, SE = .17) ²	1.66 (n=79, SE=.39) ^{3,III}	1.86 (n=79, SE=.15) ^{3,VI}
	Total	78.47 (n= 122, SE = 2.78) ²	5.94 (n= 124, SE = .21) ³	3.69 (n= 122, SE = .14) ²	4.70 (n= 122, SE = .13) ²	1.37(n= 124, SE = .28) ^{3,III}	1.76 (n= 124, SE = .11) ^{3,VI}
Blazers, Sport Coats, and Suit Jackets	Women	75.58 (n = 54, SE = 4.47) ²	5.27 (n=45, SE=.30) ³	3.50 (n = 54, SE = .23) ²	4.64 (n = 54, SE = .23) ²	1.02 (n=45, SE=.23) ^{3,*,III}	1.78 (n=45, SE=.17) ^{3,*,VI}
	Men	79.80 (n = 68, SE = 3.51) ²	4.96 (n=79, SE= .29) ³	3.91 (n = 68, SE = .19) ²	4.41 (n = 68, SE = .17) ²	1.18 (n=79, SE=.33) ^{3,*,III}	1.77 (n=79, SE=.13) ^{3,*,VI}
	Total	78.05 (n= 122, SE = 2.77) ²	5.06 (n= 124, SE = .21) ³	3.73 (n= 122, SE = .15) ²	4.51(n= 122, SE = .14) ²	1.12(n= 124, SE = .22) ^{3,III}	1.77 (n= 124, SE = .10) ^{3,VI}

Product Category	Gender	Involvement Score	Symbolic Score	Hedonic Score	Utilitarian Score	Purchasing Frequency (N)	Purchasing Frequency
Socks	Women	48.85 (n= 54, SE = 1.37) ^{2,X}	3.00 (n=45, SE=.29) ³	3.92 (n= 54, SE = .17) ²	6.47 (n= 54, SE = .13) ^{2,*}	17.00 (n=45, SE=2.89) ^{3,I}	5.27 (n=45, SE=.2) ^{3,VI}
	Men	48.04 (n = 68, SE = 1.18) ^{2,X}	2.53 (n=79, SE=.23) ³	3.69(n = 68, SE = .19) ²	6.12 (n = 68, SE = .13) ^{2,*}	13.21(n=79, SE= 1.06) ^{3,I}	4.89(n=79, SE=.15) ^{3,VI}
	Total	48.40 (n=122, SE = .89) ^{2,X}	2.70 (n= 124, SE = .18) ³	3.79 (n=122, SE = .13) ²	6.27 (n=122, SE = .09) ²	14.59(n= 124, SE = 1.25) ^{3,I}	5.02 (n= 124, SE = .12) ^{3,VI}

*, **, ***: Observed difference in the same product category is significant at $p < .1^*$, $p < .05^{**}$, and $p < .01^{***}$.

1: Pretest 5-1 (n= 126, 45.2% female, $M_{age} = 39.60$); **2:** pretest 5-2 (n= 122, 44.3% female, $M_{age} = 37.61$) ; **3:** pretest 5-3 (n= 124, 36.3% female, $M_{age} = 35.65$); **I:** Units of the product purchased in the past year; **II:** units of the product purchased in the past two years ; **III:** units of the product purchased in the past five years; **V:** Anchored by 1= “Less than once every two years,” 2= “Once every two years,” 3 = “Once every 7-12 months,” ..., 8 = “More than 3 times per month” ; **VI:** anchored by 1= “Less than once every five years,” 2= “Once every three to five years,” 3 = “Once every two years,” 4 = “Once every 7-12 Months,” 5= “Once every 4-6 Months,” 6= “Once every 2-3 months,” 7 = “Once per month,” 8 = “More than once a month”; **X:** calculated based on 10 items.

TABLE 2: SUMMARY STATISTICS FOR MEN'S AND WOMEN'S ATHLETIC SHOES

	<i>Total</i>	<i>Men's products</i>	<i>Women's products</i>
<i>Price</i>	74.92 (0.08, 200604)	81.12 (0.12, 99383)	68.83 (0.11, 101221)
<i>Valence</i>	4.29 (0.00, 216661)	4.33 (0.00, 108551)	4.25 (0.00, 108110)
<i>Volume</i>	135.27 (0.73, 222600)	131.71 (1.01, 111300)	138.84 (1.06, 111300)
<i>Discount</i>	7.29 (0.02, 222600)	7.16 (0.04, 111300)	7.42 (0.04, 111300)
<i>Amazon rank</i>	29159.57 (103.00, 220638)	27578.98 (141.14, 110356)	30741.23 (149.91, 110282)
<i>Group rank</i>	878.06 (15.33, 220638)	826.48 (11.40, 110356)	929.67 (28.47, 110282)

*Data format in the table: mean ($\sigma\bar{x}$, n)

TABLE 3: SUMMARY STATISTICS FOR MEN'S AND WOMEN'S FORMAL SHOES

	<i>Total</i>	<i>Men's products</i>	<i>Women's products</i>
<i>Price</i>	73.75 (0.15, 187701)	95.66 (0.26, 93963)	51.79 (0.12, 93738)
<i>Valence</i>	4.07 (0.00, 183973)	4.05 (0.00, 86633)	4.09 (0.00, 97340)
<i>Volume</i>	70.15 (0.56, 201400)	64.30 (0.68, 100700)	75.99 (0.90, 100700)
<i>Discount</i>	9.85 (0.04, 201400)	9.85 (0.06, 100700)	9.84 (0.05, 100700)
<i>Amazon rank</i>	65727.06 (215.76, 198239)	85304.64 (382.29, 98556)	46370.81 (183.57, 99683)
<i>Group rank</i>	3395.07 (31.29, 198239)	4276.74 (57.75, 98556)	2523.36 (24.47, 99683)

*Data format in the table: mean ($\sigma\bar{x}$, n)

TABLE 4: SUMMARY STATISTICS FOR MEN'S AND WOMEN'S SUITS

	<i>Total</i>	<i>Men's products</i>	<i>Women's products</i>
<i>Price-min</i>	125.50 (3.51, 772)	145.82 (6.29, 392)	104.54 (2.55, 380)
<i>Price-average</i>	147.37 (3.48, 772)	180.22 (6.00, 392)	113.48 (2.38, 380)
<i>Price-max</i>	169.23 (3.77, 772)	214.62 (6.20, 392)	122.41 (2.56, 380)
<i>Valence</i>	4.10 (0.03, 401)	4.02 (0.04, 281)	4.3 (0.07, 120)
<i>Volume</i>	6.08 (0.50, 401)	7.31 (0.69, 281)	3.19 (0.31, 120)
<i>Discount</i>	3.41 (1.03, 782)	2.87 (1.77, 393)	3.96 (1.07, 389)
<i>Group rank</i>	3823.10 (1521.07, 628)	5903.52 (2522.42, 378)	677.51 (56.55, 250)
<i>Amazon rank</i>	563545.67 (38211.89, 596)	387109.16 (31800.30, 376)	865091.70 (84436.58, 220)

*Data format in the table: mean ($\bar{\sigma}$, n)

TABLE 5: SUMMARY STATISTICS FOR BLAZERS, SPORTS COATS AND SUIT JACKETS

	<i>Total</i>	<i>Men's products</i>	<i>Women's products</i>
<i>Price-min</i>	102.94 (6.21, 832)	130.30 (10.89, 443)	71.79 (4.28, 389)
<i>Price-average</i>	113.42 (6.27, 832)	142.52 (10.95, 443)	80.27 (4.42, 389)
<i>Price-max</i>	123.89 (6.45, 832)	154.75 (11.17, 443)	88.75 (4.76, 389)
<i>Valence</i>	3.95 (0.03, 495)	4.10 (0.04, 246)	3.79 (0.05, 249)
<i>Volume</i>	28.77 (2.74, 495)	28.63 (3.55, 246)	28.91 (4.18, 249)
<i>Discount</i>	5.72 (1.07, 909)	7.15 (1.64, 467)	4.20 (1.36, 442)
<i>Group rank</i>	12666.41 (3662.67, 776)	1610.34 (280.17, 401)	24489.04 (7530.74, 375)
<i>Amazon rank</i>	311330.64 (9299.74, 790)	338204.66 (13211.27, 409)	282481.63 (12920.41, 381)

*Data format in the table: mean ($\sigma\bar{x}$, n)

TABLE 6: SUMMARY STATISTICS FOR CASUAL SOCKS SOLD IN MULTIPLE PAIRS

	<i>Total</i>	<i>Men's products</i>	<i>Women's products</i>
<i>Price</i>	14.23 (0.40, 591)	14.36 (0.49, 211)	14.16 (0.56, 380)
<i>Price per pair</i>	3.67 (0.10, 591)	4.07 (0.20, 211)	3.62 (0.12, 380)
<i>Valence</i>	4.26 (0.04, 404)	4.20 (0.06, 151)	4.30 (0.05, 253)
<i>Volume</i>	58.98 (10.69, 404)	66.43 (22.73, 151)	54.53 (10.41, 253)
<i>Discount</i>	3.55 (0.28, 597)	3.46 (0.52, 212)	3.61 (0.32, 385)
<i>Group rank</i>	12923.59 (2478.10, 550)	11874.46 (4546.71, 192)	13486.25 (2928.19, 358)
<i>Amazon rank</i>	154363.35 (18104.84, 546)	402719.52 (45729.50, 192)	19661.70 (4548.36, 354)

*Data format in the table: mean ($\sigma\bar{x}$, n)

