

**Framing Price Promotion: The Effects of the Price Frame and the Saving Frame**

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**Abstract**

This article examines the effects of the price frame (regular price only, sale price only, both regular and sale prices) and the saving frame (percentage discount and absolute discount), which are displayed in a price discount advertisement, on consumers' perceptions. Laboratory experiment results showed that presenting a sale price and an absolute-discount amount generated better consumer perceptions. Also, price consciousness and needs for cognition (NFC) were found to have moderating effects in the relationship between the price and saving frames, and the perceived quality of an advertised product.

**Introduction**

When sellers offer a discount on products or services, they need to decide on which price-related information to use in order to promote the discount in advertisements. Della Bitta, Monroe, and McGinnis (1981) identified two types of cues typically adopted in price-discount advertisements. One is known as *price cues*, which include a regular or a normal price, and a sale price. The other is called *semantic cues*, which involve expressions that facilitate consumers' ability to evaluate an offer (e.g., "regular," "usually," "special," "manufacturer's suggested retail price") and frames presenting savings (e.g., percentage off or dollar off). Since consumers are likely to use such information to assess a given offer, these cues, besides the actual discount amount, also influence consumer perceptions of the offer. Thus, the aforementioned sellers' decision is considered important, and understanding consumer responses to such information is essential in creating effective ads.

Advertisements on price discounts are comparative in nature since sellers attempt to promote their sale price by emphasizing the temporary reduction of the original price. Accordingly, research on comparative price advertisements has obtained considerable attention from marketing researchers and have produced a significant number of studies. Comparative price advertisements present a reference price (e.g., regular price, another retailer's price) together with

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a sale price, emphasizing that the former is clearly higher than the latter. Previous studies on this topic have mainly examined how the level and/or semantic cues of advertised reference prices and characteristics of the ads, such as consistency and distinctiveness, affected consumer perception (e.g., Alford & Engelland 2000; Burton, Lichtenstein, & Herr 1993; Lichtenstein & Bearden 1988, 1989; Lichtenstein, Burton, & Karson 1991; Suter & Burton 1996). Within this topic, one identifiable narrow scope is the investigation of saving presentation frames. The amount of price reduction can be framed either in percentage or absolute terms (Chen, Monroe, & Low 1998). The percentage-discount frame is defined as a relative indicator of the extent of the reduction from 0% and 100% (e.g., percentage off). Meanwhile, the absolute-discount frame refers to the actual monetary savings that consumers receive from the price promotion (e.g., dollar off or cents off). Previous studies on this topic have shown the differences in consumers' responses to the two frames. However, some research issues have remained unexplored; thus, this article seeks to address such issues. One concern is that the price information used in previous studies is not consistent, making it difficult to generalize some of their findings. Another is that moderating effects of consumers' characteristics, such as price consciousness and needs for cognition (NFC), have not been examined. Such characteristics have been shown to significantly affect consumers' responses to price promotions (e.g., Inman, Peter, & Raghubir 1997; Lichtenstein, Ridgway, & Netemeyer 1993). Finally, we examine whether the two frames influence the quality perception of an advertised product. To the best of our knowledge, no study to date has looked into this effect. We believe the current study is worthwhile and would lead to a better understanding of consumer responses to advertisements promoting discounts.

### **Conceptual Framework**

#### *Saving Presentation Frames*

Chen et al. (1998) was the first study that directly compared the percentage-discount and absolute-discount frames. In the context of a direct-mail advertisement with a 10% discount, they found that perceived savings were higher when the absolute-discount frame was presented for a high-priced product (personal computer). Alternatively, for a low-priced product (a box of floppy disks), the percentage-discount frame produced greater perceptions of savings than the absolute-discount frame. A subsequent study by Hardesty and Bearden (2003, Study 3) had a deeper exploration of this subject than Chen et al. (1998). Replicating four product categories (toothpaste, trash bags, detergent, and hand lotion), the results showed that differences in value perceptions between the two frames were insignificant when a moderate discount depth (25%) was offered. However, for a high discount depth (50%), perceptions were better when a percentage-discount frame was presented. Later, a meta-analysis of 20 articles by

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Krishna, Briesch, Lehmann, and Yuan (2002) examined the relative importance of various price presentation factors on perceived savings. This analysis included examining the absolute-discount and percentage-discount frames and reported that both raised perceived savings, but the impact of the percentage discount was larger than that of the absolute discount.

