The Influence of Price Discount Framing on the Evaluation of a Product Bundle

CHRIS JANISZEWSKI
MARCUS CUNHA, JR.*

Bundle offers consisting of two or more products often include a price discount. The impact of the price discount on the perceived attractiveness of the bundle has been shown to depend on which product is discounted. It has been argued that discounts are more effective when they are assigned to the product that will receive the most weight in the overall evaluation of the bundle. We propose that the perceived value of the discount may also depend on a referent specific to each product. Six studies are used to provide evidence that (1) price discount framing effects can be explained by reference dependence and (2) that reference dependence and product importance independently contribute to price discount framing effects.

Guiltnan (1987, p. 74) broadly defines bundling as “the practice of marketing two or more products and/or services in a single package for a special (i.e., lower) price.” There are numerous examples of situations where this practice is employed. For example, banks offer lower-priced insurance, credit cards, and financial services when these products are purchased as a bundle. Resorts offer lower-priced airfare, accommodations, and event tickets when these products are purchased as a bundle. Software companies offer lower prices on suites of software (e.g., Microsoft Office). In each case, the seller bundles products in the hope that the consumer surplus (i.e., reservation price less actual price) associated with an attractive product will compensate for the consumer deficit associated with a less attractive product (Adams and Yellen 1976; Drumwright 1992; Schmalensee 1984). The emphasis on using bundling as a strategy for extracting consumer surplus has led to the development of methods for identifying the optimal composition and pricing of bundles for a given distribution of consumer preferences (Hansen and Martin 1987; Venkatesh and Mahajan 1993).

Constructing attractive bundle offers depends on more than an understanding of the distribution of consumer preferences. Consumers are also sensitive to the framing of price information in a bundle offer. For example, there is considerable evidence that partitioning or consolidating the prices of products in a bundle can influence the attractiveness of the bundle offer (Chakravarti et al. 2002; Drumwright 1992; Johnson, Herrmann, and Bauer 1999; Yadav and Monroe 1993). Similarly, there is evidence that an equivalent price reduction to the overall bundle, one of the individual products in the bundle, or distributed among the individual products in the bundle can alter the perceived attractiveness of the offer (Heath, Chatterjee, and France 1995; Johnson et al. 1999; Kaicker, Bearden, and Manning 1995; Mazumdar and Jun 1993; Yadav 1995; Yadav and Monroe 1993). In short, the evaluation of a bundle offer is sensitive to the framing of the prices and discounts in the presentation of the offer.

This research investigates two explanations of why consumers perceive a price discount to one product in the bundle as more or less appealing than an equivalent discount to another product in the bundle. One popular explanation of the price discount framing effect assumes that people differentially weight the evaluations of individual items in the bundle when these evaluations are summed into an overall evaluation of the bundle (e.g., Gaeth et al. 1990; Mazumdar and Jun 1993; Yadav 1995). A weighted additive model predicts that the impact of a price discount on the overall evaluation of the bundle will be greater when the discount is assigned to the more important product in the bundle (Yadav 1995). An alternative explanation of the price discount framing effect is that people evaluate discounted prices relative to referents using a value function (Kaicker et al. 1995; Mazumdar and Jun 1993). It is assumed that the value function for losses is steeper than the value function for gains; hence, it is better to assign a price discount to the product that would have a negative valuation at its...
current offer price than to a product that would have a positive valuation at its current offer price (Thaler 1985, 1999). The value function has been used to explain why bundle prices and price increases should be integrated (e.g., Johnson et al. 1999; Mazumdar and Jun 1993) and why price discounts should be segregated (e.g., Heath et al. 1995; Johnson et al. 1999; Kaicker et al. 1995; Mazumdar and Jun 1993), but it has not been used to explain the differential impact of assigning discounts to individual products in the bundle (i.e., price discount framing).