FIGURE 1: AN OVERVIEW OF THE STUDIES IN ESSAY 1

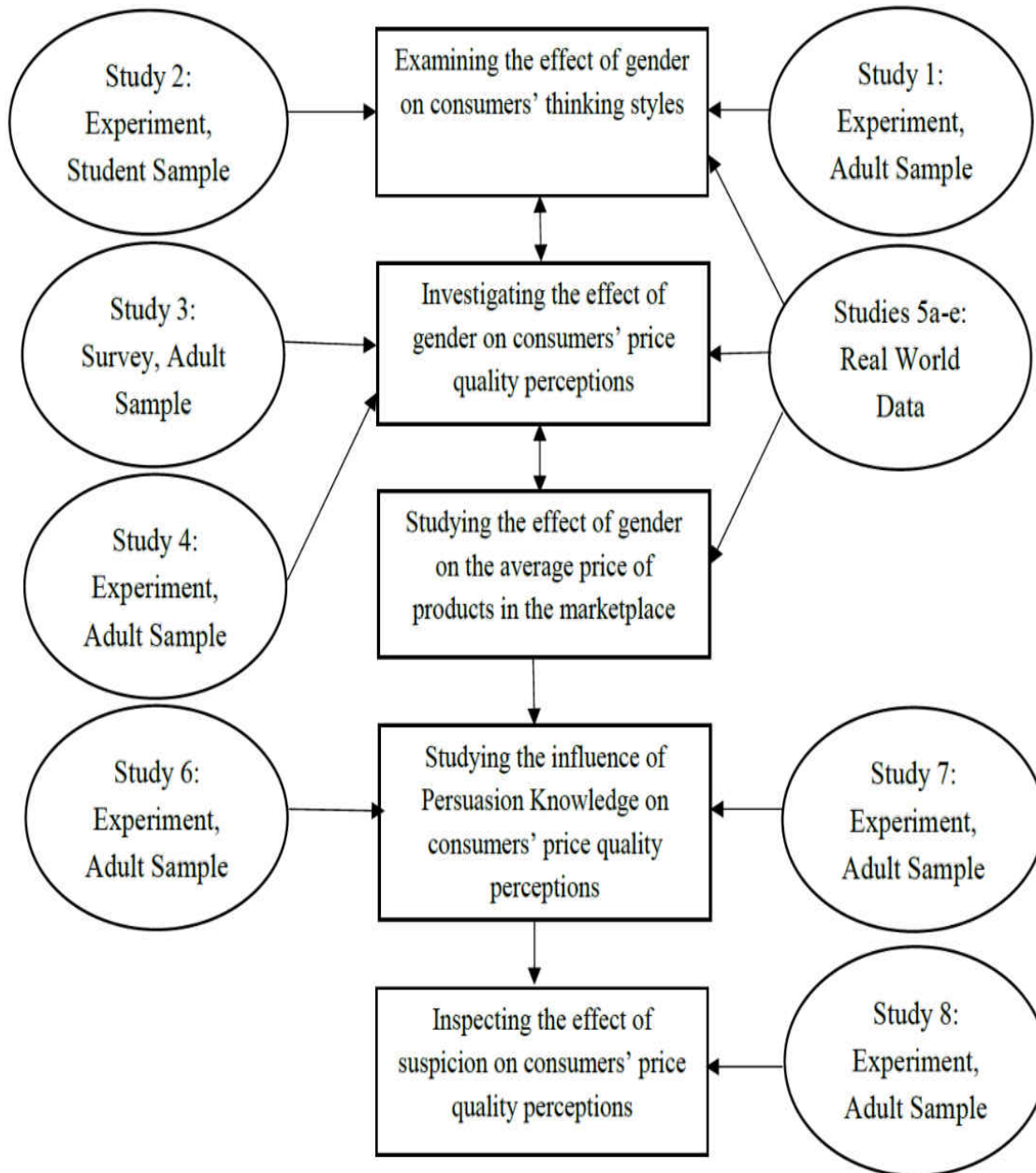


FIGURE 2: THE EFFECT OF GENDER ON PARTICIPANTS' ATTITUDE TOWARD ADS

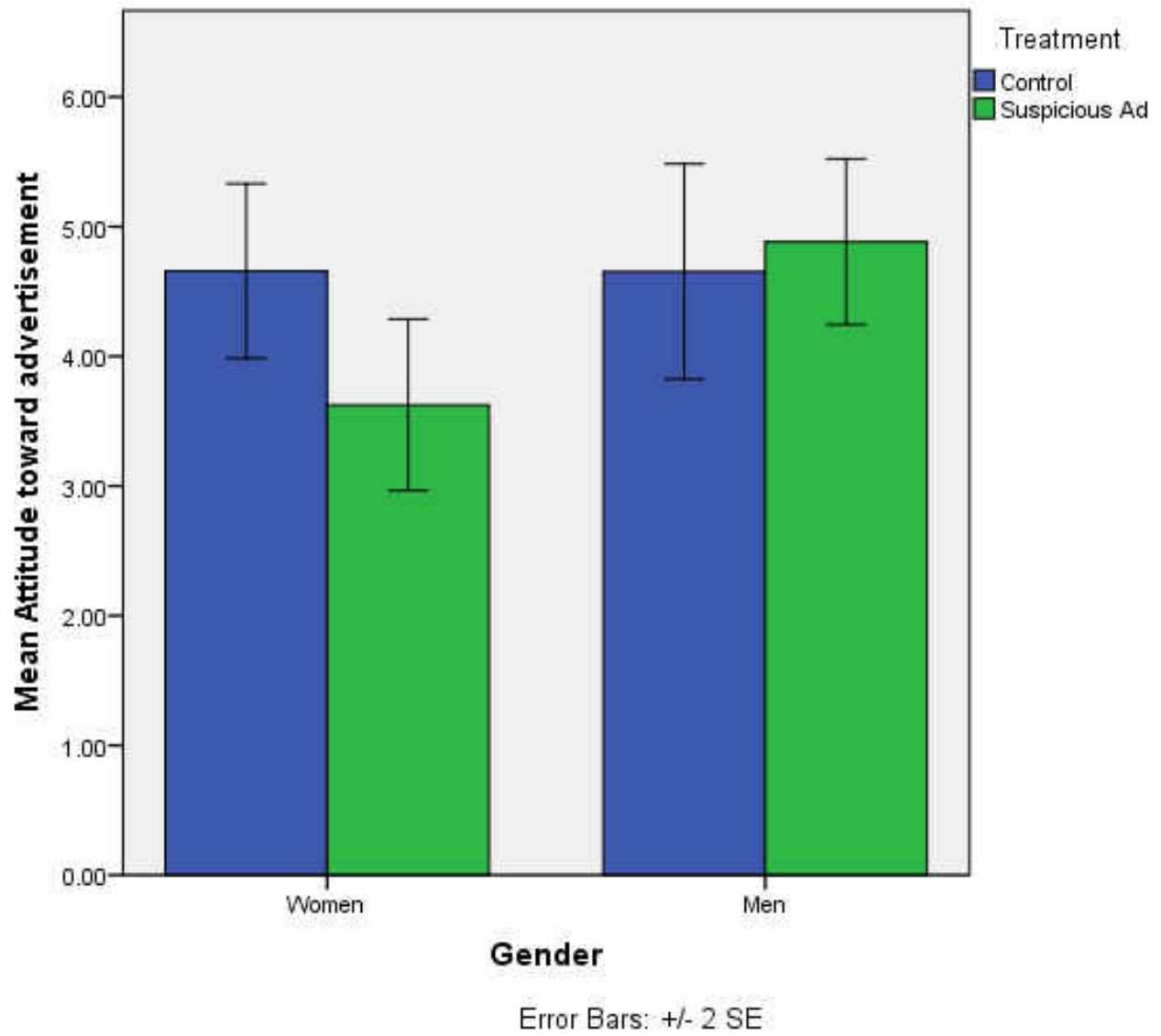


FIGURE 3: THE EFFECT OF GENDER ON PARTICIPANTS' ABILITY TO ACCURATELY JUDGE THE QUALITY BASED ON AVAILABLE INFORMATION

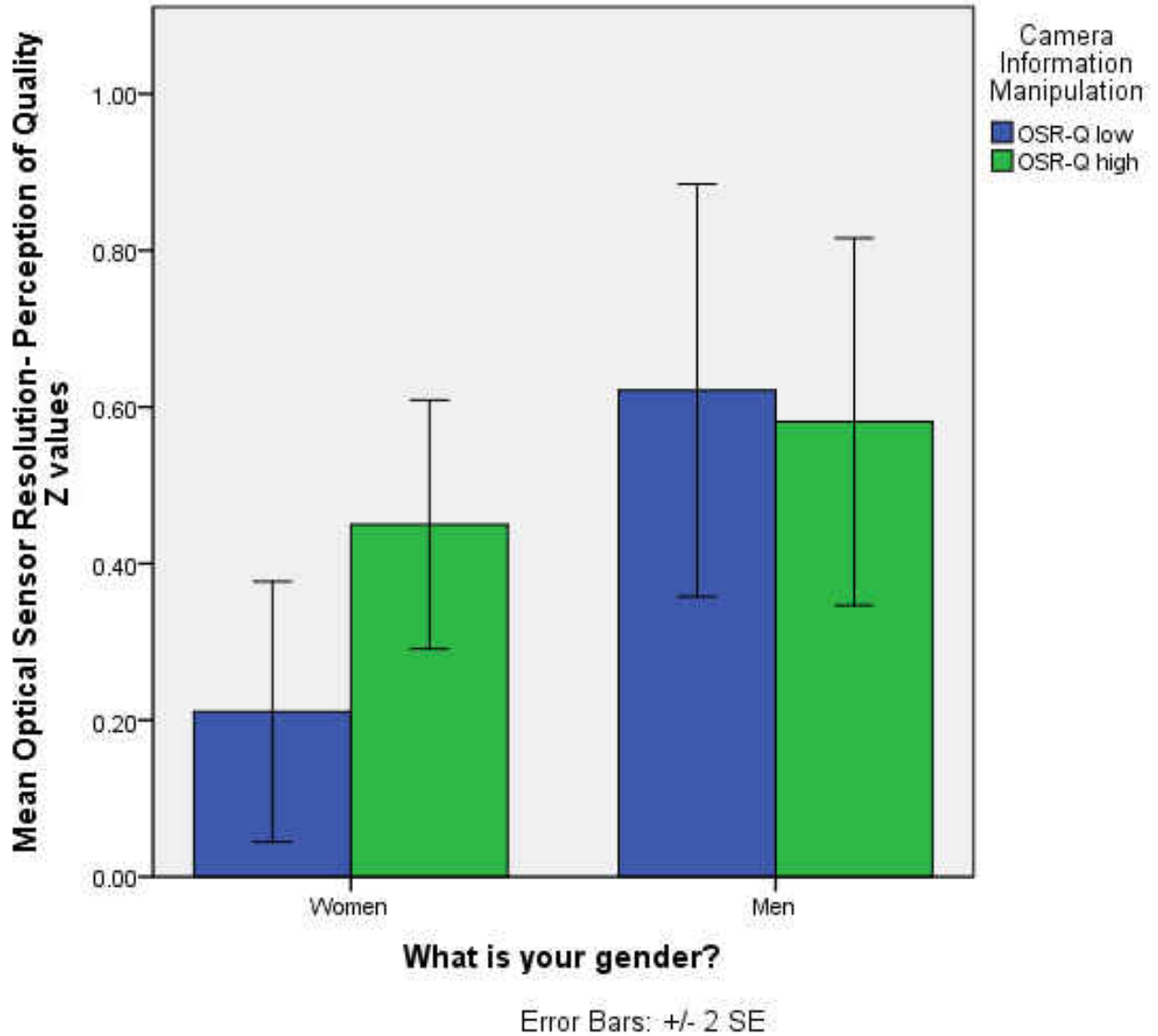


FIGURE 4: THE INTERACTION BETWEEN PRICE AND GENDER TO AFFECT PARTICIPANTS' EVALUATION OF THE PICTURE QUALITY

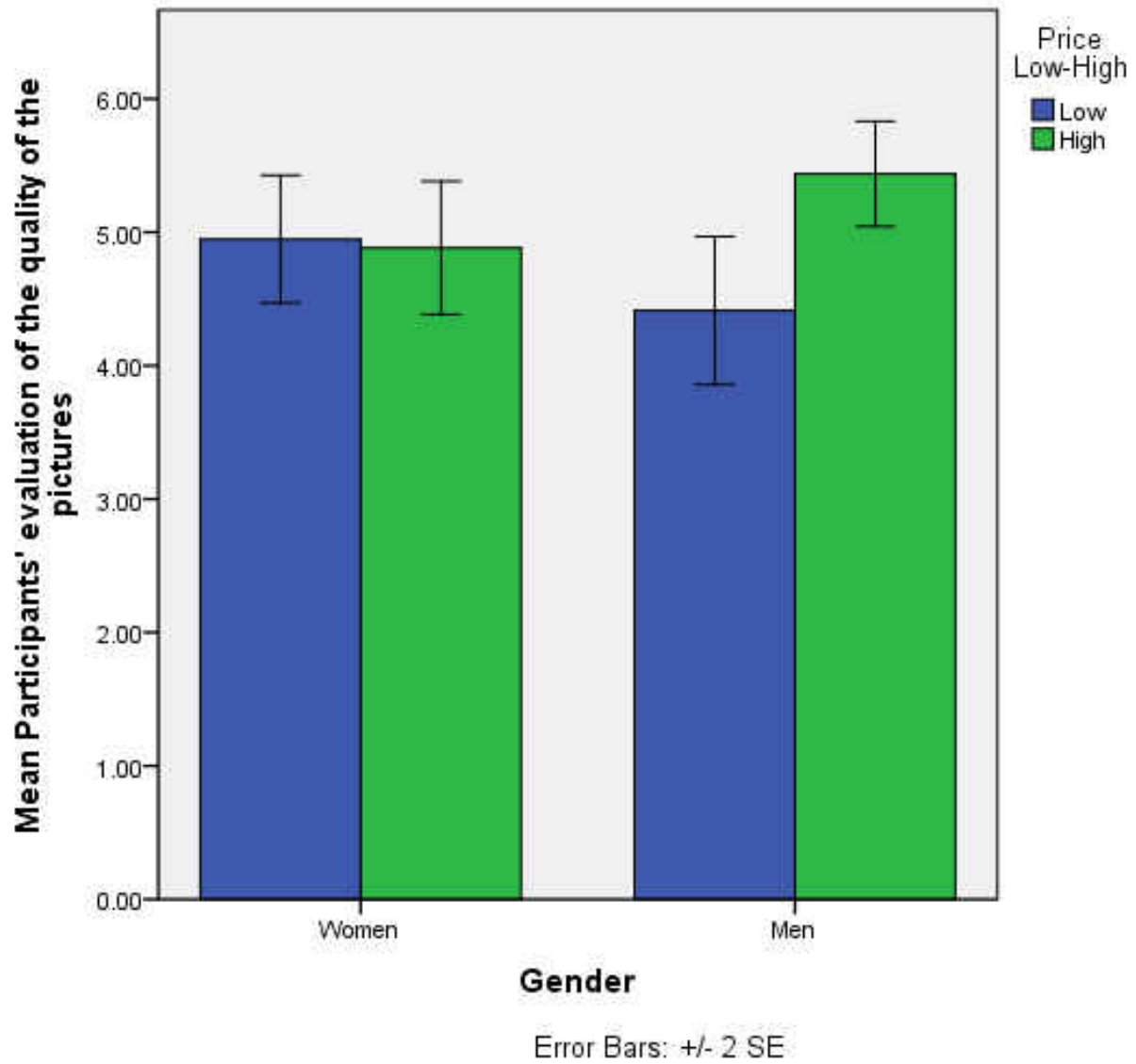


FIGURE 5: THE INTERACTION BETWEEN PRICE AND GENDER TO AFFECT PARTICIPANTS' EVALUATION OF THE VALUE FOR THE MONEY

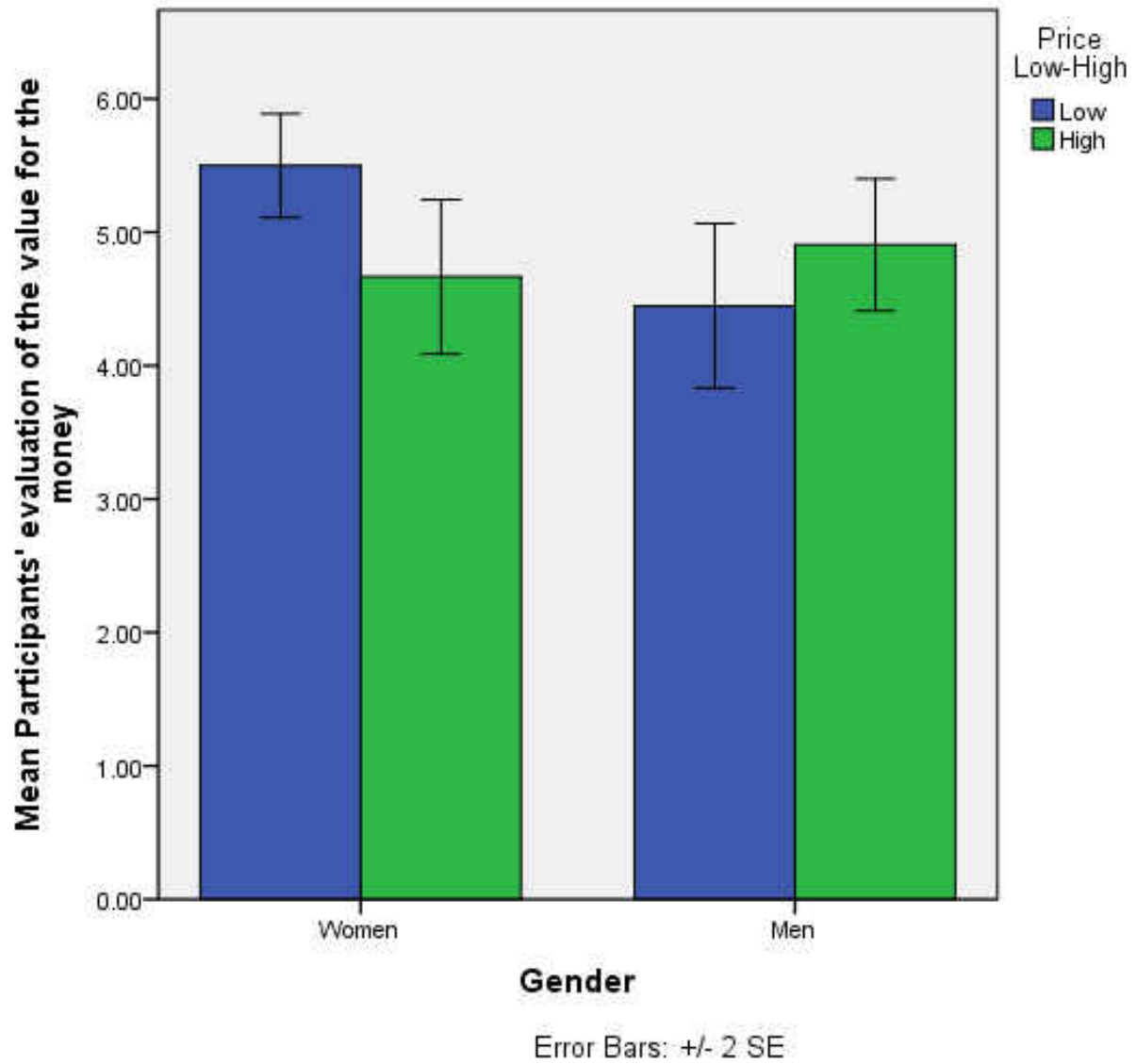


FIGURE 6: THE INTERACTION BETWEEN PRICE AND GENDER TO AFFECT PARTICIPANTS' PURCHASE INTENTIONS

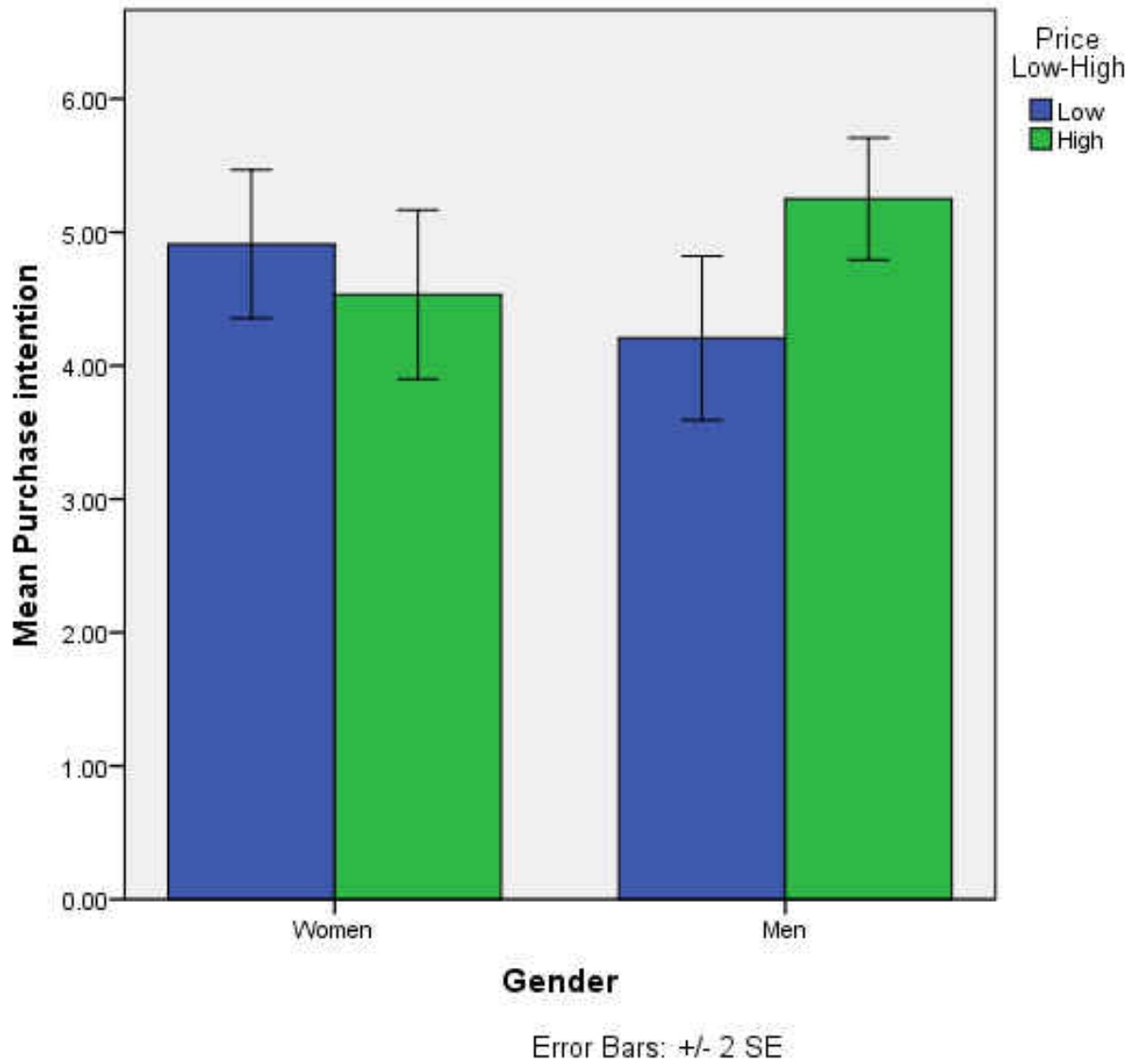


FIGURE 7: CHANGES IN THE EXPECTED UTILITY OF HIGH-QUALITY PRODUCTS

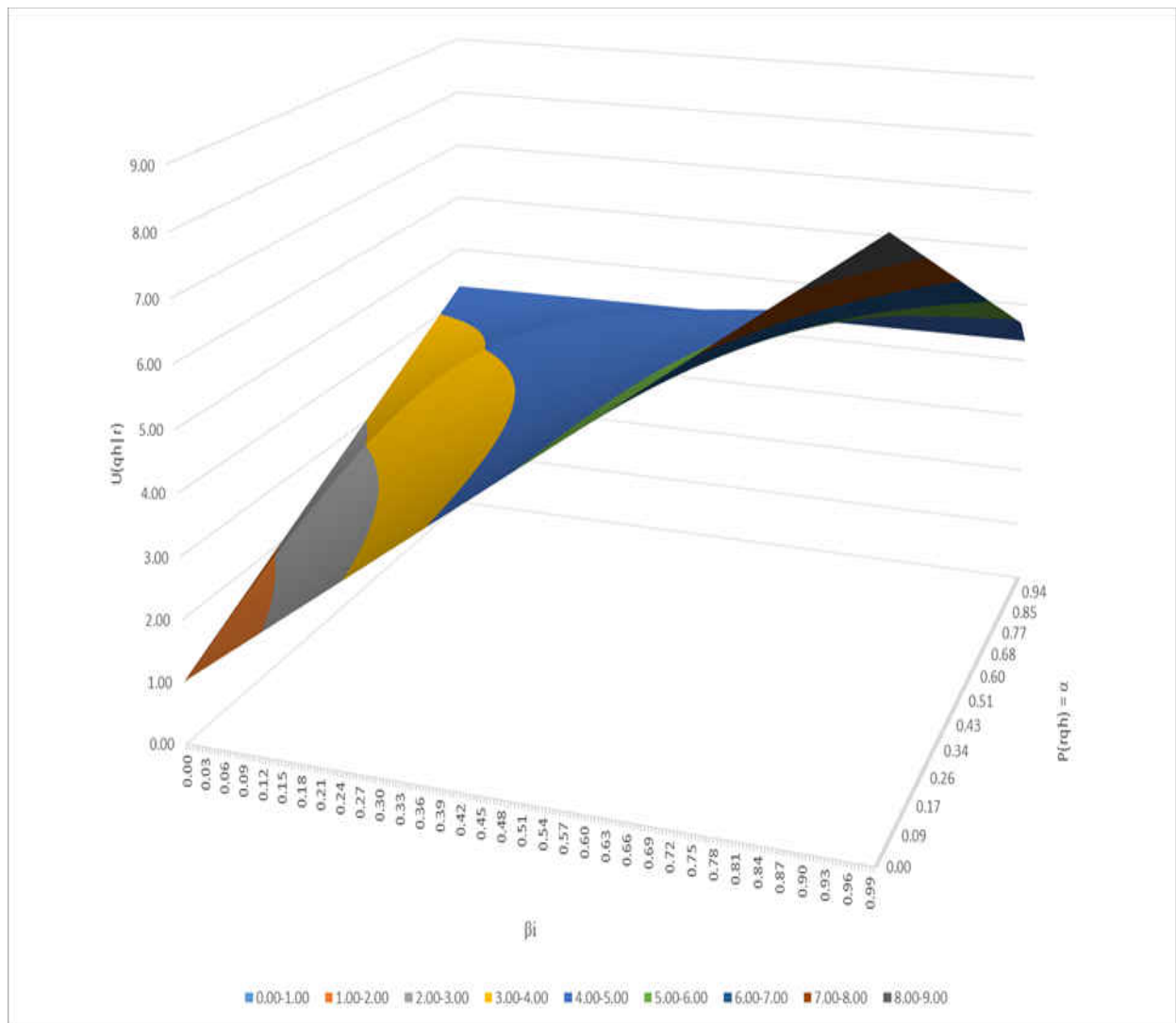


FIGURE 8: CHANGES IN THE EXPECTED UTILITY OF LOW-QUALITY PRODUCTS

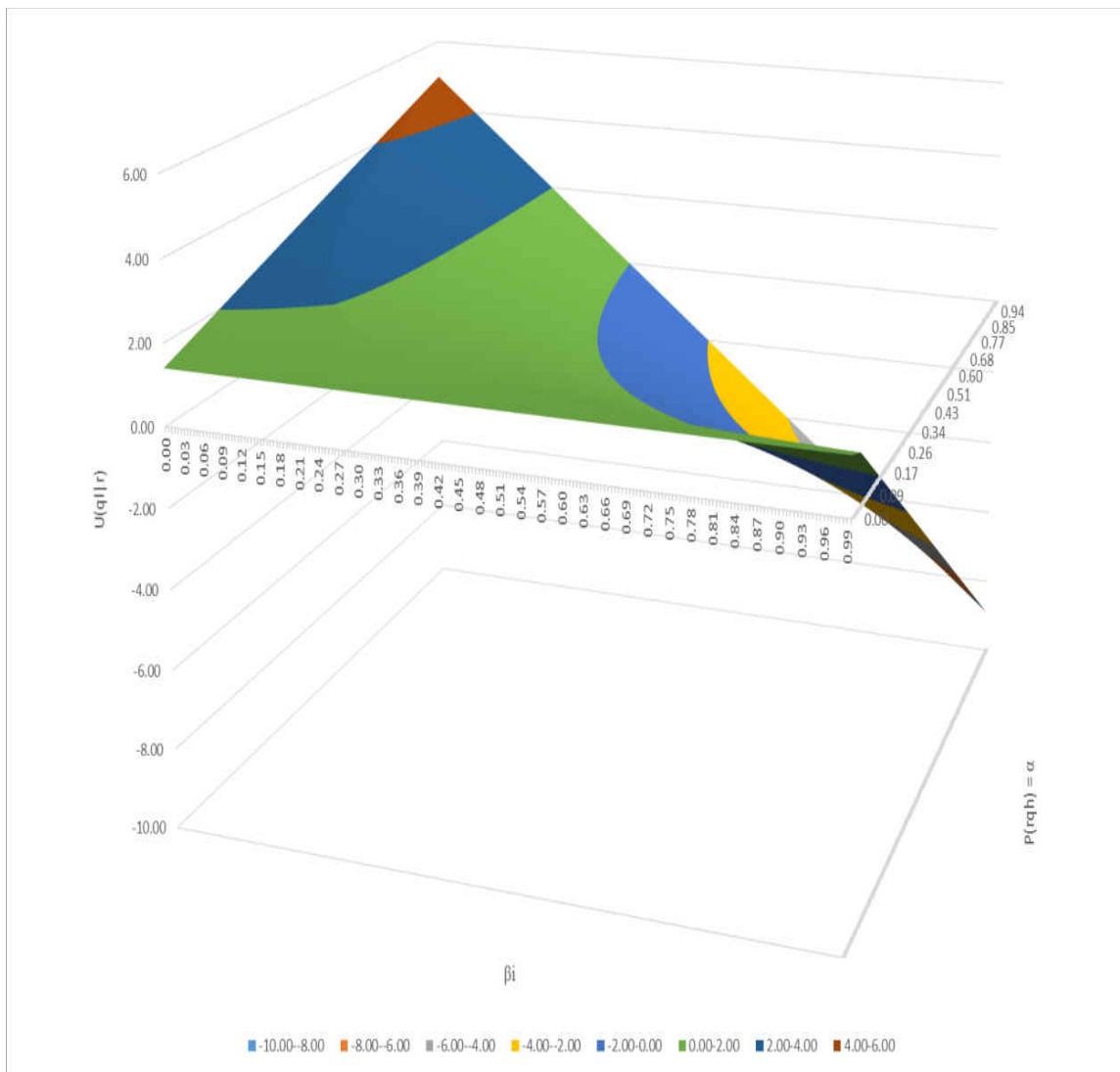


FIGURE 9: CHANGES IN THE EXPECTED UTILITY OF HIGH-QUALITY PRODUCTS

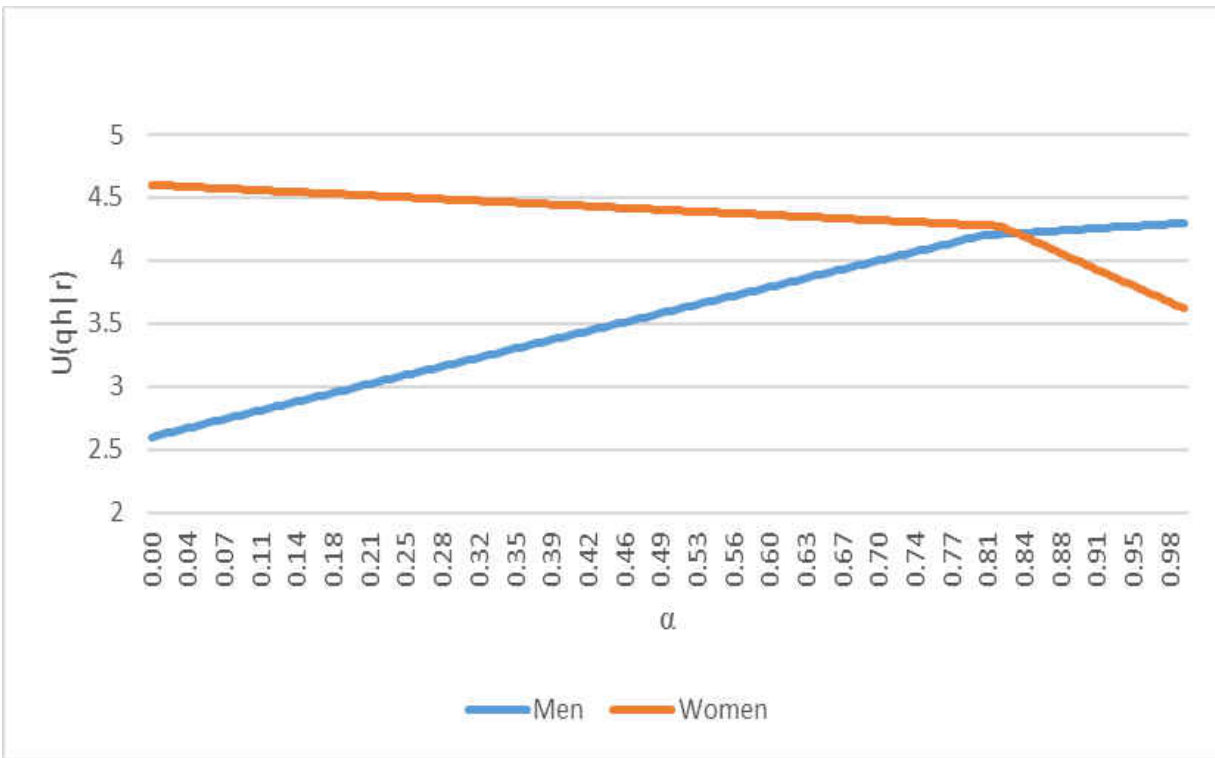


FIGURE 10: CHANGES IN THE EXPECTED UTILITY OF LOW-QUALITY PRODUCTS

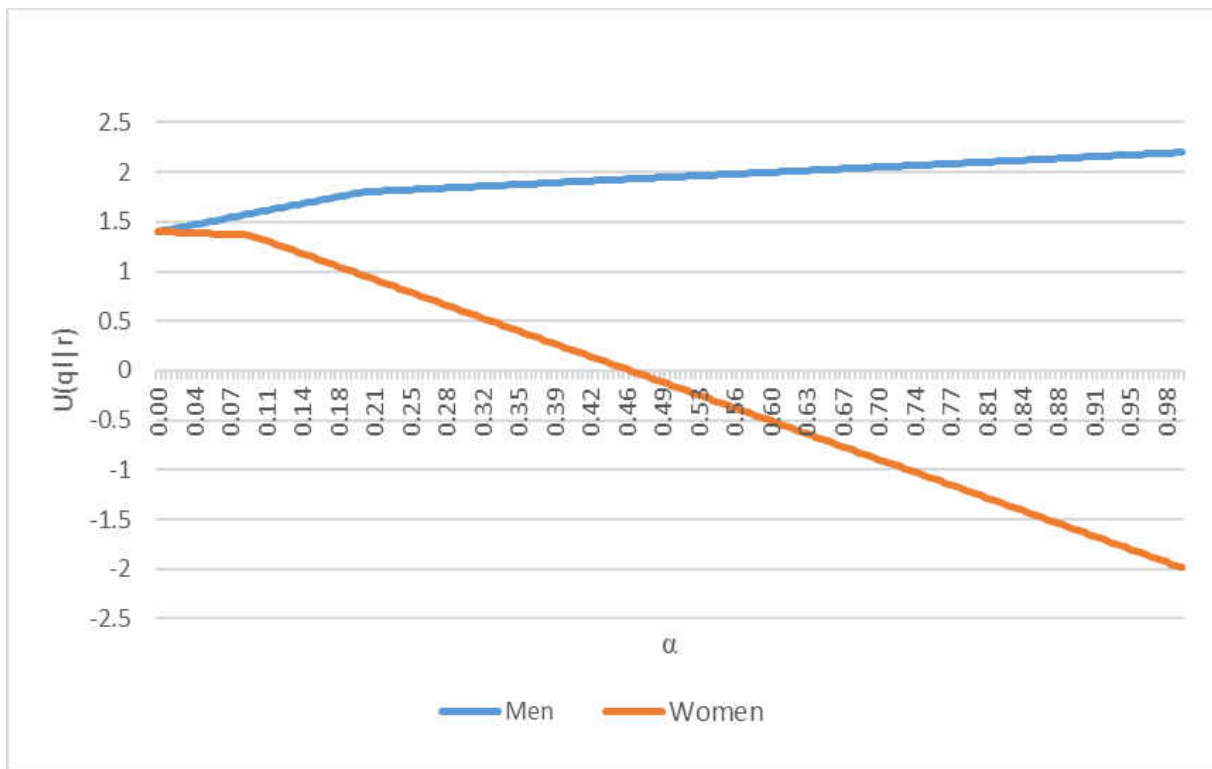


FIGURE 11: EFFECT OF PRICE ON MEN'S RATINGS OF LOW-QUALITY PRODUCTS

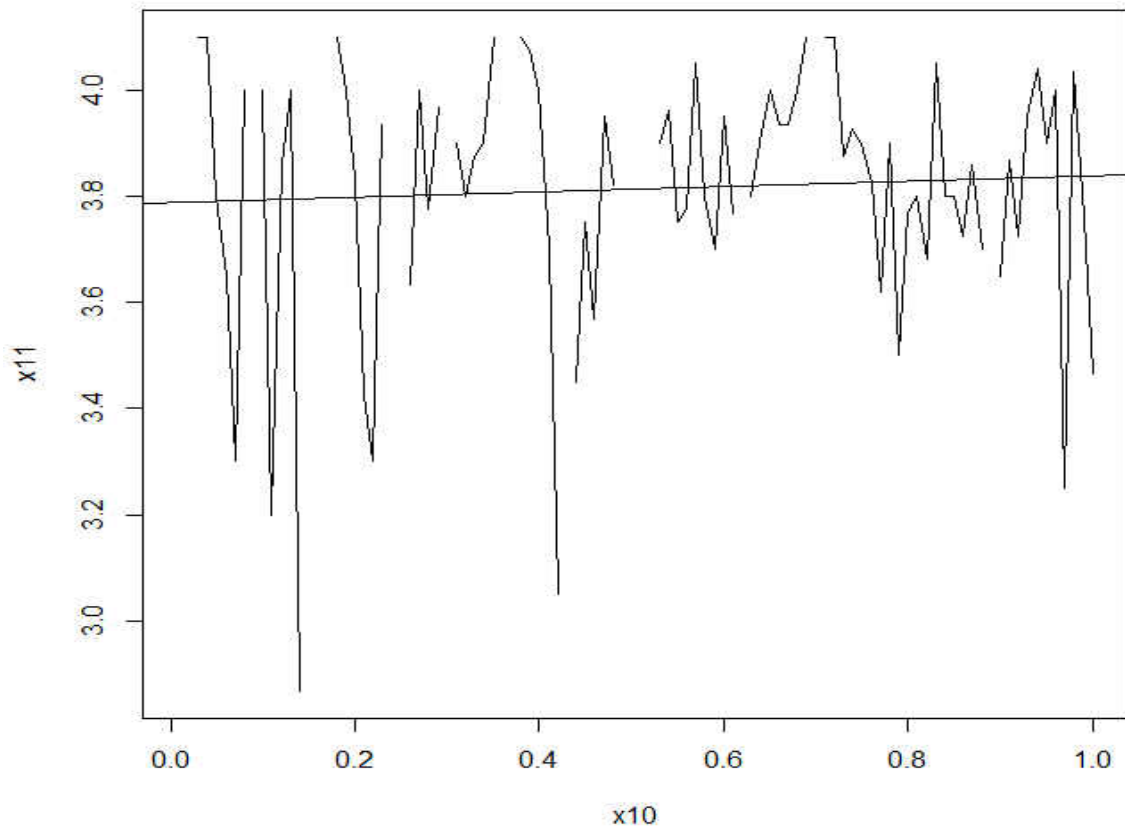


FIGURE 12: EFFECT OF PRICE ON WOMEN'S RATINGS OF LOW-QUALITY PRODUCTS

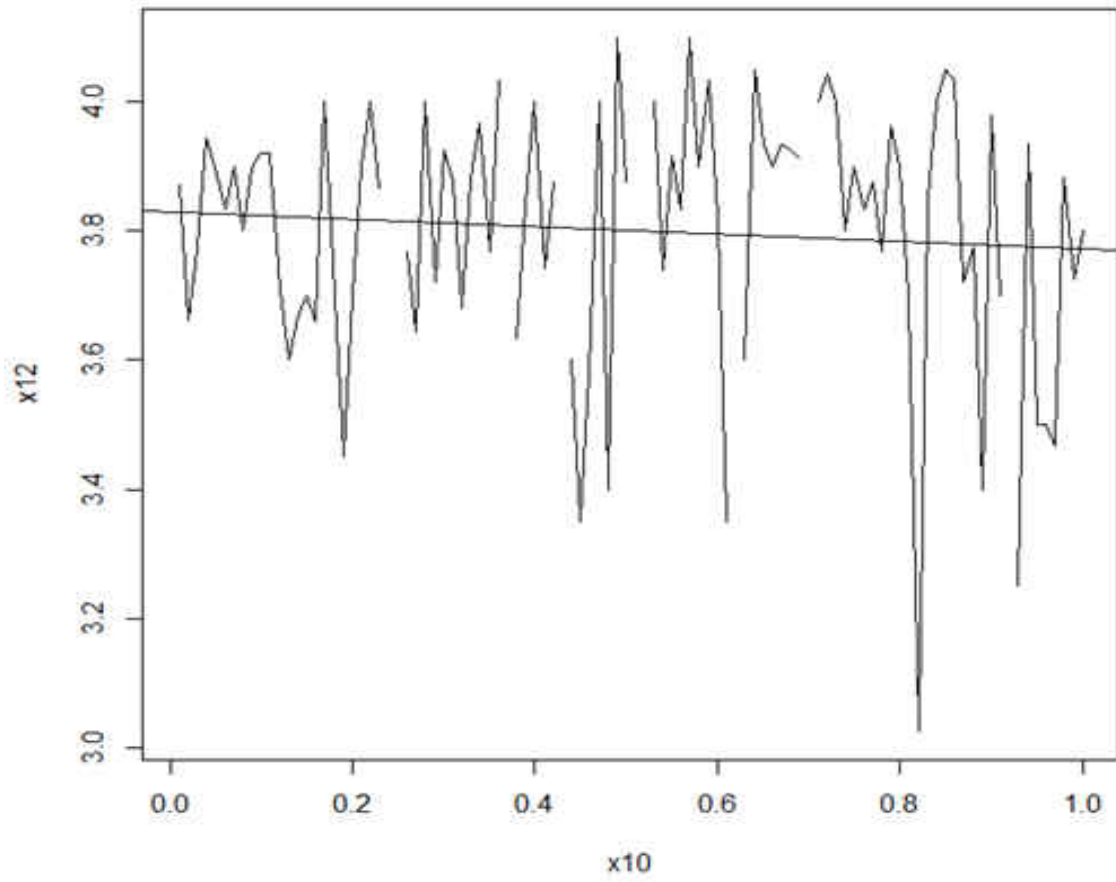


FIGURE 13: EFFECT OF PRICE ON MEN'S RATINGS OF HIGH-QUALITY PRODUCTS

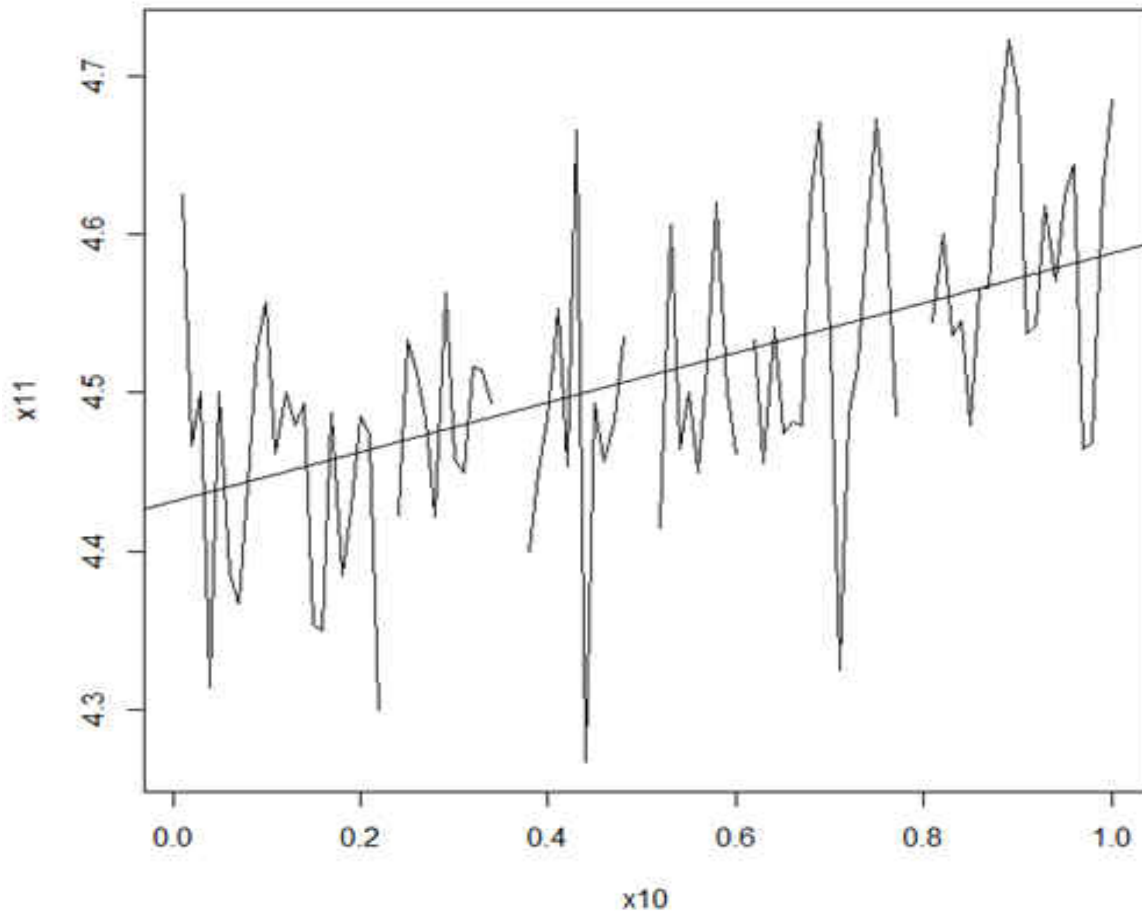


FIGURE 14: EFFECT OF PRICE ON WOMEN'S RATINGS OF HIGH-QUALITY PRODUCTS

