ORIGINAL EMPIRICAL RESEARCH

Low price signal default: an empirical investigation of its consequences

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Abstract Low-price guarantees (LPG) signal the market position of a seller's offer price and promise to compensate consumers in case that information is erroneous. In this research, we demonstrate that when retailers default on the information provided by an LPG, consumer perceptions of the retailer suffer, but the extent of the damage depends on the conditions associated with the default. On the basis of attribution theory, we posit that consumers may attribute default to the retailer's opportunism but emphasize this attribution differently in various default conditions. Furthermore, we show that the restoration of consumer perceptions after a refund depends on consumers' focus in terms of the signal itself. If they consider the protective, compensatory function of a low price signal, their postrefund outcomes are more favorable; when they focus on the informational function, these outcomes are less favorable. We discuss the theoretical and practical implications of these findings.

Keywords Low-price guarantee \cdot Signal default \cdot Attribution theory \cdot Information focus \cdot Protection focus

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Introduction

In response to increasing competition, more and more sellers are offering guarantees that their prices are the lowest in the market. These guarantees, commonly referred to as "low-price guarantees" (LPG), promise that if consumers find lower prices, they will receive a refund of at least the price difference. Theoretically conceptualized as signals, LPGs' functions are to provide buyers with information about the position of the seller's offer price in the market array of prices—the signal's informational function—and to protect buyers in case they detect a lower price after purchase—the signal's protective function—in case the signal defaults on its informational claim (Biswas, Dutta, & Pullig, 2006; Biswas, Pullig, Yagci, & Dean, 2002).

Prior research indicates that exposure to LPGs improves consumers' purchase intention, provided they find the signal credible (Biswas et al., 2006). Signal credibility likely depends on perception of retailer credibility. However, if the signal defaults, consumer perception of the retailer's credibility might suffer thereby weakening future signals issued by the retailer. Further, a retailer using an LPG to attract consumers would likely desire repeat purchases. Signal default might lower consumer repurchase intention, further limiting effectiveness of future signals.

In response to these issues, we pose several research questions. First, do consumers' perceptions of retailer credibility and their repurchase intention suffer when they discover a lower price after purchasing a product subject to an LPG, that is, in case of an LPG default? Second, if less favorable consumer outcomes result from a default, can consumer confidence in the retailer be restored if consumers receive the promised refund? In three experiments, we investigate these questions and reexamine recent suggestions that using LPG as a tool to influence consumer prepurchase cognitions and behavior, without considering its potential postpurchase effects, may limit the signal's long-term benefits (Dutta & Biswas, 2005; Estelami, Grewal, & Roggeveen, 2007). In addition, we contribute to the literature by applying attribution theory (Folkes, 1988; Weiner, 2000) to propose that an LPG default prompts consumers to attribute such default to probable causes and perceptions about the seller are based on analysis of such causes. Finally, our research is a timely response to recently expressed needs for investigation of market experiences that exacerbate or alleviate rising consumer mistrust of marketers (Sheth & Sisodia, 2005).

In the remainder of this article, we first discuss the role of LPG as a signal and our conceptualization of signal default. Next, we provide our rationale for predicting the effects of default on consumer postpurchase perception of retailer credibility and their repurchase intention. To address the consumer outcomes of LPG default and particularly the differential effects of the conditions associated with the default, we conducted a first experiment, which we describe in a subsequent section. A description of our second experiment, in which we inspect whether refund restores consumer confidence in the retailer, appears next. Then we describe our third experiment, which inspects if post-refund outcomes depend on whether consumers primarily focus on the informational function of an LPG or its protective function. Finally, we discuss the theoretical and practical implications of our findings, limitations of this research and areas for further research.

Low-price guarantees and signal default

LPG as a signal

According to signaling theory, marketers perform certain actions to provide information that consumers cannot obtain without incurring costs or risks (Boulding & Kirmani, 1993; Kirmani & Rao, 2000; Spence, 1974). Marketers' signals overcome the information asymmetry between sellers and buyers, asymmetry which can hinder transactions. The signal that we term a low-price guarantee entails a promise by the seller that it offers the lowest market price and that if consumers find lower prices, the seller will refund an amount of money that equals or exceeds the difference between the paid price and the lower price. We use the term LPG because of its popularity in actual usage and because it includes guarantees that both match and beat competitors' prices (Arbatskaya, Hviid, & Shaffer, 2004). However, we also occasionally use the expression "low price signals" to reinforce the signaling role of such guarantees.

Prior LPG research focuses on prepurchase effects and indicates that exposure to low price signals leads to favorable consumer outcomes (Biswas et al., 2002; Jain & Srivastava, 2000). However, when consumers perceive that market disciplinary mechanisms enforced against sellers are low, they are less likely to respond favorably (Srivastava & Lurie, 2004). In addition, more recent research suggests that low price signals have postpurchase implications. Specifically, following a purchase under an LPG, consumers are more likely to search for lower prices than if no such guarantee accompanies the purchase (Dutta & Biswas, 2005). These probable postpurchase effects of an LPG can challenge the signal's overall expected potency. We therefore examine the consequences when consumers find a lower price than that they paid for their purchase made under an LPG, a situation we term a *default* of the low price signal.

Signal default

Following Kirmani and Rao (2000), we conceptualize signal default as the situation in which the consumer has reason to believe that the information contained in the signal is erroneous. This conceptualization recognizes distinct roles of the signal's informational and protective functions (Spence, 1974). Signals provide information to consumers, but they also promise to protect consumers, should such information turn out to be erroneous. For instance, product failure constitutes default of warranty (a signal of product quality; Boulding & Kirmani, 1993), irrespective of whether a consumer is offered compensation following such failure. Similarly, regardless of whether a consumer receives a refund, postpurchase detection of a lower price constitutes default of the low price signal's informational claim. The primary function of LPG is to inform consumers that the offer price is likely the lowest in the market and is likely to remain so for the duration of enforceability of the LPG. Postpurchase discovery of a lower price calls into question this information inherent in the signal constituting a default of the signal. Distinguishing between the informational and protective roles of a signal with regard to default enables us to address possible consumer responses to the signal in future purchase episodes. That is, if the seller fails to provide the lowest price in the market, consumers likely become more cautious in their responses to this signal in future, regardless of any compensation they might have received. Thus, in the terminology of Kirmani and Rao (2000), LPG is a "default-contingent signal," because the cost of issuing the signal accrues to the seller only in case of signal default.

