

The Effects of Advertised Reference Price on Consumer Price Judgments in Online and Offline Retailing Environments

Yuan-shuh Lii,

Associate Professor

Department of International Trade

Feng Chia University

L. P. Douglas Tseng,

Professor

School of Business Administration

Portland State University

Abstract

This study examines whether the effects of reference-price advertisements on consumers' perceptions and behavioral intentions differ between online and offline price-based promotional offers. By using an experiment with a three-by-two factorial design, this study finds that the inclusion of an advertised reference price in a promotional offer results in a higher internal reference price, a lower price search intention, and a more favorable attitude toward the promotional offer in both online and offline retailing environments. When comparing these effects on the two types of retailing channels, they are greater for the online shopping channel. In addition, an exaggerated advertised reference price produces a greater effect on consumers' perceptions than does a plausible advertised reference price in both shopping channels and, again, this effect is larger for shopping online than for shopping in offline (traditional) channels.

Keywords: Online Pricing, Online Shopping, Reference-Price Advertisement, Exaggerated Advertised Reference Price, Internet Commerce

I. INTRODUCTION

The high growth rate of the electronic marketplace highlights the role of the Internet in marketing. As a relatively new marketing medium, the Internet offers consumers the opportunity to compare different vendors' prices and product offerings more efficiently and conveniently (Korgaonkar & Wolin, 1999; Ernst & Young, 2001). With the speed and convenience of price comparison on the Internet, many savvy Internet retailers remain competitive by utilizing price-based promotional strategies to attract online shoppers (Lee & Overby, 2004).

Reference-price advertising is one of the price-based promotional strategies frequently used by Internet retailers who hope to enhance consumers' perceptions of the value of the promotional offers or discounts they offer their customers. Companies such as Walmart.com (Wal-Mart's online site) frequently advertise both the list price (i.e., the reference price) and the sale price of their products in their sales promotions for the implicit/explicit purpose of facilitating/encouraging consumers to compare the two prices. By facilitating the price comparison between the list and sale prices, these companies expect to make their promotional pricing (i.e., the sale price) more appealing to their consumers. To this end, previous research has consistently found a strong and positive effect of advertised reference prices on consumers' price perceptions and value judgments, as well as behavioral intentions in an offline retailing environment (e.g., Monroe, 1990; Biswas & Blair, 1991; Kalyanarm & Winer, 1995; Grewal et al., 1996; Chandrashekar, 2001).

While the effectiveness of such sales promotion schemes in an offline shopping environment is well documented, whether consumers are likely to react in the same manner to online reference-price advertisements remains a question. One of the main reasons that reference-price advertisements can affect consumers' price perceptions and behavioral intentions in the offline environment is the consumers' lack of access to price information of other stores at the time of making price judgments. With the declining "costs of price-information acquisition" and the consequent reductions in "price-information asymmetry" in the online shopping environment (Bakos, 1997; Grewal et al., 2003), one can argue that the positive effect of reference-price advertisements observed in the offline channels may not be as strong in the online environment. Consequently, the first objective of this study is to examine whether a consumer's perception and response to reference-price advertisements differs between shopping online and shopping in traditional or offline retail outlets.

Furthermore, many prior studies have supported the notion that a comparative price advertisement with an exaggerated or implausible reference price can enhance the subsequent evaluations of the promotional offer (e.g., Compeau & Grewal, 1998; Urbany et al., 1988, Biswas et al., 1999). Based on the findings of these previous studies, the second objective of this study is to examine how the plausibility of an advertised reference price can affect consumers' price judgments in both online and offline environments.

The remainder of the paper is organized as follows: First, the theoretical background of this study is described and hypotheses are formulated. Next, the research method is described, followed by the analysis and results. Finally, conclusions are drawn and implications for consumers' evaluations of advertised reference prices in online and offline retailing environments are discussed.

