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Comparison of consumer reactions to price-matching guarantees in internet and bricks-and-mortar retail environments

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Abstract The present study investigates consumer responses to price-matching guarantees (PMGs) in the Internet environment and contrasts them with their responses in a traditional bricks-and-mortar retail environment. The effect of store reputation on consumer responses to price-matching policies is also investigated in both Internet and bricks-and-mortar retail settings. Two studies using a 2×2×2 between-subjects full factorial experimental design with two levels of PMG presence (PMG present, PMG absent), two levels of retail environment (Internet, bricks-and-mortar), and two levels of store reputation (no/low reputation, high reputation) were conducted. In study 1 reputation was manipulated using store names, while in study 2 the reputation was manipulated using store characteristics. The findings of two studies suggest that consumer reactions to price-matching guarantees, such as store price perceptions, postpurchase search intentions, and willingness to claim a refund if a lower competitive price is found, differ across the two purchase environments.

Keywords Price matching · Retailing · Price perceptions · Search

Consumers exhibit a variety of responses to price-matching guarantees (PMGs), such as reducing their price search across different stores (e.g., Srivastava and Lurie 2001). Due to the effort needed to search and compare vast amounts of price information across stores, consumers may prefer to use cues or heuristics in lieu of searching for actual price information (e.g., Darke et al. 1995). A PMG is one such cue or heuristic.

In particular, research findings suggest that when consumers perceive that the cost of the PMG policy to the higher-priced retailer will be high, then they associate the retailer offering the PMG with lower store prices than they do a non-PMG retailer (Srivastava and Lurie 2004). When the search costs are high, consumers use the PMG as a means to reduce their search for lower prices (Srivastava and Lurie 2001). To date, most of the findings about consumer PMG perceptions and behavior have been obtained with respect to bricks-and-mortar retailers.

Not surprisingly, Internet retailers also employ price-matching policies. For example, Starwood.com advertises, "Find a lower rate anywhere [for a hotel] and we'll honor it plus 10% off." We anticipate that unique characteristics of the Internet and bricks-and-mortar retail environments will lead to differential consumer responses to PMGs across the two retail environments. Because customers must believe price-matching policies for them to be effective, store reputation (which may serve as a proxy for store credibility) is likely to moderate the PMG effects on consumer responses. For Internet retailers, it is more difficult to establish store reputation than for bricks-and-mortar retailers because consumers are not exposed to as many external cues about the retail environment as they are in the case of physical store outlets (Grewal et al. 2003). Therefore, store reputation also should interact with the retailer type (i.e., Internet versus bricks-and-mortar retailer).

The goal of the present research is to explore the interactive effects of the type of retailer and PMG presence on consumer responses to PMGs—specifically, consumer store price perceptions, postpurchase price search, and

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willingness to claim the refund—to determine the degree to which consumers vary in relying on a PMG as a low-price signal across different retail environments. Second, we investigate the moderating effect of store reputation on the relationship between the presence of a PMG or the retailer type and consumer responses. Next, we describe the theoretical background and the conceptual model, then we follow with two studies to test the proposed hypotheses.

Conceptual model and theoretical background

Signaling theory has been used to explain the PMG effects. Retailers are assumed to know their level of prices relative to the competition, whereas consumers are assumed to lack this knowledge. To inform consumers, retailers can send a price signal. However, for the signal to be credible, it must be more costly to send for the higher-priced retailer than for the lower-priced retailer. A PMG can serve as such a signal. For a higher-priced retailer, a PMG is more expensive to offer because more consumers are likely to identify a lower competitive price and claim the price-matching refund. Therefore, the frequency and magnitude of PMG refunds are likely to be higher for higher- (compared with lower-) priced retailers. Following signaling theory, researchers argue that a PMG signal sent by a retailer can be interpreted by consumers as a signal of low prices because it is more costly to send for a retailer with high prices, and therefore, consumers should expect that only low-priced retailers will offer PMGs.

Our research draws on signaling theory (Spence 1974), as well as on the economics of information theory (Stigler 1961). Our dependent variables include consumer store price perceptions, willingness to conduct price search after purchase, and willingness to claim the refund.

Store price perceptions are defined as consumer perceptions of the level of store prices relative to the competition. Prior PMG research provides evidence that consumers associate retailers that offer PMG programs with lower store prices than they do retailers that do not provide a price-matching program (Kukar-Kinney 2003).

Price search is another key variable in PMG research (e.g., Biswas et al. 2002). Here, we investigate *postpurchase price search*, which refers to the consumer's willingness to continue searching for competitive price information after a purchase. Because PMGs usually apply for a specified period after the purchase, they may encourage additional postpurchase price search.

Willingness to claim the refund refers to the consumer's willingness to confront the retailer and ask for a refund for the price difference when he or she identifies a lower competitive price. Both postpurchase price search and consumer willingness to claim the refund are of key importance to retail managers because they can be used as indicators of the likelihood that the consumer will seek the refund and thus serve as proxies of the likely retail costs associated with offering a PMG (i.e., how many consumers the retailer will need to reimburse). Consequently, more insights about the extent of postpurchase search undertaken by consumers and their willingness to claim the refund are critical to assess the value of a PMG program.

Type of retailer and the PMG presence

In the online shopping environment, it is more difficult to communicate with retailers than in the bricks-and-mortar environment (Streeter 2004) because the consumer cannot communicate with the retail management in person (i.e., face-to-face). Due to the lack of direct personal contact, consumers should perceive that it is harder to enforce an online PMG policy than a PMG offered by a bricks-and-mortar store, where the consumer can approach the customer service representative/store management in person to request the refund. In line with signaling theory, consumers should infer that the lower enforceability of the online (versus bricks-and-mortar) PMG policy, and with it the higher perceived hassle cost of trying to get the refund (Hviid and Shaffer 1999), will lead to a low(er) retail cost of offering the policy for the retailer even if the store's prices are not necessarily low. Consequently, consumers should *not* interpret online PMGs as signals of low prices.

Conversely, due to the higher enforceability of PMGs in a bricks-and-mortar environment, those offered by bricks-and mortar stores should be perceived as indicators of lower store prices, as shown by prior PMG research (Biswas et al. 2002; Kukar-Kinney 2003; Srivastava and Lurie 2004). Therefore, we propose that the PMG and the retail environment will interact, such that a PMG will lead to lower price perceptions in the bricks-and-mortar retail environment but not in the online shopping environment.

H1: There will be an interaction effect of the presence of the PMG policy and the retail environment on store price perceptions. The effect of PMG on store price perceptions is more pronounced for the bricks-and-mortar retailers as compared to the Internet retailers.