We consider three conditions associated with an LPG default: default magnitude, or the absolute value of the difference between a paid price and a subsequently discov-

ered lower price; default locus, which indicates whether the lower price is offered by the same seller (same-seller default) or another seller (other-seller default); and default time, which indicates the duration of time elapsed between purchase and discovery of the lower price. An immediate default occurs shortly after purchase, whereas a delayed default is distant in time from the initial purchase. On the basis of attribution theory, which suggests that event characteristics can be the bases for inferring probable causes (Kelley, 1973), we argue that consumers take cues from these various conditions to determine the likely causes of a default, and that these attributed causes shape such outcomes as consumer perception of retailer credibility and their repurchase intention. Research indicating significant effects of similar factors on consumer responses to reference price semantics supports our choice of these particular conditions (Grewal, Marmorstein, & Sharma, 1996).

Consequences of LPG default-related conditions

People tend to attribute negative experiences to probable causes (Weiner, 1985, 2000), especially after negative disconfirmation of their expectations (Tsiros, Mittal, & Ross, 2004). Because an LPG default represents a disconfirmation between the expectation that the paid price was the lowest in the market and the postpurchase discovery of inaccuracy of such expectation, it prompts consumers to search for probable causes. The multiple potential causes in turn may influence the effects of various default-related conditions.

Attribution theory emerged to explain social perceptions, especially how people resolve multiple potential causes of a certain effect (Kelley & Michela, 1980). According to the discounting principle, people discount certain perceived causes when other plausible causes also exist, whereas the augmentation principle suggests that the degree to which a given effect is attributed to a certain cause depends on the characteristics of the effect (Kelley, 1973). These principles have received wide support in social psychology (Folkes, 1988) and they imply that causal inference involves plausibility analysis by the attributor, the perceived plausibility of possible causes varying across event characteristics. Acting as lay scientists people attribute an event to probable causes, emphasizing some causes over others, according to what they consider to be logical. (Folkes, 1988; Kelley, 1973; Kelley & Michela, 1980). Similarly, we posit that in some conditions consumers find it reasonable to emphasize seller opportunism as the cause of an LPG default, whereas in others they play down this cause in favor of other, more plausible causes.

Consumer inference about a seller's motives for price increases have been categorized broadly as positive or negative (Campbell, 1999). For example, when consumers infer a price increase to have resulted from negative motives (e.g., to exploit increased demand after a natural disaster), they perceive the increase as unfair and think poorly of the seller. However, when consumers can attribute a price increase to a positive motive (e.g., increased costs of raw materials; an intention to distribute scare resources equitably), they are less likely to perceive the increase as unfair. We similarly categorize possible attributions for a default as positive or negative; the former results in consumers adhering to their prepurchase favorable perceptions of the LPG and the seller and the latter causes them to deviate from those favorable perceptions.

For example, if the consumer attributes an other-seller LPG default to seller opportunism, that is, a suspicion that the seller offered an LPG without complete confidence that its offer price was the lowest, that consumer likely would develop unfavorable perceptions of the seller. Alternatively, if the consumer attributes the default to the seller's failure to respond to competitors' price reduction, she probably would think less negatively of that seller. In another scenario, if the LPG-issuing seller offers a lower price after the consumer's purchase, the buyer might believe the change is due to the seller's attempt to remain a low-price leader to justify the LPG. However, the discounting and augmentation principles suggest that attributions rarely occur with perfect certitude but instead are weighted differentially depending on the conditions surrounding the event. Therefore, even after an LPG default, consumers' belief that the price they paid was the lowest in the market should be higher when they emphasize positive attributions (e.g., seller's inability to respond to competitive price reductions), whereas this belief probably weakens when they emphasize negative attributions (e.g., seller opportunism). This line of reasoning is consistent with the premise that after an event, people judge the salience of its possible multiple causes; the more salient a cause is perceived to be, the greater its contribution is to the cognitive, affective, or behavioral consequences of that attribution (Weiner, 1986).

Attribution theory also suggests that the end results of an attribution-based judgment occur in the form of perceptions about the agent and possible future behaviors related to interactions with that agent (Weiner, 1986). An attribution-based judgment of a consumption-related experience creates or changes consumers' perceptions of the seller, as well as their intention to transact with the seller in the future (Bitner, 1990; Campbell, 1999; Weiner, 2000). We focus on the outcomes of consumer perceptions of retailer credibility and repurchase intention, because these constructs likely determine the effectiveness of future signals issued by a defaulting retailer. Specifically, if default leads to lower levels of perceived retailer credibility and repurchase intention, future signals by this retailer likely will be less

effective. Furthermore, an unfavorable effect on perceived credibility and repurchase intention impairs any relationshipbuilding programs on the part of the retailer.

We posit that default locus moderates the effect of default magnitude on consumer perceptions of retailer credibility and their repurchase intention. Specifically, we argue that a larger default results in more negative outcomes than a smaller default in case of an other-seller default but not for a same-seller default. Consumers might attribute an other-seller default to the LPG-issuing seller's opportunism or to the seller's inability to quickly respond to competitor's price reduction, the former leading to more negative outcomes than the latter. We argue that while suspicion of seller opportunism might be counterbalanced by an attribution to seller inability to respond in case of a small other-seller default, the former attribution is likely to be relatively more salient in case of a large other-seller default. In other words, consumer suspicion of opportunism is stronger in case of a larger other-seller default leading to less favorable perception of retailer credibility and lower level of repurchase intention than for a smaller other-seller default.

A same-seller default might be attributed to the LPGissuing seller's attempt to remain a low-price leader or to opportunistic signaling by the seller. The latter attribution arises because consumers might reason that a seller that is completely confident in its price status at the time of issuing the signal need not have to reduce prices over the duration of enforceability of the LPG unless the seller's confidence is questionable. These attributions compete to contribute to the consumer's overall judgment in case of a same-seller default. However, based on Kelley's (1973) proposition that people augment or discount causes based on what they believe to be logical, we expect consumers to attribute same-seller default more strongly to the seller's attempt to remain low-priced than to opportunistic signaling, regardless of default magnitude. Consequently a larger default is less likely to result in poorer outcomes than a smaller default in case of same-seller default.