II. LITERATURE REVIEW AND HYPOTHESES

2.1 Reference-Price Advertising

Reference-price advertising is a very common practice among retailers for the purpose of increasing the appeal of an offer. Such a widespread practice has attracted extensive study by marketing researchers (e.g., Berkowitz & Walton, 1980; Blair & Landon, 1981; Bearden et al., 1984; Liefeld & Heslop, 1985; Janiszewski & Lichtenstein, 1999; Compeau & Grewal, 1998; Burman & Biswas, 2004). In a typical reference-price advertisement, the retailer displays the product's sale price after showing a higher advertised reference price in the form of an MSRP or a "list" or "regular" price (e.g., manufacturer's suggested list price \$49.99, sale price \$35.99). By so doing, the retailers hope that a consumer will assimilate at least a part (if not all) of the advertised reference price into his/her existing internal price reference structure to form a new and higher internal reference price. This new internal reference price is, hopefully, then used by the consumer to evaluate the accompanying sale price (Chandrashekar & Grewal, 2003).

The notion that advertised reference prices can influence consumers' internal reference prices can be explained by the Adaptation-Level Theory (Helson, 1964) and the Assimilation-Contrast Theory (Sherif & Holland, 1961). Helson's

Adaptation-Level Theory (1964) posits that an individual's behavior represents an adaptation to three types of stimuli: (1) the organic, (2) the focal, and (3) the contextual stimuli. The organic stimuli are the psychological and physiological processes that influence human behavior. The focal stimuli, in contrast, are the cues to which an individual directly reacts. The contextual stimuli are all other situational or background cues that provide the frame of reference within which focal stimuli operate.

According to Helson (1964), an incoming stimulus is perceived and compared to an adaptation level or initial reference point that is defined by prior experiences and the current context. The adaptation level represents a psychological point of neutrality or indifference along a continuum ranging from rejection to acceptance of the new stimulus. A particular stimulus is then judged on the basis of a high, neutral, or low adaptation level. Based on this theory, consumers' internal reference prices can be thought of as adaptations to the focal stimuli in a retailing environment. Two such focal stimuli are the sale price and the advertised reference price (Della Bitta et al., 1981). The adaptation process, should it happen, dictates that consumers' internal references will be influenced by the reference prices supplied by the retailer.

According to Sherif and Hovland's Assimilation-Contrast Theory (1961), the latitudes of acceptance, rejection, and noncommitment are components of perceptual judgments. An incoming stimulus that falls within the latitude of acceptance is judged to be acceptable and is thus assimilated. The stimulus that falls within the latitude of rejection is considered unacceptable or objectionable and is hence discarded. When a stimulus falls within the person's latitude of noncommitment, the judgment is neither positive nor negative; as such, it causes anxiety that needs to be resolved via cognitive or other psychological processes. The presence of these latitudes implies that there are boundaries around a preferred point. In the context of price judgments, the latitude of acceptance constitutes an acceptable price range around a reference point, the latitude of rejection forms an unacceptable price range, and the latitude of noncommitment becomes a range of neither acceptable nor unacceptable prices.

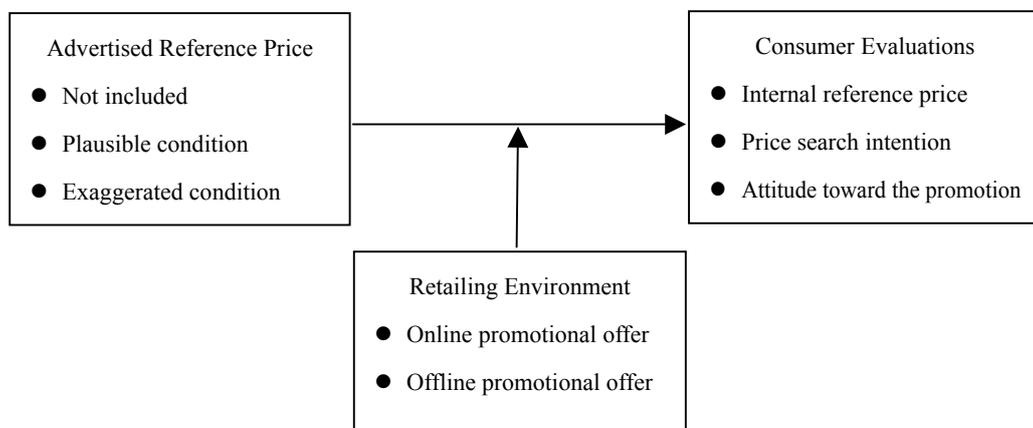
Based on the Assimilation-Contrast Theory (Sherif & Hovland, 1961), advertised reference prices that fall within a consumer's acceptable price range are accepted and assimilated by the consumer (Blair & Landon, 1981; Liefeld & Heslop, 1985; Frankenberger & Liu, 1994). This assimilation can shift the consumer's existing internal reference point toward the advertised reference price and forms a new or revised internal reference price point. In cases when advertised