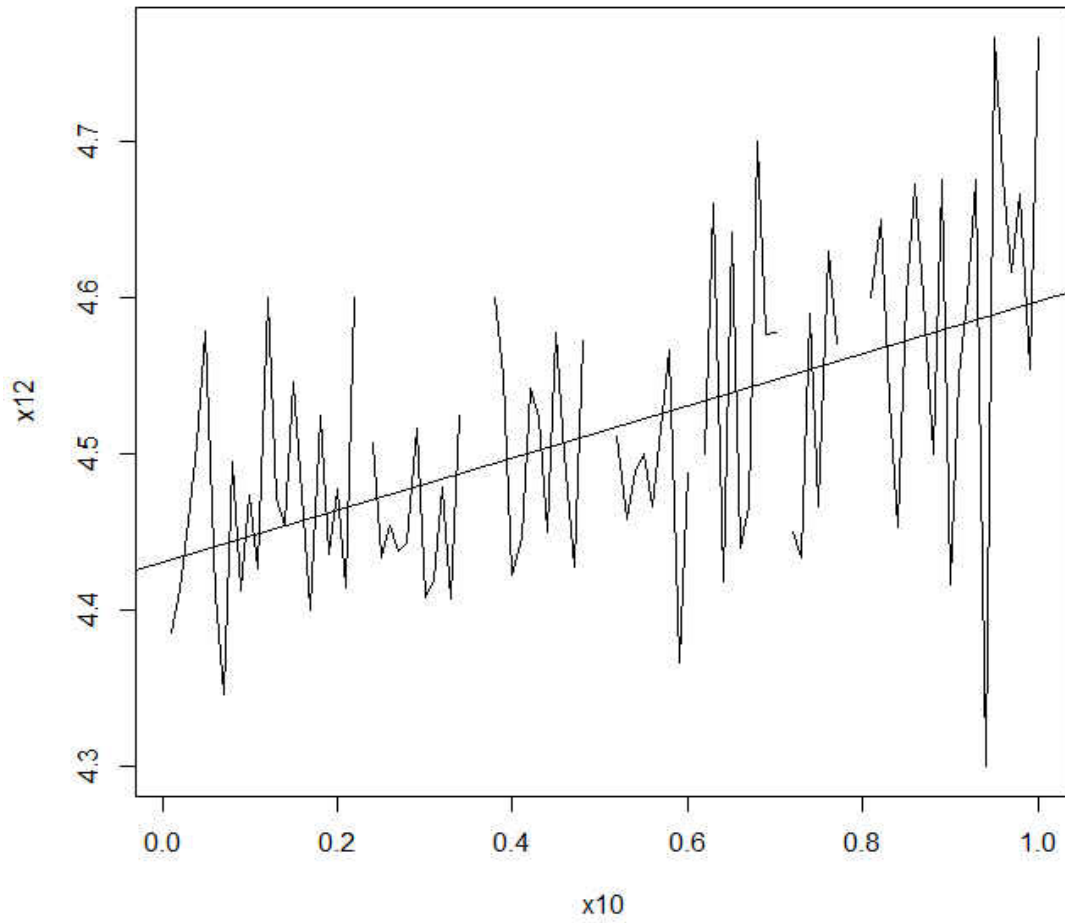


FIGURE 15: THE INTERACTION BETWEEN PERSUASION KNOWLEDGE AND OBJECTIVE PRICE-QUALITY CORRELATIONS

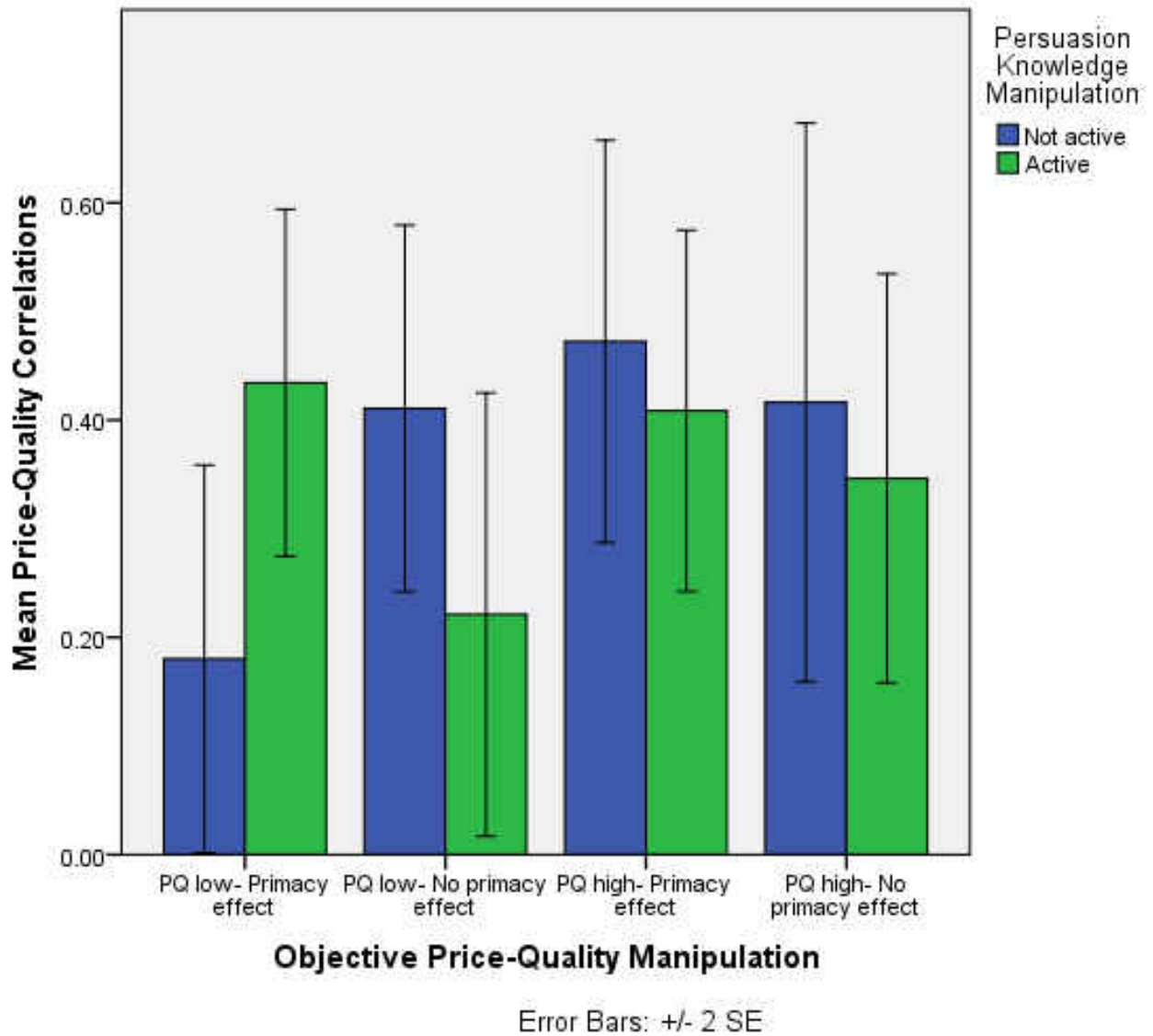


FIGURE 16: THE INTERACTION BETWEEN GENDER AND OBJECTIVE PRICE-QUALITY CORRELATIONS

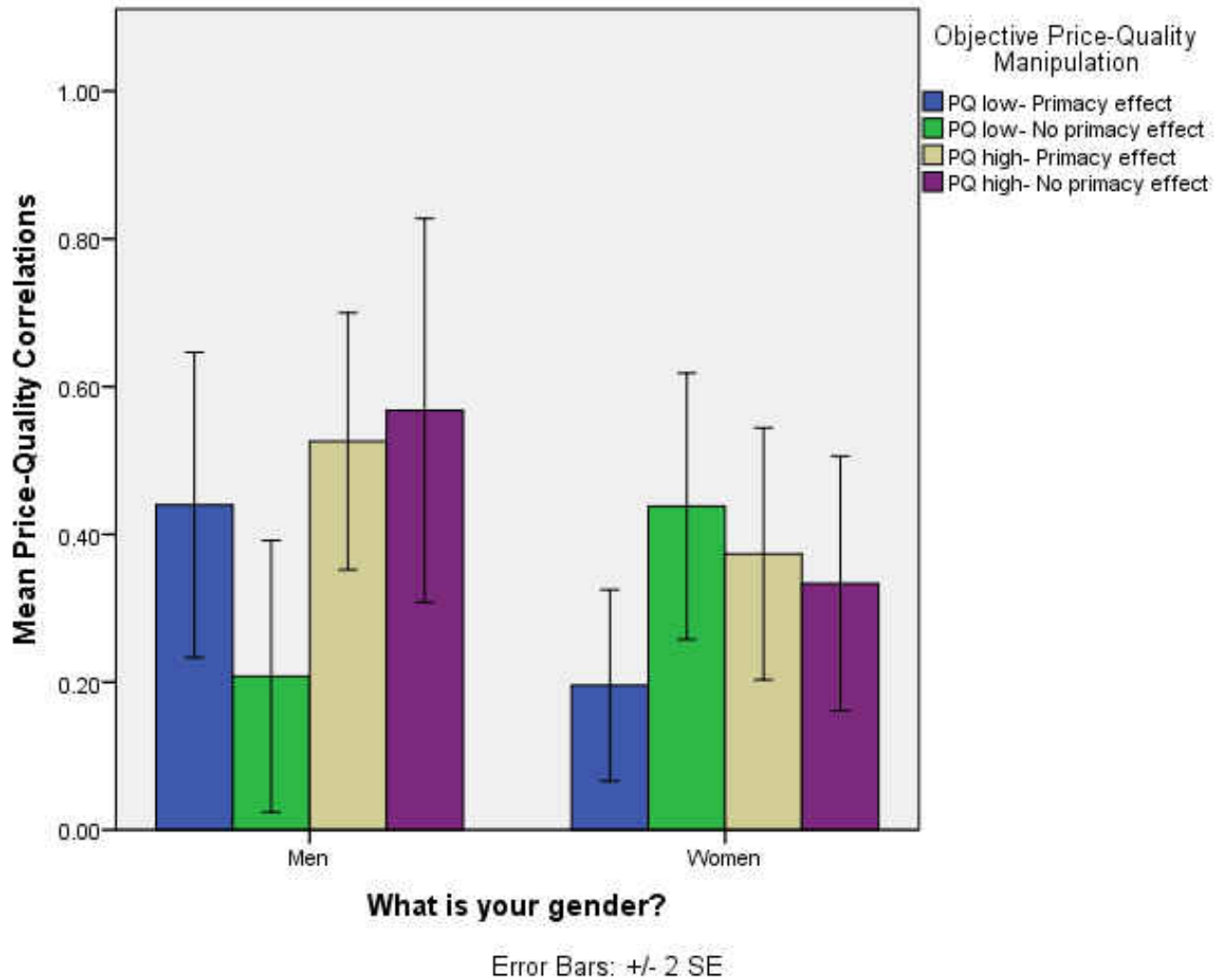
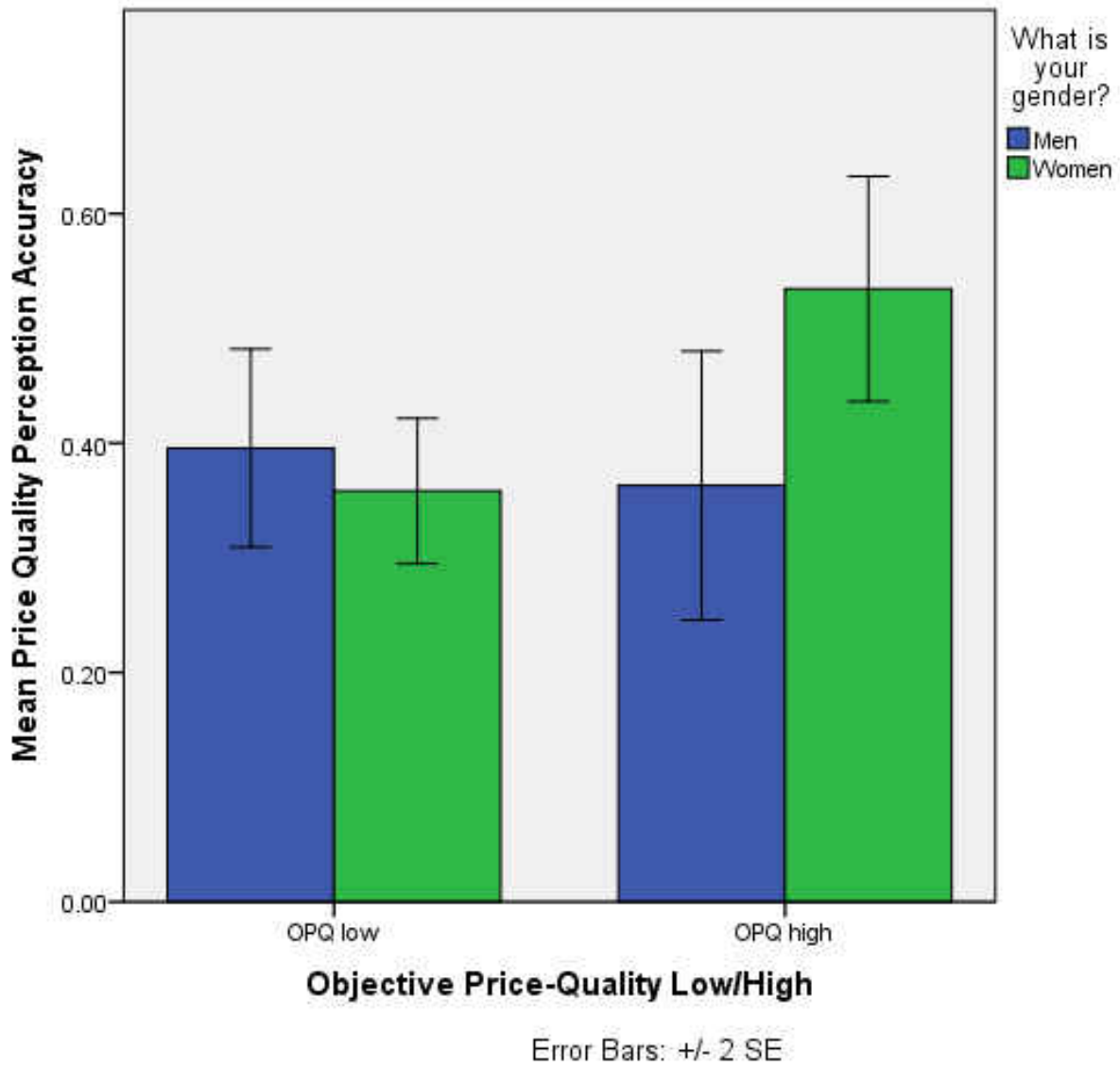


FIGURE 17: THE INTERACTION EFFECT ON THE ACCURACY OF PRICE-QUALITY PERCEPTIONS



APPENDICES

APPENDIX A: ADVERTISEMENT CONDITIONS FOR STUDY 1

Control Condition

Introducing Rumax Digital Camera



A recent test performed by Consumer Reports showed that RUMAX produced better quality pictures than leading brands, such as Canon and Nikon.

Whether shooting in the full-auto mode to capture the scene quickly or using one of the camera's special scene modes, RUMAX will surely exceed your expectations.

For more information, visit us at www.rumax.com

Treatment Condition

Introducing Rumax Digital Camera



We performed tests that showed our camera produced better quality pictures than one of the leading brands.

Whether shooting in the full-auto mode to capture the scene quickly or using one of the camera's special scene modes, RUMAX will surely exceed your expectations.

For more information, visit us at www.rumax.com

APPENDIX B: CAMERA INFORMATION PRESENTED IN STUDY 2

OSR-Quality Correlations: High

Brand Name	Optical Zoom	Optical Sensor Resolution (MegaPixels)	Price	Quality Rating
Nikon S33	8x	13.1 MP	\$ 106.95	90
Canon ELPH 170	12x	10.1 MP	\$ 119	86
Fujifilm S2700	12x	18.2 MP	\$ 125	94
Samsung EC-PL120	5x	12.2 MP	\$ 149.95	87
Samsung WB350F	12x	12.2 MP	\$ 148.99	91
Nikon L330	18x	16.2 MP	\$ 125	94