Even though the PMG presence should result in lower perceptions of store prices in the bricks-and-mortar environment, the very fact that a PMG allows consumers to request a refund for the difference between the price paid and the identified lower price should lead to a higher extent of postpurchase price search in the presence of a PMG compared with when a PMG is absent (Kukar-Kinney 2003) because of the potential benefit (i.e., the PMG refund) that could be obtained if a lower competitive price

is identified (Stigler 1961). However, this potential benefit should be present only when the consumer perceives that the policy is easy to enforce (Srivastava and Lurie 2004). If consumers believe that they may not be able to enforce the PMG policy with the Internet retailer, then the potential benefit is reduced, and the consumer should not engage in any more postpurchase search in the presence than in the absence of the policy. Thus, because the PMG should be perceived as more enforceable in the bricks-and-mortar compared with the Internet retail environment, we propose the following interaction of the PMG and retailer type on postpurchase price search:

H2: There will be an interaction effect of the presence of the PMG policy and the retail environment on postpurchase price search intentions. The effect of PMG on postpurchase search is more pronounced for the bricks-and-mortar retailers as compared to the Internet retailers.

Finally, let us assume that the consumer purchased the product and then found a lower competitive price. Prior research shows that consumers are more willing to confront the retailer after finding a lower price postpurchase in the presence versus absence of a PMG (Estelami et al. 2005), because in the absence of the policy, consumers have no indication that the retailer is willing to provide the refund for the price difference. Therefore, willingness to request the refund should increase in the PMG presence versus absence.

Moreover, if the retailer does not offer a PMG, then the consumer's willingness to claim the refund for the price difference should be much lower on the Internet than in the bricks-and-mortar retail environment, because the consumer cannot approach the Internet retail manager in person to request and/or argue about the refund (Streeter 2004). In contrast, in a bricks-and-mortar environment, it is much easier to approach the retail management and sales staff directly, and the consumer may decide to try his or her luck by requesting the refund even though no formal PMG policy is in place. Prior research shows that an existing segment of consumers is price conscious and willing to price search (Lichtenstein et al. 1993). Those consumers should be more willing to confront the retailer even in the absence of a PMG.

If the retailer formally offers a PMG policy, then the consumer is likely to assume that the retailer has procedures governing requests for and the issuance of refunds, which should lead to a substantial increase in consumer willingness to claim the refund. For example, RugsUSA.com offers on its Web site a form that requires information from the consumer for the price-matching refund request (e.g., URL of the item with the lower price, competitor's price). In the bricks-and-mortar environment, where consumers should be more willing to claim the refund in the first place, having a PMG policy should lead to a smaller increase in their willingness to claim the refund. Therefore, a PMG should increase consumers' willingness to claim the refund in both retail environments; however, the increase should be greater for Internet compared with bricks-and-mortar retailers.

H3: When the PMG policy is present, consumer willingness to claim the refund will increase from its level in the absence of such a policy. However, this increase will be higher when a purchase is made from an Internet compared with a bricks-and-mortar retailer.

The moderating role of store reputation

All else being equal, highly reputable retailers are able to elicit more favorable consumer reactions than are less reputable sources. Realizing the importance of store reputation, retailers make considerable investments to create and nurture their reputations. We expect that the effects of PMG presence on consumer responses will be stronger for reputable retailers as compared to a new entrant (a retailer without a reputation) or a less reputable retailer. For highly reputable retailers, the presence of a PMG should represent a credible signal of low prices and lead to decreases in consumer store price perceptions. However, for retailers with no established reputation (or less reputable retailers), the PMG policy should not be a credible signal of low store prices and therefore should not influence consumer store price perceptions. Thus,

H4: There will be an interaction effect of the presence of the PMG policy and store reputation on consumer store price perceptions. The effect of the PMG policy (presence vs. absence) on store price perceptions is more pronounced for a reputable retailer (as compared to retailer with no reputation or a lower level of reputation).

One of the primary drawbacks for Internet retailers is the lack of opportunity for the consumer to try the product, which may enhance the risks associated with buying via the Web. More successful products sold by Internet retailers tend to be standardized or brand name products (Grewal et al. 2004). The reason for the success of these products is likely that consumers are more confident about the manufacturer's reputation and worry less about the Internet retailer's reputation.

Internet retailers generally are expected to provide lower prices than their bricks-and-mortar counterparts (e.g., Maxwell and Maxwell 2001). Thus, Internet retailers that

have yet to establish a good reputation should be perceived as offering lower store prices relative to less established bricks-and-mortar stores. However, Internet retailers that have established a strong reputation are less likely to need to compete in terms of lower prices. Because it is harder for Internet stores to establish a reputation than it is for bricks-and-mortar retailers, in that there are fewer visual cues available to store visitors (Grewal et al. 2003), consumers may perceive that the process of establishing a high reputation is associated with relatively high costs for the Internet retailer and, hence, an inability to lower prices relative to their bricks-and-mortar counterparts. Consequently, highly reputable Internet stores should not experience a drop in consumer store price perceptions relative to highly reputable bricks-and-mortar retailers. Note that because the focus of this study is investigating PMG-related consumer responses, we restrict our investigation of these effects to the PMG-present condition.

H5: In the presence of a PMG, there will be an interaction effect of the retail environment and store reputation on consumer store price perceptions. The decrease in price perceptions on the Internet as compared with bricks-and-mortar stores will be more pronounced for retailers with no (or low) reputation relative to highly reputable retailers.

The lower store price perceptions of Internet (compared with bricks-and-mortar) stores with no or a lower level of reputation should further lead to lower postpurchase price search, because the perceived likelihood of finding a lower competitive price, and hence the perceived benefits of search, should be lower (Stigler 1961). Minimal differences should exist for highly reputable retailers. Again, we investigate these effects in the PMG-present condition.

H6: In the presence of a PMG, there will be an interaction effect of the retail environment and store reputation on postpurchase price search intentions. The decrease in postpurchase search intentions on the Internet as compared with bricks-and-mortar stores will be more pronounced for retailers with no (or low) reputation relative to highly reputable retailers.

Study 1

Research design and experimental procedure

The proposed hypotheses were tested using a 2×2×2 between-subjects experimental design with two levels of PMG (present, absent), two levels of retail environment (Internet, bricks-and-mortar), and two levels of store reputation (no reputation, high reputation). That is, the design provides eight experimental conditions in which 160 student subjects (average age 20.7 years, 62% men) participated (i.e., 20 students per experimental condition).