- H1a. Default locus moderates the effect of default magnitude on consumer perceptions of retailer credibility. A larger default leads to significantly lower levels of perceived retailer credibility for an other-seller default but not for a same-seller default.
- H1b. Default locus moderates the effect of default magnitude on consumer repurchase intention. A larger default leads to significantly lower levels of repurchase intention for an other-seller default but not for a same-seller default.

We further posit that the default time moderates the effect of default magnitude on consumer outcomes such that influence of magnitude is stronger for a delayed default than for an immediate default The relative suddenness of an immediate default prompts suspicions of seller opportunism, and this attribution is less likely counterbalanced by the more positive attribution of normal market price fluctuations, regardless of default magnitude. With a delayed default however, emphasis on attribution to market price fluctuations, vis-à-vis an attribution to seller opportunism seems more likely for smaller defaults. That is, a smaller delayed default is more readily "explained away" through attribution to market fluctuations than a larger delayed default. In summary, we posit that whereas consumer beliefs about seller opportunism may not be counterbalanced by attribution to market price fluctuations for small or large immediate defaults or large delayed defaults, this counterbalancing is likely in case of a small delayed default. Additional support for this position comes from research related to the effect of time on psychological discomfort resulting from consumer perception of utility loss, such discomfort diminishing with the passage of time (Gourville & Soman, 1998). We argue that regardless of default magnitude, the suddenness of an immediate default highlights the unpleasantness consumers feel and heighten their sense of discomfort from utility loss. However, as default becomes more delayed a smaller default results in significantly lower discomfort from utility loss.

- H2a. Default time moderates the effect of default magnitude on consumer perceptions of retailer credibility. A smaller default leads to significantly higher levels of perceived retailer credibility for a delayed default but not for an immediate default.
- H2b. Default time moderates the effect of default magnitude on consumer repurchase intention. A smaller default leads to significantly higher levels of repurchase intention for a delayed default but not for an immediate default.

Study 1

Methodology

We conducted a 2 (default locus: same-seller versus otherseller)×2 (default magnitude: small versus large)×2 (default time: immediate versus delayed) between-subjects experiment to test the two hypotheses. We also created a control condition in which no default occurs after purchase. Two hundred sixty-eight undergraduate students from a large southern U.S. university participated in the study. Through random assignments to the various conditions, 228 received different default-related stimuli and 40 viewed the control condition.

Subjects imagined that they were seriously considering the purchase of a new digital camera, and in the process of searching, they came across an electronics store with a fictitious name (subjects were told that the real name of the retailer was suppressed to maintain anonymity). Subjects first read a brief description of this electronics store, which had several outlets in the southeastern United States. The store description matched those of the typical electronics outlets in the local market. Next, subjects viewed an ad for the Sony DSC-P52 model of digital camera from this store, offered at \$279.99. This particular model was new to the market at the time of the experiment, and the selected price fell within the range of prevalent market prices. The phrases "Low Price Guarantee" and "Nobody Beats Our Price" appeared across the top of the ad, and the conditions related to refunds ran across the bottom. The refund conditions matched those prevalent in the local market and stated that shoppers were entitled to a refund of 120% of the difference between the offer price and a lower price detected in the same or a different store within 30 days of purchase.

After viewing the ad, subjects answered a few questions related to the ad and the conditions of the accompanying LPG, which forced them to engage in deeper processing of the ad's contents to aid their recall during the postpurchase scenario. In the LPG default conditions, subjects then read a scenario that asked them to imagine they had purchased the advertised camera, primarily because of the LPG, and after 2 (25) days, they found the same digital camera sold for \$15 (\$56) less at the same (different) store from which they had purchased their camera.¹ The different store also had a fictitious name. In the control condition, subjects imagined that they did not find the focal retailer to be undersold within the stipulated time frame (30 days) of the LPG.

Finally, subjects responded to several measures related to the two dependent variables of perceived retailer credibility and repurchase intention. We measured *perceived retailer credibility* with a semantic differential scale of five 7-point items, based on the credibility measure by Lichtenstein and Bearden (1989), that prompted respondents to indicate their agreement with the statements: "I think that [retailer] is/has very insincere/very sincere; very dishonest/very honest; very undependable/very dependable; very untrustworthy/ very trustworthy; and low credibility/high credibility." To measure *repurchase intention*, we used three 7-point items, anchored at "not likely at all" and "extremely likely": "If you need an electronics product in the future, how likely are you to try [retailer]?" "If you ever purchase a digital camera again, how likely are you to buy it from [retailer]?" and "How likely are you to revisit [retailer] for your shopping needs?" After responding to these measures, subjects answered some manipulation check and demographic questions.

Results

Manipulation checks Subjects in the experimental conditions responded to three manipulation check questions, one for each of the three default-related treatments: "After you purchased the SONY DSC-P52, where did you find a lower price for the same camera?" (At the store I bought the camera from or At another store); "After you purchased the SONY DSC-P52, you found the same camera at a lower price. How much lower was this price?" (\$15 or \$56); and "How many days after your purchase did you find the lower price?" (2 or 25 days). In total, 31 subjects (13.6%) failed one or more of the manipulation check questions and therefore were excluded from further analyses, leaving us with 197 subjects in the default conditions and 40 subjects in the control condition. Cell sizes for the default-related conditions ranged from 20 to 29.

Preliminary analyses First, we assessed reliability of the multi-item scales for perceived retailer credibility and repurchase intention. The Cronbach's alpha for the fiveitem scale of perceived retailer credibility is 0.96, and that for the three-item scale of repurchase intention is 0.96. We summed items for each scale and used the scale averages for further analyses. Second, we inspected whether default led to poorer credibility perceptions and lower repurchase intention than did the control condition by pooling the respondents in the eight experimental conditions and conducting appropriate t-tests. We similarly compared the perceptions of retailer credibility and repurchase intention of each experimental cell with those in the control condition. As we expected, LPG default led to lower perceptions of retailer credibility and lower repurchase intention in all conditions (see Table 1).