reference prices fall outside the acceptable price range, they are contrasted or rejected (Monroe & Petroschius, 1981).

2.2 Reference-Price Advertising and Online Shopping

To examine the effects of an advertised reference price on consumers' price judgments in online and offline retailing environments, four sets of hypotheses based on the following relationships (Figure 1) are investigated in this study.

Figure 1. Framework for Examining the Effects of Advertised Reference Price.



Grewal et al. (1996) suggested that consumers' perception and response to price information depends upon the context in which the price information is evaluated. Consequently, the effectiveness of a reference-price advertisement may differ between online and offline retailing environments. An offline retailing environment has physical and practical limits to the quality and quantity of the price information available to a shopper for his/her price comparisons/evaluations. However, when shopping online, a mouse click can allow a shopper to acquire a wide range of product and price information needed to make his/her price judgments.

Smith et al. (1999) pointed out that consumers assume that online retailers enjoy a cost advantage over offline retailers in terms of reduced overhead, administrative costs, and transaction costs. At the same time, information

technology not only allows consumers to search conveniently, quickly, and inexpensively online to find lower prices; it also has made sellers' prices more transparent to buyers (Kung et al., 2002; Zettelmeyer, 2000). The "efficiency and transparency" of price information on the Internet greatly reduces the "information asymmetry" between online retailers and online shoppers (Sinha, 2000; Brynjolfsson & Smith, 2000). Consequently, it can be argued that consumers may not have the same level of confidence in the reference-price information found in the offline retailing channels as that acquired online. As a result, a consumer's internal reference price may more likely be influenced by the advertised reference price when shopping online than shopping offline.

Based on the Assimilation-Contrast Theory, when the internal reference price moves upward toward the advertised reference price (e.g., the MSRP or list price) that the retailer provided to form a revised internal reference price, a consumer compares the discounted or sale price with his/her newly revised internal reference price. This comparison could potentially make the sale price more appealing to the consumer and hence reduce his/her desire to search further for additional price information. Furthermore, if in fact the effect of an advertised reference price on a consumer's internal reference price is greater when shopping online rather than offline, the effect of an advertised reference price on the consumer's price search intention and attitude toward the promotional offer also should be greater during online shopping in comparison with traditional (offline) channels. Specifically, in this regard, the following hypotheses are tested in this study:

H₁: In both online and offline promotional offers, when an advertised reference price is included, (a) consumers' internal reference prices will be higher, (b) their price search intention will be lower, and (c) their attitude toward the promotional offer will be more positive than if the advertised reference price is not included.

H₂: When an advertised reference price is included in an online promotional offer, (a) consumers' internal reference prices will be higher, (b) their price search intention will be lower, and (c) their attitude toward the promotional offer will be more positive than if the advertised reference price is included in an offline promotional offer.