Subjects were instructed to imagine that they wished to purchase a digital camera. They were told that, on the basis of their previous good experience with the Kodak brand, they had decided to buy a Kodak digital camera. They also were told that they had decided to buy the camera either on the Internet or at a local consumer electronics store (retailer type manipulation). Next, they were shown an advertisement for a Kodak digital camera from a specific consumer electronics retailer. The name of the store represented both a reputation manipulation, and a retailer type manipulation. Subjects buying on the Internet considered buying from either Amazon.com (reputable) or TronicsDepot.com (reputation absent), whereas the subjects instructed to buy at the local store considered a purchase at either Circuit City (reputable) or Joe's Electronics (reputation absent). All subjects were shown the product and price information in the form of a store advertisement, which also contained the store reputation manipulation (i.e., the store name) and the manipulation of the price-matching policy (PMG present or absent). The PMG-present condition contained the following phrase: "If you find a lower price for an identical item at a competitive store, we will match it up to 30 days after the purchase!" After reading through the advertisement, subjects were asked to fill out a questionnaire containing the dependent measures, followed by manipulation checks.

Measures and manipulation checks

Store price perceptions (i.e., consumer perceptions of the relative level of store prices) were measured using four items based on a scale by Srivastava (1999). Willingness to search postpurchase was measured with the following item: "Assuming you purchased the digital camera at this store, in approximately how many stores would you check the price of this camera after the purchase?" The respondents entered an actual number of estimated stores. Willingness to claim the refund was measured with four items based on a scale by Srivastava (1999). The scale items and scale reliabilities are shown in Table 1.

For the retailer-type manipulation, the subjects responded to the following item: "Is the retailer whose ad you were reading an Internet or a land-based retailer?" The manipulation check for PMG presence was the following item: "Did the ad provide information about the retailer's price-matching guarantee?" The manipulation check for store reputation included four items (seven-point semantic differential scales): "How reputable is this retailer?" "How trustworthy is this retailer?" "How highly regarded is this retailer?" and "How reliable is this retailer?" The manipulation check for

Table 1 Measures of dependent variables

Store price perceptions (Study 1: α=0.88; Study 2: α=0.92):
1. Compared to its competitors, the overall prices at this store are most likely (1=lower than average; 7=higher than average).
2. Relative to other electronics stores, the prices at this store are most likely (1=low; 7=high).
3. I expect that the overall prices at this store are (1=very low; 7=very high).
4. This store's prices are likely to be higher than average market prices of the same products (1=strongly disagree; 7=strongly agree).

Postpurchase price search intentions:

Assuming you purchased the digital camera at this store, in approximately how many stores would you check the price of this camera after the purchase?

Willingness to claim refund (Study 1: α=0.94; Study 2: α=0.95):

Assuming you purchased the digital camera at this store, please rate the following statements:
1. The likelihood that I would request a refund for the price difference from this store if I find a lower price somewhere else after the purchase is (1=low; 7=high).
2. It is very probable that I will return to this store to obtain the lower price for the camera if I find the same camera for less at another store (1=strongly disagree; 7=strongly agree).
3. My willingness to ask this store for the refund of the price difference if I later find out that another store is selling the very same camera for less is (1=very low; 7=very high).
4. It is very likely that I will claim a refund from this store if I later find the camera for a lower price elsewhere (1=strongly disagree; 7=strongly agree).

store reputation was successful, in that respondents in the reputation-absent condition rated store reputation as significantly lower than did subjects in the reputable condition ($\text{Mean}_{\text{reputation absent}}=3.64$, $\text{Mean}_{\text{reputable}}=5.34$, $t=-10.40$, $p<0.01$).

Results

Cell means and standard errors are shown in Table 2. According to H1, the presence of a PMG policy will reduce store price perceptions for bricks-and-mortar retailers but

Table 2 Means and standard errors for store price perceptions, willingness to conduct postpurchase search, and willingness to claim refund across experimental conditions

Reputation	No/low			
Type of retailer	Bricks-and-mortar		Internet	
PMG present	No	Yes	No	Yes
Store price perceptions				
Study 1	4.16 (0.24)	4.29 (0.28)	3.51 (0.23)	3.07 (0.25)
Study 2	3.63 (0.22)	3.14 (0.22)	2.70 (0.21)	2.62 (0.22)
Willingness to search after purchase				
Study 1	1.42 (0.29)	2.79 (0.34)	1.30 (0.29)	0.88 (0.31)
Study 2	1.33 (0.29)	2.20 (0.30)	1.46 (0.29)	1.14 (0.29)
Willingness to claim refund				
Study 1	3.78 (0.41)	4.71 (0.48)	2.20 (0.40)	4.28 (0.43)
Study 2	3.93 (0.38)	4.29 (0.39)	2.77 (0.36)	4.46 (0.38)
Reputation	High			
Type of retailer	Bricks-and-mortar		Internet	
PMG present	No	Yes	No	Yes
Store price perceptions				
Study 1	3.85 (0.24)	2.90 (0.19)	3.77 (0.27)	2.79 (0.30)
Study 2	4.39 (0.22)	3.36 (0.22)	3.36 (0.22)	3.41 (0.22)
Willingness to search after purchase				
Study 1	1.39 (0.30)	2.11 (0.24)	1.60 (0.33)	1.83 (0.37)
Study 2	1.35 (0.30)	1.76 (0.29)	1.20 (0.30)	2.15 (0.30)
Willingness to claim refund				
Study 1	4.04 (0.42)	5.20 (0.34)	2.67 (0.46)	5.12 (0.52)
Study 2	3.44 (0.38)	5.11 (0.38)	2.74 (0.38)	5.22 (0.39)

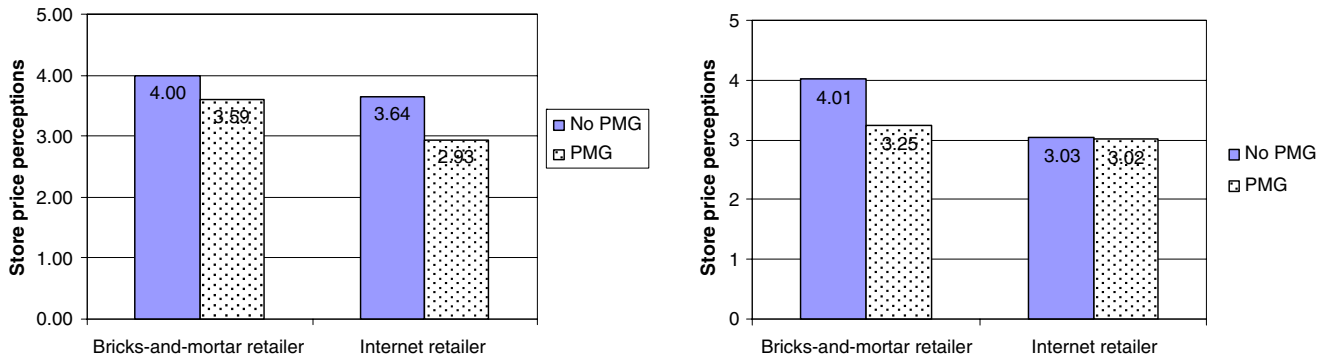

Figure 1 Interaction effect of the presence of PMG and retailer type on store price perceptions.