The next three studies examined the effect of the saving presentation frame on consumers' price estimates. First, Chandrashekar and Grewal (2006) examined the effect of the two frames on consumers' adjustment of internal reference prices of a pack of batteries. The prices were measured before and after observing a retail ad. They presumed that the percentage-discount frame was congruent with how consumers process savings information in that they pay more attention to the sale price when the percentage discount, rather than the absolute discount, was presented. As expected, the results revealed that the change in the internal reference prices was stronger at a percentage discount and when consumers' prior internal reference prices were lower than the sale price (perceived loss). Second, Bambauer-Sachse and Dupuy (2012) expanded Chandrashekar and Grewal (2006) by including two moderators: consumers' confidence in estimating prices and product involvement (high for jeans and low for shirts). They showed that the absolute-discount frame generated a more significant change in internal reference prices than the saving frame when consumers were less involved and less confident. Conversely, the percentage-discount frame generated a larger change in internal reference prices than the absolute-discount frame when consumers were more involved but less confident. Third, DelVecchio, Krishnan, and Smith (2007) examined the effects on consumers' expected price in their next shopping trip. They used a simulated-store context where six hypothetical brands of shampoo were displayed on a shelf. It revealed that a high discount depth (43%) presented with a percentage-discount frame leads to a higher expected price of the focal brand compared to when it was presented with an absolute-discount frame. For the low-depth discount (13%), the expected price did not differ between the two frames.

A more recent study by Suri, Monroe, and Koe (2013) focused on consumers' math anxiety, defined as the tense feeling that interferes with manipulating numbers and solving mathematical problems. They demonstrated that consumers with high math anxiety preferred the absolute-discount frame more than the percentage-discount frame because the former was easier to process. Those with low math anxiety showed no difference in preference toward the two frames. Finally, Coulter and Roggeveen (2014, Study 2) examined the effects of numbers indicated as retail price, sale price, and absolute-discount frame. They presumed that if these numbers were multiples of one another, they would be fluently processed and would therefore be better evaluated. The regular price was set at \$58, the sale price \$29, the absolute-discount frame \$29, and the percentage-discount frame 50%. They then compared four cases by varying the numerical information and the presentation order in an advertisement: regular/sale/absolute/percentage, regular/sale/percentage/absolute, regular/sale/absolute, and regular/sale/percentage. The result was that the fourth

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combination, which had a multiple of only two numbers (regular price \$58/sale price \$29/percentage discount 50%), had lower processing fluency, deal liking, and purchase intention than the other three combinations.

The above evidence suggests that the percentage- and absolute-discount frames generate different consumer responses. However, one problem identified here is that the price information presented to participants is inconsistent across the studies. For example, Chen et al. (1998) and DelVecchio et al. (2007) presented a regular price but not a sale price, Bambauer-Sachse and Dupuy (2012) presented a sale price but not a regular price, and Chandrashekar and Grewal (2006) presented both. Accordingly, the findings are too varied to be generalized. This is therefore the focus of this article: to investigate the effect of saving presentation frames by systematically manipulating the additional price information presented to participants. More specifically, we compare the price frames where only the regular price is presented, where only the sale price is presented, and where both prices were presented in addition to the saving frames. We targeted regular and sale prices because these are basic discount-related information. No study to date has performed this comparison, so this may lead to a richer understanding of consumer perceptions toward saving presentation frames.

We presume that the three basic price frames may elicit different consumer perceptions. Berkowitz and Walton (1980) showed that a sale price with a percentage-discount frame was less preferred than a regular price with a sale price. Della Bitta et al. (1981) showed that presenting a sale price only had a lower perceived value than a regular price with an absolute-price discount. These results imply that consumer preference on sale price depends on the saving presentation frame. We predict that a sale price would be most preferred when the absolute-discount frame is presented with it, compared to other cases because this information includes the amount they have to pay and the amount they can save simultaneously. Presenting a sale price is expected to be more valued than a regular price since consumers are generally more interested in the price they have to pay.