Previous research has found that consumers' internal reference prices are susceptible to the manipulation of advertised reference prices (Urbany et al., 1988; Lichtenstein & Bearden, 1989; Biswas & Blair, 1991; Biswas et al., 1999). In

particular, Suter and Burton (1996) and other researchers (e.g., Urbany et al., 1988; Biswas & Blair, 1991; Biswas, et al., 1999) have demonstrated that consumers' internal reference prices and subsequent behavioral intentions may be influenced by retailers' deliberately inflated advertised reference prices (i.e., an advertised reference price well beyond the perceived range of normal market prices). They compared the effects of plausible advertised reference prices with the effects of an exaggerated advertised reference price on, among other things, consumers' internal price estimates and their subsequent value judgments and purchase intentions. They found that the exaggerated advertised reference prices produced significantly higher internal price estimates that consumers would use to judge the value of advertised offers. They also found that the exaggerated advertised reference prices had a more positive effect on the consumers' subsequent value judgments and purchase intentions.

While an exaggerated reference-price advertisement may have the potential to distort a consumer's evaluation of an advertised promotional offer, it is not yet known whether its impact on an online promotional offer differs from that on an offline promotional offer. As previously mentioned, a major difference between online and offline shopping is that the former enables consumers to compare prices more efficiently, transparently, and at a lower cost. This difference could suggest that consumers may not think the online reference-price information is as distorted or manipulated as its offline counterpart. Consequently, an exaggerated advertised reference could potentially exert a greater effect on online shopping than on offline shopping. To this end, the following hypotheses are tested:

H₃: For both online and offline promotional offers, when an exaggerated reference price is included in the advertisement, (a) consumers' internal reference prices will be higher, (b) their price search intention will be lower, and (c) their attitude toward the promotional offer will be more positive than if a plausible advertised reference price is included.

H₄: When an exaggerated advertised reference price is included in the advertisement for an online promotional offer, (a) consumers' internal reference prices will be higher, (b) their price search intention will be lower, and (c) their attitude toward the offer will be more positive than if the exaggerated advertised reference price is included in the advertisement of an offline promotional offer.

III. RESEARCH METHOD

A three-by-two between-subjects factorial design is employed for testing the aforementioned hypotheses. Three levels of advertised reference prices (i.e., no advertised reference price, plausible advertised reference price, and exaggerated advertised reference price) and two retail formats (i.e., online and offline retail channels) were used for the two independent or treatment variables in this design.

A pretest with a group of 52 graduate students was conducted to determine the product as well as the levels of advertised reference prices for the study. The Swatch brand watch, with its high mean value and a low standard deviation value of the price-familiarity score, was the product choice for the experiment. One offline specialty store and one online specialty store also were selected from a list of four online and five offline stores during the pretest, based on the pretest participants' degrees of familiarity with these stores. Price-based promotional offers from the two selected stores were used for the experiment.

The actual prices for the three levels of advertised reference price used in the experiment were chosen during the pretest, following the process established in Biswas and Blair's study (1991). Specifically, the advertised sale price was set at US\$52.96 (NT\$1,790 in Taiwan; US\$1 = NT\$33.8 in May 2004), which is higher than the "mean lowest-price estimates." The plausible advertised reference price (US\$66.57 or NT\$2,250) was operationalized as an original price that is the approximate mean of the estimated regular prices at the specialty stores. The exaggerated advertised reference price (US\$109.47 or NT\$3,700) was operationalized as an original price that is higher than the mean expected highest market price. The plausible advertised reference price was about 26 percent higher than the advertised sale price, and the exaggerated advertised reference price was about 107 percent higher than the advertised sale price. Both of these "manipulated" prices agreed with the criteria adopted in the previous research (e.g., Biswas & Blair, 1991; Urbany et al., 1988; Alford & Engelland, 2000).