Canon EXBH-160	10x	11.1 MP	\$ 139	93
Canon A4000IS	8x	14.2 MP	\$ 104	90
Sony DSC-W150	8x	18.2 MP	\$ 125.48	93
Canon ELPH-150	10x	14.2 MP	\$ 113.99	92
Canon A3400 IS	18x	12.2 MP	\$ 102	89
Samsung WB800F	21x	18.2 MP	\$ 149.95	94
Sony DSC-W650	5x	16 MP	\$ 129.99	91
Nikon S4300	6x	13.1 MP	\$ 119	89
Canon ELPH 115	8x	18 MP	\$ 139	94
Nikon L28	12x	12.2 MP	\$ 124.95	89
Fujifilm XP60	12x	12.1 MP	\$ 129.99	87
Samsung EC-DV180	5x	18.2 MP	\$ 138	94
Sony DSC-W620	10x	14.1 MP	\$ 149	92
Nikon S6300	10x	18.2 MP	\$ 125.48	94
Canon A3200	5x	13.1 MP	\$ 149.28	86
Samsung DV150F	5x	12.2 MP	\$ 102	89
Canon SX600 HS	18x	12.2 MP	\$ 132.89	89
Fujifilm S8600	12x	10.2 MP	\$ 145.89	87
Kodak AZ501	18x	14.2 MP	\$ 125.48	88

OSR-Quality Correlations: Low

Brand Name	Optical Zoom	Optical Sensor Resolution (MegaPixels)	Price	Quality Rating
Samsung EC-DV180	5x	16.2 MP	\$ 138	94
Canon EXBH-160	10x	13.2 MP	\$ 113.99	92
Kodak AZ501	18x	16.2 MP	\$ 125.48	88
Samsung EC-PL120	5x	14.2 MP	\$ 149.95	87
Samsung DV150F	5x	16 MP	\$ 102	89
Nikon L330	18x	14.1 MP	\$ 125	94
Canon ELPH 150	10x	14.1 MP	\$ 139	93
Canon A4000IS	8x	16 MP	\$ 104	90
Sony DSC-W150	8x	18.2 MP	\$ 125.48	93
Canon EXBH-145	10x	13.2 MP	\$ 113.99	92
Canon SX600 HS	18x	16 MP	\$ 102	89
Fujifilm S8600	12x	16 MP	\$ 145.89	87
Sony DSC-W650	5x	16.1 MP	\$ 129.99	91
Nikon S4300	6x	13.2 MP	\$ 119	89
Canon ELPH 115	8x	16.0 MP	\$ 139	94
Nikon L28	12x	12.2 MP	\$ 124.95	89
Fujifilm XP60	12x	16.4 MP	\$ 129.99	87
Canon A3400 IS	18x	14.1 MP	\$ 132.89	89
Sony DSC-W620	10x	14.1 MP	\$ 149	92
Nikon S6300	10x	16.0 MP	\$ 125.48	94
Canon A3200	10x	14 MP	\$ 149.28	86
Samsung WB350F	12x	16.2 MP	\$ 148.99	91
Nikon S33	8x	16 MP	\$ 106.95	90
