The Effects of Stackable Discounts on Consumer Product Evaluations

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Abstract

Stackable discounts are defined as two or more discounts that can be combined together on the same item to result in a bigger discount. Despite the increasing popularity of this practice in the marketplace, past research provides little evidence about the effectiveness of such discounts. For instance, compared to single discounts, offers using stackable discounts generally require more cognitive effort to process price information. This research presents a conceptualization that comprehensively examines the impact of stackable discounts on consumers’ evaluation of discounted offers by examining the economic and informational dimensions of such discounts. A set of hypotheses was developed regarding stackable discounts’ effect on perception of savings and perception of product quality, compared to an economically equivalent single discount.
The Effects of Stackable Discounts on Consumers’ Product Judgments

Price discounting is a common practice used by selling organizations to induce product trial and repeat purchases by new and current customers. Consumer product companies spend almost a quarter of their marketing budget on consumer promotions (Raghubir, Inman, and Grande 2004). Research on price promotions has found that consumers evaluate deals differently depending on how the promotion offer has been presented or “framed” (Chen, Monroe, and Lou 1998; Kim and Kramer 2006; Sinha and Smith 2000; Thaler 1985). However, such research has mostly focused on single discount scenarios. Even though some researchers have considered multiple price changes, they set up their studies in a multi-product context (Mazumdar and Jun 1993).

This research focuses on a relatively new form of price promotion on a single product – stackable discounts. By stackable discounts, we refer to more than one discounts that can be applied on the same item. The practice of stacking discounts has become a popular saving strategy for consumers, especially those that are budget conscious. Retailers have also discovered that it is an excellent way to draw customers into their stores. For example, a $100 shirt could be discounted 20% in the store’s seasonal sales and discounted an additional 10% in a “3-hour special” promotion. Online deal finders such as www.dealsea.com also promotes such use of stackable discounts by bringing together stackable discounts available for a brand or a product and summarize the information in a succinct way to consumers. Some companies even experimented with stackable discount coupons, an example being Foot Locker issuing coupons that announce “take 30% off your in-store or online purchase plus get an additional 10% off when you spend $100 or more after 30% discount.” The proliferation of stackable discounts in the marketplace is in stark contrast with the scarce research conducted on this topic. This paper is committed to study double stackable discounts that are both in percentage forms. In contrast to single discount offers, stackable-discount offers
generally require much more cognitive effort by consumers to process price information to get accurate estimates of the actual price to be paid. Furthermore, stackable discounts are offered in various forms and the “framing” may induce different effects on consumers. The focus of this research is to examine the impact of stackable discounts on consumers’ psychological response towards the offer compared to an economically equivalent single discount. Specifically, this research aims to explore the underlying mechanisms that direct consumer responses to stackable discount offers, including the economic, informational, and affective dimensions that are important to understand a promotion’s impact. Such findings in turn would help retailers make wiser decisions as to use stackable discounts or rather an economically equivalent single discount.

The following sections review the literature on consumers’ cognitive processing, price-quality-value framework, and affective reactions to promotions. Specific hypotheses about the effects of stackable discounts are developed and tested using experimental methods. Implications of using stackable discounts in the promotions are discussed.

**CONCEPTUAL DEVELOPMENT AND HYPOTHESES**

Prior research on stackable discounts has been scarce. But two research efforts (Carlson 2001; Chen and Rao 2007) offer some preliminary insights into the stackable discounts effect. Both argue that stackable discounts enhance consumers’ perception of promotion savings and purchase intentions compared to an economically equivalent single discount. However, neither paper attempted to understand the underlying process consumers go through when evaluating stackable discounts. Are consumers more excited when they encounter stackable discounts rather than a single discount of the same value? Are they getting anxious about the complex computation required to understand the true value of stackable discounts so that they take the “whole number dominance”
heuristics described by Chen and Rao’s (2007) as a short cut? The previous two studies gave no indication of what underlies the positive stackable discounts effect.