A sample of 162 graduate students (79 women and 83 men) with online shopping experience was recruited as the subjects of the experiment. They were randomly assigned to the six treatment groups in the three-by-two factorial design. A computerized shopping simulation program was used in this study. Depending on the treatment group to which the subject was assigned, he or she was first asked to respond to a series of questions pertaining to their product familiarity and shopping experiences for the Swatch brand watch. Then each of them was asked to watch a

professionally-produced advertisement containing the descriptive material, levels of advertised reference price, and the advertised sale price of the product. After viewing the advertisement, subjects responded to questions for the measurements of the three dependent variables in the experiment—i.e., consumers' internal reference prices, price search intention, and their attitude toward the promotional offer.

The scales used to measure the dependent variables in this study were adapted from those used by Lichtenstein and Bearden (1989) and Urbany et al. (1988). The internal reference price was operationalized as the dollar estimates of the Swatch brand watch's average market price. Price search intention was measured using the following items on a seven-point Likert scale: "Before making a purchase decision, I would visit other stores that sell Swatch brand watches to check their prices," "Before making a purchase decision, I would need to search for more information about prices of the Swatch brand watch," and "Before making a purchase decision, I would visit other stores for a lower price" (cf. Della Bitta et al., 1981). This scale yielded a coefficient alpha 0.87. Attitude toward the promotional offer was measured using three seven-point scales with endpoints of unfavorable/favorable, bad/good, and poor/excellent (Lichtenstein et al., 1991). For this measure, subjects were asked to respond to the following questions: "My attitude toward this offer is ____." The resulting coefficient alpha for this measure was 0.92. The relevant information pertaining to each construct, including the number of items, statements, and scale sources is organized and shown in Appendix 1.

IV. ANALYSIS AND RESULTS

Since the three dependent variables (i.e., internal reference price, price search intention, and attitude toward the offer) were significantly correlated with each other (all p values $< .05$), a MANOVA was first performed to test the hypotheses. The results of the MANOVA and the means for each experimental group are shown in Table 1 and Table 2 below, respectively. With the multivariate effects being significant in the MANOVA for both the advertised reference price (Wilks' $\lambda = 0.87$; $F = 46.54$, $p < 0.01$) and the retail format (Wilks' $\lambda = 0.85$; $F = 26.69$, $p < 0.01$), as well as the interaction effect between these two factors (Wilks' $\lambda = 0.83$; $F = 5.06$, $p < 0.01$), univariate testing results were further examined to determine the validity of the four sets of hypotheses.

For H_1 , when examining the effects of the advertised reference price in both online and offline promotional offers, the result from the univariate tests shows the existence of a significant impact of advertised reference price on each of the three dependent variables ($F = 181.18$ and $p < 0.01$ for internal reference price, $F = 16.22$ and $p < 0.01$ for price search intention, and $F = 20.23$ and $p < 0.01$ for attitude toward the offer). Further examination of the mean values in Table 2 reveals that, comparing to the control group (i.e., the no reference price group), respondents seem to have a higher estimate of internal reference price (online: NT\$ 1,890 vs. NT\$2,254 and NT\$3,229; offline: NT\$ 2,092 vs. NT\$2,104 and NT\$2,858), a lower price search intention (online: 3.29 vs. 2.76 and 2.62; offline: 3.83 vs. 3.54 and 3.49) and a more positive attitude toward the offer (online: 3.32 vs. 3.82 and 4.45; offline: 3.23 vs. 3.58 and 3.73) for both online and offline promotional offers.

H_2 argues that when an advertised reference price is included in an online promotional offer, consumers' internal reference prices will be higher, their price search intention will be lower, and their attitude toward the offer will be more positive than if the advertised reference price is included in an offline promotional offer. The result from the univariate tests indicates that there is a significant effect of retail format on all three dependent variables ($F = 4.87$ and $p < 0.05$ for internal reference price, $F = 73.05$ and $p < 0.01$ for price search intention, and $F = 11.27$ and $p < 0.01$ for attitude toward the offer). The mean values for these variables (see Table 2) further demonstrate that, compared to shopping offline, respondents had a higher estimate of internal reference price (NT\$2,254 vs. NT\$2,104), a lower price search intention (2.76 vs. 3.54) and a more positive attitude toward the offer (3.82 vs. 3.58) with both plausible and exaggerated advertised reference prices when shopping online.

