A Consumer Perspective on Price-Matching Refund Policies: Effect on Price Perceptions and Search Behavior

JOYDEEP SRIVASTAVA
NICHOLAS LURIE*

Although price-matching refund policies are common in many retail environments, the impact of such policies on consumers has largely been ignored. This article reports the results of three studies that examine price-matching policies from a consumer perspective. Study 1 shows that consumers perceive price-matching policies as signals of low store prices and that the presence of a refund increases the likelihood of discontinuing price search. Contrary to the predictions based on signaling theory in information economics, studies 2 and 3 show that when search costs are low, the number of stores searched increases in the presence versus absence of a price-matching policy. When search costs are high, consumers appear to accept the price-matching signal at face value and search less in the presence of a refund. The article concludes by discussing the theoretical implications of the findings and suggesting directions for future research.

Considerable research effort has been expended to study the behavioral and psychological aspects of price (e.g., Monroe 1990; Winer 1988). This research has led to the awareness of the complex role of price and price-related strategies in influencing consumer price perceptions (Monroe 1990). In particular, this research suggests that although prices are concrete relative to other product attributes, price perceptions are malleable (Alba et al. 1994). However, much of this research focuses on consumer price perceptions of individual products or brands (Arnold, Oum, and Tigert 1983). Relatively few researchers have examined the effect of general pricing strategies on consumer perceptions of store prices (cf. Alba et al. 1994; Buyukkurt 1986).

Perceptions of store prices are an important aspect of a store's overall image and are critical determinants of consumer shopping decisions such as search behavior and store choice (Urbany, Dickson, and Wilkie 1989). As consumers become more value conscious, particularly in relatively undifferentiated retail environments where price is the primary basis of competition, store price image may be the most important determinant of consumer shopping decisions. Recognition of the importance of store price image has perhaps led many retailers to employ general pricing strategies.

One general pricing strategy that many retailers use is to advertise that they will not be undersold. A price-matching refund policy or an offer to match the lowest price available in the market often accompanies these advertisements. For example, "In the unlikely event that you find an identical item that you purchased here for a lower price at another store, we promise to refund the difference," or "Our price-matching policy guarantees you the lowest price. If you find an item that you purchased here for a lower price elsewhere, we will gladly refund the difference." Price-matching refund policies are common in many consumer markets including appliances and hardware, books, tires, office products, groceries, and electronics.

Despite the widespread use of price-matching policies in the marketplace, such policies have received relatively little attention from marketing researchers. The sparse discussions that exist occur in the economics literature. This literature suggests that price-matching policies are a means to reduce price competition allowing firms offering such policies to charge higher prices (e.g., Salop 1986). Research in economics also suggests that a price-matching policy is a screening device that retailers use to price discriminate consumers based on search costs (e.g., Png and Hirshleifer 1987). Although the economics literature discusses price-matching policies from the perspective of a firm, the effect

*Joydeep Srivastava is assistant professor of marketing, Haas School of Business, University of California, Berkeley, CA 94720-1900; e-mail: srivasta@haas.berkeley.edu. Nicholas Lurie is assistant professor of marketing, Kenan-Flagler Business School, University of North Carolina, Chapel Hill, NC 27599-3490; e-mail: lurie@unc.edu. The authors acknowledge the helpful comments and suggestions of the editor, associate editor, the reviewers, Therese Louie, Andrew Mitchell, Albert Muñiz, and Priya Raghubir. Financial support for this research was provided by the Marketing Science Institute, Cambridge, MA, and the Committee on Research, University of California, Berkeley.

 ● Vol. 28 ● September 2001
 0093-5301/2002/2802-0009$03.00

of such policies on consumer decision making has largely been neglected.

This article addresses this significant gap in the literature by examining price-matching refund policies from the perspective of the consumer. In particular, this research examines the effect of price-matching policies on consumer perceptions of store prices and price search behavior. This article thus not only extends the literature on price-matching policies but also contributes to the research on the effects of general pricing strategies on consumer perceptions.

The rest of the article is organized as follows. Given that extant research on price-matching refund policies provides little insight on the effects of such policies on consumer decision making, the next section examines how consumers perceive price-matching policies. Study 1 examines the effect of price-matching policies on consumer perceptions of store prices and search intentions. We find that, although price-matching refunds do not influence perceptions of price dispersion in the market, when a store offers a refund it is perceived to have lower prices than when it does not. The likelihood of discontinuing search also increases in the presence (vs. absence) of a price-matching policy. Using these findings as a starting point, ideas from signaling theory in information economics are used to develop and test hypotheses regarding the effect of price-matching policies on consumer search behavior. Contrary to the predictions of the signaling perspective, studies 2 and 3 suggest that the price-matching refund signal is more effective when search costs are high rather than when search costs are low. In particular, consumers search fewer stores in the presence versus absence of a price-matching policy when search costs are high. In contrast, when search costs are low, consumers search more stores in the presence of a price-matching policy relative to its absence. The article concludes by discussing the theoretical implications of the findings, the limitations of this research, and directions for future research.

A CONSUMER PERSPECTIVE ON PRICE-MATCHING REFUND POLICIES

The predominant view in the economics literature is that, although price-matching refund policies may provide an impression of intense price competition, such policies facilitate price collusion. In other words, price-matching policies decrease price competition and lead to higher prices at stores that offer such policies. The rationale is that once a store adopts a price-matching policy, competing stores cannot gain market share by cutting prices and thus have little incentive to lower their prices (e.g., Cooper 1986; Salop 1986). However, because the economics literature analyzes the strategic aspects of price-matching policies from the perspective of the retailer (firm), it is difficult to draw implications about the effect of such policies on consumer perceptions and price search behavior. This article explicitly takes a consumer perspective to examine how consumers view and interpret price-matching policies.

From a consumer perspective, the simplest interpretation of price-matching refund policies is that such policies are used by retailers as signals of low prices. Consumers may believe that stores that enjoy a cost advantage or are trying to build sales volume use such policies to indicate that their prices are low (see Jain and Srivastava 2000; Srivastava 1999).

A related line of reasoning suggests that consumers may believe that low-priced stores are more likely to offer price-matching policies because a refund offered by a high-priced store is likely to be enforced. Since enforcement of price-matching policies is monetarily detrimental to high-priced stores, consumers may perceive that this will deter high-priced stores from offering such policies. The cost that a store stands to incur thus serves as a bond that the store forfeits if the low-price signal is false (see Boulding and Kirmani 1993). Given that consumers can enforce a refund if other stores have lower prices, a store that offers a refund, and therefore risks the bond, is likely to be the one that would forfeit the least. Since the store that would forfeit the least is the one with low store prices, consumers are likely to associate price-matching policies with relatively low store prices. To the extent that price-matching policies are perceived as signals of low store prices, it follows that consumers should perceive less benefit to search in the presence of a refund (Moorthy, Ratchford, and Talukdar 1997; Urbany 1986). Consequently, consumers should search less in the presence versus absence of a price-matching policy. Said differently, on average, consumers should be more likely to discontinue search when a store offers a price-matching policy relative to when it does not. Accordingly, it is hypothesized:

H1: Consumer perceptions of store prices will be lower and the likelihood of discontinuing search will be higher when a store offers a price-matching refund policy relative to when it does not.