The goals of this article are to (1) show that reference dependence is a viable alternative explanation of price discount framing effects and (2) document factors that determine when price discount framing effects are more likely to be a consequence of unequal integration weights or reference dependent valuations. To date, investigations of bundling have not used procedures that can differentiate between these two process explanations of price discount framing. In fact, almost all evidence informing us about price discount framing has been interpreted to be consistent with the process described by a weighted additive model (Gaeth et al. 1990; Mazumdar and Jun 1993; Yadav 1995). Given the dominance of the weighted additive model in the literature, we begin with a demonstration that price discount framing can influence bundle evaluations via its differential impact on the perceived value of the individual product offers in the bundle. Next, we show that an existing demonstration of price discount framing that has been attributed to unequal weights (e.g., Yadav 1995) may have occurred because of changes in the perceived value of the discount. Finally, we show that there are situations in which unequal weights can contribute to price discount framing effects.

**BUNDLING**

Multiproduct bundling involves the selling of two or more products or services at a price that is equal to, or lower than, the combined prices of the individual products (Guiltinan 1987). We begin with a discussion of how the bundling of product offers can aid in price discrimination and the extraction of consumer surplus. Then, we discuss the price discounts that often accompany a bundle offer and the benefits of assigning the price discount to a particular product in the bundle. More specifically, we review the weighted additive model and reference dependent explanations of price discount framing effects.

The Economics of Bundling

Firms engage in bundling because it is an effective strategy for extracting consumer surplus in a market of heterogeneous buyers (Adams and Yellen 1976; Stigler 1963; Yadav 1995). To illustrate, suppose that a company has two products, A and B, with zero marginal costs. Also assume that the market consists of consumers X and Y. Consumer X highly values product A and has a reservation price of $12 but values product B less and has a reservation price of $4. Consumer Y moderately values products A and B and has a reservation price of $8 for each of the products. If each product is sold separately at $8, consumer X buys product A and consumer Y buys products A and B. Under these conditions, the company has revenue of $24 from these two consumers. However, if the company chooses to sell the two products in a single package at the sum of the reservation prices (e.g., $16) and it sells these products only as a bundle, it should be able to increase its revenue to $32 because both consumers should buy the bundle. Drumwright (1992) provides support for this prediction by showing that consumers are willing to purchase more automobile options when an option having a consumer surplus is combined with an option having a consumer deficit.

Although economic theory can account for the beneficial effects of bundling through a process of price discrimination, it does not allow us to understand why objectively equivalent offers can be differentially attractive when a price discount is assigned to a specific product in the bundle. For example, suppose that the company wanted to provide an additional incentive for consumers to purchase the bundle. The company decides to offer the bundle of product A and product B for $12, $4 less than the previous bundle price. We know that specifically assigning the $4 discount to product A (list price $8) or to product B (list price $8) will alter the perceived value of the bundle offer for consumers having a profile similar to consumer X (Yadav 1995). The implication is that these types of consumers are either (1) assigning more weight to the value of one of the product offers in the bundle or (2) valuing a change in the offer price of one product differently than a change in the offer price of the other product.

**Weighted Additive Model**

Yadav (1994) attributes the differential benefit of assigning a discount to one or another product in the bundle to the unequal weights (w_i) consumers use to sum the values (v_i) of the individual product offers included in the bundle (Y = Σ w_i v_i). Two competing assumptions have been made about the relative size of the importance weights used to sum values. First, Yadav (1994) argues that one of the products in a bundle will naturally be more important; hence, a discount to this product should have the most impact on the bundle evaluation. Yadav argues that people scan a bundle to identify the most important or focal product, evaluate this product at its offer price, and then evaluate additional products in the bundle, updating the bundle evaluation as they proceed. Second, Yadav (1995) argues that the most valued (i.e., highest reservation price) product in the bundle will receive more weight when product evaluations are summed (see also Mazumdar and Jun 1993). For example, Yadav (1995) finds that consumers prefer to receive a discount on a liked magazine, as opposed to a disliked magazine, in a bundle of a liked and a disliked magazine. Yadav argues that the evaluation of the liked magazine has more weight in the overall evaluation of the bundle and that a discount to this product should be more valued.