not for Internet retailers. Although the interaction effect of PMG presence and retailer type is not significant ($F_{1,135}$=0.71, p>0.10), the planned comparison/contrast analysis shows a weak effect of the PMG in reducing consumer store price perceptions for bricks-and-mortar stores ($\text{Mean}_{\text{no PMG}}$=4.00, Mean_{PMG}=3.59; $F_{1,\ 135}$=2.94, eta=0.15) and a strong effect for Internet retailers ($\text{Mean}_{\text{no PMG}}$=3.64, Mean_{PMG}=2.93; $F_{1,135}$=7.30, eta=0.23). Thus, H1 is rejected (Fig. 1). Note that each figure contains two charts: Study 1 findings are always displayed in the left chart, and Study 2 findings are shown in the right chart.

H2 predicts that the PMG presence will increase postpurchase price search for bricks-and-mortar retailers to a greater degree than for Internet retailers. The interaction effect of PMG presence and retailer type is significant ($F_{1,\ 135}$=6.62, p<0.05). Further contrast analysis (also see Fig. 2) shows that for bricks-and-mortar retailers, PMG presence increases consumer willingness to conduct post-purchase search ($\text{Mean}_{\text{no PMG}}$=1.41, Mean_{PMG}=2.45; $F_{1,135}$=12.30, eta=0.29), whereas for Internet retailers, the effect of PMG presence is minimal ($\text{Mean}_{\text{no PMG}}$=1.45, Mean_{PMG}=1.36; $F_{1,135}$=0.08, eta=0.02). H2 is therefore supported.

H3 posits that PMG presence (compared to absence) will increase consumers' willingness to claim the refund to a greater degree for Internet than for bricks-and-mortar retailers. As displayed in Fig. 3 and shown by planned comparison analysis, the PMG presence significantly increases consumers' willingness to claim the refund for both bricks-and-mortar stores ($\text{Mean}_{\text{no PMG}}$=3.91, Mean_{PMG}=4.96; $F_{1,\ 135}$=6.45, eta=0.21) and Internet retailers ($\text{Mean}_{\text{no PMG}}$=2.43, Mean_{PMG}=4.70; $F_{1,\ 135}$=25.01, eta=0.40). The interaction of PMG and retailer type on consumer willingness to claim the refund is also significant ($F_{1,135}$=3.93, p<0.05), in support of H3's prediction that the increase would be higher for Internet stores ($\text{Mean increase}_{\text{B \& M}}$=1.05, $\text{Mean increase}_{\text{Internet}}$=2.27).

Store reputation also interacts with PMG presence in influencing consumer store price perceptions ($F_{1,\ 135}$=5.12, p<0.05). The planned comparison shows that, as we predicted, the presence of a PMG results in a substantial decrease in store price perceptions for the reputable retailer ($\text{Mean}_{\text{no PMG}}$=3.81, Mean_{PMG}=2.85; $F_{1,135}$=14.41, eta=0.31), but has minimal effect on store price perceptions for the reputation-absent retailer ($\text{Mean}_{\text{no PMG}}$=3.84, Mean_{PMG}=3.68; $F_{1,\ 135}$=0.40, eta=0.05) (see Fig. 4). Thus, H4 is supported.

The last two hypotheses (H5 and H6) pertain to the interactive role of store reputation and retailer type in the presence of a PMG. Thus, the analysis is restricted to the PMG-present condition, resulting in a two-factor design (store reputation × retail environment).

H5 predicts that, in comparison with bricks-and-mortar retailers, Internet environments will experience a sharper decrease in consumer store price perceptions for reputation

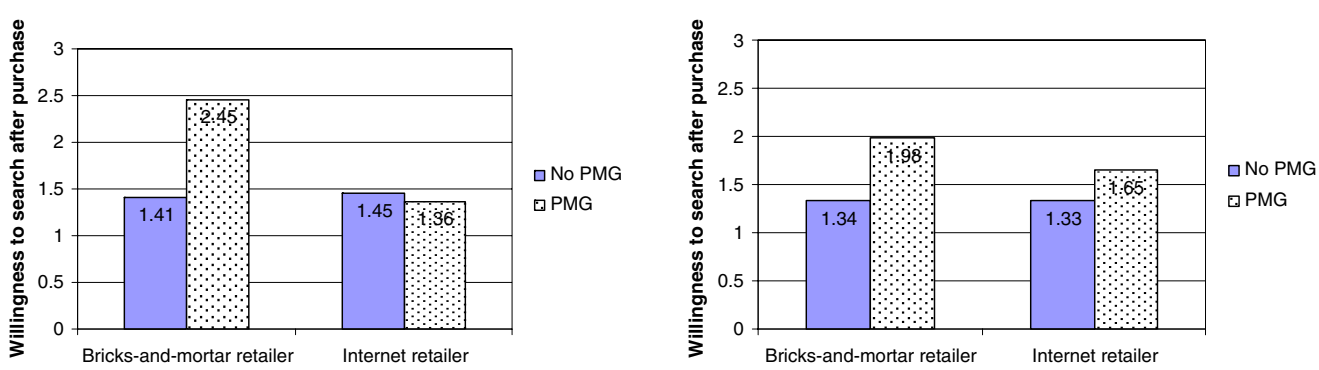

Figure 2 Interaction effect of the presence of PMG and retailer type on consumer willingness to conduct search after the purchase.