Hypotheses tests Results of the full-factorial MANOVA and the univariate ANOVAs are presented in Table 2. As Table 2 shows, the multivariate interaction effect between default locus and default magnitude is significant (Wilks' Lambda=0.95; F=4.91; p<0.01) and attributable to both perceived retailer credibility (F=6.43; p<0.01) and repur-

¹ We conducted a pretest to determine default magnitude, in which we asked 41 undergraduate students, not part of the main experiment, to imagine they had purchased a digital camera for \$279.99 under an LPG and report what they would consider to be "somewhat lower" and "substantially lower" prices if they found lower price for this model after their purchase. Subjects also reported the likelihood of their returning to the store for refund on seven-point scales (1= extremely unlikely, 7=extremely likely) for each of the two prices they reported. The means of the somewhat lower and substantially lower prices reported by the subjects are \$264.11 and \$223.18, and on average, the likelihood of seeking a refund is significantly higher for the former (t_{39} =5.15; p<0.01). On the basis of these results, we selected a \$15 (=\$279.99–\$224.99) difference for the small default and a \$56 (=\$279.99–\$223.99) difference for the large default.

	Table 1	Study	1: com	parison	of	consumer	perce	ptions,	exp	perimental	and	control	conditions
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	Percei	ved retai	ler credibility	Repurchase intention			
	Means		<i>t</i> -value (<i>p</i> -value; df)	Means		<i>t</i> -value (<i>p</i> -value; df)	
	EC	CC		EC	CC		
LPG default (subjects pooled across experimental conditions)	4.68	6.16	8.99 (0.001; 235)	4.84	6.30	9.01 (0.001; 235)	
Other seller, large default, immediate default	3.75	6.16	10.12 (0.001; 58)	3.85	6.30	7.65 (0.001; 58)	
Same seller, large default, immediate default	5.22	6.16	3.79 (0.01; 58)	5.43	6.30	3.61 (0.001; 58)	
Other seller, large default, delayed default	4.20	6.16	7.12 (0.001; 59)	4.08	6.30	6.01 (0.001; 59)	
Same seller, large default, delayed default	4.63	6.16	4.89 (0.001; 67)	5.17	6.30	5.09 (0.001; 67)	
Other seller, small default, immediate default	4.65	6.16	5.20 (0.001; 67)	4.68	6.30	5.35 (0.001; 67)	
Same seller, small default, immediate default	4.44	6.16	5.10 (0.001; 65)	4.57	6.30	5.52 (0.001; 65)	
Other seller, small default, delayed default	5.12	6.16	3.77 (0.001; 67)	5.18	6.30	3.99 (0.001; 67)	
Same seller, small default, delayed default	5.32	6.16	3.58 (0.001; 60)	5.61	6.30	3.05 (0.001; 60)	

EC experimental condition, CC control condition.

chase intention (F=9.75; p<0.002). The multivariate interaction effect between default time and default magnitude is also significant (Wilks' Lambda=0.98; F=2.36; p<0.10), and attributable to both dependent variables (F=3.87; p<0.05 for perceived retailer credibility; F=4.33; p<0.04 for repurchase intention).

Hypotheses 1a and 1b predict that the effect of default magnitude is moderated by default locus, such that magnitude influences perceived retailer credibility and repurchase intention for an other-seller default but not a same-seller default. As the means indicate, the effect of default magnitude on perceived retailer credibility is significant for other-seller default ($M_{\text{Large Default}}$ =3.98; $M_{\text{Small Default}}$ =4.89; t_{97} =3.50; p<0.01) but not for same-seller default ($M_{\text{Large Default}}$ =4.84; t_{96} = 0.13; p=0.90), and its effect on repurchase intention is significant for other-seller default ($M_{\text{Large Default}}$ =3.97; $M_{\text{Small Default}}$ =4.93; t_{97} =3.28; p<0.01) but not for same-

seller default ($M_{\text{Large Default}}$ =5.28; $M_{\text{Small Default}}$ =5.03; t_{96} = 0.10; p=0.32). These results support H1a and H1b.

Hypotheses 2a and 2b posit that the effects of default magnitude are moderated by default time, such that influence of magnitude is stronger for a delayed default than for an immediate default. As expected, the effect of default magnitude on perceived retailer credibility is significant for delayed default ($M_{\text{Large Default}}$ =4.45; $M_{\text{Small Default}}$ =5.21; t_{96} = 2.92; p<0.01) but not for immediate default ($M_{\text{Large Default}}$ =4.49; $M_{\text{Small Default}}$ =4.55; t_{96} =.23; p=0.82) and for repurchase intention it is significant for delayed default ($M_{\text{Large Default}}$ =4.71; $M_{\text{Small Default}}$ =5.37; t_{96} =2.51; p<0.01) but not for immediate default ($M_{\text{Large Default}}$ =4.63; t_{96} =0.06; p=0.96). These results support H2a and H2b.

In summary, the results of our first study indicate that regardless of the conditions associated with LPG default, consumers perceive the retailer as less credible and evince

Sources	MANOVA			ANOVA					
				Perceived retailer credibility	Repurchase intention				
	Wilks' Lambda	Effect size	F (p-value)	F (p-value)	F (p-value)				
Main effects									
Default locus (DL)	0.92	0.08	7.90 (0.001)	6.30 (0.01)	15.57 (0.001)	1			
Default magnitude (DM)	0.97	0.03	2.71 (0.07)	5.25 (0.02)	3.93 (0.05)	1			
Default time (DT)	0.98	0.02	2.01 (0.14)	2.59 (0.11)	3.99 (0.05)	1			
Interaction effects									
DL×DM	0.95	0.05	4.91 (0.01)	6.43 (0.01)	9.75 (0.002)	1			
DL×DT	0.99	0.01	0.84 (0.43)	0.71 (0.40)	0.003 (0.96)	1			
DM×DT	0.98	0.03	2.36 (0.10)	3.87 (0.05)	4.33 (0.04)	1			
$DL \times DM \times DT$	0.98	0.02	1.80 (0.17)	3.61 (0.06)	1.82 (0.18)	1			
Error df	188		. ,	189	189				
Total df				197	197				

Table 2 Study 1: results of full-factorial MANOVA and ANOVAs

lower repurchase intention than when signal default does not occur. Furthermore, consumer outcomes following a large default are less favorable than those after a small default for other-seller but not same-seller default. Finally, whereas small and large defaults result in comparable outcomes when the default is immediate, outcomes are more favorable following a small default in the case of delayed defaults.