The effect of price-matching policies on perceptions of price dispersion is, however, unclear. Consumers may perceive that price-matching policies intensify price competition by inducing other stores to lower their prices. If this is true, consumers may infer that price-matching policies reduce price dispersion in the market. The effect of refund policies in reducing search may thus be aggravated since the benefits of search are lower when price dispersion is relatively low (Stigler 1961).

It is perhaps natural that consumers relate price-matching policies to overall store prices when a refund is the only price-related information available. However, the extent to which price-matching policies affect perceptions of store prices and search behavior may depend on the availability of other price-related information. Research suggests that the effect of some signals, such as the effect of coupon value on price inferences (Raghubir 1998) and restrictions on deal evaluations (Inman, Peter, and Raghubir 1997), diminish when other information is available. It is thus possible that consumers use price-matching refunds as simple heuristics to decide whether they have searched enough. A simple

heuristic might be that stores that offer price-matching policies have relatively low prices. Thus, when a consumer finds a store that offers a price-matching policy, the perceived benefit of additional search is relatively low because the consumer believes that the likelihood of finding a better price is low. To the extent a price-matching policy is used as a heuristic, it may differentially affect search behavior in the presence of price information or other price-related cues (Darke, Freedman, and Chaiken 1995).

One factor that has been identified to affect price search is the base price of the product. Research suggests that higher base prices are associated with higher price dispersion and that this leads to relatively more price search (e.g., Grewal and Marmorstein 1994). The rationale is that because of the higher price dispersion, the associated potential gains or losses are larger when the base price is high relative to when it is low (e.g., Darke et al. 1995). Said differently, consumers are likely to search more for high-ticket items than for low-ticket items. This is consistent with the economic premise that consumers will continue to search as long as the perceived marginal benefits of search are greater than or equal to the perceived marginal costs of search (Stigler 1961).

Our interest is in examining the conditions under which price-matching policies affect search. In particular, we examine if other price-related information, such as base price, moderates the effect of price-matching policy. To the extent that a price-matching policy is used as a heuristic for low prices, its presence should have a differential effect on the likelihood of discontinuing search in high versus low base-price conditions. Assuming that the primary motive in price search is the amount that can be gained by finding a lower price (or lost by missing a lower price), consumers are more likely to use price-matching refunds as heuristics in discontinuing search when the base price is low. Given that a low base price is associated with low price dispersion and the price-matching policy is believed to indicate a relatively low price, the potential cost of making an erroneous decision is low. In contrast, consumers should be less likely to rely on the price-matching refund heuristic when the base price is high. The rationale is that the potential cost of making an erroneous decision (i.e., ending search prematurely) and thereby missing the potential savings associated with finding a lower price is higher in the high base-price condition (Darke et al. 1995). In other words, the extent to which a price-matching policy is used as a heuristic for low prices may depend on the potential cost of making an erroneous judgment by missing potentially substantial savings.

H2: The effect of price-matching policy on the likelihood of discontinuing search will be greater when the base price is low relative to when the base price is high.

Method

Subjects and Procedure. One hundred and forty-six university staff members, who were paid $10 each, were recruited to participate in the study consisting of a 2 (price-matching refund: present and absent) × 2 (base price: high and low) between-subjects design. Participants were randomly assigned to one of the four experimental conditions and were asked to imagine a purchase scenario where they were shopping for a particular brand of a portable stereo model. The study was conducted on computers using interactive software developed for this research.

Subjects were told that there were several electronic stores in their neighborhood. They had decided to visit the first store, Super Electronics, because it was the closest and usually had reasonable prices. After a 10-minute walk, they arrived at Super Electronics. In order to make the simulation more realistic, subjects had to exert some effort to go from one store to another. Subjects were required to walk by clicking the mouse back and forth between icons representing a left and right foot. Thirty clicks (representing a 10-minute walk) were required to go from one store to the other. There was thus some effort (or cost) associated with visiting each store (see Darke et al. [1995] for a similar procedure).

After arriving at Super Electronics, subjects learned that, though Super Electronics normally carried the stereo model, the stereo was temporarily out of stock, and it would take a week for the stereo to arrive. Subjects were told that they wished to purchase the stereo that day and had decided to continue to the next store. After another 10-minute walk (30 mouse clicks), they arrived at Ed's Electronics. In the high (low) base-price condition, subjects were told that Ed's price for the stereo was $600 ($100). The two base prices were chosen based on a pretest.[1] Subjects were then told that although the price was within their budget, they had decided to check out another store. Another 10-minute walk (30 mouse clicks) brought them to Hi-Fi Stereos. Hi-Fi also sold the stereo for $600 ($100) in the high (low) base-price condition. There was thus no difference between the prices at Ed's Electronics and Hi-Fi Stereos in both base-price conditions. This allowed us to test whether a price-matching policy affects perceived store prices and search behavior even when the store offering a refund does not have a lower price.

In the price-matching policy absent condition, none of the stores offered a price-matching refund. When the price-matching policy was present, subjects were given the additional information that Hi-Fi Stereos offered a price-matching refund policy: "If you buy a product at Hi-Fi Stereos and find the same product for a lower price elsewhere within 90 days, Hi-Fi will gladly refund the difference." Thus, subjects in the price-matching present condition were told about Hi-Fi's price for the stereo and Hi-Fi's price-matching policy, whereas in the price-matching policy ab-

[1] A pretest with different subjects (but from the same pool) indicated that perceptions of the price dispersion were significantly higher in the high base-price condition (M's = 4.71 and 3.78; $F(1, 38) = 5.43$, $p < .002$). Search intentions were also significantly higher in the high versus low base-price conditions (M's = 5.01 and 3.84; $F(1, 38) = 8.12$, $p < .001$).

sent condition, subjects were only informed about Hi-Fi's price.

At this point, subjects were told that there were a few more stores in the neighborhood, the closest of which was a 20-minute walk away. Subjects were asked to decide whether they wished to visit more stores or whether they preferred to buy the stereo from Hi-Fi Stereos. Subjects who decided to visit more stores were then asked to indicate the number of additional stores they would like to visit before making a purchase, within a range from 1–9. Subjects who decided to stop searching were not asked this question and were assigned a score of zero. All the subjects were then asked to complete a questionnaire consisting of the dependent measures, manipulation checks, and standard demographics.