H_3 deals with the effect of an exaggerated advertised reference price on the three dependent variables in comparison with that of a plausible advertised reference price. With the overall significance of the main effects of the advertised reference price on the three dependent variables (see Table 1 and previous discussion of H_1 for details), a t-test was performed to compare the differences between the effects of the exaggerated advertised reference price and the plausible advertised reference price on the dependent variables. The test results suggest that there are significant differences between the two types of advertised reference price in terms of their impacts on the dependent variables ($t = -12.94$ and $p < 0.001$ for internal reference price, $t = 2.04$ and $p < 0.05$ for price search intention, and $t = -3.05$ and $p < 0.01$ for attitude toward the offer). A closer examination of the mean values in Table 2 shows that under the exaggerated advertised reference price

condition, respondents had a higher mean level of internal reference price (online: NT\$3,229 vs. NT\$2,254; offline: NT\$2,858 vs. NT\$2,104), a lower price search intention (online: 2.62 vs. 2.76; offline: 3.49 vs. 3.54), and a more positive attitude toward the offer (online: 4.45 vs. 3.82; offline: 3.73 vs. 3.58) for both online and offline promotional offers.

Table 1. Analysis of variance results

Source	MANOVA		Univariate F Values		
	Wilks' λ	F Value	Internal reference price	Price search intention	Attitude toward the offer
<i>Main effects</i>					
Retail format (R)	0.85	26.69**	4.87*	73.05**	11.27**
Advertised reference price (A)	0.87	46.54**	181.18**	16.22**	20.23**
<i>Interactions</i>					
R x A	0.83	5.06**	12.08**	4.18*	3.23*

* $p < 0.05$; ** $p < 0.01$

Table 2. Means of internal reference price, price search intention, and attitude toward the offer

	Offline			Online		
	No	Plausible	Exaggerated	No	Plausible	Exaggerated
Advertised reference price						
Internal reference price	2,092	2,104	2,858	1,890	2,254	3,229
Price search intention	3.83	3.54	3.49	3.29	2.76	2.62
Attitude toward the offer	3.23	3.58	3.73	3.32	3.82	4.45

H₄ relates to the interaction of the advertised reference price level and price promotion in retail format. The result from the univariate tests exhibits a significant interaction effect of advertised reference price and retail format on each of the three dependent variables (F = 12.08 and $p < 0.01$ for internal reference price, F = 4.18 and $p < 0.05$ for price search intention, and F = 3.23 and $p < 0.05$ for attitude

toward the offer). The mean values (Table 2) reveal that, for an online promotional offer, the exaggerated advertised reference price resulted in a NT\$371 (from NT\$2,858 to NT\$3,229) increase in internal reference price, a 0.87 (from 3.49 to 2.62) decrease in price search intention, and a 0.72 (from 3.73 to 4.45) increase in attitude toward the offer. The patterns of these interaction effects can be observed from the exhibits in Appendix 2.

V. DISCUSSION AND CONCLUSION

All four sets of hypotheses were strongly supported by the data in this study. Specifically, the results of the experiment show that an advertised reference price does lead to a higher internal reference price, a lower price-search intention, and a more positive attitude toward the offer for both online and offline price-based promotional offers. These effects of advertised reference prices are larger for online promotional offers than for offline ones. These results are consistent with the findings of Lee and Gosain (2002) in terms of consumers' perception about online retailers being less likely to deceive them due to the efficiency and transparency of price information on the Internet. With this perception of online shopping, while reference-price advertisement should be a prominent strategy for all retailers in designing their promotional offers, it should be of particular importance to the online retailers.

