The Moderating Roles of Price Consciousness, Product Knowledge, and Product Type in the Reference Price Advertisement Effect

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Abstract
Most academic research has found that an advertised reference price (ARP) has a significant and positive effect on consumers’ price perceptions and purchase intentions. However, the ARP effect may not be independent of individual differences and product types. The study presents empirical evidence on the effect of ARP on consumers’ price judgments as well as on the moderating effects of price consciousness, product knowledge, and product type. Using a 2 x 2 factorial design experiment, the results indicate that an ARP (both plausible and implausible) exerts a significant and positive effect on consumers’ price judgments. However, no significant effect was found for the three moderating variables.

Keywords: Price Consciousness, Product Knowledge, Product Type

INTRODUCTION
Reference price advertisements have been widely practiced in retail environment and studied by marketing scholars (Biswas & Blair, 1991; Chandrashekar, 2001; Monroe, 1990; Grewal, Marmorstein, & Sharma, 1996; Kan, Lichtenstein, Grant, & Janiszewski, 2014; Mazumdar, Raji, & Sinha, 2005; Sinha & Adhikari, 2017). These advertisements generally involve a higher price (i.e., regularly $59.99) mentioned in an advertising offer to consumers along with a sale price (sale price $29.99) of the product. The higher price mentioned in the advertisement is termed as advertised reference price (ARP). Previous studies have indicated that consumers use the ARP found in the advertisement as a frame of reference for assessing the accompanying sale price (McKechnie, Devlin, Ennew, & Smith, 2012, Roy, Rabin, & Sharma, 2016). The result of price comparison makes the sale price more appealing and acceptable.

Many researchers pointed out that the effect of ARP on price perception may not be independent of individual differences (Chandrashekar, 2001; Klein & Oglethorpe, 1987; Urban & Dickson, 1991; Rajendran & Tellis, 1994). For instance, two consumers may respond to the same ARP differently because they have different degrees of price consciousness and product knowledge. Men and women process external reference price information differently (Vaidyanathan & Aggarwal, 2020). The effect of ARP may also vary across products. As suggested by Kalwani, Yim, Rinne, and Yoshi (1990), consumers are not likely to have better recall of prices in infrequently purchased product categories. If it is an infrequent or first-time purchase, the consumer is likely to use the prices of the other displayed merchandise to judge the target’s price (Saint Clair, Hamilton, Woodham, Namir, & Bennett, 2019). As a result, consumers may rely on price information presented at the point of purchase as references for evaluating the ARP (Mazumdar, Raji, & Sinha, 2005). Infrequently purchased products, consumers may have well-developed internal reference prices and hence less rely on the point-of-purchase price information for price evaluation.

The primary objective of this study is, therefore, to examine the effect of ARP on consumers’ price judgments and the roles of price consciousness, product knowledge, and product types in the context of reference price advertisements. Findings from this study can help retailers to understand better how consumers react to an ARP in different contexts and hence design better price communication strategies intended to influence consumers’ price perceptions and purchase decisions.

LITERATURE REVIEW
Advertised reference price
Most of the previous research has found that an ARP can substantially affect consumers’ price perceptions
(Grewal, Monroe, & Krishnan, 1998; Kan, Lichtenstein, Grant, & Janiszewski, 2014; Monroe & Chapman, 1987; Sinha & Adhikari, 2017; Urbany, Bearden, & Weibaker, 1988). For instance, consumers perceive to receive more considerable gains when an ARP (e.g., regular price $39.99), which is higher than the sale price (e.g., sale price $25.99), is included in the advertisement of the product than when ARP is not included (Blair & Landon, 1981; Frankenerberger & Liu, 1994; Liefeld & Heslop, 1985). In this case, the ARP is assimilated and shifts consumers’ internal reference prices upward and toward the ARP, which produces a bargain effect (Sinha & Adhikari, 2017).

Many researchers (Biswas & Blair, 1991; Compeau & Grewal, 1998; Urbany et al., 1988) have suggested that consumers’ price perceptions are susceptible to the manipulation of ARPs. Specifically, consumers’ price perceptions may be affected by exaggerated or implausible ARPs that are intentionally provided by retailers. In their shopping experiments, Urbany et al. (1988) found that compared to an ad with no reference price, an ad with a plausible ARP raised subjects’ estimates of the advertiser’s regular price and perceived offer value. An implausible ARP generally had the same positive effects on perception as a plausible price reference. Therefore, it is reasonable to hypothesize that an ARP (both plausible and implausible) has a significant and positive influence on consumers’ price judgments.

H1: ARP (both plausible and implausible) has a significant and positive influence on consumers’ price judgments.