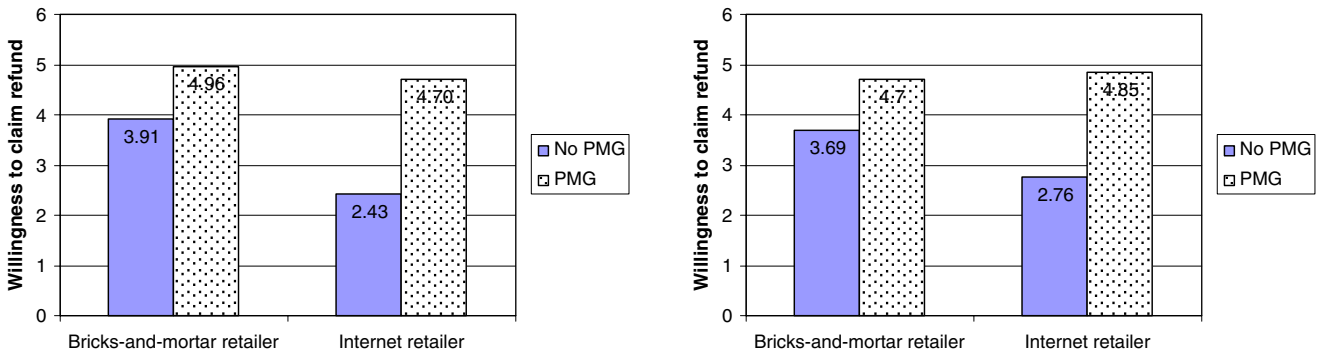

Figure 3 Interaction effect of the presence of PMG and retailer type on consumer willingness to claim refund.

absent condition relative to reputable retailers. A significant interaction effect of retailer type and store reputation on store price perceptions exists ($F_{1,67}$=4.96, p<0.05). Specifically, the contrast analysis shows that, relative to bricks-and-mortar retailers, Internet environments exhibit a strong decrease in consumer store price perceptions for the reputation-absent retailer ($\text{Mean}_{\text{B \& M}}$=4.29; $\text{Mean}_{\text{Internet}}$= 3.07; $F_{1,67}$=11.56, eta=0.38), whereas only a minimal effect is present for the reputable retailer ($\text{Mean}_{\text{B \& M}}$=2.91; $\text{Mean}_{\text{Internet}}$=2.79; $F_{1,67}$=0.11, eta=0.04), in support of H5 (see Fig. 5).

Finally, there is a significant interaction between the retail environment and store reputation on postpurchase search in the presence of a PMG ($F_{1,67}$=4.68, p<0.05). The analysis of planned comparisons and Fig. 6 show that the Internet environment, compared with the bricks-and-mortar environment, experiences a sharp decrease in consumer postpurchase price search for the reputation-absent retailer ($\text{Mean}_{\text{B \& M}}$=2.79; $\text{Mean}_{\text{Internet}}$=.88; $F_{1,\ 67}$=12.22, eta= 0.39), while minimal differences exist for the reputable retailer ($\text{Mean}_{\text{B \& M}}$=2.11; $\text{Mean}_{\text{Internet}}$=1.83; $F_{1,67}$=0.28, eta= 0.06). Thus, H6 is supported.

Discussion

The findings offer overall support for five of six hypotheses, with no support for the effect of a PMG on store price perceptions across the two retail environments. The PMG was effective in reducing price perceptions for Internet retailers but was less effective for bricks-and-mortar retailers. This finding suggests that consumers may not be forming price perceptions on the basis of the perceived enforceability of the PMG but perhaps on other factors, such as the perceived cost of search per store searched. Because this cost is lower on the Internet, more consumers may search and claim the refund.

In Study 1, store reputation was manipulated by using a known store name (Amazon.com, Circuit City) versus an unknown name and therefore may represent a manipulation of both store familiarity and store reputation. We conducted Study 2 to eliminate this alternative explanation by manipulating store reputation as low versus high but keeping store familiarity constant across the experimental conditions.

Study 2

Research design and experimental procedure

A 2×2×2 between-subjects experiment was conducted in which the PMG presence and retail environment were manipulated at the same levels as in Study 1. The scenario and experimental procedures remained the same as in Study 1; the only difference was the way in which store reputation was manipulated. Instead of using existing store names

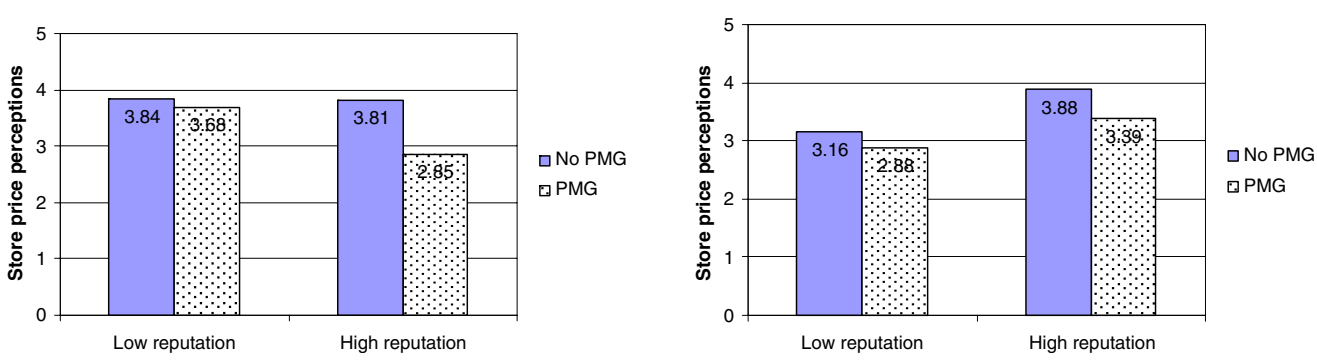

Figure 4 Interaction effect of the presence of PMG and store reputation on store price perceptions.

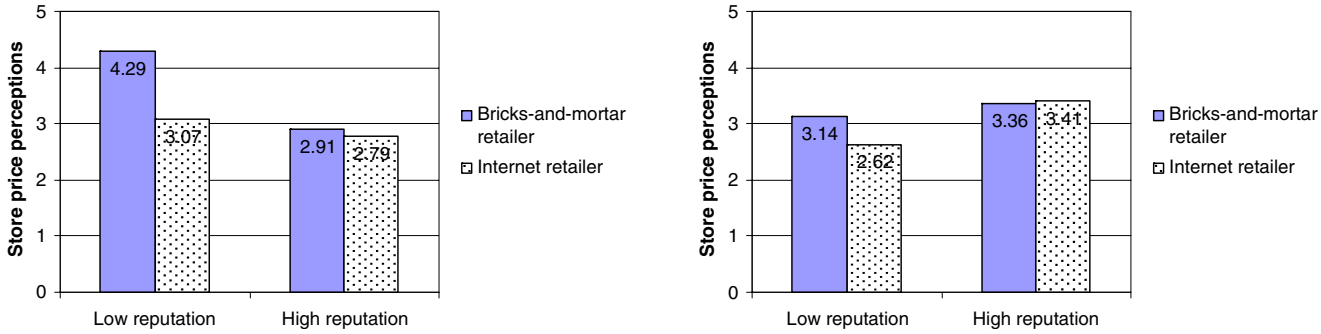

Figure 5 Interaction effect of retailer type and store reputation on store price perceptions.

with which respondents may (or may not) be familiar, we used a fictitious store name (DigiTronics in the bricks-and-mortar condition, and DigiTronics.com in the Internet condition). Furthermore, store reputation was manipulated by the store description, which stated that the retailer either (1) had formalized customer policies in place, was nationally recognized for outstanding customer service, and was ranked highly on reliability and trustworthiness by its customers (high reputation) or (2) did not have formalized customer policies in place, was not reputed for its customer service, and was ranked low on reliability and trustworthiness by its customers (low reputation).