Although the weighted additive model provides a com-
pelling explanation of price discount framing effects, the model does have some shortcomings. First, it is often difficult to anticipate which product in a bundle will receive more weight when values are integrated. Anderson (1981) proposes that information presentation order, information salience, and individual differences can influence the magnitude of the weight a consumer assigns to each component of an offer (see also Hogarth and Einhorn 1992). This flexibility in determining the most important product in a bundle means that the explanation is difficult to falsify. Second, a weighted additive model implicitly assumes a constant utility function. In other words, a $4 discount on product A should have the same utility as a $4 discount on product B. Interestingly, relaxing the assumption about the utility function provides an alternative explanation of price discount framing effects.

Reference-Dependent Model

The reference-dependent model of consumer choice proposes that alternatives are judged relative to a reference state (Tversky and Kahneman 1991). The model relies on a value function that has three characteristics. First, the value function defines gains and losses relative to a reference point rather than a final state of wealth (i.e., reference dependence). Second, the value function has diminishing marginal returns for gains (i.e., concavity) relative to a referent and increasing marginal costs for losses (i.e., convexity) relative to a referent (i.e., diminishing sensitivity). Third, the value function is steeper for losses than it is for gains (i.e., loss aversion). In addition, compound prospects are assumed to consist of independent values that can be summed (see Thaler 1985).

The reference-dependent model provides an alternative explanation of why people prefer a bundle that assigns the price discount to one or another product in the bundle. Assume that a bundle offer consists of two products, each having a market price of $8. Also assume that the consumer integrates the attributes of each product to establish a price referent of $8 for product A and $4 for product B. In this case, the offer to sell product A at $8 would have a value of zero because the market price of $8 matches the consumer’s price referent of $8, whereas the offer to sell product B at $8 would have a negative value (e.g., v(−$4)) because the market price of $8 exceeds the consumer’s price referent of $4. If the two products are bundled and the price of the bundle is set to $12, the reference-dependent model predicts that the evaluation of the bundle will be higher when the discount is assigned to the product with a price referent below the market price (i.e., product B discounted from $8 to $4). The loss portion of the value function is steeper than the gain portion of the value function, thus assigning the discount to the less valued product in the bundle (i.e., shifting the value of product B from v(−$4) to v($0)) should result in a greater increase in utility than assigning the discount to the more valued product in the bundle (i.e., shifting the value of product A from v($0) to v($4)). Moreover, as the size of the discount increases, the attractiveness of a bundle with the less valued product discounted should increase relative to the attractiveness of a bundle with the more valued product discounted. Note that, in this example, only one attribute (e.g., price) is being manipulated and that it is being compared to a referent that depends on the non-price attributes (e.g., reference price).

Although the reference-dependent model also provides a compelling explanation of price discount framing effects, the explanation does have some shortcomings. First, it is often difficult to anticipate the price referent for any given prospect. Although it is convenient to assume the referent is the reference price of the product (Kaicker et al. 1995), there is evidence that the initial offer price might serve as the referent (Heath et al. 1995; Mazumdar and Jun 1993) or that the reservation price might serve as a referent (Kristensen and Gaerling 1997; White et al. 1994). Second, there are considerable individual differences in the subjective valuation of a given product at a given offer price. These individual differences are so severe that research on bundling often incorporates procedures that explicitly provide subjects with external reference prices (e.g., Heath et al. 1995; Johnson et al. 1999; Kaicker et al. 1995; Mazumdar and Jun 1993).

Summary

Past demonstrations of price discount framing have been attributed to the differential weighting of the values of individual product offers in the bundle. Demonstrating that the reference dependence contributes to price discount framing effects requires that we observe framing effects that cannot be attributed to a weighted additive model. This demonstration is difficult due to the considerable flexibility created by the assumptions supporting each model. Our strategy was to take a defining feature of each explanation and use an experimental design to contrast these defining features. For example, we tried to create bundles of products in which one product was likely to be more important and more valued and the other product was likely to be less important and less valued. A weighted additive model predicts that assigning the discount to the more important product in the bundle should enhance the evaluation of the bundle more. The reference-dependent model predicts that assigning the discount to the product valued on a steeper portion of the value function, in most cases the less valued product, should enhance the evaluation of the bundle more.