Canon ELPH 170	12x	13.2 MP	\$ 119	86
Fujifilm S2700	14x	16.2 MP	\$ 125	94

APPENDIX C: PRICING CONDITIONS FOR STUDY 4

Price-High Condition

Brand	Specifications	Price
RUMAX DMC- EH8	20.1 Megapixel Plus 8x Zoom HD Digital Camera Optical Steady Shot Image Stabilization with 2-way Active Mode 16 Gigabyte Memory Card - 720p MP4 HD Movie Mode Replacement Battery	\$130
Canon ELPH 160	PowerShot ELPH 160 20MP 8x Opt Zoom HD Digital Camera 16GB Secure Digital SD Memory Card, Hi-Speed SD USB 2.0 Card Reader Ion replacement Battery, Digital Camera Carrying Case	\$110
Nikon Coolpix S2900	Nikon Coolpix S2900 20.1 MP 5x Optical Zoom HD Digital Camera 16 Gigabyte SDHC Memory Card - SD USB Memory Card Reader Additional EN-EL19 Rechargeable Lithium ion Replacement Battery	\$100

Price-Low Condition

Brand	Specifications	Price
RUMAX DMC- EH8	20.1 Megapixel Plus 8x Zoom HD Digital Camera Optical Steady Shot Image Stabilization with 2-way Active Mode 16 Gigabyte Memory Card - 720p MP4 HD Movie Mode Replacement Battery	\$80
Canon ELPH 160	PowerShot ELPH 160 20MP 8x Opt Zoom HD Digital Camera 16GB Secure Digital SD Memory Card, Hi-Speed SD USB 2.0 Card Reader Ion replacement Battery, Digital Camera Carrying Case	\$110
Nikon Coolpix S2900	Nikon Coolpix S2900 20.1 MP 5x Optical Zoom HD Digital Camera 16 Gigabyte SDHC Memory Card - SD USB Memory Card Reader Additional EN-EL19 Rechargeable Lithium ion Replacement Battery	\$100

APPENDIX D: PICTURES PRESENTED IN STUDY 4 AND STUDY 8



APPENDIX E: PERSUASION KNOWLEDGE PRIMING FOR STUDY 6 AND STUDY 7

Priming the Persuasion Knowledge

Please read the following article and answer the question below.