One hundred sixty-eight undergraduate students (average age 20.4 years, 60% men) participated in the experiment. All manipulation checks were successful, and store familiarity did not vary across the two reputation conditions ($p>0.10$).

Results

As we predicted in H1, the effect of the PMG × retailer type interaction on store price perceptions is significant ($F_{1,160}=6.01$, $p<0.05$), and the analysis of the planned comparisons confirms that a PMG reduces store price perceptions for bricks-and-mortar retailers ($\text{Mean}_{\text{no PMG}}=4.01$, $\text{Mean}_{\text{PMG}}=3.25$; $F_{1,160}=12.22$, eta=0.27) but not for Internet retailers ($\text{Mean}_{\text{no PMG}}=3.03$, $\text{Mean}_{\text{PMG}}=3.02$; $F_{1,160}=0.00$, eta=0.00). H1 thus receives support (see Fig. 1).

Although the effect of the PMG × retailer type interaction on postpurchase search is not significant ($F_{1,160}=0.59$, $p>0.10$), the contrast analysis shows that PMG more strongly increases consumers' postpurchase search when the purchase is made at a bricks-and-mortar retailer ($\text{Mean}_{\text{no PMG}}=1.34$, $\text{Mean}_{\text{PMG}}=1.98$; $F_{1,160}=4.70$, eta=0.17) than when the purchase is made online ($\text{Mean}_{\text{no PMG}}=1.33$, $\text{Mean}_{\text{PMG}}=1.65$; $F_{1,160}=1.18$, eta=0.08), in partial support of H2 (see Fig. 2).

H3 is also supported, because the effect of PMG on increasing willingness to claim the refund is significant for both land-based ($\text{Mean}_{\text{no PMG}}=3.69$, $\text{Mean}_{\text{PMG}}=4.70$; $F_{1,160}=7.06$, eta=0.21) and Internet ($\text{Mean}_{\text{no PMG}}=2.76$, $\text{Mean}_{\text{PMG}}=4.85$; $F_{1,160}=30.73$, eta=0.40) retailers. The PMG × retailer type interaction is also significant ($F_{1,160}=4.04$, $p<0.05$), which indicates that the increase is greater for Internet retailers ($\text{Mean increase}_{\text{B \& M}}=1.01$, $\text{Mean increase}_{\text{Internet}}=2.09$; Fig. 3).

While the interaction effect of PMG and store reputation on store price perceptions is not significant ($F_{1,160}=0.45$, $p>0.10$), further analysis of the planned comparisons shows that, as we anticipated, the presence of a PMG significantly reduces store price perceptions for stores with a high reputation ($\text{Mean}_{\text{no PMG}}=3.88$, $\text{Mean}_{\text{PMG}}=3.39$; $F_{1,160}=4.45$, eta=0.16), but has a minimal effect for stores with a low reputation ($\text{Mean}_{\text{no PMG}}=3.16$, $\text{Mean}_{\text{PMG}}=2.88$; $F_{1,160}=1.74$, eta=0.10), in partial support of H4 (Fig. 4).

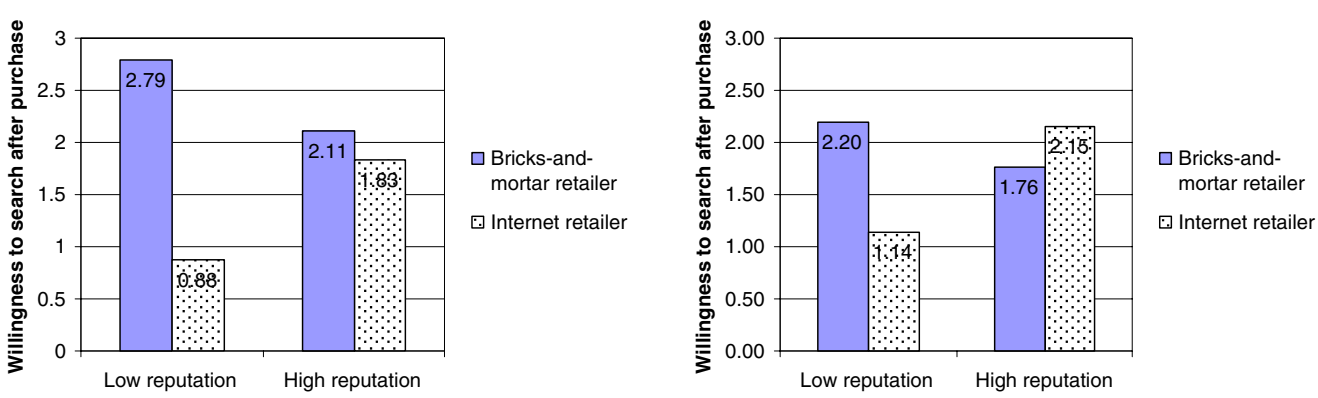

Figure 6 Interaction effect of retailer type and store reputation on consumer willingness to conduct search after the purchase.

Although the interaction effect of the retail environment and store reputation on store price perceptions does not reach significance ($F_{1,78}$=2.03, p>0.10), the planned comparison shows that, in the presence of a PMG, the Internet retail environment experiences a marginally significant decrease in store price perceptions relative to the bricks-and-mortar environment for stores with a low reputation ($Mean_{B\ \&\ M}$= 3.14, $Mean_{Internet}$=2.62; $F_{1,78}$=3.32, eta=0.20), while for stores with a high reputation minimal differences are present ($Mean_{B\ \&\ M}$=3.36, $Mean_{Internet}$=3.41; $F_{1,78}$=0.04, eta=0.02), and thus, H5 receives marginal support (Fig. 5).