### *Consumer Characteristics*

We also looked into the moderating effects of two consumer characteristics—price consciousness and needs for cognition (NFC)—to understand the underlying process of consumer responses to the saving presentation frames. These concepts have been widely adopted in consumer behavior research. Price consciousness is defined as the degree to which the consumer focuses exclusively on paying low prices (Lichtenstein et al. 1993). Consumers with high price consciousness were found to spend more time looking at store ads, buy more products on sale, and spend more money on such products (Lichtenstein et al. 1993); they also have a narrower latitude of acceptable prices (Lichtenstein, Block, & Black 1988), use firms' messages in judgments (Inman et al. 1997), and have higher store brand usage (Ailawadi, Neslin, & Giadenk 2001) compared to those with a low price consciousness. Another characteristic, NFC,

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refers to the tendency to engage in effortful cognitive activities (Motyka, Grewal, & Kohlli 2016). High-NFC consumers, compared to low-NFC consumers, tend to be less influenced by purchase quantity limits (Inman et al. 1997), have an increased store brand usage, have lower out-of-store promotion usage (Ailawadi et al. 2001), have higher acceptable-price limits, and have higher value perceptions on price presentations using disfluent fonts (Motyka et al. 2016).

Based on these findings, we predict consumers with low price consciousness and low NFC are more susceptible to price and saving frames in advertisements because they tend not to process such information deliberately compared to those with high price consciousness and high NFC.

### Method

#### *Design and Stimulus*

This study adopted a controlled experimental method with a three (price frame) by two (saving frame) between-subjects design. The three levels of the price frame presented both regular and sale prices (RP+SP frame), regular price only (RP-only frame), and sale price only (SP-only frame). The two levels of the saving frame were absolute discount and percentage discount. The price and saving frames were manipulated in a print advertisement of a fictitious new brand with a brief product description. Crossing the two frames resulted in the six advertisements. All had the same economic value. Participants were randomly assigned to one of the questionnaires incorporating an assigned advertisement, a scenario, and related questions.

A laptop computer was used as the experimental stimulus. This selection was based on certain criteria. First, most participants had some knowledge of the product's features and prices; thus, they could easily visualize the product. Second, it was usually interesting to most participants because they frequently use the product. Third, both males and females could be shoppers of the product. A pretest conducted with 18 students indicated that the perceived reasonable mean price was JPY88,472, the approximate conversion being \$1 = JPY100. We also checked a large Internet shopping site that allows consumers to compare laptop prices and brands in various online stores. Based on this, we set the regular price at JPY90,000. A moderate price discount of 25% was selected following Hardesty and Bearden (2003). Accordingly, the sale price became JPY67,500.

#### *Procedures and Measures*

The sample consisted of 159 undergraduate students from a major university. Questionnaires were administered by paper and pencil in a classroom setting. Participants were asked to imagine shopping for a new personal computer

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and stumbling upon a print ad. After seeing it, they evaluated the advertised offer based on the following dimensions: perceived savings (three items; Biswas and Burton 1993, 1994), price perception (two items; Voss, Parasuraman, and Grewal 1998), quality perception (two items; Dodds, Monroe, & Grewal 1991), and shopping intention (three items; Biswas and Burton 1993, 1994). All were measured on a seven-point scale. Multiple responses were averaged to form each index ( $\alpha = 0.87$  for perceived savings;  $r = 0.52$ ,  $p < .000$  for price perception;  $r = 0.5$ ,  $p < .000$  for quality perception; and  $\alpha = 0.89$  for shopping intention). Furthermore, two consumer characteristics were measured using a seven-point agreement scale: price consciousness (Lichtenstein et al. 1988) and NFC (18 items; Cacioppo & Petty 1984). NFC responses were then averaged to form an index ( $\alpha = 0.87$ ). The two characteristics were finally divided into high and low groups following the median split (4.4 for price consciousness, 5.0 for NFC).