Deceptive packaging is a business practice intentionally designed to mislead the customer. The packaging may make it seem as though the buyer will get more quantity than what is actually enclosed, or that the product will be of higher quality than it actually is. Misleading packaging practices related to the quantity include “bigger packages with same quantity” (called the quantity surcharge tactic) and “same packages with less quantity” (called the content reduction tactic). The second type of misleading packaging practices are those that aim to create an image of a *high quality/high priced* product using tactics such as “copycat packaging” or “luxury packaging.”

These tactics mean that *instead of investing in the actual quality of the products, companies buy more expensive packaging materials and invest in the appearance of their products* to sway their customers into believing that they are paying for a high-quality product. Unfortunately, these practices are more common than many of us would like to admit. For example, a recent study sponsored by Consumer Reports revealed that, in a sample of industries over the past 2 years, around 96% of the price inflation was due to an increase in packaging and other costs, instead of an improvement in the actual quality of the products!

What are your thoughts and opinions on this topic? Do you have any experiences on this issue that you can share with us?

Control Group Treatment

Please read the following article and answer the question below.

Renewable energy is reliable and plentiful and will potentially be very cheap once technology and infrastructure improve. It includes solar, wind, geothermal, hydropower and tidal energy, plus biofuels that are grown and harvested without fossil fuels. Nonrenewable energy, such as coal and petroleum, require costly explorations and potentially dangerous mining and drilling, and they will become more expensive as supplies dwindle and demand increases. Renewable energy produces only minute levels of carbon emissions and therefore helps combat climate change caused by fossil fuel usage.

The daily price of oil depends on many factors, including political stability in historically volatile regions. Political strife has caused energy crises, including those that occurred in 1973 and 1979. Renewable energy can be locally produced and therefore is not vulnerable to distant political upheavals. Many of the safety concerns surrounding fossil fuels, such as explosions on oil platforms and collapsing coal mines, do not exist with renewable energy. Furthermore, Renewable energy investments are usually spent within the United States, frequently in the same state, and often in the same town. This means your energy dollars stay home to create jobs and fuel local economies, rather than going to other countries.

What are your thoughts and opinions on this topic? Do you have any experiences on this issue that you can share with us?

APPENDIX F: MANIPULATION OF OBJECTIVE PRICE-QUALITY INFORMATION IN
STUDY 6

Objective Price-Quality Correlations in the Table and Among the First Six Brands: Low-Low

Brand	Year	Type/ Region	Price	Quality
Leyda	2013	Sauvignon Blanc (Leyda Valley)	13	89
Barnard Griffin	2014	Fumé Blanc Dry Sauvignon Blanc (Columbia Valley)	9	91
Bogle	2012	Essential Red (California)	10	92
Los Dos	2013	Grenache-Syrah (Campo de Borja)	8	88
Château Camelot la Chapelle	2011	Bordeaux	12	90
Garnet	2009	Pinot Noir (Monterey County)	11	91
DFJ Vinhos	2011	Portada Winemaker's Selection Tinto (Lisboa)	7	90
Hugl-Wimmer	2013	Wimmer Grüner Veltliner (Niederösterreich)	14	87
Blue Fish	2012	Sweet Riesling (Pfalz)	10	89
Mano A Mano	2011	empranillo (Vino de la Tierra de Castilla)	12	94
Hogue	2012	Gewürztraminer (Columbia Valley)	11	91
Fire Road	2013	Sauvignon Blanc (Marlborough)	14	90
Les Hauts de Lagarde	2013	From Organically Grown Grapes (Bordeaux)	13	91
Coto de Hayas	2013	Garnacha-Syrah (Campode Borja)	10	89
Aveleda	2005	Quinta da Aveleda Estate Bottled Loureiro-Alvarinho (Minho)	8	90
Chateau Ste. Michelle	2013	Dry Riesling (Columbia Valley)	10	92
Château Vincens	2013	Prestige (Cahors)	14	93
Esser	2012	Chardonnay (Monterey County)	13	91
Caves Velhas	2012	Vinhas Altas (Tejo)	10	90
StoneCap	2012	Estate Grown Merlot (Columbia Valley)	10	90
La Cappuccina	2012	Fontego (Soave)	13	89
Unger	2013	Stein Terrassen Riesling (Kremstal)	10	90
Cookies & Cream	2010	Merlot (California)	10	89
Cheval Quancard	2011	Réserve (Bordeaux Blanc)	11	91
Herdade do Esporão	2009	Quinta dos Murças Assobio (Douro)	13	95

Objective Price-Quality Correlations in the Table and Among the First Six Brands: Low-High

Brand	Year	Type/ Region	Price	Quality
Aveleda	2005	Quinta da Aveleda Estate Bottled Loureiro-Alvarinho (Minho)	8	90
Barnard Griffin	2014	Fumé Blanc Dry Sauvignon Blanc (Columbia Valley)	9	91
Bogle	2012	Essential Red (California)	10	92
Herdade do Esporão	2009	Quinta dos Murças Assobio (Douro)	13	95
Mano A Mano	2011	empranillo (Vino de la Tierra de Castilla)	12	94
Chateau Ste. Michelle	2013	Dry Riesling (Columbia Valley)	10	92
DFJ Vinhos	2011	Portada Winemaker's Selection Tinto (Lisboa)	7	90
Hugl-Wimmer	2013	Wimmer Grüner Veltliner (Niederösterreich)	14	87
Blue Fish	2012	Sweet Riesling (Pfalz)	10	89
Garnet	2009	Pinot Noir (Monterey County)	11	91
Hogue	2012	Gewürztraminer (Columbia Valley)	11	91
Fire Road	2013	Sauvignon Blanc (Marlborough)	14	90
Les Hauts de Lagarde	2013	From Organically Grown Grapes (Bordeaux)	13	91
Coto de Hayas	2013	Garnacha-Syrah (Campode Borja)	10	89
Leyda	2013	Sauvignon Blanc (Leyda Valley)	13	89
Château Camelot la Chapelle	2011	Bordeaux	12	90
Château Vincens	2013	Prestige (Cahors)	14	93
Esser	2012	Chardonnay (Monterey County)	13	91
Caves Velhas	2012	Vinhas Altas (Tejo)	10	90
StoneCap	2012	Estate Grown Merlot (Columbia Valley)	10	90
La Cappuccina	2012	Fontego (Soave)	13	89
Unger	2013	Stein Terrassen Riesling (Kremstal)	10	90
Cookies & Cream	2010	Merlot (California)	10	89
Cheval Quancard	2011	Réserve (Bordeaux Blanc)	11	91
Los Dos	2013	Grenache-Syrah (Campo de Borja)	8	88

Objective Price-Quality Correlations in the Table and Among the First Six Brands: High-Low

Brand	Year	Type/ Region	Price	Quality
Leyda	2013	Sauvignon Blanc (Leyda Valley)	13	89
Barnard Griffin	2014	Fumé Blanc Dry Sauvignon Blanc (Columbia Valley)	9	91
Bogle	2012	Essential Red (California)	10	92
Los Dos	2013	Grenache-Syrah (Campo de Borja)	8	88
Château Camelot la Chapelle	2011	Bordeaux	12	90
Garnet	2009	Pinot Noir (Monterey County)	11	91
DFJ Vinhos	2011	Portada Winemaker's Selection Tinto (Lisboa)	11	90
Hugl-Wimmer	2013	Wimmer Grüner Veltliner (Niederösterreich)	8	87
Blue Fish	2012	Sweet Riesling (Pfalz)	10	89
Mano A Mano	2011	empranillo (Vino de la Tierra de Castilla)	15	94
Hogue	2012	Gewürztraminer (Columbia Valley)	12	91
Fire Road	2013	Sauvignon Blanc (Marlborough)	11	90
Les Hauts de Lagarde	2013	From Organically Grown Grapes (Bordeaux)	12	91
Coto de Hayas	2013	Garnacha-Syrah (Campode Borja)	10	89
Aveleda	2005	Quinta da Aveleda Estate Bottled Loureiro-Alvarinho (Minho)	11	90
Chateau Ste. Michelle	2013	Dry Riesling (Columbia Valley)	13	92
Château Vincens	2013	Prestige (Cahors)	14	93
Esser	2012	Chardonnay (Monterey County)	12	91
Caves Velhas	2012	Vinhas Altas (Tejo)	11	90
StoneCap	2012	Estate Grown Merlot (Columbia Valley)	11	90
La Cappuccina	2012	Fontego (Soave)	10	89
Unger	2013	Stein Terrassen Riesling (Kremstal)	11	90
Cookies & Cream	2010	Merlot (California)	10	89
Cheval Quancard	2011	Réserve (Bordeaux Blanc)	12	91
Herdade do Esporão	2009	Quinta dos Murças Assobio (Douro)	15	95

Objective Price-Quality Correlations in the Table and Among the First Six Brands: High-High

Brand	Year	Type/ Region	Price	Quality
Chateau Ste. Michelle	2013	Dry Riesling (Columbia Valley)	13	92
Château Vincens	2013	Prestige (Cahors)	14	93
Esser	2012	Chardonnay (Monterey County)	12	91
Caves Velhas	2012	Vinhas Altas (Tejo)	11	90
StoneCap	2012	Estate Grown Merlot (Columbia Valley)	11	90
La Cappuccina	2012	Fontego (Soave)	10	89
DFJ Vinhos	2011	Portada Winemaker's Selection Tinto (Lisboa)	11	90
Hugl-Wimmer	2013	Wimmer Grüner Veltliner (Niederösterreich)	8	87
Blue Fish	2012	Sweet Riesling (Pfalz)	10	89
Mano A Mano	2011	empranillo (Vino de la Tierra de Castilla)	15	94
Hogue	2012	Gewürztraminer (Columbia Valley)	12	91
Fire Road	2013	Sauvignon Blanc (Marlborough)	11	90
Les Hauts de Lagarde	2013	From Organically Grown Grapes (Bordeaux)	12	91
Coto de Hayas	2013	Garnacha-Syrah (Campode Borja)	10	89
Aveleda	2005	Quinta da Aveleda Estate Bottled Loureiro-Alvarinho (Minho)	11	90
Leyda	2013	Sauvignon Blanc (Leyda Valley)	13	89
Barnard Griffin	2014	Fumé Blanc Dry Sauvignon Blanc (Columbia Valley)	9	91
Bogle	2012	Essential Red (California)	10	92
Los Dos	2013	Grenache-Syrah (Campo de Borja)	8	88
Château Camelot la Chapelle	2011	Bordeaux	12	90
Garnet	2009	Pinot Noir (Monterey County)	11	91
DFJ Vinhos	2011	Portada Winemaker's Selection Tinto (Lisboa)	11	90
Cookies & Cream	2010	Merlot (California)	10	89
Cheval Quancard	2011	Réserve (Bordeaux Blanc)	12	91
Herdade do Esporão	2009	Quinta dos Murças Assobio (Douro)	15	95

**APPENDIX G: MANIPULATION OF OBJECTIVE PRICE-QUALITY INFORMATION
IN STUDY 7**

Objective Price-Quality Correlations in the Table and Among the First Six Brands: High-High

Brand	Year	Type/ Region	Price	Number of bottles sold (1000 units)	Quality
Aveleda	2013	Quinta da Aveleda -Alvarinho (Minho)	9	8300	90
Barnard Griffin	2012	Fumé Blanc Sauvignon Blanc (Columbia Valley)	11	12400	91
Bogle	2012	Essential Red (California)	11	6300	91
Herdade do Esporão	2009	Quinta dos Murças Assobio (Douro)	13	10100	94
Mano A Mano	2011	empranillo (Vino de la Tierra de Castilla)	9	12000	90
Chateau Ste. Michelle	2013	Dry Riesling (Columbia Valley)	12	8200	91
DFJ Vinhos	2011	Portada Winemaker's Selection Tinto (Lisboa)	8	9800	90
Hugl-Wimmer	2013	Wimmer Grüner Veltliner (Niederösterreich)	10	8000	90
Blue Fish	2012	Sweet Riesling (Pfalz)	8	2900	89
Garnet	2009	Pinot Noir (Monterey County)	13	6500	92
Hogue	2012	Gewürztraminer (Columbia Valley)	11	7800	91
Fire Road	2013	Sauvignon Blanc (Marlborough)	10	2700	90
Les Hauts	2013	From Organically Grown Grapes (Bordeaux)	12	9100	91
Coto de Hayas	2013	Garnacha-Syrah (Campode Borja)	10	11300	89
Leyda	2013	Sauvignon Blanc (Leyda Valley)	9	1000	89
Château	2011	Bordeaux	10	6000	90
Château Vincens	2013	Prestige (Cahors)	13	27200	93
Esser	2012	Chardonnay (Monterey County)	13	9700	91
Caves Velhas	2012	Vinhas Altas (Tejo)	10	8500	90
StoneCap	2012	Estate Grown Merlot (Columbia Valley)	11	6500	90
La Cappuccina	2012	Fontego (Soave)	9	14400	89
Unger	2013	Stein Terrassen Riesling (Kremstal)	10	5500	90
Cookies & Cream	2010	Merlot (California)	11	5200	90
Cheval Quancard	2011	Réserve (Bordeaux Blanc)	11	8400	91
Los Dos	2013	Grenache-Syrah (Campo de Borja)	8	6500	88

Objective Price-Quality Correlations in the Table and Among the First Six Brands: Low-High

Brand	Year	Type/ Region	Price	Number of bottles sold (1000 units)	Quality
Aveleda	2013	Quinta da Aveleda Estate Bottled Loureiro-Alvarinho (Minho)	8	8300	90
Barnard Griffin	2012	Fumé Blanc Dry Sauvignon Blanc (Columbia Valley)	9	12400	91
Bogle	2012	Essential Red (California)	9	6300	91
Herdade do Esporão	2009	Quinta dos Murças Assobio (Douro)	13	10100	94
Mano A Mano	2011	empranillo (Vino de la Tierra de Castilla)	9	12000	90
Chateau Ste. Michelle	2013	Dry Riesling (Columbia Valley)	10	8200	91
DFJ Vinhos	2011	Portada Winemaker's Selection Tinto (Lisboa)	7	9800	90
Hugl-Wimmer	2013	Wimmer Grüner Veltliner (Niederösterreich)	14	8000	90
Rhine Fish	2012	Sweet Riesling (Pfalz)	10	7900	89
Garnet	2009	Pinot Noir (Monterey County)	15	6500	92
Hogue	2012	Gewürztraminer (Columbia Valley)	11	7800	91
Fire Road	2013	Sauvignon Blanc (Marlborough)	14	2700	90
Les Hauts de Lagarde	2013	From Organically Grown Grapes (Bordeaux)	13	9100	91
Coto de Hayas	2013	Garnacha-Syrah (Campo de Borja)	10	11300	89
Leyda	2013	Sauvignon Blanc (Leyda Valley)	13	1000	89
Château Camelot la Chapelle	2011	Bordeaux	10	6000	90
Château Vincens	2013	Prestige (Cahors)	13	27200	93
Esser	2012	Chardonnay (Monterey County)	13	9700	91
Caves Velhas	2012	Vinhas Altas (Tejo)	10	8500	90
StoneCap	2012	Estate Grown Merlot (Columbia Valley)	10	6500	90
La Cappuccina	2012	Fontego (Soave)	13	14400	89
Unger	2013	Stein Terrassen Riesling (Kremstal)	10	5500	90
Cookies & Cream	2010	Merlot (California)	10	5200	90
Cheval Quancard	2011	Réserve (Bordeaux Blanc)	11	8400	91
Los Dos	2013	Grenache-Syrah (Campo de Borja)	8	6500	88

APPENDIX H: ADVERTISEMENTS PRESENTED IN STUDY 8

Non-Manipulative Advertisement

Introducing Rumax Digital Camera



A recent test performed by Consumer Reports showed that RUMAX was better than leading brands, such as Canon and Nikon.