Finally, the interaction effect of retail environment and store reputation on postpurchase price search intentions is significant ($F_{1,78}$=4.39, p<0.05). Specifically, when a PMG is offered, the Internet retail environment experiences a decrease in postpurchase search intentions relative to the bricks-and-mortar environment for stores with a low reputation ($Mean_{B\ \&\ M}$=2.20, $Mean_{Internet}$=1.14; $F_{1,78}$= 4.70, eta=0.24) but not for stores with a high reputation ($Mean_{B\ \&\ M}$=1.76, $Mean_{Internet}$=2.15; $F_{1,78}$=0.63, eta=0.09). Therefore, H6 is supported (Fig. 6).

Discussion

The Study 2 results with respect to H2–H6 are consistent with our predictions and the findings obtained in Study 1. The only difference between the two studies pertains to H1, which is not supported in Study 1 but receives support in Study 2. Study 2, in which store familiarity and reputation are not intermingled, shows that a PMG reduces consumer store price perceptions for bricks-and-mortar stores but not for Internet retailers, as we anticipated. The rationale for this prediction was based on the perceived enforceability of the PMG policy, which should be lower for online compared with bricks-and-mortar retailers.

Overall, the findings across the two studies are remarkably consistent, and therefore, it appears that confounding of store familiarity and store reputation in Study 1 did not alter the validity of its findings. Additional studies should examine the role of store reputation where reputation is manipulated using two familiar retailers, one viewed as being reputable and the other as not reputable. Additional research also needs to focus on the bases of the reputation (e.g., service policies, merchandise policies, operating hours, prices).

Limitations and future research directions

Although the present research offers several important findings, it also possesses some limitations. One limitation is the use of student subjects, which threatens the generalizability of our results to a broader population. However, students are consumers who frequently buy consumer electronic products, and a pretest indicated high student interest in shopping for a digital camera. Thus, we deemed the shopping context, as well as the Internet context, appropriate for Internet-savvy students. Additional research should try to use samples other than students to test whether the obtained results can be generalized to a broader population.

A second consideration that must be taken into account when interpreting the research findings is that consumer motivations for using an Internet versus a bricks-and-mortar retailer are often different. For example, those consumers who shop more frequently on the Internet may place greater focus on convenience (Rohm and Swaminathan 2004) and time savings than other consumers. The motivations for using a particular retail channel may further determine the likelihood of search in that and other retail environments. Additional research should try to account for these different consumer motivations for using a particular purchase environment in the conceptual model of consumer responses to PMGs.

Our measures of willingness to conduct postpurchase price search and claim the refund assess only consumer intentions, not behaviors. Research shows that consumers, on average, overestimate their future behavior, such as the likelihood of requesting a rebate (Silk 2003). Similarly, it is likely that consumer estimates of their postpurchase search and willingness to claim the refund were higher in our study than they would be in reality. Thus, actual consumer postpurchase price search and refund-claiming behavior should be evaluated in the future, possibly by conducting a survey that asks respondents about their behavior at bricks-and-mortar stores or directly observing their online shopping behavior. Other fruitful areas include investigating additional moderators of the PMG effects, such as consumer personal characteristics (e.g., need for cognition), contextual variables, and retailer characteristics.

General discussion and managerial implications

The main goal of this research is to evaluate how consumer responses to a price-matching policy vary across the Internet and bricks-and-mortar purchase environments, as well as for less and more reputable stores. Prior research has focused on investigating consumer response to PMGs in a bricks-and-mortar environment (e.g., Kukar-Kinney and Walters 2003; Srivastava and Lurie 2001, 2004); however, because of the inherent differences in the purchase environments (Grewal et al. 2003; Iyer and Pazgal 2003), the frequency with which PMGs are offered online, and the growing importance and volume of consumer spending on the Internet, it is necessary to determine what differences in consumer responses to PMGs exist across the two environ-

ments. We address this gap in the literature by developing predictions based on signaling theory, prior PMG research, and Internet retailing research.

The effects on store price perceptions, postpurchase search intentions, and willingness to claim the refund are similar across Studies 1 and 2 (for a summary comparison, see Table 3). We find that a PMG leads to a decrease in store price perceptions for more reputable stores but not for stores with lower or no reputation. Thus, stores that have yet to establish their reputation should strive to increase their credibility and the perceived enforceability of their PMG to reap the same benefits from PMGs as do highly reputable stores.

Another important finding is the identified role of PMGs in reducing price perceptions across different purchase environments. On the basis of signaling theory, we proposed that higher enforceability should lead to the PMG being a stronger low-price signal for bricks-and-mortar than for Internet retailers (Srivastava and Lurie 2004). Whereas Study 1 shows no significant interaction between the PMG presence and retailer type on store price perceptions, Study 2, in which store familiarity and reputation are separated, supports our expectation that the presence of a price-matching policy reduces consumer price perceptions of bricks-and-mortar retailers but not those of Internet retailers. If Internet retailers want to experience the benefits of lower price perceptions that PMGs provide bricks-and-mortar stores, they must focus on making the procedures for requesting a PMG refund transparent and easy to understand (e.g., specifying exactly how to request the refund, providing customer testimonials pertaining to the PMG on the Internet site) to increase consumers' perceptions of the enforceability of the PMG. Further research should try to identify other conditions in which a PMG may be able to reduce price perceptions for Internet retailers.

The significant interactions of the PMG presence and retailer type on postpurchase search intentions and willingness to claim the refund further confirm that consumer responses to price-matching policies vary across different retail purchase environments. For the Internet retailer, the PMG presence does not significantly increase postpurchase search intentions, so the potential retail cost associated with issuing postpurchase PMG refunds may be relatively low because consumers do not actively seek information about competitive prices after they purchase the product. However, assuming that consumers conduct postpurchase price search and identify a lower price after the purchase, the presence of a PMG increases Internet consumers' willingness to claim the refund to a greater degree than it does that of consumers who purchased from a bricks-and-mortar retailer. Note, however, that even in the PMG-present condition, the willingness to claim the refund is not any higher for Internet purchases than for bricks-and-mortar purchases (e.g., in Study 1 contrast: $\text{Mean}_{\text{Internet}}=4.70$, $\text{Mean}_{\text{B \& M}}=4.96$; $F=0.34$, $p>0.10$). Without a PMG, this willingness is substantially lower for Internet consumers (contrast: $\text{Mean}_{\text{Internet}}=2.43$, $\text{Mean}_{\text{B \& M}}=3.91$; $F=12.18$, $p<0.01$), possibly because of the higher perceived difficulty of claiming the refund (Kukar-Kinney and Grewal 2006). The relatively equal degree of refund requests by those consumers who found a lower price in Internet and bricks-