Another concern with the previous research is that the boundary conditions for this positive stackable discounts effect were not fully explored. Notably, all of the experiments reported in these two papers used low price items as stimuli (watch, gasoline, textbook, and cutting board). It is not clear whether their findings could generalize to high price items as well. Chen and Rao (2007) implied that lack of cognitive resources to process the stackable discount units could be one factor that motivated consumers to instinctively make the systematic computational error (p. 328). If this is the case, then would additional cognitive burden drive consumers to engage in other coping mechanisms that are even easier to deal with and lead to an opposite conclusion (i.e., lower perception of savings)? This is one of the motivations of this research and the intention is to provide a cognitive account of why and when the perceived savings associated with stackable discounts is higher or even lower than that with an economically equivalent single discount.

**Cognitive Route: How Consumers Process Stackable discounts**

The approaches used by consumers to process stackable discounts can vary depending on the particular situations and different consumer characteristics. But it is helpful to divide the processing strategies into several general categories to understand how the serial discounts are weighted and combined. According to dual processing theories, such as the heuristic-systematic model developed by Chaiken (1980), information is processed either systematically or heuristically.

**Systematic processing**

If consumers use systematic processing with stackable discounts, then they have to calculate the overall discount magnitude and the sale price through several arithmetic computations. What makes stackable discounts distinctive relative to a single discount is partly due to the arithmetic
operations required to obtain an “accurate” estimate of the final selling price. For example, to
determine the value of stackable discounts such as “an additional discount of 20% on top of an
original discount of 20%,” the overall discount is $1-(1-20\%)x(1-20\%) = 1-64\%=36\%$. Then the sale
price is the regular price multiplied by (1-36\%). When the regular price is listed, such as $100, an
alternative approach is to follow this two-step calculation: $100x(1-20\%)=$80, and $80x(1-
20\%)=$64. Both serial calculations involve multiple “subtractive-multiplicative” problems, requiring
substantial computational effort by consumers (Estelami 2003). On the other hand, stackable
discounts complicate the price information and require consumers to hold more pieces of information
in mind while evaluating the price. Vanhuele, Laurent, and Dreze (2006) highlighted the cognitive
challenges of storing prices in working memory and retrieving them even for consumers in an
optimal learning situation. It is expected that retaining multiple pieces of discount information and
conducting calculations in working memory at the same time represents an even more intimidating
challenge to consumers. The difficulty increases dramatically when more extra discounts are offered,
or when the numbers representing the list price become longer or discounts become more complex
(e.g. 17\% instead of 20\%).

If this computation of stackable discounts could be performed correctly, consumers’
perception of savings for stackable discounts and an equivalent single discount should be identical.
However, considering the effort and skills required for this arithmetic, only consumers competent in
mathematics and motivated to do the numerical calculations may be able and willing to expend the
cognitive effort to process the discount information accurately (Petty and Cacioppo 1986). Most
consumers, however, may rely on simplifying heuristics rather than engaging in more accurate, but
more difficult, mental arithmetic. In the following, several typical heuristic approaches are proposed
and special attention is drawn to the conditions under which specific heuristic processing is applied
by consumers and the consequences of utilizing such heuristics.
Heuristic Processing

(1) Systematic computational error

In the stackable discounts context, one possibility is that consumers perceive each discount to be independent of each other, therefore mistakenly add up the individual discount in estimating the overall discount. On the other hand, consumers may have learned over time that adding stackable discounts generates a result that is not too far away from the correct discount level. Therefore, using the same example earlier, consumers may simply add 20% + 20% = 40% and perceive a higher discount than the actual discount of 36%.

The accuracy-effort trade-off explanation got some support from Chen and Rao (2007), as they found experts, as well as novices, tend to use approximations to determine the actual final price. Using addition as a heuristic in the context of stackable discounts always results in an upward bias regarding the overall discount level. Consumers may prefer using this simplifying heuristic, even if they are aware of the upward bias, because it requires less cognitive effort than calculating the exact total discount (Ashcraft 1992; Johnson and Payne 1985). Chen and Rao (2007) conceptualized this heuristic as a systematic computational error and found such error to be quite prevalent in various settings.

A presumption with this systematic computation error argument is that consumers process the stackable discounts quite thoroughly. That is, consumers would treat the stackable discount units as equally salient and therefore allocate equal attention to each discount unit. However, when consumers’ cognitive resources are taxed with multiple tasks or much of the attention is drawn to a specific aspect of the product (such as high price), less attention would be allocated to the discount information. If this happens, then more likely only the first discount, or the largest discount unit, is given adequate consideration, while the rest of the discounts are somewhat neglected by the
overwhelmed consumer. As a result, consumers should underestimate the total discount, contrary to the predictions of Chen and Rao (2007).