The findings of this study also demonstrate that, for both online and offline price promotions, an exaggerated advertised reference price has a greater impact on all three dependent variables examined in this study than does a plausible reference price. These effects of an exaggerated advertised reference price also are larger for the online promotional offers than for the offline ones. A recent study conducted by Baker et al. (2001) found that most online buyers do very little comparison shopping. In particular, they found most online shoppers who buy books, toys, music, and electronics, purchase these products from the first site they visit. Given the demonstrated impacts of an exaggerated advertised reference price, this "buy-in-the-first-store" online-shopping behavioral pattern highlights the crucial role that advertised reference prices can play in online consumers' purchasing decisions. It also underlines the danger of possible deceptive usage of exaggerated advertised reference prices and should, therefore, be of considerable public policy concern. By the same token, online retailers should use discretion when attempting

to capitalize on the effectiveness of exaggerated advertised reference prices in influencing consumers' price perceptions and price evaluations.

While the results of this study provide some insights that can help to better understand and craft online price-based promotional strategies intended to influence consumers' price perceptions and judgments, there are, however, limitations in the study that may warrant cautions against generalizing the findings. In particular, as a cross-sectional experiment conducted in a simulated environment with only one (although carefully selected) product and a sample of student subjects, the generalizability of the findings may vary across product categories, situations, and demographic segments of the consumer population. For example, since the required information and the efforts needed to process the information may vary across different types of retail outlets, individual cognitive and behavioral differences (e.g., the degree of involvement/interest in the product, awareness of price information, and perceptions of the importance of product attribute) may influence how consumers use internal and/or advertised reference price for their price judgments (Suri et al., 2003).

In addition, although price is an important factor in purchasing decisions for most people, as suggested by Van den Poel and Leunis (1999), it is not the only factor that differentiates products and services for online consumers. In fact, Lal and Sarvary (1999) and other researchers (Degeratu et al., 2000; Lynch & Ariely, 2000; Shankar et al., 2001) found that online shoppers may be less price sensitive for certain products (e.g., staple goods) and under certain situations (e.g., high brand loyalty). To this end, future research focusing on the effects of non-price factors (e.g., on-time delivery, refund guarantees, and product selection) may prove to be fruitful to help provide a more comprehensive understanding of online shopping behavior and pricing strategy.

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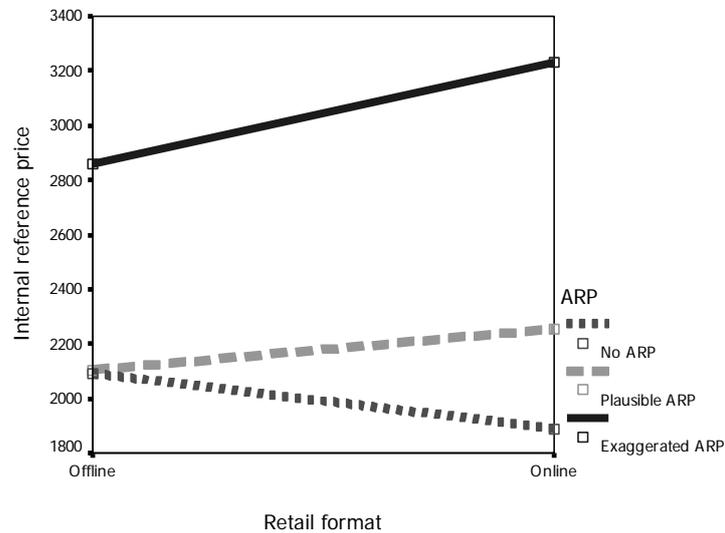
APPENDIX 1