Table 3 Comparison of hypotheses results across the two studies

Hypothesis:	Study 1	Study 2
H1: There will be an interaction effect of the presence of the PMG policy and the retail environment on store price perceptions. The effect of PMG on store price perceptions is more pronounced for the bricks-and-mortar retailers as compared to the Internet retailers.	Rejected	Supported
H2: There will be an interaction effect of the presence of the PMG policy and the retail environment on postpurchase price search intentions. The effect of PMG on postpurchase search is more pronounced for the bricks-and-mortar retailers as compared to the Internet retailers.	Supported	Partial support
H3: When the PMG policy is present, consumer willingness to claim the refund will increase from its level in the absence of such a policy. However, this increase will be higher when a purchase is made from an Internet compared with a bricks-and-mortar retailer.	Supported	Supported
H4: There will be an interaction effect of the presence of the PMG policy and store reputation on consumer store price perceptions. The effect of the PMG policy (presence vs. absence) on store price perceptions is more pronounced for a reputable retailer (as compared to retailer with no reputation or a lower level of reputation).	Supported	Partial support
H5: In the presence of a PMG, there will be an interaction effect of the retail environment and store reputation on consumer store price perceptions. The decrease in price perceptions on the Internet as compared with bricks-and-mortar stores will be more pronounced for retailers with no (or low) reputation relative to highly reputable retailers.	Supported	Marginal support
H6: In the presence of a PMG, there will be an interaction effect of the retail environment and store reputation on postpurchase price search intentions. The decrease in postpurchase search intentions on the Internet as compared with bricks-and-mortar stores will be more pronounced for retailers with no (or low) reputation relative to highly reputable retailers.	Supported	Supported

and-mortar environments in the presence of a PMG, coupled with the lower number of consumers searching for (and consequently finding) a lower price, should translate into an overall smaller frequency of required refunds on the Internet compared with in a bricks-and-mortar environment. That is, the findings suggest that Internet retailers, *ceteris paribus*, should face lower post-purchase costs of offering PMGs than their bricks-and-mortar counterparts.

Reputation of the retailer moderates the effects of PMG presence and retailer type on store price perceptions. In particular, highly reputable retailers are more successful than retailers with no or a lower level of reputation in influencing consumer price perceptions by offering a PMG. Thus, a PMG seems an especially effective low-price signal for reputable retailers, whose claims may be perceived as more credible. However, when restricting the effects to the PMG-present condition, the Internet environment is better able to lower the store price perceptions for retailers with no or a low level of reputation, possibly because of lower cost perceptions. Thus, for those Internet retailers that have yet to establish their reputation (and are competitively priced), offering additional guarantees such as PMGs may be beneficial.

In summary, the findings of the two studies indicate that consumer perceptions and behavioral intentions with respect to PMGs are different across the Internet and bricks-and-mortar purchase environments and for retailers with different levels of reputation. Furthermore, these findings provide a conceptual basis for understanding why the differences in consumer responses occur across the two environments; the key factor is proposed to be the perceived enforceability of the PMG.

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References

Biswas, A., Pullig, C. Yagci, M. I., & Dean, D. H. (2002). Consumer evaluation of low price guarantees: The moderating role of reference price and store image. *Journal of Consumer Psychology, 12*(2), 107–118.

Darke, P. R., Freedman, J. L., & Chaiken, S. (1995). Percentage discounts, initial price, and bargain hunting: A heuristic-systematic approach to price search behavior. *Journal of Applied Psychology, 80*(5), 580–586.

Estelami, H. L., Grewal, D., & Roggeveen, A. (2005). *The effect of retailer reputation and response on post-purchase consumer reactions to price-matching guarantees*. Working paper, Babson College.

Grewal, D., Iyer, G. R., Krishnan, R., & Sharma, A. (2003). The internet and the price-value-loyalty chain. *Journal of Business Research, 56*, 391–398 (May).

Grewal, D., Iyer, G. R., & Levy, M. 2004. Internet retailing: Enablers, limiters and market consequences. *Journal of Business Research, 57*(7), 703–713.

Hviid, M., & Shaffer, G. (1999). Hassle costs: The Achilles' heel of price-matching guarantees. *Journal of Economics and Management Strategy, 8*(4), 489–521.

Iyer, G., & Pazgal, A. (2003). Internet shopping agents: Virtual co-location and competition. *Marketing Science, 22*(1), 85–106.

Kukar-Kinney, M. (2003). *Consumer response to characteristics of price-matching guarantees: The moderating role of consumer and retailer characteristics*. Dissertation, Indiana University.

Kukar-Kinney, M., & Grewal, D. (2006). Consumer willingness to claim a price-matching refund: A look into the process. *Journal of Business Research, 59*(1), 11–18.

Kukar-Kinney, M., & Walters, R. G. (2003). Consumer perceptions of refund depth and competitive scope in price-matching guarantees: Effects on store patronage. *Journal of Retailing, 79*(3), 153–160.

Lichtenstein, D. R., Ridgway, N. M., & Netemeyer, R. G. (1993). Price perceptions and consumer shopping behavior: A field study. *Journal of Marketing Research, 30*, 234–245 (May).

Maxwell, S., & Maxwell, N. (2001). Channel reference prices: The potentially damaging effects of napster. In *Proceedings of the 2001 Fordham University Behavioral Pricing Conference* (p. 32).

Rohm, A. J., & Swaminathan, V. (2004). A typology of online shoppers based on shopping motivations. *Journal of Business Research, 57*(7), 748–757.

Silk, T. (2003). *Why we buy but fail to redeem: The influence of pre-purchase, post-purchase and repeat purchase factors on consumers' subjective and objective probability of redeeming mail-in rebates*. Paper presented at the 2003 Fordham University behavioral pricing conference.

Spence, M. (1974). *Market-signaling*. Cambridge, MA: Harvard University Press.

Srivastava, J. (1999). Price-matching refund policies as signals of store price image. *Working Paper No. 99–128*. Marketing Science Institute, Cambridge, MA.

Srivastava, J., & Lurie, N. (2001). A consumer perspective on price-matching refund policies: Effect on price perceptions and search behavior. *Journal of Consumer Research, 28*(2), 296–307.

Srivastava, J., & Lurie, N. (2004). Price-matching guarantees as signals of low store prices: Survey and experimental evidence. *Journal of Retailing, 80*(2), 117–128.

Stigler, G. J. (1961). The economics of information. *Journal of Political Economy, 69*(3), 213–225.

Streeter, W. W. (2004). For dumb service, press 1. *ABA Banking Journal, 96*(6), 4.