### Results

Table 1 shows the means for each treatment. We first carried out a two-way ANOVA involving price frame and saving frame as independent variables for each of the four dependent variables. It revealed the price frame's significant main effect on shopping intention ( $F(2, 153) = 3.6$ ,  $p < .05$ ). Subsequent multiple comparison tests showed that the SP-only frame condition had a higher shopping intention than the RP-only frame condition; the mean score of RP+SP was between the two conditions, but no significant differences between them were detected ( $M_{RP+SP} = 4.3$ ,  $M_{RP} = 3.8$ ,  $M_{SP} = 4.5$ ). The main effect of the saving frame was significant on perceived savings ( $F(1, 153) = 3.8$ ,  $p < .05$ ), price perception ( $F(1, 153) = 7.1$ ,  $p < .01$ ), and shopping intention ( $F(1, 153) = 3.4$ ,  $p < .1$ ). For all variables, the absolute-discount frame had higher mean scores than the percentage-discount frame ( $M_{Percentage} = 5.4$ ,  $M_{Absolute} = 5.7$  for perceived savings;  $M_{Percentage} = 4.2$ ,  $M_{Absolute} = 4.7$  for price perception;  $M_{Percentage} = 4.0$ ,  $M_{Absolute} = 4.4$  for shopping intention). No significant interaction effect was found between the two factors.

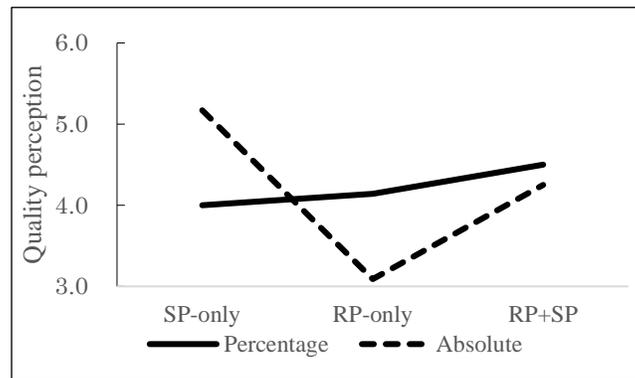
**Table 1.** Means of dependent variables across conditions

	RP+SP		RP-only		SP-only	
	Percentage	Absolute	Percentage	Absolute	Percentage	Absolute
Perceived savings	5.74	5.67	5.19	5.58	5.30	5.96
Price perception	4.13	4.85	4.11	4.41	4.42	4.98
Quality perception	4.17	4.15	4.41	4.02	4.61	4.40
Shopping intention	4.09	4.42	3.68	4.00	4.25	4.71

Next, we conducted a three-way ANOVA for each dependent variable by including price consciousness as a moderator. Surprisingly, a three-way interaction effect among price frame, saving frame, and price consciousness was

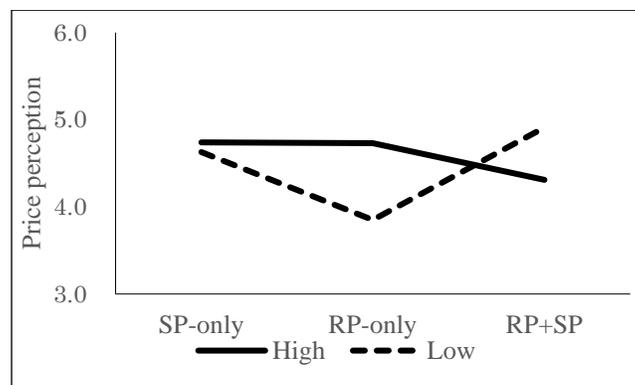
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revealed only for quality perception ( $F(2, 147) = 4.1, p < .05$ ). A separate analysis for high- and low-price-consciousness groups confirmed that the interaction effect between price frame and saving frame on quality perception was significant for the low group ( $F(2, 55) = 4.9, p < .01$ ; see Figure 1) but not for the high group ( $F(2, 92) = 0.8, n.s.$ ). Simple tests for the low group found that the absolute-discount frame generated a higher quality perception than the percentage-discount frame in the SP-only frame condition ( $p < .05$ ); this phenomenon was reversed in the RP-only frame condition. In the RP+SP frame condition, quality perception did not differ between the two discount frames.