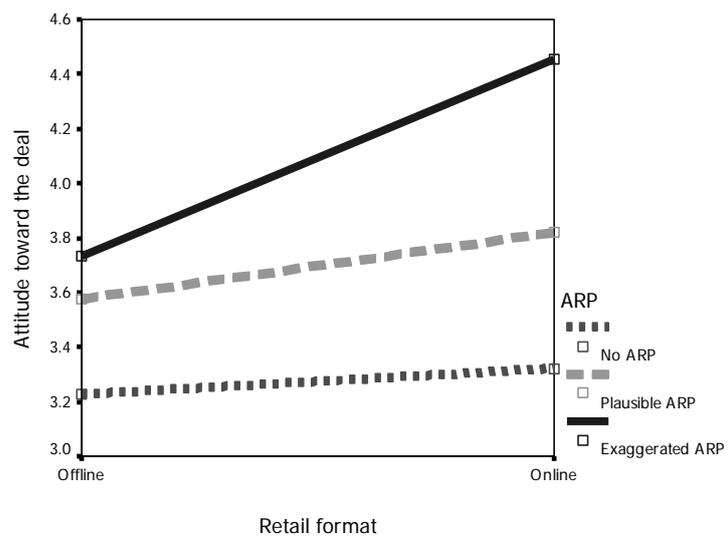
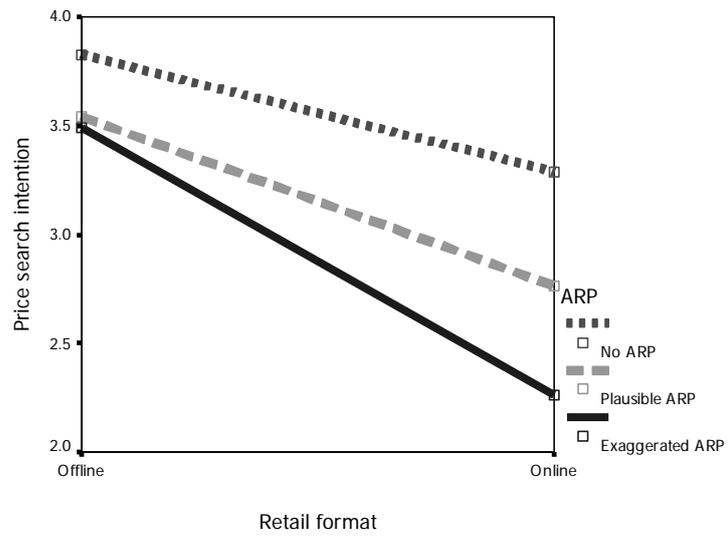
Construct measurement

Scale	Statements	Source of Measure
Internal reference price	Dollar estimates of the Swatch brand watch's average market price	Lichtenstein and Bearden (1989); Urbany et al. (1988)
Price search intention	<ol style="list-style-type: none"> 1. Before making a purchase decision, I would visit other stores that sell Swatch brand watches to check their prices. 2. Before making a purchase decision, I would need to search for more information about prices of the Swatch brand watch. 3. Before making a purchase decision, I would visit other stores for a lower price. 	Della Bitta et al. (1981)
Attitude toward the promotional offer	My attitude toward this offer is (unfavorable/favorable; bad/good; poor/excellent).	Lichtenstein et al. (1991)

APPENDIX 2

Interaction of retail format and advertised reference price (ARP) conditions





About the Author

Yuan-shuh Lii

Yuan-shuh Lii is Associate Professor of Marketing at Feng Chia University. Dr. Lii received an M.B.A. and Ph.D. from Portland State University. Dr. Lii's areas of research interest are pricing, relationship marketing, and international marketing. His research has appeared in the publications such as the International Journal of Commerce and Management, Research in Consumer Behavior, Journal of Applied Management and Entrepreneurship, and Chinese Management Review. He has also published papers in several international and regional conference proceedings.

L.P. Douglas Tseng

L.P. Douglas Tseng is Professor and Director of Marketing and International Business at Portland State University. Dr. Tseng has a B.B.A. from National Taiwan University and an M.B.A. and Ph.D. from University of Texas. Dr. Tseng has authored and co-authored more than thirty articles published in referred academic periodicals such as Journal of Marketing Education, Journal of Euromarketing, Research in Consumer Behavior, Journal of Transactions on Engineering Management, Sun Yat-Sen Management Review, The Review of Business Studies. His research has primarily focused on consumer decision making, marketing education, pricing, e-marketing, strategic marketing and international marketing.