(2) Numerosity cue bias

Quite often consumers are influenced by numerosity, or the number of units into which a stimulus is divided, when forming judgments (Pelham, Sumarta, and Myaskovsky 1994). Presumably this is because numerosity and size are typically highly correlated. For example, an eight-room house is usually larger than a five-room house. Consumers especially rely on the numerosity heuristics when their cognitive resources are limited or they lack motivation to thoroughly process information (Petty and Cacioppo 1984). In the pricing literature, Alba and his colleagues (Alba et al. 1999; Alba et al. 1994) studied the effect of temporal distribution of price discounts and found that consumers use both frequency and magnitude of discounts as cues to infer lower average price. When the magnitude of discounts was not salient, frequent and shallow discounts were perceived to have lower average cost than infrequent and deep discounts. This frequency effect was reversed, however, when the magnitude of discounts (discount size) becomes more salient (Lalwani and Monroe 2005).

Since stackable discounts contain more pieces of discount information than an single discount, numerosity serves as a plausible candidate in influencing consumers’ deal evaluations and perceived savings. Specifically, consumers may be influenced by numerosity when encountering stackable discounts such that stackable discount offers are perceived to provide larger overall savings than an equivalent single discount.

(3) Partial discount information bias: Anchoring and Adjustment

Another heuristic process is for consumers to pay attention to just partial discount claims but ignore the rest of the discounts, or discount the other discounts more heavily (Gupta and Cooper 1992). For example, when consumers see the promotion claim “get 20% discount off” and “an
additional 10% off,” they may focus their attention on the first piece of information but less
influenced by the second piece of information. If this happens, consumers could conclude a smaller
discount level than the actual sale with stackable discounts. This underestimation is more likely to
occur when some of the sub-discounts provided within the stackable discounts offer are very small,
or consumers are mentally taxed with information overload, or consumers view the provision of
additional discounts as uncertain (Nelson 2005).

Tversky and Kahneman (1974) proposed this anchoring and adjustment heuristic in which the
anchor would exert some drag on the subsequent process of adjustment, such that adjustments tend to
be insufficient and final estimates are close to the original anchor. The initial anchor could be
suggested by the formulation of the problem, or it could also be the result of a partial computation.
Tversky and Kahneman (1974b) reported a study of intuitive numerical estimation. Two groups of
students estimated two numerical expressions that had equal answers (8x7x6x5x4x3x2x1 vs.
1x2x3x4x5x6x7x8) within a short period of time (5 seconds). It was conjectured that people
performed a few steps of computation and then estimated the product by extrapolation or adjustment.
Because the first few steps of multiplication were taken as the anchor, it made the expression in
descending sequence to be judged as larger in value than the one in ascending sequence. The
estimates by the students also confirmed that both expressions led to underestimation due to
insufficient adjustment.

The study sheds light on what is happening with stackable discounts estimations. If
consumers take a sequential estimation of the stackable discounts, then the first discount is applied to
the original price and the calculated price is used as a self-selected anchor for subsequent adjustment.
Because people often stop adjusting once they arrive at a minimally satisfactory estimate (Epley and
Gilovich 2006), the adjustment tends to be insufficient and close to the anchor value. Such
insufficient adjustment is more evident when people are under high cognitive load (Epley and
Gilovich 2006). Therefore, in situations where consumers have limited cognitive resources to process price information, they are inclined to rely on anchoring and adjustment heuristic to process stackable discount information.

Another stream of research has shown that consumers tend to discount discounts because they are skeptical of discounts in general (Obermiller and Spangenberg 1998; Urbany et al 1988). Consumers may become more skeptical when more discount units are offered and hence consider only one discount in their price evaluations. In either case, the insufficient adjustment or ignorance of extra discount units could result in lower estimation of savings associated with the discounts.