Dependent Measures. Besides the decision to discontinue search and the additional number of stores subjects intended to search, perceptions of Hi-Fi's prices and perceived dispersion of prices in the market were also measured. Perceptions of Hi-Fi's prices were measured by averaging two seven-point Likert scales ($r = .75$). The two items were "Hi-Fi is offering a good deal on the stereo" and "I am confident that Hi-Fi's prices are among the lowest" (1 = strongly disagree, 7 = strongly agree). Perceived dispersion (or perceived benefit) of prices in the market was measured by averaging two seven-point Likert scales ($r = .64$). The items were "The price of the stereo is likely to vary significantly from one store to another in the marketplace" and "It is worthwhile to visit many stores before purchasing the stereo."

Results

Experimental Checks. Consistent with the pretest results, perceptions of price dispersion were significantly higher in the high versus low base-price conditions (M's = 4.56 and 3.99; $F(1, 143) = 6.18$, $p < .01$). This indicates that the perceived search benefit was higher in the high base-price condition relative to the low base-price condition. Importantly, perceptions of price dispersion in the market were not affected by the presence (vs. absence) of a price-matching policy (M's = 4.26 and 4.29; $F(1, 143) = .02$, NS) or by the interaction between price-matching policy and base price.

Hypotheses. Table 1 provides a summary of price perceptions, the number of additional stores intended to search, and likelihood of discontinuing search in each of the four conditions. Consistent with Hypothesis 1, subjects' price perceptions were significantly lower in the presence versus absence of a price-matching policy (M's = 4.70 and 4.11; $F(1, 143) = 5.04$, $p < .02$). The expected effect of base price on consumer perceptions of store prices was also confirmed. Perceptions of store prices were significantly lower in the low base-price condition relative to the high base-price condition (M's = 4.73 and 4.01; $F(1, 143) = 11.17$, $p < .001$). The interaction between price-matching policy and base price did not have a significant effect on perceptions of store prices ($F(1, 143) = .01$, NS).

TABLE 1

PRICE PERCEPTIONS, NUMBER OF STORES INTENDED TO SEARCH, AND LIKELIHOOD OF STOPPING SEARCH: STUDY 1

Price-matching policy	High base price	Low base price
Absent:		
Price perception	3.77 (1.17)	4.48 (1.27)
Additional stores intended to search	1.45 (1.15)	.94 (1.29)
Likelihood of stopping search	10/38 (26.3)	19/33 (57.6)
Present:		
Price perception	4.25 (1.47)	4.97 (1.23)
Additional stores intended to search	.84 (1.05)	.53 (.98)
Likelihood of stopping search	21/38 (55.3)	29/38 (76.3)

NOTE.—For price perceptions and additional stores intended to search, numbers in parentheses are standard deviations. For likelihood of stopping search, numbers in parentheses are the percentage of subjects that chose to stop search in the different conditions.

Analysis shows that the likelihood of discontinuing search was significantly affected by price-matching policy and base price. The percentage of subjects who stopped search was significantly higher in the presence of a refund relative to its absence (65.8 percent and 40.8 percent; $\chi^2(1) = 8.66$, $p < .003$). Also, the number of subjects who stopped search was significantly higher in the low base-price condition relative to the high base-price condition (67.6 percent and 40.8 percent; $\chi^2(1) = 10.28$, $p < .001$). The interaction between price-matching refund and base price did not have a significant effect on likelihood of discontinuing search ($\chi^2(1) = .28$, NS).

As shown in Table 1, search intentions were also affected by price-matching policy and base price. The mean number of additional stores that subjects indicated they would visit was significantly lower in the presence of a price-matching policy relative to its absence (M's = 0.68 and 1.19; $F(1, 143) = 7.55$, $p < .006$). The number of additional stores that subjects would visit was also significantly lower in the low base-price versus the high base-price condition (M's = 0.73 and 1.14; $F(1, 143) = 4.94$, $p < .02$). However, the interaction of price-matching policy and base price was not significant ($F(1, 143) = .27$, NS). Together, these data provide support for Hypothesis 1 but not for Hypothesis 2.

Discussion

Study 1 shows that consumers associate price-matching policies with low store prices and that the presence of a price-matching policy also affects search behavior. Study 1 also demonstrates that price perceptions and search intentions are influenced in both high and low base-price conditions. It appears that consumers do not use price-matching policies heuristically to decide whether they have searched enough only when the benefit to search is less (cf. Darke et al. 1995). Note that the refund affects search behavior

without affecting perceived price dispersion. Consistent with the previous literature, this finding suggests that price dispersion is less important in determining search when a store's price position can be identified on a continuum of prices (e.g., Moorthy et al. 1997; Urbany 1986).

In study 1, we examined the effect of price-matching policies on perceptions of store prices and search intentions in conditions where the perceived benefit of search was varied by the base prices. However, the shopping simulation did not involve an explicit trade-off between the costs and benefits of search, which is common in actual shopping. Thus, in study 2, search cost was explicitly manipulated to assess the effect of price-matching policies under different search-cost conditions. Moreover, study 2 examines the effect of price-matching policies on actual search behavior (i.e., number of stores searched) rather than search intentions.

STUDY 2

The objective of this study is to extend and generalize the findings of study 1 by examining the effect of price-matching policies under different search-cost conditions. Study 1 shows that consumers perceive price-matching policies to be signals of low store prices. Drawing on signaling theory in information economics (e.g., Spence 1973), we develop and test hypotheses about conditions under which price-matching policies are more and less likely to be perceived as signals of low store prices.

The signaling perspective in information economics suggests that retailers (or firms) are unlikely to send false market signals about uncertain attributes (e.g., product quality) if market mechanisms serve to discipline firms that make untruthful claims (Ippolito 1990). Consumers may drive these market mechanisms since they can punish firms for sending false signals (e.g., Wernerfelt 1988). In particular, consumers can withhold repeat purchases, engage in negative word-of-mouth, and call for regulatory action (Ford, Smith, and Swasy 1990; Rao, Qu, and Ruekert 1999; Wernerfelt 1988). To the extent that this reasoning holds for experience attributes (e.g., product quality), the disciplinary mechanisms are likely to be stronger for search attributes (e.g., price) because these attributes can be evaluated and verified before purchase.

An implication of the signaling perspective is that the effectiveness of market signals is likely to vary with the strength of the disciplinary mechanisms prevailing in the marketplace (see Boulding and Kirmani 1993). As such, the likelihood of acceptance of a market signal increases with the strength of the (perceived) disciplinary mechanisms. The rationale is that the disciplinary mechanisms will ensure that firms send truthful signals. In contrast, market signals are less likely to be accepted when the disciplinary mechanisms are relatively weak because firms are more likely to get away by sending false signals.