In this first study, we assessed consumer outcomes following an LPG default without considering possible refund-seeking experiences. A logical question prompted by our findings is whether post-default consumer perceptions of the retailer can be restored completely if consumers earn the promised refund. Conversely, do the unfavorable effects of LPG default persist even after consumers earn the promised refund? Our second experiment investigates these questions.

Study 2

Intuitively, it might appear that consumer confidence in the retailer would be restored once they receive a refund. However, we posit that whether or not this would happen depends on how consumers conceptualize the LPG in the first place. If consumers predominantly view the LPG as an informational tool that indicates the low-price status of the retailer, default effects likely persist even after refund is issued. In contrast, if they perceive LPG as a protective tool, consumer confidence in the retailer may be restored after the refund. Before describing our second experiment, we elaborate on this perspective.

A marketplace signal essentially has two functions: to provide information that consumers possess imperfectly and have difficulty obtaining and to protect consumers by compensating them in some fashion should the information provided by the signal be untrue (Kirmani & Rao, 2000). In case of an LPG, the informational function indicates the location of the retailer's price among market prices, and the protective function monetarily compensates consumers should they discover lower prices. We argue that consumer thought processes related to these two functions are distinct. When consumers focus on the informational function, they are primarily attracted to the retailer's offer because of their expectation that the offer price will be the lowest in the market (Biswas et al., 2006). However, when consumers concentrate on the protective LPG's function, they emphasize the promise for compensation, regardless of the actual market position of the seller's price at the time of purchase. We posit that post-refund outcomes likely depend on which signal function consumers primarily focus on. If consumers emphasize the protective function, post-refund outcomes are comparable to those when default does not occur since the refund restores their faith in the retailer. However, if consumers focus on the informational function, outcomes are less favorable than those when default does not occur. Regardless of the refund, consumers think more negatively of the retailer given that the signal defaulted in its informational claim.

- H3 (Alternative 1: predominant focus on protective function of the signal) When consumers focus on the protective function of the signal, the unfavorable effects of an LPG default will be mitigated after the retailer issues a refund. Specifically, (a) perceived retailer credibility and (b) repurchase intention will be similar to those in the control condition of no LPG default.
- H3 (Alternative 2: predominant focus on informative function of the signal)When consumers focus on the informational function of the signal, an LPG default results in unfavorable perceptions of the retailer. Specifically, (a) lower levels of perceived retailer credibility and (b) lower repurchase intention result compared with the control condition of no LPG default, even after the seller issues the refund.

Design, sample, and methodology

We conducted a 2 (default locus: same-seller versus otherseller)×2 (default magnitude: small versus large)×2 (default time: immediate versus delayed) between-subjects experiment with a no-default control condition. Two hundred forty-five undergraduate students from the business college of a major midwestern U.S. university served as subjects. The stimuli for this experiment were identical to those used in Study 1, with the following exceptions: (1) We used a different, newer model number for the digital camera (Sony DSC-P93) but retained the same offer price of \$279.99 and (b) in the postpurchase scenarios for the experimental conditions, we added a statement that asked consumers to imagine they easily obtained the promised refund from the retailer.

Results and discussion

Subjects responded to the same manipulation check questions as in Study 1. Of the 245 subjects in the default-related experimental conditions, 6 (2.4%) failed the manipulation check for the default magnitude condition, 3 (1.2%) failed the check on both default magnitude and default time, and 1 (.4%) failed all three manipulation checks. In total, 10 (4.1%) subjects failed one or more of the manipulation checks, so we excluded them from further

analyses leaving 235 subjects in the eight experimental conditions and 28 subjects in the control condition. Scales reliability levels are acceptable (perceived retailer credibility= 0.92, repurchase intention=0.96).

Results of the analyses regarding the effects of LPG default (subjects pooled across eight experimental conditions) compared with the control condition of no default appear in Table 3. Even after receiving the refund, LPG consumers report lower levels of perceived retailer credibility ($M_{\text{Default}}=5.52$; $M_{\text{No-default}}=6.30$; $t_{233}=2.87$; p<0.01) and repurchase intention ($M_{\text{Default}}=5.32$; $M_{\text{No-default}}=6.41$; $t_{233}=4.01$; p<0.01) than do those in the control, no-default condition. Overall, these results are consistent with H3 (Alternative 2).

Comparison of individual default-conditions with the control condition reveals some interesting results. Default results in less favorable consumer outcomes in most situations, even when the promised refund is honored. Specifically, all types of other-seller default result in less favorable outcomes than the control condition, though same-seller defaults do not consistently result in less favorable outcomes. Immediate default (both large and small) by the same seller results in lower levels of perceived retailer credibility (small: M_{Default}=5.27; M_{No-} default=6.30; t₅₈=3.07; p<0.004; large: M_{Default}=5.37; M_{No-} $_{default}$ =6.30; t_{59} =3.27; p<0.002) and repurchase intention (small: $M_{\text{Default}} = 5.25$; $M_{\text{No-default}} = 6.41$; $t_{58} = 3.87$; p < 0.001; large: $M_{\text{Default}} = 5.33$; $M_{\text{No-default}} = 6.41$; $t_{59} = 3.44$; p < 0.001). However, delayed default (both large and small) by the same seller results in no differences compared with the control condition in terms of either dependent variable (all p > 0.10).

The observed variation in the results across the different cells indicates that these cells probably differ in their proportion of respondents who focus on different aspects of the LPG. Thus, cells in which post-refund outcomes are less favorable than the no-default condition might have been overrepresented by respondents who primarily focused on the informational value of the signal. In contrast, cells where post-refund outcomes are comparable to the nodefault condition likely were overrepresented by respondents who primarily focused on the protective value. Recognizing the speculative nature of this explanation, we conducted a third experiment to offer a more rigorous test of Hypothesis 3.