The moderating role of price consciousness

Price consciousness refers to the extent to which consumers are aware of the price they pay for a product (Monroe, 1973; Monroe & Petroshius, 1981). Consumers with higher price consciousness are susceptible to price (Bozkurt & Gligor, 2019) or price differentials and are not willing to pay the price for a product if they know that the price has increased recently. As a result, such consumers consider price as a relatively important factor in their purchasing decisions. An empirical study conducted by Lichtenstein et al. (1988) found that the magnitude of price acceptance is negatively influenced by price consciousness, where high price consciousness consumers have a narrower range of price acceptance and low price consciousness consumers have a wider latitude of price acceptance. This finding suggests that price consciousness influences the way prices are perceived and the role price plays in consumer purchasing decisions (Alford & Biswas, 2002; Khurram & Sheeraz, 2018).

In the context of reference price advertisement, since consumers with higher price consciousness are more sensitive to the price they encounter in a purchase environment, such consumers are more likely to search for more price information to make sure that the ARP is not deceptive. Consequently, the effect of ARP would be weaker for consumers with higher price consciousness.

H2: Price consciousness moderates the effect of ARP on consumers’ price judgments. The effect of ARP would be weaker (more substantial) for consumers with higher (lower) price consciousness.

Product knowledge

Consumers interpret product information based on knowledge activated at the time of comprehension (Lee and Olshavsky, 1994). According to Alba and Hutchinson (1987), consumer product knowledge has two components: familiarity and expertise. Familiarity is based upon purchase, use, and other indirect experiences with a product category while expertise is based upon the consumer’s capability to carry out product-related tasks such as designing, selling, or servicing a product. Following Rao and Sieben (1992), product knowledge is defined as the amount of information held in memory at the time of purchase.

Product knowledge affecting consumer information processing activities in a context of purchase decision making has been confirmed by many studies (Johnson & Russo, 1984; Lin & Chen, 2006; Lynch & Srull, 1982; Payne, Bettman, & Johnson, 1992; Velikova, Howell, & Dodd, 2015). In particular, several studies have suggested that product knowledge can effect price perception (Herr, 1989; Rao and Monroe, 1988; Robertson, Ferreira, & Botha, 2018) as well as internal price standards (Frankenerberger & Liu, 1994; Lichtenstein &
Bearden, 1989; Urbany & Dickson, 1991). Herr (1989), for example, indicated that more product knowledgeable consumers tend to have better-developed internal price standards and hence are less likely to accept immediate price information presented at the point-of-purchase environment. Frankenberger and Liu (1994) found that consumer’s internal reference price and purchasing intentions for two product categories (microwave ovens and disposable razors) differ in the level of product knowledge.

As product knowledge grows, consumers are becoming more familiar with the features of the product and are more willing to find further detailed information regarding the choice of product (Stanton & Cook, 2019). Thus, consumers with higher product knowledge are more likely to be familiar with the product and are likely to know the price variation across stores, brands, and models. Such consumers are more likely to be a shield from the effect of ARP. As a result, the effect of ARP would be weaker for consumers with higher product knowledge.

H2: Product knowledge moderates the effect of ARP on consumers’ price judgments. The effect of ARP would be weaker (stronger) for consumers with higher (lower) product knowledge.

Product type
Product type describes the products that consumers purchase. Products can be distinguished between low-frequency and high-frequency of purchase products. As suggested by Kalwani et al. (1990), the frequency of purchase has a significant influence on consumers’ purchasing behavior. For example, infrequently purchased product categories, consumers are expected to be more familiar with that product category and hence have a better-developed cognitive structure of price information. Consumers with higher purchase frequency are much more price-sensitive (Kim & Rossi, 1994). In contrast, in infrequently purchased product categories, consumers are not likely to have a better recall of prices (Choi & Mattila, 2018). As a result, consumers are more likely to rely on ARP as a reference for price evaluations (Urbany & Dickson, 1991). Based on this thesis, it is reasonable to assume that the effect of ARP on consumers’ price judgments may differ between product types.

H3: Product type moderates the effect of ARP on consumers’ price judgments. The effect of ARP would be stronger (weaker) for infrequently (frequently) purchased products.

RESEARCH METHOD
The proposed hypotheses were examined in a 2 (ARP: plausible and implausible) x 2 (product type: frequently purchased product and infrequently purchased product) factorial design experiment. Product type was a within-subjects factor. TVs were selected for the infrequently purchased product and laundry detergent (LD) for the frequently purchased product. Both products have been used in various price evaluation and judgment studies and are familiar to consumers (Hoyer, 1984; Biswas, 1992; Biswas & Blair, 1991).

Subjects were selected to be the average consumers who had the experience(s) of participating in the process of purchasing LD and TVs. The sampling frame was based upon the residence listings in the White Pages for a major West Coast city. Systematic sampling was conducted to select 1,200 samples in the telephone directory. Subjects received the survey containing one set of questionnaires by mail.

Of 1,200 consumers responding to the mail survey, 240 valid observations with thirty subjects in each treatment group were obtained. Of those, 43.3% were women and 56.7% were men. Respondents ranged in age from 20 to 71, with a mean of 42.11 years. Most of the respondents had annual incomes of over $30,000 (67.8%). In terms of formal education, more than half had at least a college degree (63.4%). While 64.2% of the subjects were married, more than half reported at least one dependent.