EXPERIMENT 1

Experiment 1 investigated the hypothesis that price discount frames influence bundle evaluations because the evaluations of individual products receive unequal weights during integration versus the hypothesis that price discount frames differentially influence the perceived value of individual product offers. To promote comparability of the hypotheses, we created two-product bundles in which the relative importance and relative value of the products in the bundle were positively correlated. One of the products
(henceforth referred to as the focal product) was the more important and more valued product, and the other product (henceforth referred to as the tie-in product) was the less important and less valued product.

Procedure and Design

A computer-based procedure was used to investigate eight replicates. First, three judgments were used to create the typical bundling context in which a seller has the potential to extract consumer surplus by bundling products. Subjects were asked to judge each product in the bundle separately at a market price and then to evaluate a bundle of the two products at the sum of the market prices. For example, subjects were shown a color picture of a large Papa John’s pizza and were asked to evaluate an offer price (e.g., $7.99) equivalent to their reference price (e.g., $8) using a scale ranging from −100 (very unattractive) to 100 (very attractive). Then, subjects were shown a color picture of 10 chicken wings and were asked to evaluate an offer price (e.g., $7.99) well above their reference price (e.g., $4). Finally, subjects were shown side-by-side pictures of the pizza and wings and asked to evaluate the bundle at the sum of the individual offer prices (e.g., $15.98).

Next, subjects were exposed to the stimuli that contained the key experimental manipulation. Subjects saw either a 50% or a 100% discount (between-subject factor) assigned to the focal or the tie-in product (within-subject factor). Subjects were asked to indicate if they preferred the bundle with the discount assigned to the focal product or the tie-in product. For example, in the 50% discount condition, the subject was told that the retailer wanted to offer a bundle at a discounted price and was asked to indicate whether “Buy a large 1-item Papa John’s pizza for $7.99 and get an order of 10 chicken wings for $3.99” or “Buy an order of 10 chicken wings for $7.99 and get a large 1-item Papa John’s pizza for $3.99” was the more attractive offer. In the 100% discount condition, the subject was asked to indicate whether “Buy a large 1-item Papa John’s pizza for $7.99 and get an order of 10 chicken wings for $3.99” or “Buy an order of 10 chicken wings for $7.99 and get a large 1-item Papa John’s pizza for $3.99” was the more attractive offer. The bundle options appeared side-by-side on a computer screen (counterbalanced) with pictures of the products below the verbal description.

Stimuli

The goal of the stimulus selection procedure was to identify pairs of focal/tie-in products that had approximately a 2 : 1 ratio in price referents. We recognized that both reservation prices and reference prices could influence the perceived value of an offer (Thaler 1985), that reservation and reference prices are often highly correlated (Lichtenstein and Bearden 1989), and that reservation prices are often higher than reference prices (Lichtenstein and Bearden 1989). Given these assumptions, our goal was to identify eight pairs of focal/tie-in products having a 2 : 1 ratio in internal reference prices. We reasoned that a market offer price that matched the consumer’s internal reference price would have a perceived value of zero if the reservation price and reference price were equivalent or a value greater than zero if the reservation price was greater than the reference price. If the market price of the focal product was set at its reference price and the market price of the tie-in product was set at twice its reference price, we had the potential to create a situation where the focal product offer created a consumer surplus and the tie-in product offer created a consumer deficit.