Study 3

In the previous study we proposed that post-refund outcomes depend on how consumers conceptualize the signal. The results of our second study indicate indirect support for this proposition, but this study does not provide a rigorous test of the same due to an absence of any evidence as to which function of the signal consumers emphasized. We therefore conducted Study 3 to test our proposition more rigorously by manipulating subjects' signal focus and investigating its effects on post-refund outcomes.

Design, sample, and methodology

We used a 3 (LPG focus: information, protection, control)× 2 (LPG default: presence; absence) between-subjects experiment, with 109 undergraduate students from the business college of a major midwestern U.S. university as subjects. We manipulated LPG focus but ensured that the subjects were not sensitized to the study purpose. To do so, we borrowed from literature on priming, in which the part of the stimulus containing the prime often appears ostensibly separate from the judgmental task that serves to demonstrate its effects, because subjects believe the stimuli belong to two separate studies (Herr, 1989; Shrum, Wyer, &

Table 3 Study 2: comparison of consumer perceptions, experimental and control conditions

	Percei	ved retai	ler credibility	Repurchase intention			
	Means		<i>t</i> -value (<i>p</i> -value; df)	Means		t-value (p-value; df)	
	EC	CC		EC	CC		
LPG default (subjects pooled across experimental conditions)	5.52	6.30	2.87 (0.01; 233)	5.32	6.41	4.01 (0.001; 233)	
Other seller, large default, immediate default	5.21	6.30	3.97 (0.001; 48)	4.86	6.41	5.49 (0.001; 48)	
Same seller, large default, immediate default	5.37	6.30	3.27 (0.002; 59)	5.33	6.41	3.44 (0.001; 59)	
Other seller, large default, delayed default	5.54	6.30	2.35 (0.02; 47)	4.79	6.41	5.40 (0.001; 47)	
Same seller, large default, delayed default	6.04	6.30	1.08 (0.28; 55)	6.25	6.41	0.90 (0.37; 65)	
Other seller, small default, immediate default	5.53	6.30	2.84 (0.01; 48)	4.94	6.41	5.67 (0.001; 48)	
Same seller, small default, immediate default	5.27	6.30	3.07 (0.004; 58)	5.25	6.41	3.87 (0.001; 58)	
Other seller, small default, delayed default	5.13	6.30	2.86 (0.01; 48)	4.56	6.41	5.30 (0.001; 48)	
Same seller, small default, delayed default	6.02	6.30	1.39 (0.17; 52)	6.13	6.41	1.49 (0.14; 52)	

EC experimental condition, CC control condition.

O'Guinn, 1998). Specifically, we told students they would be participating in two studies, one conducted by the instructor and the other by a different researcher. Both studies would occur during one class session so the instructor would not have to disrupt his class in the following week, when he planned to cover a very important topic. Subjects heard that the purpose of the "first" study was to introduce them to some popular retail pricing practices and seek their opinion about which would be most suitable for three different products. We also told them that the experimental excerpt was selected from a wellknown consumer magazine. This part of the study manipulated the LPG focus by providing subjects with a one-page excerpt about retail pricing practices (reference pricing, odd pricing, and LPG). In the information focus condition, the subjects were told that "the primary purpose of an LPG is to inform consumers that of all the retailers carrying the product, the LPG-offering retailer is charging the lowest price." In addition, the scenario stated that the magazine "interviewed a large sample of consumers. All of them said that whenever they see an LPG they infer that the retailer's prices are the lowest in the market." In the protection focus condition, the excerpt indicated that "the primary purpose of an LPG is to protect consumers from fluctuating market prices" and that the magazine interviewed a large sample of consumers, all of whom "said that whenever they see an LPG they feel protected from fluctuation of market prices knowing that even if they find a lower price later, they will not lose money." In the control condition, we did not manipulate subjects' focus on the LPG; they read a paragraph about a "Pennies-A-Day" strategy. The information content pertaining to the two other pricing practices remained constant across all conditions, as did the length of the write-up. The subjects then evaluated ads for three products, commented on the prices of the products, and suggested the best pricing strategy for each.

The researcher for the "second" study was intentionally late for the data collection. The instructor for the course apologized for the delay and started the lecture. Ten minutes into the lecture, the second researcher entered the classroom, apologized to the class, and distributed the questionnaire. Thus, a gap of approximately 20 min occurred between the time when subjects completed the first study and the start of the second study. The stimuli used for this experiment are similar to those used for Study 2, except that we use yet another model of digital camera (Canon PowerShot A630) though with the same offer price of \$279.99. In the LPG default condition, the subjects were told that 2 days after purchasing the camera, they found it available at another store for \$56 less and that the original store refunded the amount (plus 20%), as promised. In the no-default condition, subjects did not find a lower price even a month after purchase. Consistent with Study 2, subjects responded to measures related to the two dependent variables as well as a set of measures we use to assess the degree to which their information focus guided their decisions and a different set to assess the degree to which a protection focus guided their decisions (see the Appendix). Respondents also answered some aided and unaided recall questions related to the stimulus used in the first part of the study. Analysis of these questions showed that subjects adequately processed the one-page excerpt they viewed in the first part. Finally, during debriefing, none of the subjects indicated that they had realized any connection between the "two studies."

Results

Manipulation checks and scale reliability Subjects responded to manipulation check questions regarding the LPG focus and LPG default. For the former, subjects were asked to select one of two primary reasons (to inform consumers of their low price status or to protect consumers from market price fluctuation) for which they think retailers offer LPG. Only subjects whose LPG focus was manipulated were asked to respond to this question. For the latter, all subjects were asked to indicate whether or not they found a lower price for the camera after purchase (Yes-No format). In the information focus condition, four of 33 respondents failed the manipulation check; in the protective focus condition, seven of 37 failed it. All respondents who passed the LPG focus manipulation check also passed the LPG default manipulation check. We conducted all further analyses using the responses from the 98 subjects who passed the manipulation check, with cell sizes ranging from 14 to 20 subjects. The scale reliabilities for the two dependent variables are as follows: perceived retailer credibility= 0.95, and repurchase intention=0.96.