The ARP was manipulated and presented in a hypothetical display in a retail store containing either a plausible or implausible reference price. Based on the pretests, the plausible ARP was operationalized as a regular price that was about 15% higher than the sale price. The implausible ARP was operationalized as a
regular price that was about 95% higher than the sale price. The dependent variable, price judgment, refers to consumers’ judgments of whether the stated price is honest and fair. It was measured directly by asking subjects to judge the fairness of the sale price of the product stimuli.

ANALYSIS AND RESULTS

Regression was used to examine the effect of ARP on consumers’ price judgments. The test results indicated that for both products, the ARP (both plausible and implausible) had a significant and positive influence on consumers’ price judgments at p<.05 level. A series of hierarchical regression analyses were conducted to examine the moderating effects of product consciousness and product knowledge. The results failed to support the moderating effects at .05 level for both product categories. Hierarchical multiple regression was also used to test the three-way interactions of ARP with product consciousness and product knowledge. None of the three-way interactions was found to have any impact on consumers’ price judgment outcomes (p > .05).

In order to examine the moderating effect of product type, the dependent variable was first standardized in both laundry detergent and TV data. The two sets of data were then combined and used for analysis. The test results showed that no moderating effect of product type was found to influence the ARP-price judgment relationship. The three-way and four-way interactions involving ARP, product consciousness, product knowledge, and product type were also found to be insignificant at .05 level.

To examine whether the effect of ARP on consumers’ price judgments differs between the two products, a test of the correlation coefficients of the ARP in the two data set was performed using the Fisher r-to-Z transformation. The statistics \( Z_{RF} \) was used to test the null hypothesis. The results indicated that none of the \( Z_{RF} \) was significant at .05 level, suggesting that the strength of tested ARP effect on consumers’ price judgments did not differ between the two product categories.

DISCUSSION

This study presents empirical evidence on the effect of ARP (both plausible and implausible) on consumers’ price judgments and the moderating roles of PC, PK, and PT. Given that other researchers consistently report that an ARP changes consumers’ price perceptions and hence influences price decisions, the observed significant and positive effects for the APR were expected. Consumers who were exposed to the implausible ARP judged the price to be fairer than those consumers who were exposed to the plausible ARP.

The test results indicated that the effect of ARP on consumers’ price judgments did not differ in different degrees of price consciousness of consumers for both product categories. One plausible explanation is that consciousness of prices in purchasing decision may not help consumers develop cognitive ability against a variety of price information presented in the media and at the point of purchase. In other words, the consciousness of prices paid for a product may not help consumers develop better judgmental heuristics (i.e., effective strategies) in consumers’ price evaluations. As a result, consumers with different levels of price consciousness may rely on a similar reference price heuristic for price judgments.

The lack of the moderating effect of product knowledge may be attributed to the way product knowledge was measured. Product knowledge was measured in terms of expertise and frequency of product use. The knowledge measure may have only captured one type of product knowledge that may not be isomorphic with the cognitive capability to evaluate the fairness of the price for a given product. Respondents may use a product frequently and even be experts in that particular product category, but they may still lack the ability to evaluate

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1 TV: sale price – 219; plausible regular price: 249.95, implausible regular price: 428
LD: sale price – 4.98; plausible regular price: 6.39; implausible regular price: 10.69

2 The statistics \( Z_{RF} \) was obtained by calculating the following formula:

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Z_1 = \text{The transformed value of the correlation coefficient for the TVs sample}
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Z_2 = \text{The transformed value of the correlation coefficient for the laundry detergent sample}
\]
\[
N = \text{Sample size}
\]
the prices of different brands. Product knowledge may not necessarily imply price knowledge or the presence of well-established cognitive structures of price standards in consumers’ memory. This could also explain the lack of the main effect of product knowledge on consumers’ price judgments.

The test results showed that no moderating effect of product type on the ARP-price judgments relationship was found. In addition, the test of the differences in the correlation coefficients between the two product types indicated that the effect of ARP on consumers’ price evaluations did not vary between these two product categories. In this case, it seems likely that consumers simply rely on the external reference price, ARP, as judgmental heuristics because the ARP was ready to use and more recent as compared to the price information stored in memory.

Understanding consumers’ uses of ARP for price judgments, as well as factors that moderate this relationship, are essential not only for those who set price promotions for their products but also for those who investigate purchasing behavior where the price is manipulated. For both frequently and infrequently purchased products, the ARP can be a useful tool for managers. That is, the mere presence of an ARP effectively increases consumers’ estimates of the price of a given product without adding additional promotion costs. In addition, the effects of ARP were robust in different levels of price consciousness and product knowledge as well as across different product types. Retail managers must include the ARP as an essential component in the promotional advertisements.

REFERENCES


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