In the context of price-matching refund signals, the extent of price search before purchase is a critical driver of the market disciplinary mechanisms because consumers can assess the validity of the signal by searching more stores. However, there are costs associated with search (Moorthy et al. 1997; Urbany 1986), and these costs affect the extent of price search or the ease with which consumers can assess the validity of price-matching signals. Thus, an important determinant of the strength of the disciplinary mechanisms at work (i.e., extent to which consumers assess the validity of the price-matching signal) in the marketplace is the cost associated with searching.

In particular, the higher the search cost, the weaker the disciplinary mechanisms in the marketplace. The rationale is that because of the high search costs, it is more difficult for consumers to assess the validity of the price-matching signal. In contrast, the disciplinary mechanisms are stronger when search costs are relatively low as it is easier for consumers to validate the price-matching signal. Said differently, a store is less likely to incur a cost (or forfeit its bond) if the price-matching signal is false when search costs are high versus low (Boulding and Kirmani 1993). Based on this reasoning, a price-matching signal is likely to be more credible when search costs are low versus high. Consequently, consumers are more likely to accept the price-matching signal and search fewer stores in the presence versus absence of a refund when the search costs are low. When search costs are high, consumers are less likely to accept the price-matching signal, suggesting that there would be little or no difference in the number of stores searched in the presence versus absence of a refund.

H3: The interaction between price-matching refund policy and search cost will affect the number of stores searched.

a: When search costs are low, the number of stores searched will be lower in the presence versus absence of a price-matching refund.

b: When search costs are high, there will be little or no difference in the number of stores searched in the presence versus absence of a price-matching refund.

Method

Subjects and Design. The hypotheses were tested in a simulation of a purchase scenario in which 69 undergraduate (juniors and seniors) subjects shopped for a new washing machine. A washing machine was used as the test product in order to minimize the relevance of subjects' previous shopping experience. Subjects were randomly assigned one of four cells of a 2 (price-matching policy: present and absent) × 2 (search cost: high and low) between-subjects design.

The shopping simulation was conducted on computers using interactive software. Subjects interacted with the computer following the procedures shown in the Appendix (see Urbany 1986). Each subject participated in two simulated purchase tasks: a practice task and an experimental task. In both tasks, subjects were told to purchase a specific product

and brand to minimize the effect of all decision variables except price.

Task Objectives and Shopping Simulation. The instructions stated that the objective was to purchase a washing machine and maximize the amount of money remaining after making the purchase. Subjects started each task with a given amount of money that was displayed on the computer screen. Search cost (or validation cost) and purchase price were both deducted from the starting balance to determine the amount remaining after purchase. Subjects were told that in the shopping simulation, a fixed cost, representing real shopping costs such as time, gas, and so on, would be deducted for each store visited. Subjects did not have to perform any calculations since both cost and total balance were automatically shown on the computer screen. In sum, the simulation represented the trade-off involved in actual shopping: trading off the benefits of price search against the costs associated with search.

As mentioned earlier, the shopping simulation started with an initial balance. The computer screen displayed a fixed number of stores: seven stores for the practice task and 10 stores for the experimental task. Subjects visited stores by clicking on store names in any order they liked. Clicking on a store name revealed the price of the particular product at the store. Subjects were free to search as many stores as they liked by clicking on stores and obtaining the respective prices or to purchase the product from a store they had already visited. After making the purchase, subjects responded to several seven-point scales.

The practice task, in which subjects shopped for a Sealy queen-size mattress, was intended to familiarize them with the shopping process and the computer interface. In the practice task, search cost was varied at two levels—$1 and $4—and none of the stores offered a price-matching policy. Subjects started the practice task with an initial balance of $350.

In the experimental task, subjects shopped for a Whirlpool washing machine and started the task with a balance of $500. Subjects were led to believe that the 10 stores and the respective prices represented actual stores in the local market. They were told that the store names had been disguised for the simulation. In this task, search cost and price-matching policy were each manipulated at two levels. To ensure that there would be some benefit to search even in the high-cost condition, subjects were told that there could be a $150 difference between the highest- and lowest-priced retailers (price range) for the Whirlpool washing machine.[2] Subjects were not informed that the prices at the 10 stores, which were the same for all subjects, were randomly generated from a uniform distribution between $330 and $480 (see Table 2).

[2]A pretest with this experimental task showed that the presence (vs. absence) of a refund did not have a significant effect on perceived price dispersion (M's = 2.45 and 2.48; $F(1, 40) < 1$). Given that price-matching policies do not affect perceived price dispersion, price dispersion can be mentioned explicitly in the presence of a price-matching policy.

TABLE 2

STORE PRICES IN STUDIES 2 AND 3

Name of store	Study 2	Study 3
Case	430	486
Wonder	453	490
Mont	466	455
Durborn	425	460
Wabash	480	495
Sims[a]	396	464
Arps	417	478
Butte	356	462
Omega	330	473
Erem	386	480

NOTE.—The store names are fictitious. Prices were randomly drawn from a uniform distribution and were the same for all subjects.
[a]Sims offered the price-matching policy when it was present.

Experimental Variables. Price-matching policy was manipulated at two levels in the experimental task—absent or present. When the price-matching policy was absent, none of the 10 stores offered a refund. However, when a price-matching policy was present, only one store offered a refund. The following statement was inserted next to the store offering the refund: "If you buy a product here and find the identical product for sale at another store for a lower price, we promise to refund the difference." Thus, when the price-matching policy was present, the screen displayed a menu of 10 stores along with the refund associated with one store, whereas when the refund was absent, the screen displayed a menu of 10 stores only. The price-matching policy was always offered by the store with the fourth lowest price.

Search cost was manipulated at two levels. Subjects in the low-cost condition were charged $1 for each store visited, and subjects in the high-cost condition were charged $4. The two levels of cost were consistent across the practice and experimental purchase tasks.

Dependent Measures. Besides the experimental checks, the main dependent measure was the number of stores searched before making a purchase. In addition, the shopping task permitted us to collect data on measures such as first store visited, search order, likelihood of search, and final store choice. Although these measures were not related to any hypotheses in particular, we expected these to provide insights into the effects of price-matching policies.

Results

Experimental Checks. The search-cost manipulation was assessed by averaging the ratings of two seven-point Likert scales ($r = .76$). Subjects were asked to respond to the statements "The cost of visiting each store is negligible" and "It is expensive to visit each store" (reverse scaled). The 2 × 2 ANOVA results indicate that the manipulation was successful as subjects in the high-cost condition perceived the cost of visiting each store to be significantly

higher than subjects in the low-cost condition (M's = 4.12 and 2.49; $F(1, 64) = 14.58$, $p < .0001$).