Assumption checks Subjects considered seven items, four of which assessed whether an information focus guided their responses and three of which pertained to whether a protection focus guided their responses (see the Appendix; scale reliabilities were 0.95 and 0.85, respectively). An exploratory factor analysis produced a two-factor solution, in which the items load appropriately (factor loadings: 0.74-0.92). As we expected, subjects exposed to the information focus condition scored higher on the corresponding scale (M=5.79) than on the protection scale (M=3.69; t_{13} =3.53; p< 0.01), and those exposed to the protection focus condition scored higher on the protection focus-related scale (M=5.33) than on the information focus scale (M=3.86; $t_{13}=2.19$; p<0.05). Furthermore, subjects in the information focus condition indicated significantly higher means on the scale related to information focus (M=5.79) than did subjects in the protection focus condition (M=3.86; $t_{26}=3.44$; p<0.01), and subjects in the protection focus condition provided significantly higher means on the scale related to protection focus (M=5.33) than did subjects in the information focus condition $(M=3.69; t_{26}=2.95; p<0.01)$.

Hypothesis tests The overall MANOVA reveals a significant interaction (Wilks' Lambda=0.78, F=3.97, p<0.01), and the univariate results indicate that the multivariate interaction effect is due to the effects on perceived retailer credibility (F=6.83, p < 0.05) and repurchase intentions (F=11.59, p <0.001). When the focus of LPG is protection, the difference between the means in the LPG default and no-default conditions is not significant across the dependent variables: perceived retailer credibility ($M_{\text{Default}} = 5.86; M_{\text{No-default}} = 5.48;$ $t_{28}=0.80$; p=0.43) and repurchase intention ($M_{\text{Default}}=5.55$; $M_{\text{No-default}}$ =5.79; t_{28} =0.61; p=0.49). Overall, these results support H3 (Alternative 1). When the focus of LPG is information, even after receiving the refund, consumers in the LPG default condition report lower levels of perceived retailer credibility (M_{Default} =4.20; $M_{\text{No-default}}$ =5.81; t_{29} = 3.51; p < 0.01) and repurchase intentions ($M_{\text{Default}} = 3.48$; $M_{\text{No-default}} = 6.17; t_{29} = 6.91; p < 0.001$) than in the control condition. Overall, these results support H3 (Alternative 2).

Additional analyses Results for the individual cells of the experiment in Study 2 suggest that default leads to less favorable outcomes than the control condition in some but not all cases. We explained this variation by suggesting that subjects are predisposed to an LPG focus and that the results reflect the dominant focus of respondents in each cell. In Study 3, we test this suggestion by analyzing responses from the "no focus" condition. Subjects in this condition were likely predisposed to one of two LPG foci and default outcomes would depend on the dominant focus. Analyses revealed that respondents in the control group had a significantly higher mean on the scale used to assess subjects' protection focus ($M_{\text{Protection Focus}}=6.13$; $M_{\text{Information}}$ $_{\text{Focus}}=2.95$; $t_{15}=5.07$; p<0.001), and default led them to report outcomes comparable to those in the no-default situation with regard to perceived retailer credibility $(M_{default}=6.30; M_{No-default}=5.89; t_{34}=1.09; p=0.29)$ and repurchase intention ($M_{default}$ =5.92; $M_{No-default}$ =6.20; t_{34} = 0.72; p=0.48). That is, the protection focus among respondents in the "no focus" group reflects the comparability of outcomes across default conditions and this finding supports our explanation.

General discussion

Low-price guarantees, conceptualized in prior research as marketplace signals, are becoming increasingly common in business and consumer markets (Arbatskaya et al., 2004). In this research, we study the effects of low price signal default on consumer perceptions of retailer credibility and repurchase intention. Following Kirmani and Rao (2000), we conceptualize default as a situation in which the informational claim of a signal turns out to be erroneous, such as when consumers detect lower prices after purchasing a product under an LPG. This research extends recent findings that suggest consumers engage in more postpurchase search for lower prices when they purchase under an LPG (Dutta & Biswas, 2005); because such search might lead to detection of lower prices, we investigate probable consequences of the same. Overall, our findings support the suggestion that costs of issuing a false LPG can be nonmonetary (Biswas et al., 2002) and corroborate similar findings related to violation of informational claims about quality, such as warranties (Lassar, Grewal, & Marmorstein, 1999).

In our first experiment, we find that consumer perceptions of retailer credibility and repurchase intention are lower after an LPG default, but the degree to which consumer outcomes suffer is a function of the default magnitude, locus and time. A larger default leads to lower levels of perceived retailer credibility and repurchase intention when consumers find the lower price at another store and when the default occurs quite a few days after purchase. However, the size of the default does not matter when consumers find the lower price at the store from which they initially purchased or when the default occurs immediately after the purchase. We explained these findings using an attribution-based perspective, particularly the proposition that based on event characteristics people might infer some causes to be more probable than others (Kelley, 1973; Kelley & Michela, 1980) and the more probable causes dominate the cognitive, affective and behavioral consequences following such inference (Weiner, 1986). For instance, when consumers find a lower price at a different store, they attribute the default to opportunistic signaling or the retailer's inability to cope with competitive price reductions. Dimensionality of these causes would suggest that the former attribution probably results in less favorable perceptions of the seller than does the latter (Bitner, 1990; Tsiros et al., 2004). However, in line with Kelley's (1973) proposition that the relative contribution of triggered attributions to outcomes depends on event conditions, we show that perceptions about the retailer and intended future behavior after an LPG default depend on the conditions of the default.

We further investigate whether issuing a refund reverses the negative consumer outcomes that follow an LPG default. Research on service failure indicates that recovery efforts do not guarantee the restoration of consumer satisfaction (Smith, Bolton, & Wagner, 1999; Spreng, Harrell, & Mackoy, 1995). Similarly, issuing a refund does not necessarily restore consumer perceptions of retailer credibility or Intention to repurchase. Findings from Studies 2 and 3 suggest that whether issuing a refund helps restore consumer confidence in the seller depends on whether consumers focus on the informational or the protective function of the LPG. Post-refund outcomes are less favorable if consumers primarily focus on the informational function, but they are comparable to the scenario in which no default occurs when consumers concentrate on the protective function of a low price signal. The results of our second study indicate these proposed effects; those of our third study confirm them.