(4) Mental Accounting Principles

Thaler (1985) argued that individuals form an implicit mental accounting system to organize information. When compound outcomes come into consideration, the segregation or integration of the outcomes (i.e., gains/losses) produces different levels of utility. The value function (Kahneman and Tversky 1979) is defined as deviations from a reference point (i.e., the original price/regular price), and is concave in the domain of gains and convex in the domain of losses. Prior literature suggests that discount promotions are usually associated with gains, as least among American consumers (Kramer and Kim 2007). Hence, segregation of discounts should bring greater utility to consumers than integration because of the concave nature of the value function for gains.

However, in order for mental accounting principles to demonstrate, a premise is a categorization process that assigns activities to specific mental accounts (Thaler 1999). Such mental accounts often are formed on naturally developed categories. For example, Brendl, Markman, and Higgins (1998) argue that mental accounts are typically set up around salient goals. Price bundling literature suggests that mental accounts are organized around product categories within the product bundle (Soman and Gourville 2001; Yadav 1994).
In the multiple discounts context, consumers also need some cues to separate the stackable discounts into distinctive units, so that mental accounting could lead to higher perception of savings than a single discount. Consumers may be able to detach the individual discounts from each other if the discounts are presented to them via distinctive media, or separated temporally or spatially. For example, consumers getting a discount from an in-store sale and another discount from a free-standing insert (FSI) coupon may view the two discounts slightly differently (Folkes and Wheat 1995). The store-wide discount may be considered as a windfall gain while the FSI coupon may be considered as a result of intentional effort. As a result, two mental accounts are activated and both discounts receive equal attention from consumers. However, if the discounts are embedded within one paragraph statement or even one sentence, consumers may have difficulty segregating the gains. This may explain Chen and Rao’s (2007) lack of support for mental accounting principles in their study of sequential percentage changes.

Summary

Overall, the above analysis shows that if consumers rely on heuristics to evaluate the overall discount level, some heuristic strategies (systematic computational error, numerosity cue, and mental accounting) tend to inflate the perceived savings compared with an economically equivalent single discount, yet the heuristic of anchoring and adjustment predicts the opposite. The boundaries for each heuristic to take place lies in the amount of attention paid to the stackable discount units. When consumers process stackable discounts carefully and give equal weight to the stackable discount units, systematic computational error or mental accounting principal render higher perception of savings with stackable discounts. When consumers pay limited attention to the stackable discount units, two competing heuristics lead to different predictions. The anchoring and adjustment heuristics predicts lower perception of savings with stackable discounts due to insufficient adjustment. The
numerocity cue reasoning expects higher perception of savings with stackable discounts as the number of discounts is used as a cue for savings. These are summarized as our first set of hypotheses:

**H1a:** When consumers pay full attention to the multiple discount units, systematic computational error and mental accounting principles lead to higher perceptions of savings than an economically equivalent single discount.

**H1b:** When consumers pay less attention to the multiple discount units, anchoring-and-adjustment heuristic leads to lower perception of savings than an economically equivalent single discount.

**H1b-competing:** When consumers pay less attention to the multiple discount units, numerosity cue heuristic leads to higher perception of savings than an economically equivalent single discount.

**Price Salience Caused by Stackable Discounts**

In a price discount context, consumers have to face multiple price components: the original price and the discount information. With stackable discounts, there are two pieces of discount information, the first and the second discount. Estelami (2003) defined discounted price as a type of multi-dimensional price (MDP). Arguably, the perception of a MDP is determined by the salience of the price components (Kim and Kachersky 2006). If consumer attention is disproportionately turned to the regular price rather than the discounts units in the discounted price context, discounts should be discounted more heavily by consumers either because of insufficient adjustment or inadequate information processing (Estelami 2003).

The distinction between a single discount and stackable discounts partly lies in the frequency discounts are presented. In studying discount retraction, Wathieu, Muthukrishnan, and Bronnenberg (2004) argued that the posting and retraction of temporary price discounts focuses consumer attention increasingly on price and subsequently elevate its importance in decision making as a sacrifice cue. Similarly, by posting multiple discount units, stackable discounts should have a similar effect on consumers by sensitizing them to the regular price. As a brand with high regular price is not typically assumed by consumers to compete on the basis of price, using stackable discounts should
be perceived as even more unusual and cause price salience. Consumers interpret the high price as higher monetary sacrifice and allocate more attention to the regular price. In comparison, stackable discounts offered on a cheaper brand, being more congruent with the brand’s positioning, should cause less attention on the regular price.