Since subjects were free to click on any store and knew the price range was $150, it is possible that the sequence of prices encountered affected search behavior. It is likely that subjects will search more if the first two prices revealed were relatively close to each other than if they were relatively far apart. In order to account for the sequence of prices and the information revealed by these prices, the difference in the first two and first three prices revealed were added as covariates in the analysis. Beyond the first three prices, the price sequence did not have a significant effect. Analysis shows that although the covariate representing the difference in the first two prices was not significant ($F(1, 63) = 2.52$, NS), the covariate representing the difference in the first three prices was significant ($F(1,63) = 5.16$, $p < .03$). The two covariates did not interact significantly with any of the experimental variables. The analysis reported below controls for the differential effect of price sequence on search behavior.

Effect on Number of Stores Searched. The 2 × 2 ANOVA results show that search cost ($F(1, 63) = 4.75$, $p < .03$) and the interaction between price-matching policy and search cost ($F(1, 63) = 5.26$, $p < .02$) significantly affected the number of stores searched. Hypothesis 3a predicted that when search costs are low, the number of stores searched would be significantly lower in the presence of a price-matching policy because consumers are more likely to accept the price-matching signal. Contrary to Hypothesis 3a, in the low search-cost condition, the mean number of stores searched was marginally higher in the presence of a price-matching policy relative to its absence (M's = 6.71 and 5.50; $F(1, 63) = 3.01$, $p < .08$).

Hypothesis 3b predicted that when search costs are high, consumers are not likely to accept the price-matching signal, and thus there should be little or no difference in the number of stores searched in the presence of a refund. In contrast, in the high search-cost condition, the mean number of stores searched was significantly lower in the presence of a price-matching policy relative to its absence (M's = 3.06 and 4.87; $F(1, 63) = 5.35$, $p < .02$). These data, contrary to the predictions based on signaling theory, do not provide support for Hypothesis 3.

Effect on First Store Searched and Search Likelihood. In addition to the number of stores searched, subjects' shopping patterns varied significantly with the price-matching policy. The search order data (see Table 3) suggests that the store for which a price-matching policy was either present or absent was more likely to be searched earlier when it offered a refund. Specifically, when a price-matching policy was present, the store that offered the refund was visited first by 31.4 percent (11/35) of the subjects. However, the same store was visited first by only 5.9 percent (2/34) of the subjects when no store offered a refund ($\chi^2(1) = 7.36$, $p < .007$). The first store visited did not vary significantly with search cost ($p > .1$). However, the presence of a refund had a marginal effect on first store visited when the cost was high ($\chi^2(1) = 3.5$, $p < .07$) but not when the cost was low ($\chi^2(1) = 1.3$, NS).

TABLE 3

SEARCH ORDER AS A FUNCTION OF PRICE-MATCHING POLICY: STUDY 2

Search order for store that offered the refund (Sims)	Absent		Present	
	N	Percentage	*N*	Percentage
Not searched at all	16	47.05	7	20.00
First	2	5.88	11	31.43
Second	1	2.94	3	8.57
Third	4	11.76	7	20.00
Fourth	3	8.82	2	5.71
Fifth	3	8.82	0	.00
Sixth	1	2.94	4	11.43
Seventh	2	5.88	0	.00
Eighth	1	2.94	1	2.86
Ninth	0	.00	0	.00
Tenth	1	2.94	0	.00

The likelihood of the store being searched was also significantly higher when it offered a refund relative to when it did not ($\chi^2(1) = 5.68$, $p < .01$). When the store offered a refund, 80 percent (28/35) of the subjects searched the store relative to 52.9 percent (18/34) when it did not offer a refund. No other effects were significant.

Effect on Store Choice. The presence of a price-matching policy also had a significant influence on subjects' final store choice. When the price-matching refund was present, 28.6 percent (10/35) of the subjects chose to buy from the store that offered the refund. None of the subjects chose to buy from this store when it did not offer a refund ($\chi^2(1) = 11.36$, $p < .001$). No other effects were significant (p's > .11).

Discussion

Study 2 shows that, although the presence of a price-matching policy influenced the number of stores searched, the findings were inconsistent with the signaling perspective. According to the signaling framework, consumers will perceive the price-matching signal to be more credible when search cost is relatively low and more consumers are shopping around (i.e., the market disciplinary mechanisms are strong). It was therefore hypothesized that the presence (vs. absence) of a price-matching policy would have a greater effect in lowering the number of stores searched in the low search-cost condition. Contrary to expectations, the number of stores searched increased in the presence of a refund when the search costs were low and decreased when the search costs were high. It is possible that in study 2, subjects did not assume that the search cost was generalizable to other consumers. Rather, subjects may have been individually trading off the costs and benefits of search.

The cost-benefit framework, which suggests that search

for a lower price will continue as long as the perceived benefits are greater or equal to the perceived costs, also does not provide a complete account for the findings. According to the framework, increasing the number of stores searched increases the probability of finding the lowest price, but the cost associated with search affects the extent to which consumers search for a low price. Thus, although searching all stores is the most objective way of locating the lowest price, at some point, increases in search cost outweigh the perceived benefits of finding the lowest price. This reasoning suggests that consumers should be more likely to rely on price-matching signals to guide search behavior as search costs increase. In other words, the effect of price-matching policy in lowering the number of stores searched should be greater when search costs are high than when they are low. The cost-benefit framework accounts for the decrease in search in the high-cost condition but does not explain the increase in search in the low-cost condition.

The finding that the number of stores searched is higher in the presence of a price-matching refund when search costs are low suggests that consumers derive incremental utility from additional search.[3] The incremental gain in utility may be due to consumers' "schemer schema," which suggests that the store with the refund has lower than average prices but not the lowest price (Wright 1985). Thus, although a price-matching refund may indicate a good deal, there is incremental utility to be gained from beating the price at the store with the refund and obtaining an even better deal. The incremental gain in utility may also be due to consumers' desire to verify the price-matching signal. Because the incremental gain in utility is relatively small, additional search is likely to occur when the costs associated with additional search are low (vs. high) relative to the anticipated gains in utility.

To explore the idea of incremental gains in utility from trying to beat the price associated with a refund (or verify the price-matching signal), particularly in the low search-cost condition, we examined the effects of first store visited and search cost on search behavior when the refund was present. Analysis shows that the interaction between first store visited and search cost on number of stores searched was marginally significant ($F(1, 34) = 3.15$, $p < .07$). In particular, the number of stores searched was higher in the low-cost condition when subjects visited the store with the refund first relative to when they did not (M's $= 7.00$ and 5.97). In contrast, in the high-cost condition, the number of stores searched was lower when subjects visited the store with the refund first relative to when they did not (M's $=$ 2.67 and 4.36). Subjects in the low-cost condition thus searched more stores when they visited the store with the refund first, possibly with the intention of finding a lower price (or verifying the refund signal). However, when the costs were high, presumably higher than the anticipated incremental utility of finding a lower price, subjects searched fewer stores when they visited the store with the refund first.