Whether shooting in the full-auto mode to capture the scene quickly or using one of the camera's special scene modes, RUMAX will surely exceed your expectations.

For more information, visit us at www.rumax.com

Manipulative Advertisement

Introducing Rumax Digital Camera



We performed tests that showed our camera was better than every other brand in the market.

Whether shooting in the full-auto mode to capture the scene quickly or using one of the camera's special scene modes, RUMAX will surely exceed your expectations.

For more information, visit us at www.rumax.com

ESSAY 2

CONSUMERS' PERSUASION KNOWLEDGE: A PROCESS-BASED APPROACH

ABSTRACT

Recent research shows that consumers' responses to marketers' offerings are changing, and compared to the past, they are not as easily influenced by marketers' product, pricing, advertising, and branding strategies. The persuasion Knowledge Model (PKM; Friestad and Wright 1994) attributes this trend to consumers' ever-increasing knowledge of the manipulation techniques that marketers use to influence their behavior. Despite significant research on PKM, several important questions remain to be answered: How persuasion knowledge is stored in- and retrieved from- memory, and what are the factors that impede or facilitate these processes? What is the best way to measure consumers' persuasion knowledge, their propensity to acquire new knowledge, and their ability to use their existing knowledge to protect themselves against marketers' persuasion attempts?

To answer these questions, an integrative, process-based framework that offers a dynamic view of consumers' persuasion knowledge (CPK) was developed. This new framework delineates three distinct processes of development of CPK, activation of CPK, and effects of CPK, and offers substantive theoretical and practical contributions.

INTRODUCTION

Persuasion knowledge refers to individuals' ability to identify and resist outside agents' intelligent and purposeful manipulation attempts (Friestad and Wright 1994). It involves learning the outside agents' persuasion tactics aimed at influencing others' perceptions, beliefs, decisions, and behavior. The learning process of persuasion knowledge starts from preschool years and continues throughout life (McAlister and Cornwell 2009). In the marketing context², people continuously learn about marketers' persuasion tactics via their interactions with family members, co-workers, peers, media, companies, and marketers (Friestad and Wright 1994). Although learning about marketers' persuasion tactics is critical in enabling the consumers to identify and resist them, it is insufficient. As in most persuasion scenarios, marketers use subtle persuasion techniques. To be able to identify those techniques, consumers should have sufficient motivational and cognitive resources.

Activation of persuasion knowledge enables consumers to identify marketers' persuasion tactics (Friestad and Wright 1994). Research shows that the identification of marketers' persuasion tactics will result in a negative attitude toward the advertisement (Campbell 1995, Kirmani and Zhu 2007), salespeople (Campbell and Kirmani 2000), brands (Wei, Fischer, and Main 2008), and brand slogans (Loran, Dalton, and Andrade 2011). It also enables consumers to cope with marketers' persuasion attempts (Campbell and Kirmani 2000; Hibbert, et al. 2007; Kachersky 2011; Kachersky and Kim 2011; Kirmani and Zue 2007; Nelson, Wood and Paek 2009).

² Although for simplicity and parsimony reasons we have only discussed "marketing persuasion knowledge," the proposed conceptual framework is applicable to the broad concept of "general persuasion knowledge" as well.

In the past two decades, scholarly research has advanced an understanding of consumers' persuasion knowledge and its key role in shaping consumers' behavior. Nevertheless, several substantive questions remain to be answered. For example, how persuasion knowledge is stored in- and retrieved from- memory, and what are the factors that impede or facilitate these processes? What is the best way to measure consumers' persuasion knowledge, their propensity to acquire new knowledge, and their ability to use their existing knowledge to protect themselves from persuasion scenarios?

This article attempts to provide insights for answering these questions by developing a framework that synthesizes the extant literature in multiple streams of research including dual models of persuasion and attitude change, and persuasion knowledge; neuromarketing and neuroscience; decision science, and information processing theories; learning and cognitive models of working memory; and three main streams of research in the emotions literature. The cornerstone of this framework is a process view of persuasion knowledge which includes the development, activation, and the effects of persuasion knowledge, and the interactions and linkages among these three processes. The framework offers the following contributions.

First, the proposed consumers' persuasion knowledge framework (CPK) identifies important underdeveloped connections among the development, activation, and the influence processes of persuasion knowledge. For example, it illustrates how in a positive feedback loop, development, activation, and consequences of persuasion knowledge are connected to- and affect one another. This results in continuous improvement of consumers' ability to identify marketers' manipulative tactics and modify their own perceptions, beliefs, and behavior to maximize the utility of their purchase decisions.

Second, the proposed CPK framework scrutinizes the underlying processes of activation, development, and effects of persuasion knowledge. For example, building on Elaboration Likelihood Model (ELM) framework, it investigates the influence of consumers' ability and motivation in the learning process of persuasion knowledge. Furthermore, based on the selective information processing theory and evidence from the persuasion knowledge literature, it examines the role of the depth and direction of information processing in the activation process of persuasion knowledge.

Third, the developed model points out the important, yet overlooked, role that emotions play in the development and activation processes of persuasion knowledge. For example, it illustrates how emotional valence and intensity affect consumers' ability to learn persuasion knowledge and their propensity to activate their persuasion knowledge, respectively.

Fourth, the findings extend the persuasion knowledge model (PKM; Friestad and Wright 1994) by proposing a process-based view of persuasion knowledge which shows the interactions among topic knowledge, agent knowledge, and persuasion knowledge and their effects on consumers' perceptions, decisions, and post-purchase behavior.

Figure 18 illustrates the conceptual framework, for which a rationale is developed next. An overview of the model will be presented first. Next, the concept of persuasion knowledge will be deliberated. Then, the antecedents of the persuasion knowledge and the potential variables that influence consumers' ability or propensity to use their persuasion knowledge to resist marketers' persuasion attempts will be discussed. The article will be continued by discussing the effect of consumers' persuasion knowledge on their behavior. Finally, guidelines for future research and the managerial implications will be discussed.

[Place figure 18 about here]

THE COMPREHENSIVE FRAMEWORK OF PERSUASION KNOWLEDGE

The conceptual framework of this study consists of three interconnected processes: the development of persuasion knowledge, the activation of persuasion knowledge, and the effects of persuasion knowledge. Incorporating the last two decades of research, this process-based framework extends the persuasion knowledge model (PKM; Friestad and Wright 1994) by investigating the underlying processes of development, activation, and influence of persuasion knowledge, as well as showing the interactions and linkages among them.

The development process of persuasion knowledge occurs when consumers learn about the persuasion tactics used by marketers. This learning process is the result of consumers' daily interactions with marketers and consumers' observations of- and contact with- other sources of persuasion knowledge. In the proposed framework, *learning the persuasion tactic* is in line with what Friestad and Wright (1994) called the *change-of-meaning principle*. Since learning persuasion tactics from scattered and intangible sources of information is a challenging task, it requires an elevated level of motivation and ability. Consumers who have a higher motivation to systematically process the information and are more capable to accurately perceive, comprehend, and store the persuasion tactic information in their memories are more likely to learn about marketers' persuasion tactics.

Activation of persuasion knowledge includes consumers' judgments of marketers' persuasion intentions. The frailty of the human mind in making accurate judgments is well documented in the literature (Oppenheimer and Kelso 2015). Therefore, it is important to note that neither consumers are always able to use their persuasion knowledge to identify marketers' persuasion tactics nor consumers' perceptions of marketers' persuasion tactics are always

accurate. For example, representativeness and accessibility biases (Tversky and Kahneman 1974) will incline consumers to judge marketers' behavior as laden with manipulative intentions in industries that are readily associated with unethical marketing practices (e.g., car dealerships) but hinder their ability to make such judgments in other industries (e.g., clothing industry). The depth and direction of the information processing affect consumers' ability to perceive potential manipulation intentions and the accuracy of such perceptions. Psychological, situational, and sociocultural factors affect the depth and direction of processing of the information. For example, evidence from evolutionary psychology theory suggests that emotional intensity affects the depth of information processing, while emotional valence influences the direction of the information processing (Lench, Flores and Bench 2011).

Consumers' perceptions of marketers' offerings (i.e., products and services) and messages (i.e., advertisement) depend on their topic knowledge, agent knowledge, and persuasion knowledge (Friestad and Wright 1994, 1995). According to Friestad and Wright (1994), topic knowledge is the information about a product or service that is stored in memory and enables consumers to evaluate the objective quality of that product or service. Agent knowledge refers to consumers' attitude toward the brand, company, and salespeople, which is the result of consumers' past experiences and interactions. Therefore, when consumers identify a persuasion tactic, it not only affects their perceptions of the marketers' offerings and messages but also affects their perception of the marketers' image, hence affecting consumers' agent knowledge.

Consumers' perceptions of the value of the offer will influence their purchase decisions. Purchasing and using a product or service will increase consumers' topic knowledge and affect their expectations and understanding of the product. Furthermore, the post-purchase experience

will affect consumers' agent knowledge and persuasion knowledge. Consumers' will compare the experienced attributes with the expected attributes and any expectation disconfirmation will result in cognitive dissonance (Golder, Mitra, and Moorman 2012) and provoke consumers to re-examine their judgments and attitudes toward the person, company, or advertisement message that had created the unmet expectations (Wood 2000).

The next three sections of this paper elaborate the development, activation, and effects of persuasion knowledge as shown in Figure 19. First, the development process of persuasion knowledge will be discussed. Next, the activation process of persuasion knowledge and the interaction between development and activation processes will be described. Finally, the effects of persuasion knowledge on consumers' perceptions, decisions, and behavior will be discussed. The proposed framework offers a process-based dynamic view of persuasion knowledge, and its closed-loop nature indicates that each one of the development, activation, and effect processes are an antecedent and a consequence of the other two processes.

[Place figure 19 about here]

THE DEVELOPMENT PROCESS OF PERSUASION KNOWLEDGE

Consumers can use both internal and external sources of information to learn additional information about companies, their offerings, and their strategies (Gregan-Paxton and John 1997). Categorization theory proposes that external sources of information, including traditional and electronic word-of-mouth communications, will result in the assimilation of additional information into discrete mental categories which later can be activated in order to retrieve the information and form quick judgments about the objects that are representative of each category (Loken 2006).

Analogical learning theory proposes that consumers can use the existing knowledge in one category (the base) to create new knowledge in other related categories (the target). Therefore, according to analogical learning theory, consumers can use internal sources of information to make judgments in similar, yet never experienced before, scenarios (Gregan-Paxton and John 1997).

It is argue here that consumers can learn the persuasion knowledge from both internal and external sources of information. As the result of advances in technology and the internet, external sources of information today are ubiquitous. Nevertheless, learning persuasion knowledge from external sources of information is an effortful and cognitively taxing process for several reasons. First, learning from external sources is achieved via cognitive learning, which entails transferring new information from the sensory store to working memory/short-term memory, to long-term memory through rehearsal, encoding, and retrieval respectively (Schiffman and Kanuk 2008). Therefore, cognitive learning requires effortful thinking. Second, in many cases, the available information via external sources is not homogenous or consistent. For example, for most

products, the available consumers' reviews (i.e., EWOM) are mixed. Research shows that analyzing inconsistent information is a cognitively demanding process and requires both motivational and cognitive resources (Petty, Wegener, and Fabrigar 1997). Third, empirical evidence suggests that when people are presented with new information, even if the information is obviously false, they automatically believe the information and subsequently depend on their cognitive resources to *unbelieve* the believed false information; consequently, a lack of cognitive capacity hinders peoples' ability to reject (unbelieve) the false information (Gilbert 1991; Gilbert, Krull, and Malone 1990). Therefore, when people are faced with manipulative advertising, they automatically believe the information, and they will need to subsequently process the information to identify the manipulative intentions and modify their primary judgments.

Consumers can learn persuasion knowledge by using their internal sources as well. As discussed previously, persuasion knowledge enables individuals to identify and resist outside agents' deliberate and intelligent attempts to influence their beliefs, emotions, attitudes, decisions, and their thought processes (Friestad and Wright 1999). Since in different situations a variety of manipulation techniques are being used to influence the behavior, it is conceivable that people learn and master idiosyncratic and context-based variations of persuasion knowledge. For example, a lawyer exerts a specific kind of persuasion expertise in a courtroom, which is different from the persuasion technique that a marketer uses in the marketplace. Furthermore, marketers use diverse types of persuasion technics in devising advertising, personal selling, and pricing strategies. Based on analogical learning theory, it is posited that when consumers identify marketers' persuasion tactics in one context, they can transfer that knowledge to other similar contexts as well. For example, when consumers learn about manipulation tactics that salespeople

use (e.g., establishing similarity to induce congeniality), they will be able to use that knowledge to identify similar manipulation tactics that might be used in advertising (e.g., the popularity ad appeal). More importantly, previous research shows that knowledge transfer via analogical learning is an automatic process and is utilized via a peripheral route to cognition (Gregan-Paxton and John 1997). As a result, the following propositions are presented:

P1: Consumers use external sources of information to learn the persuasion knowledge via an effortful thinking process.

P2: Consumers use internal sources of information to learn persuasion knowledge via an automatic process.

Regulatory focus and Consumers Persuasion Knowledge

Building on ELM and Heuristic-Systematic Model (HSM), it is hypothesized that consumers should have motivational and cognitive resources to learn from external sources of information. Factors that limit consumers' ability to process information systematically will hinder their ability to learn persuasion knowledge from external sources of information. Furthermore, factors that increase (decrease) consumers' motivation to process the information systematically and get engaged in an effortful thinking process will facilitate (hinder) the learning process of persuasion knowledge from external sources of information.

Motivational forces influence cognition. Moreover, individuals' goals and desires affect the way that they remember and process the information (Johar, Maheswaran and Peracchio 2006). The regulatory system refers to the motivation system that drives people's behavior and can be

categorized into two main promotion and prevention categories (Crowe and Higgins 1997). Compared with promotion-focused people, prevention-focused people are more vigilant against ulterior motives, are more prone to process the information systematically, and are more likely to focus on the negative information when faced with mixed information. Therefore, prevention-focused people are more motivated to learn persuasion knowledge using external sources. Extant literature shows that prevention-focused people are indeed more effective in identifying marketers' persuasion tactics than promotion-focused people are (Kirmani and Zhu 2007). As a result, the following proposition is presented:

P3: Regulatory focus modifies the acquisition process of persuasion knowledge by influencing people's motivation to process the information. Compared with promotion-focused people, prevention-focused people are more likely to be motivated to process the information systematically, and subsequently, are more likely to learn persuasion knowledge using external sources of information.

Involvement and Consumers' Persuasion Knowledge

High involvement products are those that are expensive and/or have significant consequences in terms of addressing consumers' belonging/esteem needs. Past research illustrates that in high-involvement product categories, consumers are more likely to search for information (Warrington and Shim 2000) and possess a higher level of objective product knowledge (Park and Moon 2003). Therefore, for high-involvement product categories, as compared with low-involvement product categories, people should have a higher level of motivation to process the

information systematically and to learn the persuasion knowledge using external sources of knowledge. This proposition provides novel insights regarding highly accessible memories of persuasion scenarios in high-involvement product categories (e.g., cars) versus low-involvement product categories (e.g., personal care products). As a result, the following proposition is presented:

P4: In high-involvement product categories versus low-involvement product categories, people are more inclined to get engaged in an effortful thinking process, and subsequently, are more prone to acquire persuasion knowledge from external sources of information.

Gender and Cognitive Capacity

The effect of gender. According to selectivity model males and females differ in the way that they process the information (Meyers-Levy and Maheswaran 1991; Meyers-Levy and Sternthal 1991). Women tend to engage in a more detailed elaboration of information and are more likely to recognize subtle cues in a message, while men are inclined to engage in schematic information processing and tend to miss subtle cues (Darley and Smith 1995). As a result, women (vs. men) have a more (less) positive attitude toward objective ad claims (Darley and Smith 1995) and show a greater emotional response to advertisements that are complex (vs. simple) (Putrevu 2004). Furthermore, men are more susceptible to use readily available information to judge the brands, while women are more sensitive to the comprehensiveness of information to draw any conclusions (Kempf, Laczniak, and Smith 2006). Therefore, it is argued that compared with men, women are more prone to process the information systematically, and

therefore are more likely to acquire persuasion knowledge using external sources of information.