**Figure 1.** Moderating effect of price consciousness: Low group

Moreover, a significant two-way interaction effect between price frame and price consciousness was confirmed for price perception ( $F(2, 147) = 4.5, p < .05$ ) as shown in Figure 2. Simple tests found that the low group had a lower price perception than the high group in the RP-only frame condition ( $M_{High} = 4.7, M_{Low} = 3.6, p < .01$ ) while the high group had a lower price perception than the low group in the RP+SP frame condition ( $M_{High} = 4.3, M_{Low} = 4.9, p < .05$ ).



**Figure 2.** Moderating effect of price consciousness

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A moderating effect of NFC was found, as the three-way interaction among price frame, saving frame, and NFC on quality perception became significant ( $F(2, 147) = 4.0, p < .05$ ). A separate two-way ANOVA for high- and low-NFC groups confirmed a significant interaction effect between price frame and saving frame for the low group ( $F(2, 72) = 3.6, p < .05$ ). The pattern is similar to the interaction effect for low price consciousness. Subsequent simple tests for this group revealed that the absolute-discount frame led to a higher quality perception than the percentage-discount frame in the SP-only condition ( $p < .1$ ) whereas the absolute-discount frame generated a lower quality perception than the percentage-discount frame in the RP-only frame ( $p < .05$ ).

### General Discussion

This article examined how the price frame and saving frame in a price-discount advertisement can affect consumer perceptions. Several significant findings were derived from the study. First, the sale price generates a better shopping intention. Presenting the sale price with the regular price does not seem important in this context. However, displaying the regular price alone is not enough to increase the shopping intention despite the presence of saving information. Second, the saving frame influences consumer perceptions regardless of the price frame. The absolute-discount frame is better at generating perceived savings, price perception, and shopping intention than the percentage-discount frame. This is consistent with the findings of Chen et al. (1998), which showed that the absolute-discount frame increased perceived savings for a high-priced product (a personal computer). We additionally showed that this phenomenon occurs regardless of the price frame. Third, consumers' price consciousness influences the effect of the price and saving frames on quality perception. Consumers with a low price consciousness perceive an advertised product as having better quality when the sale price is presented with the absolute-discount frame rather than the percentage-discount frame. Conversely, when the regular price was presented with an absolute discount, consumers showed lower quality perception compared to when the regular price was displayed with a percentage discount. Fourth, price consciousness moderates the effect of the price and saving frames on price perception. Low-consciousness consumers do not generate price perception as soundly as high-consciousness consumers when a regular price was presented, but such perception becomes better than that of high-consciousness consumers when both regular and sale prices were shown. Finally, consumers' NFC influences quality perception. Low-NFC consumers perceive an advertised product as having better quality when the sale price is displayed with the absolute-discount frame compared when it is shown with the percentage-discount frame. Conversely, when the regular price was presented with an absolute discount, consumers had lower quality perception compared to when the regular price came with a percentage discount.

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These results indicate that retailers should be cautious of selecting the price information presented to consumers when offering discounts. Providing only the regular price should be avoided although saving information is present. In particular, low-price-consciousness and low-NFC consumers do not prefer such information. As for the saving presentation frame, using absolute discounts is more preferable than percentage discounts. Remarkably, consumers with low-price-consciousness and low-NFC have an increased quality perception of an advertised product when the sale price and the absolute-discount frame are presented together. This is a rather new finding, as no studies have explored the impact of the price and saving frames on consumers' quality perception.

For future research, it may be interesting to conduct the same analysis for frequently purchased products such as food or daily necessities. Since consumers are highly familiar with such products as well as the shopping environment, they may simply focus on the sale sign and not necessarily spend much time processing the advertised information. These consumers may not appreciate information such as the regular price because it is simply unimportant to them.

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