[3]We thank the associate editor and a reviewer for suggesting this explanation.

STUDY 3

Study 3 served two main purposes: to replicate the findings of study 2 and to provide more insight into the underlying process. To replicate the findings of study 2, we used the same shopping simulation but altered details such as the specific store prices. Replicating the earlier findings with different store prices would attest to the robustness of the results. Several measures were collected that were expected to provide insights into the underlying process. First, subjects were explicitly asked to estimate the price position of the store that offered the price-matching refund. Second, we measured subjects' perceptions of value of search. On the one hand, perceived value of search is an assessment of the benefits of search in light of the associated costs. Perceived benefit, on the other hand, is the perceived difference between the price in hand and the lowest price believed to be available in the marketplace (Urbany, Bearden, and Weilbaker 1988). Third, we assessed perceptions of the value of verifying the price-matching signal when the signal was present.

Method

Subjects and Procedure. One hundred and thirty undergraduate (seniors and juniors) subjects were recruited to participate in a 2 (price-matching policy: present and absent) × 2 (search costs: high and low) between-subjects experimental design. Subjects were informed that, according to a 1998 survey of 100 appliance stores in the local urban area, the price range for the Whirlpool washing machine was $150. They were told that the 10 stores chosen for the study were actual stores in the local market but that their names were disguised for the simulation. Unlike study 2, although subjects were told that the price range was $150, the actual price dispersion in this study was $40. Subjects were not told that the 10 prices were actually distributed uniformly between $495 and $455 (see Table 2). This manipulation ensured that the differential effect of price sequence and the information revealed by these prices would be minimized. The shopping simulation and the task objectives were identical to that of study 2, unless noted.

Subjects were randomly assigned to one of the four experimental conditions. They began the task with a balance of $500. Unlike study 2, to motivate careful decisions, subjects were told that a raffle for four cash prizes (one in each cell) of $50 would be held. The instructions emphasized that the number of raffle tickets entered for each subject would equal the amount of money remaining after making the washing machine purchase.

In addition to the dependent measures examined in study 2, the following dependent measures were collected in this study.

Perceived Price Position. After exposure to the 10 stores, subjects were asked to estimate the price position of two stores of which one was the target (the store that offered the refund) before beginning the search task. Having sub-

TABLE 4

PRICE POSITION, NUMBER OF STORES SEARCHED, AND PERCEIVED VALUE OF SEARCH: STUDY 3

	Low cost		High cost	
Price-matching policy	Absent	Present	Absent	Present
Perceived price position	4.21 (1.15)	3.11 (1.32)	4.09 (1.03)	2.93 (1.33)
Number of stores searched	6.41 (1.72)	7.54 (2.21)	4.82 (2.11)	3.96 (1.23)
Perceived value of search	4.98 (.96)	5.61 (.82)	4.64 (.94)	4.05 (.99)

NOTE.—Numbers in parentheses are standard deviations.

jects estimate the price position of two stores minimized the undue attention that would have resulted by having subjects rate just one store before search. In particular, subjects responded to the following: "In your best estimate the price at Sims, relative to other stores, is likely to be" (1 = lowest, 4 = about the same, 7 = highest).[4]

Perceived Value. An average of four seven-point Likert scales (1 = strongly disagree, 7 = strongly agree) were used to measure perceived value (Cronbach's alpha = .78). The items were (1) the benefit of finding the lowest price is worth the cost; (2) it is not worthwhile to shop most of the stores (reverse scaled); (3) the potential savings from finding a lower price is worth the cost; and (4) it is worth the cost to visit most of the stores.

Value of Verification. An average of two seven-point Likert scales (1 = strongly disagree, 7 = strongly agree) measured perceptions of the value of verifying whether Sims's price was the lowest ($r = .67$). They were "It was not worth the cost to verify whether Sims' price was the lowest" (reverse scaled), and "It was worthwhile to verify whether Sims' price was one of the lowest." These statements were used only when the price-matching policy was present.

Results

Manipulation Checks. The search-cost manipulation was assessed by a seven-point Likert scale, "It is expensive to visit each additional store." The 2 × 2 ANOVA indicates that perceptions of cost of visiting each store were significantly higher in the high- versus low-cost conditions (M's = 4.50 and 2.71; $F(1, 126) = 39.68$, $p < .0001$). No other effects were significant.

To ensure that perceived price dispersion did not vary as a result of the manipulations, subjects were asked to respond to the statement "In your estimate, there is a big difference between the highest and lowest prices for the Whirlpool washing-machine in the market" (1 = strongly disagree, 7 = strongly agree). The 2 × 2 ANOVA indicates that perceived price dispersion did not vary as a function of the manipulated variables. The analysis also shows that, unlike in study 2, the sequence of prices did not affect the number of stores searched differentially in any condition.

Effect on Perceived Price Position. Table 4 displays the means of the dependent measures. The analysis shows that subjects' estimate of the target store's prices relative to other stores was significantly lower when the target store offered the price-matching refund than when it did not (M's = 3.01 and 4.15; $F(1, 126) = 25.67$, $p < .0001$). No other effects were significant. The data suggest that subjects perceive price-matching policies to be associated with lower than average prices but not with the absolute lowest prices.

Effect on Number of Stores Searched. The 2 × 2 ANOVA shows that search cost ($F(1, 126) = 51.85$, $p < .0001$) and the interaction between price-matching policy and search cost ($F(1, 126) = 7.62$, $p < .007$) significantly affected the number of stores searched. Consistent with study 2, the number of stores searched was higher in the presence versus absence of a price-matching policy when search costs were low (M's = 7.54 and 6.41; $F(1, 126) = 4.47$, $p < .01$). Also, when the search costs were high, the number of stores searched was lower in the presence of a price-matching policy relative to its absence (M's = 3.96 and 4.82; $F(1, 126) = 3.17$, $p < .03$). These data attest to the robustness of the results of study 2.

Effect on First Store Searched and Store Choice. As in study 2, the store that offered the price-matching policy was searched earlier when it offered a refund relative to when it did not. In fact, subjects' choice of the first store to search varied significantly with price-matching policy but not with search cost. When a refund was present, the store that offered the price-matching policy was searched first by 44.64 percent (25/56) of the subjects, although the same store was searched first by 14.86 percent (11/74) of the subjects when no store offered a price-matching policy ($\chi^2(1) = 14.1$, $p < .001$).