The following proposition is therefore offered:

P5: Compared with men, women have a higher motivation to get engaged in the effortful thinking process and subsequently are more likely to acquire persuasion knowledge via external sources of information.

The effect of cognitive capacity. When consumers are presented with a high amount of information, the subsequent cognitive strain limits their ability to process the information systematically (Kardes et al., 2004; Cronley et al., 2005). According to the selective information processing theory, a high load of information will negatively influence individuals' tendency to thoroughly process the information. This will undermine their ability to acquire persuasion knowledge using external sources of information. Furthermore, research shows that limiting consumers' cognitive capacity will lower their ability to activate their persuasion knowledge and identify persuasion tactics used against them (Campbell and Kirmani 2000). For example, one common tactic that car salespeople use to influence consumers' behavior is to bombard them with non-essential product information. When consumers are presented with too much un-related information about the product and the contract, they will be less likely to notice that they are paying too much for things such as "administration fee" or "processing fee," which will significantly inflate the original price that had lured them into the dealership from the first place.

P6: Limiting consumers' cognitive capacity will undermine their ability to learn persuasion knowledge using external sources of information.

THE ACTIVATION OF PERSUASION KNOWLEDGE

As consumers learn about marketers' persuasion tactics and the ways to protect themselves in persuasion scenarios, marketers develop new methods to mask their manipulative intentions from the scrutiny of consumers. Consequently, the manipulation tactics that marketers use continuously become more sophisticated and more difficult to get detected. Therefore, to identify marketers' subtle manipulative intentions, in addition to possessing persuasion knowledge, consumers will need to have the motivation and ability to pay attention to details and process the information at a greater depth. The direction of information processing could also influence consumers' ability to identify marketers' persuasion tactics. When presented with mixed evidence, consumers could focus on positive or negative information. Focusing on negative information facilitates the activation of persuasion knowledge, because such information could activate the memory nodes in consumers' associative memory network that would subsequently make similar memories more accessible for retrieval (Kahneman 2011). The following propositions therefore are presented:

P7: Depth of information processing influences consumers' ability to use their existing persuasion knowledge to identify marketers' persuasion tactics.

P8: Direction of information processing influences consumers' ability to identify marketers' persuasion tactics. Focusing on negative information facilitates consumers' ability to use their persuasion knowledge and identify marketers' persuasion attempts.

Accessibility of ulterior motive is influenced by how strongly and how easily an individual can associate the outside agents' behavior or offer with their persuasion motive (Campbell and Kirmani 2000). In a sales situation for example, since the responsibility and goal of a salesperson is to convince customers to purchase the product or service, customers are more likely to associate the benevolent behavior of salesperson with ulterior motives. As a result, the following the proposition is offered:

P9: Accessibility of ulterior motive will positively affect the activation of persuasion knowledge through affecting the direction of processing the information.

Emotions and Persuasion Knowledge

The relationship between persuasion knowledge and emotions is complex and fourfold: first, consumers' persuasion knowledge enables them to cope with emotional appeals (Hibbert et al., 2007). Second, emotions and mood affect preferences (Lee, Amir and Ariely 2009), memory, evaluations, and information processing (Bagozzi, Gopinath, Nyer 1999). Subsequently, emotions affect persuasion knowledge through influencing both the direction and the depth of information processing. Based on evolutionary theory, when a high-arousal negative emotion like fear is evoked it causes a chain reaction of physiological changes such as increased heart rate which will result in a more focused analysis of environmental information to analyze environmental threats (and getting prepared to fight or flee) (Lench, Flores and Bench 2011). This theory suggests that negative emotions are likely to provoke a systematic processing of information, whereas positive emotions are likely to facilitate peripheral and heuristic processing

of information. Since activation of persuasion knowledge requires an in-depth processing of information, it is postulated that negative emotions will positively affect the activation of persuasion knowledge through increasing the depth of information processing.

Third, according to Bagozzi, Gopinath and Nyer (1999) because of retrieval effect and encoding effect, people with negative mood states are more inclined to pay attention and recall negative information, this attribute affects their level of skepticism regarding agents' persuasion motives and make them more sensitive to environmental cues that indicate a persuasion intent or scenario (for people with positive mood, the effect is the opposite). Therefore, negative emotions are likely to positively affect the activation of persuasion knowledge through influencing the direction of information processing.

Fourth, valence/arousal emotion theory suggests that the level of arousal significantly moderates the effect of positive or negative emotions on cognition, judgment, and behavior. Based on this theory, high arousal (positive/ negative) emotions, as well as low arousal (positive/negative) emotions, induce similar physiological changes. While high arousal emotions are likely to cause more intense physiological changes, low arousal emotions are less likely to be powerful enough to cause a similar effect. Therefore, it is argued that a higher (lower) level of arousal would make the effect of emotions on persuasion knowledge more (less) pronounced. The following proposition are therefore presented:

P10: A positive mood will negatively affect the activation of persuasion knowledge through affecting both depth and direction of processing the information whereas a negative mood has a positive effect in this regard.

P11: The effect of positive or negative emotions on persuasion knowledge will be more pronounced in the case of high arousal emotions compared to low arousal emotions.

CONSEQUENCES OF PERSUASION KNOWLEDGE

As discussed so far, persuasion knowledge enables consumers to resist outside agents' persuasion attempts and successfully demonstrate persuasion coping behavior. The extant literature demonstrates that activation of persuasion knowledge can negatively affect consumers' attitudes toward brands (Wei, Fischer and Main 2008), salespeople (Campbell and Kirmani 2000; Kirmani and Campbell 2004) and different pricing tactics (Hardesty, Bearden, and Carlson 2007; Kachersky 2011; Kachersky and Kim 2011). The following proposition is therefore offered:

P12: activation of persuasion knowledge negatively influences consumers' attitude toward salespeople, advertisements, and manipulative pricing strategies.

For a more complete discussion on the consequences of the persuasion knowledge, please read the literature review of the Essay 1.

DISCUSSION AND MANAGERIAL IMPLICATIONS

In this paper, the extant literature on persuasion knowledge was explored and an integrative, process-based framework of consumers' persuasion knowledge (CPK) was developed. This model contributes to the literature from three different aspects. First, the developed consumers' persuasion knowledge framework (CPK) identifies important underdeveloped connections among the development, activation, and the influencing processes of persuasion knowledge. Second, this model scrutinizes the underlying processes of activation, development, and the effects of persuasion knowledge. Third, the proposed framework points out the important, yet overlooked, role that emotions play in the development and activation processes of persuasion knowledge. Fourth, this framework extends the persuasion knowledge model (PKM; Friestad and Wright 1994) by proposing a process view which shows the interactions among topic knowledge, agent knowledge, and persuasion knowledge and their effects on consumers' perceptions, decisions, and post-purchase behaviors.

This paper re-emphasizes the importance of persuasion knowledge in shaping consumers' attitudes, thoughts, and reactions regarding marketers' offers and behaviors. Consequently, this paper calls for a change in managers' perspectives toward consumers. Today, consumers are savvier than ever before, and they are getting equipped with a specific kind of knowledge that enables them to make reliable interpretations of marketers' intentions and to resist marketers' persuasion attempts. Therefore, marketers should acknowledge this fact and try to focus on making more truthful ad claims and offer services and products that are aligned with customers' best interests and create actual value for them.

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TABLES AND FIGURES

FIGURE 18: OVERVIEW OF THE CONSUMERS' PERSUASION KNOWLEDGE FRAMEWORK: KEY PROCESSES, OUTCOMES, AND LINKS

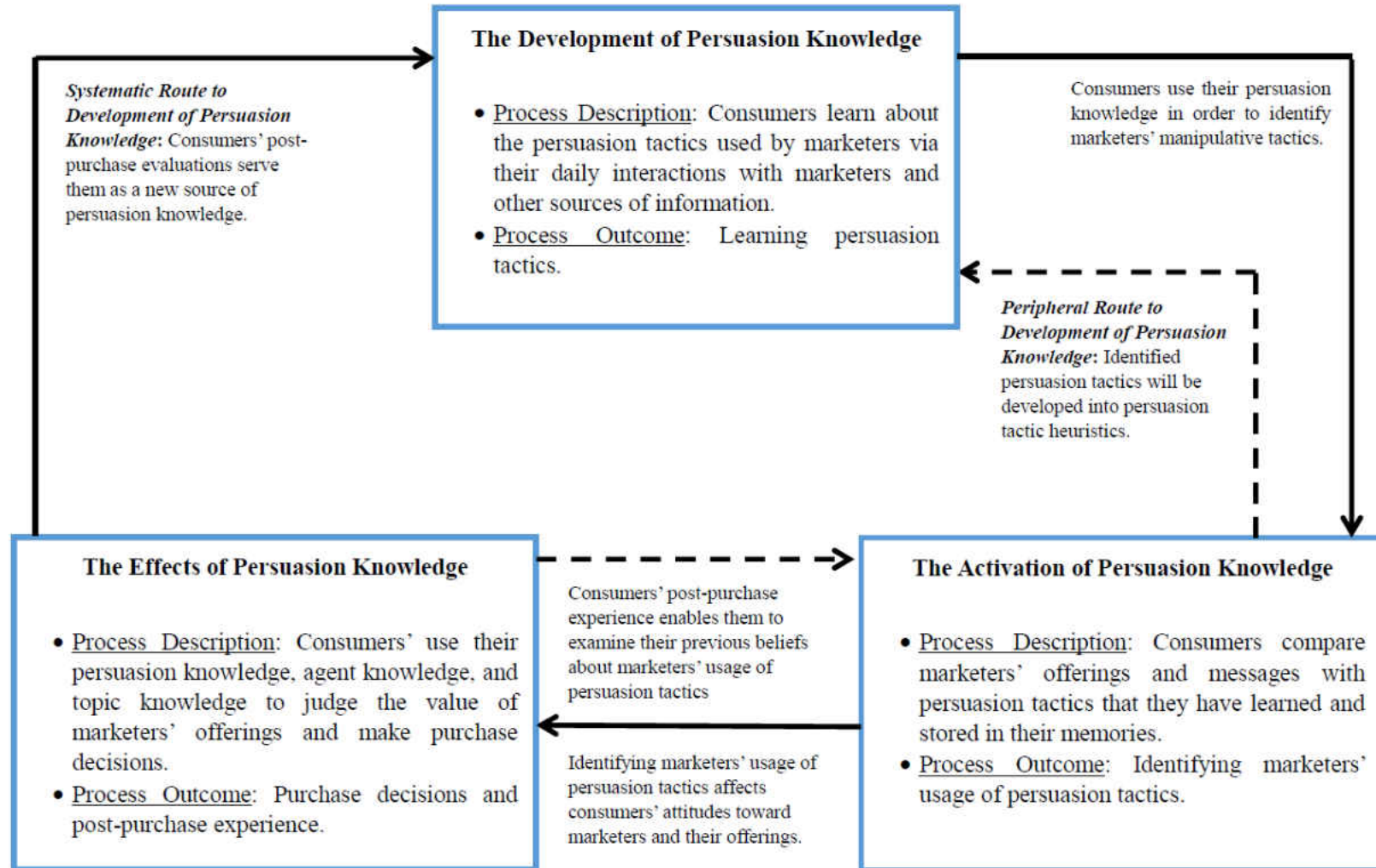
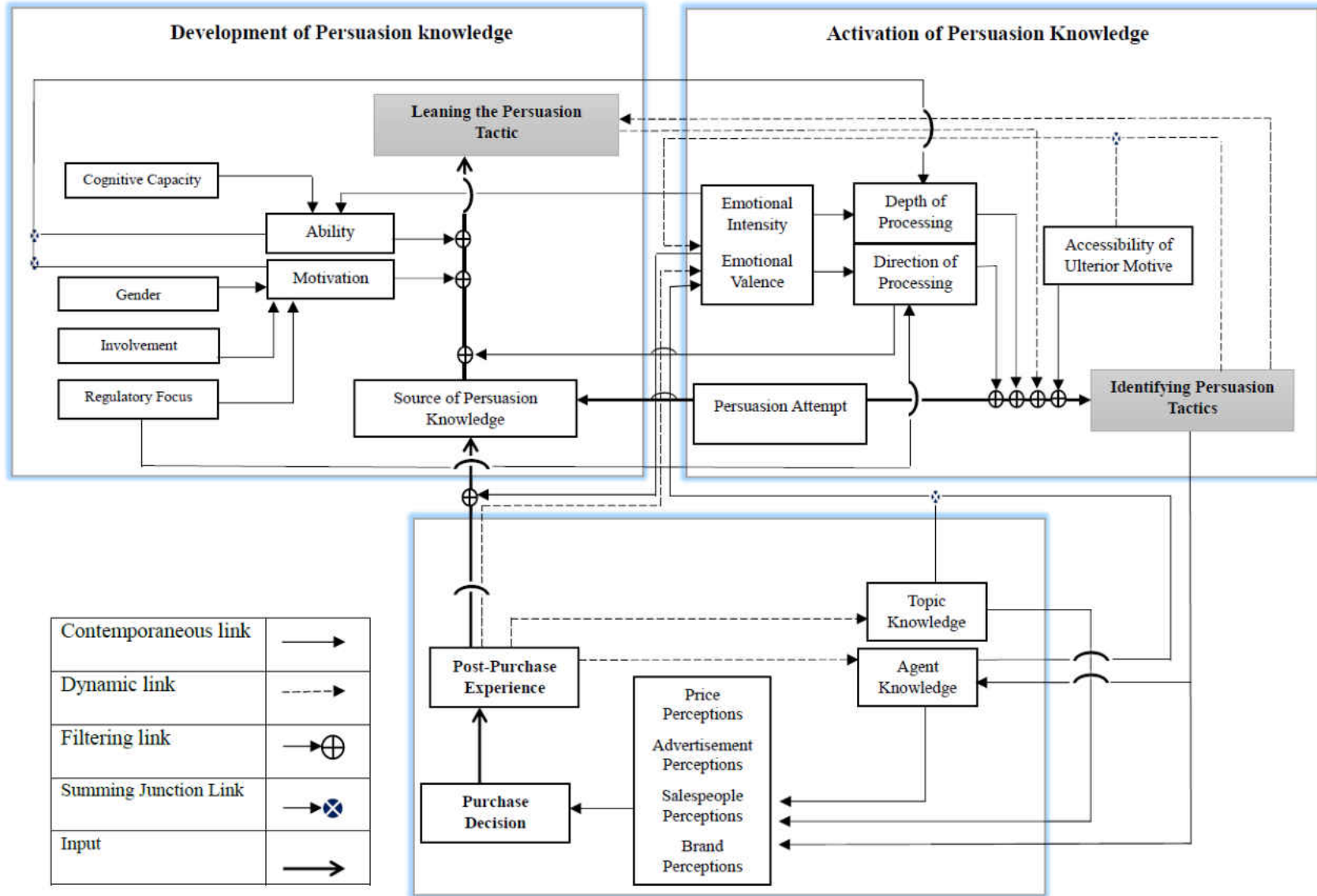


FIGURE 19: THE DETAILED VIEW OF THE CONSUMERS' PERSUASION KNOWLEDGE FRAMEWORK



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- **Rahmani, V.**, Kordrostami, E., Ford, J., (2017). *Examining the Effect of Gender on Thinking Style, Price-Quality Perceptions, and the Actual Prices that Consumers Pay*. San Diego, CA: Association for Consumer Research Conference
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