Following this line of thinking, price level becomes a moderating factor in considering the effects of stackable discounts. High price takes away attention from the stackable discount units and hence promote the anchoring and adjustment heuristic. Low price may have the opposite effect but that is less certain. Accordingly, we propose the second hypothesis:

**H2:** When product price is high, multiple discounts leads to (1) lower perceptions of savings, and (2) higher perception of sacrifice, than an economically equivalent single discount.

**Informative Role of Price and Price Promotions**

**Price-Quality-Value Model**

Price is one of the most important factors that influence consumers’ purchase decisions, and is used to infer both a product’s quality and the monetary sacrifice associated with a purchase (Dodds, Monroe, and Grewal 1991). Extensive research has established the price-quality relationship. When other information regarding the product’s quality is not available, or when consumers’ cognitive resources are constrained, price is more likely to be used as a heuristic cue to infer quality. That is, consumers would consider a product with high price to have high quality and vice versa (Monroe 2003). Conversely, when other relevant information is available to make a judgment and consumers are able and motivated to process the information, price is more likely to serve as an indicator of monetary sacrifice (Rao and Monroe 1988). For example, Rao and Monroe (1988) found evidence that, with increased product familiarity, people increasingly used intrinsic (versus extrinsic) product quality cues to make quality judgments. The greater the amount of other information available, the smaller will be the effect of price on perceived quality (Rao and Monroe 1988). Suri and Monroe
(2003) extended the framework by studying the effects of time constraints on consumers’ processing of price information and concluded that both motivation and ability to process information influence the role of price in product evaluations. When motivation is low and time pressure is moderate, or when motivation is high and there is no time pressure, consumers process information systematically and place relatively more weight on the price-sacrifice relationship. Yet when time pressure is either high or low in low motivation conditions, or when time pressure is high in high motivation conditions, consumers process information heuristically and place more weight on the price-quality relationship.

**Moderating Role of Price Discounts**

Pricing researchers have long been aware that consumers’ perceptions of prices is affected by the way discounts are presented to them (Alba et al. 1999; Inman, McAlister, and Hoyer 1990; Krishna et al. 2002; Tsiros and Hardesty 2006). When there is uncertainty about brand attributes, price is an important signal of quality and price discounts would have negative effect on brand equity (Darke and Chung 2005; Erdem, Keane, and Sun 2008; Shiv, Carmon, and Ariely 2005). Taking the dual-role-of-price approach, Raghubir and Corfman (1999) argued that because price promotions reduce price and because lower prices are associated with lower quality, when there is no other information diagnostic of quality, price promotions will lead to inferences of lower quality. However, one limitation of the above research is that no regular or sale prices were provided to the participants in their experiments. Consumers respond to price promotions quite differently depending on the price positioning of the brands (Bridges, Briesch, and Yim 2006; Bronnenberg and Wathieu 1996; Lemon and Nowlis 2002). In a single discount context, Lemon and Nowlis (2002) found that high-tier (high price, high quality) brands benefit more from price promotions than low-tier (low price, low quality) brands when they are evaluated separately. It is possible that consumers have a more robust
perception of quality with high-price brands than with low-price brands. Therefore, with a single discount, high price brands are associated with higher perception of quality than low price brands.

However, by further complicating the price presentation, stackable discounts may affect the price-perceived quality relationship very differently. As the sale price is difficult to calculate, even if consumers still use price as an indicator of product quality, they have to synthesize their judgment based on three distinct pieces of price: the regular price, the first discount, and the second discount. Overall, the discount units may play a bigger role in influencing consumers’ judgment of product quality than the regular price. Hence, while we expect to see a positive relationship between regular price and quality perception in the single discount condition, we suspect stackable discounts would make the regular price less likely to be used as a product quality. As a result, different price level would have no effect of perception of product quality in the stackable discounts condition.

**H3a:** In the single discount condition, high price leads to higher perception of quality than low price.

**H3b:** In the stackable discounts condition, there is no difference on perception of quality between the high price and low price conditions.