Subjects' final store choice also varied significantly with the price-matching policy. About 30 percent (17/56) of the

[4] Subjects also indicated their confidence with their estimates of price position. Subjects were significantly more confident when the price-matching policy was present relative to when it was absent (M's = 4.43 and 2.68; $F(1, 126) = 32.61$, $p < .0001$).

subjects chose to purchase the washing machine from the store that offered the refund, but only 5.41 percent (4/74) of the subjects chose the store when the refund was absent ($\chi^2(1) = 14.65$, $p < .001$). Although search cost did not have a significant effect on store choice, the presence of a refund appears to have a greater effect when the cost was high ($\chi^2(1) = 12.29$, $p < .001$) relative to when the cost was low ($\chi^2(1) = 3.5$, $p < .07$).

Additional Measures. Not surprisingly, subjects' perceptions of the value of search tracked their search behavior closely. Consistent with the search data, search cost ($F(1, 126) = 25.82$, $p < .0001$) and the interaction between price-matching policy and search cost ($F(1, 126) = 9.80$, $p < .002$) had a significant affect on perceived value of search. Table 4 shows that when the cost was high, the perceived value of search was marginally lower in the presence versus absence of a refund (M's = 4.05 and 4.64; $F(1, 126) = 3.17$, $p < .06$). However, when the cost was low, the perceived value of search was higher in the presence versus absence of a refund (M's = 5.61 and 4.98; $F(1, 126) = 6.86$, $p < .009$). A test of mediation showed that perceived value partially mediates the effect of the interaction between price-matching policy and search cost on price search behavior.

Further, when the price-matching policy was present, subjects' perceptions of the value of verifying whether the store that offered the refund had the lowest price was significantly higher in the low- relative to the high-cost condition (M's = 5.54 and 4.61; $F(1, 54) = 5.53$, $p < .02$). Together, these data appear to support the contention that there is incremental gain in utility from additional search when search costs are low but not when the search costs are high.

GENERAL DISCUSSION

Given that previous discussions of price-matching policies take the perspective of a firm, the primary purpose of this article was to examine price-matching policies from the perspective of a consumer. In particular, this article reports the results of three studies that show that price-matching policies have a significant influence on consumer perceptions of store prices and price search behavior. Study 1 demonstrates that consumers perceive price-matching policies as signals of low store prices. When a store offered a price-matching policy, perceptions of store prices were lower and the likelihood of discontinuing search was higher. Study 1 also shows that the presence of a price-matching policy affected price perceptions and search likelihood regardless of the base price of the product. This suggests that price-matching policies are not mere heuristics that consumers use only when the cost of making an erroneous judgment is low.

Study 2 examined the effect of price-matching policies on actual search behavior in an environment where the trade-off between the costs and benefits of search would be explicit. The signaling perspective suggests that a price-matching policy is more likely to be accepted as a signal of low store prices when search costs are low versus high. The rationale is that the market disciplinary mechanisms are stronger when search costs are low (i.e., consumers shop more) and retailers have little incentive to send false signals. It was thus hypothesized that consumers are likely to search fewer stores in the low search-cost condition whereas there will be little or no difference in the high search-cost condition. In contrast, subjects searched more stores in the presence of a refund in the low search-cost condition and searched fewer stores in the presence of a refund in the high search-cost condition. Attesting to the robustness of the findings, the results of study 2 were replicated in study 3.

It is possible that the signaling theory did not receive support because subjects' perceptions of the disciplinary mechanisms were unaffected by the search-cost manipulation (i.e., search cost was not assumed to be commonly known). Further, one may argue that search behavior in the high-cost condition was consistent with the signaling perspective because the cost was not calibrated to be high enough for consumers to be skeptical about the price-matching signal. Nonetheless, the signaling perspective cannot account for the increase in search in the low search-cost condition. A cost-benefit framework, where consumers individually trade off the perceived benefits and costs, also does not account for the results completely. This framework suggests that the price-matching signal is more likely to be relied on when the costs are high versus low. Although the decrease in search in the high-cost condition is consistent with the cost-benefit framework, it does not explain the increase in search in the low-cost condition.

Together, the three studies suggest that price-matching policies are perceived to be imperfect signals of low prices such that stores offering such policies are believed to have lower than average prices but not the lowest prices. For instance, in study 1, although the presence of a price-matching policy increased the likelihood of discontinuing search, some subjects continued to search. In studies 2 and 3, this was manifested in the increase in search when search costs were low. When the price-matching policy was absent, subjects appeared to simply weigh the perceived benefits and costs of incremental search. However, this process is altered in the presence of a price-matching policy.

Although the price-matching policy signals a good deal (indicated by perceptions of relative price position in study 3), the presence of a refund also suggests that there may an incremental gain in utility from additional search. The incremental gain in utility may be due to anticipation of finding a price that is lower than the price offered at the store with the refund and thus obtaining an even better bargain. Given that the gain in utility is relatively small, additional search is more likely to occur when search costs are low. When search costs are high, the price-matching signal is more likely to be accepted at face value because the cost of search is greater than the anticipated gains in utility. Consistent with this idea, in the low-cost condition, we

found that subjects who visited the store with the refund first searched more stores than those who did not. In the high-cost condition, subjects who visited the store with the refund first searched fewer stores. Further, study 3 shows that when the price-matching policy was present, perceived value of search was higher in the low-cost condition relative to the high-cost condition.

Before discussing the implications, the limitations of this research bear comment. Like any laboratory study, the shopping simulation controlled for extraneous factors that may be important in real shopping situations. For instance, in the simulation, only one store offered a refund; the meaning of the price-matching signal may be altered when multiple stores offer a refund. In addition, subjects were encouraged to maximize the amount of money remaining after purchase. In actual shopping situations, consumers may not make decisions with such objective parameters in mind and may not search as many stores as our subjects. Another limitation concerns the purchase scenarios in which subjects purchased a single, relatively high-ticket item. The cost of evaluating and verifying price information in this case is lower than in a scenario that involves purchase of a basket of frequently purchased, relatively low-ticket items (e.g., grocery store). To the extent consumers perceive differences across these scenarios, they may perceive market mechanisms that serve to discipline firms making false claims to be much stronger in the scenario where one high-ticket item has to be purchased. Consequently, the extent to which consumers rely on the price-matching refund as a signal of low prices may differ across purchase scenarios. Our results also point to the importance of consumer beliefs regarding the search cost of other consumers in the market. In our studies, subjects were not explicitly told that their search costs were generalizable to other consumers. It is thus important for future research to examine how search costs that are commonly known to apply to all consumers may influence the effectiveness of market signals such as price-matching policies.