Our research also relates to an area of consumer behavior that has recently stirred much concern in the academic community. The growing evidence of rising consumer skepticism toward market mechanisms has prompted some experts to call for research on issues that may exacerbate or abate consumer mistrust (Sheth & Sisodia, 2005). If trust drives consumer response to low price signals, they probably are more skeptical of marketers when incidents indicate that their trust might have been misplaced. Marketers who opportunistically use such signals contribute to the deterioration of consumer confidence. Of course, genuinely low-priced retailers may fall prey to price competition; given today's competitive marketplace, ensuring absolute protection is impossible. Nonetheless, if only truly lowpriced retailers offer LPGs, the incidence of default would be low, which might boost consumer confidence overall.

Managerial implications

Our research has important implications for retailers, primarily, that they should not treat LPG as a short-term vehicle to boost sales. Although prior research indicates consumers are not sophisticated enough to detect LPGrelated market collusion (Chatterjee, Heath, & Basuroy, 2003) and therefore that retailers can use LPGs to attract consumers, recent findings and our research show that consumer responses to LPGs prior to purchase only offer a partial picture. The full picture requires a consideration of the possible effects of LPG on consumers after a purchase. Highly value-conscious consumers search for lower prices to take advantage of promised refunds (Dutta & Biswas, 2005) and, if they find lower prices, think less favorably of the retailer. Marketing's current belief in the importance of relationships with consumers (Rust, Zeithaml, & Lemon, 2000) suggests that retailers should be particularly concerned about our finding that LPG default leads consumers to reject the retailer for future transactions; that is, LPG default can hinder relationship marketing efforts. It might also surprise retailers to know that issuing a refund does not necessarily address all customer concerns. If consumers interpret the LPG as a promise that the price offer is the lowest in the

market, they will not think favorably of the retailer after a default, even if they receive a refund.

On the basis of these findings, we offer several recommendations for retailers. First, retailers should not use LPG for short-term goals, particularly if they are not entirely sure that their offer price is the lowest. A short-term LPG to attract a consumer in the hope that few consumers will find lower prices or that refunds will satisfy those who do is risky. Therefore, only truly low-priced retailers should offer LPGs. Second, retailers should make consumers' refund-seeking experience as pleasant as possible. Despite our research assumption of a pleasant experience, some of our respondents indicated less favorable perceptions of retailer credibility and lower repurchase intention. The outcomes could only have been worse if the refund-seeking experience were unpleasant.

Third, retailers should maintain excellent market-scanning mechanisms to track competitive price changes and quickly respond to lower prices by lowering their own prices. When consumers find a lower price the store they purchased from, they are less likely to be upset than if they find the lower price at a different store. Finally, retailers should attempt to guide consumers' LPG focus. Rather than posing a LPG as a promise of low prices (e.g., by explicitly claiming so in retail ads), retailers should emphasize that LPG aims to protect consumers against fluctuating market prices. This focus, combined with a genuine effort to maintain low prices and a commitment to a hassle-free refund process, will maximize the benefits of LPG in an ethical manner.

Limitations and further research

This research has several limitations. First, implicit in our proposed mechanism for default effects is the assumption that consumers elaborate sufficiently. Admittedly, analyzing cause plausibility requires effort and future research should explore the role of elaboration. For instance, if some consumers focus on the protective function of LPG, they might not elaborate on the default at all, as long as they receive their refund. Furthermore, it seems reasonable that consumers take default seriously only when LPG had been an important factor in retailer choice. Although research indicates that LPG can positively influence retailer choice (e.g., Biswas et al., 2002; Kukar-Kinney & Walters, 2003), it is possible that store loyalty based on other factors curbs consumer tendencies to emphasize retailer opportunism following default. Second, though our reasoning to explain the effects observed in Study 1 relies on the prevalence of positive versus negative attributions and the related principles of augmentation and discounting, we do not provide evidence of this mechanism. Further research might address

this deficiency by explicitly testing whether differential attributions determine default outcomes and whether such attributions can be manipulated. Weiner (1986) suggests that prior experience determines the set of causes people use in a situation; similarly, prior experience with a retailer might affect post-default attributions and outcomes. Third, our second study indicates that consumers vary with respect to the LPG function they emphasize, but we remain uncertain about the sources of this variation. Research should investigate antecedents to consumers' signal focus. Our manipulation of LPG focus in Study 3 was somewhat contrived; further research should identify factors that retailers can use to manipulate LPG focus. Fourth, despite the wide variety of LPGs in the marketplace, we used only one type, albeit the most common one. Some existing LPGs do not explicitly claim to offer the lowest price but rather emphasize the refund condition. Although an implicit lowest price claim still exists, as otherwise it would be unwise for sellers to promise a refund, it would be interesting to investigate whether such a framing biases consumers to attend to the protective function of the signal. Finally, service recovery research indicates that the characteristics of recovery efforts (e.g., response speed, apology, etc.) influence consumer outcomes (Smith et al., 1999). In Studies 2 and 3, we assume a perfectly pleasant refund experience for consumers, clearly an extreme assumption; further research should investigate the effects of refund process characteristics on important consumer outcomes.

Appendix

The following items were used in Study three to assess the degree to which respondents' information focus guided their responses to the dependent variables (1=strongly disagree, 7=strongly agree):

- I felt hurt that even though the retailer paid the refund; the fact remains that the price charged by the retailer was not the lowest in the market after all.
- I felt as though my trust in the retailer was violated the moment I found a lower price in the market, regardless of whether the retailer gave me a refund or not.
- Refund or no refund, the retailer should not have given a Low Price Guarantee if it were not absolutely confident of charging the lowest market price.
- So far as I am concerned, the Low Price Guarantee was violated by the very fact that a lower price in the market existed, regardless of whether the retailer compensated me with a refund afterward.

The following items from Study three assess the degree to which respondents' protection focus guided their responses to the dependent variables (1=strongly disagree, 7=strongly agree):

- I felt that by paying the refund, the retailer fulfilled its promise of protecting my financial interest.
- I felt like I should not hold anything against the retailer now that it has paid to me the promised refund.
- The fact that I found a lower price at another store did not bother me. What was important to me was that [the retailer] paid me the promised refund.

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