As perception of value is a tradeoff between perception of quality and perception of sacrifice, it is hypothesized that discount formats and price level will have an interaction effect on perception of value. More specifically,

**H4a:** For high price products, consumers perceive higher value with a single discount than with stackable discounts.

**H4b:** For low price products, consumers perceive lower value with a single discount than with stackable discounts.

**METHOD**

**EXPERIMENTAL STUDY**
The study investigated whether price level within the product category influenced the evaluation of stackable discounts. Camcorder was selected as the product stimulus in this study because it has a wide price range from $200 to $1000 in the market place. Two price levels were used, where $989 represents a high price level for the camcorders, and $289 represented a low price level for the camcorders. An investigation from online stores (e.g., Bestbuy.com) and consumer reports (consumerreports.org) helped to identify five key attributes for evaluating digital camcorders.

**Participants and Design**

Seventy-six undergraduate students (50% male; average age: 21; age range: 19-40) enrolled in an introductory marketing class participated in the study to earn extra course credit. It was a 2 (price level: $989 vs. $289) x 2 (discount format: single discount vs. stackable discounts) between-subject design. Each cell ranged from 17 to 21 participants.

**Apparatus and Stimuli**

The experiment was conducted using DirectRT software running on IBM personal computers with a 14.1-in. color screen display, or equivalent. The program recorded the time a subject spent processing each question, and was accurate to one millisecond. The program delivered the instructions for the study, in the form of screens filled with picture, text, and the decision problem. The stimuli were colored pictures and text against a white background. Each question was presented on a single screen. Participants indicated their responses by clicking the keyboard. This choice was also recorded by DirectRT. See Figure 1 for an example of the question screen for participants.

 Procedure

Participants were recruited using an email announcement and randomly assigned to one of the eight experimental conditions when they came to the lab. Participants were then informed about
the study and asked to follow the instructions on the screen. The questions remained on the screen until a response was made. The participants used number keys in computer keyboard to indicate their answers to scale questions, or input words to open-ended questions. The participants were asked to respond as quickly as possible, while being accurate.

To familiarize the participants with the software and keyboard functions, four practice questions were presented before the main study. In the main study, the participants were told that this study was to assess their preferences and reactions to product information, and they should respond as if they were in a real shopping context. Then in the next screen they viewed a picture of a camcorder (without brand name) with the price information ($989.00 or $289) and four product attributes. Then, a discount coupon was introduced to the participants with the laptop picture, price, and product attributes shown on the same screen. The participants were asked to respond to some emotion adjectives. Next, the participants responded to the dependent variables. Afterwards, the participants were also asked to recall the regular price for the laptop and recognize the discount coupon they saw at the beginning of the study. Demographic information (age, gender) was collected by the end.

Results

A 2 (price level) x 2 (discount format) ANOVA was conducted on perception of savings but no significant result was found. Contrast analysis showed that in the high price condition, stackable discounts led to significantly lower perception of savings than single discount (F (1,39) = 2.76, p < .10, $\eta^2 = .066$; see Figure 2). A test on estimated dollar savings and percentage savings did not yield significant results, but they were in the predicted direction (dollar savings: M_single = ($284 vs. M_double = ($239, F (1,39) = .58, p > .10; percentage savings: M_single = 30(%) vs. M_double = 29(%), F (1,39) = .25, p > .10). An ANOVA on perception of sacrifice did not yield any significant results. A
contrast analysis yielded no difference in perception of savings, perception of sacrifice, or estimated savings across the two discount formats.

------------------Insert Figure 2 about here------------------

An ANOVA on perception of product quality yielded significant results for price level (F(1,72) = 4.00, p < .05) and the interaction between price level and discount format (F(1,72) = 4.41, p < .05; see Figure 3). Consistent with the hypotheses, in the single discount condition, participants reported higher perception of product quality with the high price product than with the low price product (M_{single} = 4.92 vs. M_{double} = 3.92, t(35) = 3.18, p < .01). In the stackable discounts condition, no difference on perception of product quality was identified with the different price levels (t(37) = .065, p > .10).