Nonetheless, this research highlights the malleability of price perceptions and contributes to our understanding of how a general pricing strategy, such as a price-matching policy, affects price perceptions and search behavior. From a theoretical perspective, this research underscores a critical assumption of the signaling perspective in information economics, namely, that consumers may drive market disciplinary mechanisms under some conditions (Ippolito 1990; Wernerfelt 1988). Our results highlight the fact that the acceptance of market signals depends on search costs. Although search costs may not affect the acceptance of signals about experience attributes (e.g., quality), it is perhaps not surprising that search costs are important to acceptance of signals about search attributes (e.g., price). Importantly, existing research does not explicitly recognize the relationship between search costs and acceptance of market signals.

APPENDIX

EXPERIMENTAL PROCEDURE FOR STUDIES 2 AND 3

1. Instructions on task objectives, search costs, and payoffs.
   - Explanation of search costs as a function of stores visited.
   - Self-administered quiz (calculation of payoffs given search and purchase price).
2. Practice task: purchase of Sealy queen-size mattress.
   - Description of task and manipulation of search costs.
   - Shop for/purchase from a menu of seven stores with a balance of $350.
   - Calculation and display of results: purchase price, total search cost, number of stores visited, amount remaining in account.
3. Experimental task: purchase of Whirlpool washing machine.
   - Description of task and manipulation of search costs (and perceived price dispersion).
   - Shop for/purchase from a menu of 10 stores with a balance of $500.
   - Calculation and display of results: purchase price, total search cost, number of stores visited, amount remaining in account.
4. Post-task measures.

[*Received November 1998. Revised January 2001. David Glen Mick served as editor, and William Boulding served as associate editor for this article.*]

REFERENCES

Alba, Joseph W., Susan Broniarczyk, Terence Shimp, and Joel E. Urbany (1994), "The Influence of Prior Beliefs, Frequency Cues, and Magnitude Cues on Consumers' Perceptions of Comparative Price Data," *Journal of Consumer Research*, 21 (September), 219–235.

Arnold, Stephen J., Tae Oum, and Douglas J. Tigert (1983), "Determinant Attributes in Retail Patronage: Seasonal, Temporal, Regional, and International Comparisons," *Journal of Marketing Research*, 20 (May), 149–157.

Boulding, William and Amna Kirmani (1993), "A Consumer-Side Experimental Examination of Signaling Theory: Do Consumers Perceive Warranties as Signals of Quality," *Journal of Consumer Research*, 20 (June), 111–123.

Buyukkurt, B. Kemal (1986), "Integration of Serially Sampled Price Information: Modeling and Some Findings," *Journal of Consumer Research*, 13 (December), 357–373.

Cooper, Thomas E. (1986), "Most-Favored-Customer Pricing and Tacit Collusion," *RAND Journal of Economics*, 17 (Autumn), 377–388.

Darke, Peter R., Jonathan L. Freedman, and Shelly Chaiken (1995), "Percentage Discounts, Initial Price, and Bargain Hunting: A Heuristic-Systematic Approach to Price Search Behavior," *Journal of Applied Psychology*, 80 (October), 580–586.

Ford, Gary T., Darlene B. Smith, and John L. Swasy (1990), "Con-

sumer Skepticism of Advertising Claims: Testing Hypotheses from Economics of Information," *Journal of Consumer Research*, 16 (March), 433–441.

Grewal, Dhruv and Howard Marmorstein (1994), "Market Price Variation, Perceived Price Variation, and Consumers' Price Search Decisions for Durable Goods," *Journal of Consumer Research*, 21 (December), 453–460.

Inman, Jeffrey, Anil C. Peter, and Priya Raghubir (1997), "Framing the Deal: The Role of Restrictions in Accentuating Deal Value," *Journal of Consumer Research*, 24 (June), 68–79.

Ippolito, Pauline (1990), "Bonding and Nonbonding Signals of Product Quality," *Journal of Business*, 63 (January), 41–60.

Jain, Sanjay and Joydeep Srivastava (2000), "An Experimental and Theoretical Analysis of Price-Matching Refund Policies," *Journal of Marketing Research*, 37 (August), 351–362.

Monroe, Kent B. (1990), *Pricing: Making Profitable Decisions*, New York: McGraw-Hill.

Moorthy, Sridhar, Brian Ratchford, and Debabrata Talukdar (1997), "Consumer Information Search Revisited: Theory and Empirical Analysis," *Journal of Consumer Research*, 23 (March), 263–277.

Png, Ivan P. L. and David Hirshleifer (1987), "Price Discrimination through Offers to Match Price," *Journal of Business*, 60 (July), 365–383.

Raghubir, Priya (1998), "Coupon Value: A Signal for Price?" *Journal of Marketing Research*, 35 (August), 316–324.

Rao, Akshay, Lu Qu, and Robert W. Ruekert (1999), "Signaling Unobservable Product Quality through a Brand Ally," *Journal of Marketing Research*, 36 (May), 258–268.

Salop, Steven C. (1986), "Practices That (Credibly) Facilitate Oligopoly Coordination," in *New Developments in the Analysis of Market Structure*, ed. Joseph E. Stiglitz and G. Frank Mathewson, Cambridge, MA: MIT Press, 265–290.

Spence, Michael (1973), "Job Market Signaling," *Quarterly Journal of Economics*, 87 (August), 355–374.

Srivastava, Joydeep (1999), "Price-Matching Refund Policies as Signals of Store Price Image," Working Paper No. 99-128, Marketing Science Institute, Cambridge, MA 02138.

Stigler, George J. (1961), "The Economics of Information," *Journal of Political Economy*, 69 (June), 213–225.

Urbany, Joel E. (1986), "An Experimental Examination of the Economics of Information," *Journal of Consumer Research*, 13 (September), 257–271.

———, William O. Bearden, and Dan C. Weilbaker (1988), "The Effect of Plausible and Exaggerated Reference Prices on Consumer Perceptions and Price Search," *Journal of Consumer Research*, 15 (June), 95–110.

———, Peter Dickson, and William L. Wilkie (1989), "Buyer Uncertainty and Information Search," *Journal of Consumer Research*, 16 (September), 208–215.

Wernerfelt, Birger (1988), "Umbrella Branding as a Signal of New Product Quality: An Example of Signaling by Posting a Bond," *RAND Journal of Economics*, 19 (Autumn), 458–466.

Winer, Russell (1988), "Behavioral Perspectives on Pricing: Buyers' Subjective Perceptions of Price Revisited," in *Issues in Pricing: Theory and Research*, ed. Timothy DeVinney, Lexington, MA: Lexington, 35–57.

Wright, Peter (1985), "Schemer Schema: Consumers' Intuitive Theories about Marketers' Influence Tactics," *Advances in Consumer Research*, Vol. 13, ed. Richard Lutz, Provo, UT: Association for Consumer Research, 1–3.