------------------Insert Figure 3 about here------------------

An ANOVA on perception of value revealed a significant interaction effect between price level and discount format (F(1,72) = 4.59, p < .05; see Figure 4). Specifically, participants reported higher perception of value with the single discount than with the stackable discounts when evaluating a high price product (M_{single} = 4.99 vs. M_{stackable} = 4.37, t_{37} = 2.05, p < .05). The pattern got reversed for low price but was not significant (M_{single} = 4.67 vs. M_{stackable} = 4.92, t_{33} = .96 , p > .10)

------------------Insert Figure 4 about here------------------

Since it was hypothesized that stackable discounts should make a high price more prominent than a low price, the recall of regular price as well as the thoughts on sacrifice in the open protocol should be higher in the high price condition than in the low price condition. The regular price was recalled more frequently in the high price condition than in the low price condition (M_{high} = .19 vs.
A t-test was conducted on the number of thoughts on sacrifice and showed that participants mentioned sacrifice-related issues more frequently in the high price condition than in the low price condition (M_{high} = .72 vs. M_{low} = .44; t_{113} = 2.00, p < .05). A t-test on the proportion of sacrifice thoughts confirmed the finding (t_{113} = 1.95, p < .10). Hence, proportionally more attention was focused on the regular price when price was high.

If the anchoring and adjustment model was supported, then with stackable discounts, the longer the reaction time, the more thoroughly the discounts are processed and the smaller the error in estimation of savings should be. Error was calculated by subtracting the estimated dollar savings from the true savings ($86.70 for the price of $289, and $296.70 for the price of $989). Then error was regressed on reaction time for the participants in the stackable discounts condition. Note that errors calculated in this way were greater than zero. The relationship between errors and reaction times was significant and in the predicted direction (β = .418, p < .01).

**DISCUSSION**

The objective of this research was to explore the effect of stackable discounts on consumers’ product judgments. The results provided tentative support for the hypotheses that (a) stackable discounts lower perception of savings for high-price products compared to an economically equivalent single discount, but not for low-price products, (b) stackable discounts reduce the reliance on regular price to evaluate product quality, but a single discount does not, and (c) high-price products are perceived as higher value with a single discount than with stackable discounts, but not low-price products. The pattern of perception of savings seems to support the anchoring and adjustment model that participants anchored their response on the first discount in the coupon and insufficiently adjusted their evaluations based on the second discount. The estimation of dollar savings was more difficult because the participants needed to take into account the regular price in
addition to the stackable discounts. And we observed the estimated dollar savings were both around $200 ($192.89 for hedonic product and $209.86 for utilitarian product), which represented the savings with only the first discount among the stackable discounts. This evidence supports the idea that consumers stopped their calculation procedures right after considering the first discount on the coupon.

The analysis on perception of product quality supports the price-perceived quality relationship predicted in the hypothesis. With a single discount, consumers were able to infer product quality with the price of the product. Consequently, the higher price was associated with higher perception of product quality. However, stackable discounts occupy much cognitive resources and block the price-perceived quality relationship usually utilized by consumers. The perception of quality did not reflect the price levels.

The findings from Study 2 confirmed the that in high price conditions, stackable discounts on one coupon lowered the perception of savings compared to a single discount due to insufficient adjustment. The examination of reaction times also confirmed the anchoring and adjustment model in that the longer participants took to process the information, the smaller errors they made estimating the dollar savings. But in low price condition, the findings did not support a reversed pattern. This may be due to two factors. One is the price was not low enough, so that participants still were occupied with a sense of loss and did not direct their full attention to the stackable discounts. The other factor could be that the price chosen for the low price level ($289) was considered more complex than the price chosen for the high price level ($989), which increased the difficulty in evaluation in the low price condition. Further research is needed to test even lower price levels to see whether the reverse pattern would emerge.
Reference:


Tsiros, Michael and David M. Hardesty (2006), "Following a Price Promotion: All at Once or a Little at a Time," in *Working Paper*.


Figure 1: Decision Screen as Seen by Participants during Study 2

Figure 2: Effects of Price Level and Discount Format on Perception of Savings
Figure 3: Effects of Price Level and Discount Format on Perception of Product Quality

Figure 4: Effects of Price Level and Discount Format on Perception of Value
Our responsibility is to provide strong academic programs that instill excellence, confidence and strong leadership skills in our graduates. Our aim is to (1) promote critical and independent thinking, (2) foster personal responsibility and (3) develop students whose performance and commitment mark them as leaders contributing to the business community and society. The College will serve as a center for business scholarship, creative research and outreach activities to the citizens and institutions of the State of Rhode Island as well as the regional, national and international communities.

Mission

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