In a pretest, 22 subjects reported how much they would be willing to pay (i.e., reference prices) for a commonly purchased set of 19 potential focal products and 23 potential tie-in products that were pictured one at a time on a computer screen. The final set of stimuli and their experiment market prices were a large one-item Papa John’s pizza and 10 chicken wings ($7.99 each), a 12-pack of Coca-Cola and a 6 oz. bag of Tostitos ($2.99 each), a Blockbuster movie rental and a 2.6 oz. bag of M&M candy ($3.19 each), a team baseball cap and a blue baseball cap ($12.99 each), Levi 570 jeans and a Levi T-shirt ($29.99 each), a half gallon of Florida Orange Natural juice and one dozen eggs ($2.39 each), a 16 oz. Kraft squeeze mayonnaise and a 6 oz. can of Chicken of the Sea tuna ($1.99 each), and a 20 oz. box of Kellogg’s Frosted Flakes and a half gallon of milk ($3.29 each). The price discount manipulations by condition are shown in the appendix.

Analysis and Results

Eighty-nine subjects from an undergraduate subject pool received extra credit for participating in the experiment and were randomly assigned to conditions. Each subject made eight choices for a total of 712 choices.

Valuation Manipulation Check. The test of the reference-dependent model account of price discount framing effects relied on the assumption that the nondiscounted focal product offers were valued on the gain portion of the value function and the nondiscounted tie-in product offers were valued on the loss portion of the value function. We used the ratings of the focal products and the tie-in products at their initial market prices (i.e., prior to the discount) to confirm this assumption. On average, the attractiveness of the focal product offers at their market price (M = 33.7) were significantly greater than zero (F(1, 87) = 151.22, p < .001), and all univariate means were also greater than zero (all p’s < .001). On average, the attractiveness of the tie-in product offers at their market prices (M = −56.3) were significantly below zero (F(1, 87) = 51.22, p < .001) and seven of the eight univariate means were less than zero (all p’s < .05). Thus, we were confident that the initial focal product offers were valued at a shallower part of the value function than the initial tie-in product offers.

Choice Shares. Choice shares are shown in table 1. Subjects preferred the bundle with the discount on the tie-
### TABLE 1
RESULTS OF EXPERIMENT 1

#### 50% Discount from Market Price

<table>
<thead>
<tr>
<th>Product 1</th>
<th>Product 2</th>
<th>Choice (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pizza</td>
<td>7.99</td>
<td>10 wings</td>
</tr>
<tr>
<td>12 Cokes</td>
<td>2.99</td>
<td>Tostitos</td>
</tr>
<tr>
<td>Rent movie</td>
<td>3.19</td>
<td>M&amp;M</td>
</tr>
<tr>
<td>Team cap</td>
<td>12.99</td>
<td>Blue cap</td>
</tr>
<tr>
<td>Jeans</td>
<td>29.99</td>
<td>T-shirt</td>
</tr>
<tr>
<td>Juice</td>
<td>2.39</td>
<td>12 eggs</td>
</tr>
<tr>
<td>Mayonnaise</td>
<td>1.99</td>
<td>Tuna</td>
</tr>
<tr>
<td>Cereal</td>
<td>3.29</td>
<td>Milk</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Choice (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
</tr>
</tbody>
</table>

#### 100% Discount from Market Price

<table>
<thead>
<tr>
<th>Product 1</th>
<th>Product 2</th>
<th>Choice (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pizza</td>
<td>7.99</td>
<td>10 wings</td>
</tr>
<tr>
<td>12 Cokes</td>
<td>2.99</td>
<td>Tostitos</td>
</tr>
<tr>
<td>Rent movie</td>
<td>3.19</td>
<td>M&amp;M</td>
</tr>
<tr>
<td>Team cap</td>
<td>12.99</td>
<td>Blue cap</td>
</tr>
<tr>
<td>Jeans</td>
<td>29.99</td>
<td>T-shirt</td>
</tr>
<tr>
<td>Juice</td>
<td>2.99</td>
<td>12 eggs</td>
</tr>
<tr>
<td>Mayonnaise</td>
<td>1.99</td>
<td>Tuna</td>
</tr>
<tr>
<td>Cereal</td>
<td>3.29</td>
<td>Milk</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Choice (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
</tr>
</tbody>
</table>

in product 78.9% of the time, a choice proportion significantly greater than 50% ($z = 18.93, p < .01$). A repeated measures analysis revealed that subjects also preferred the bundle with the discount on the tie-in product more when the discounted price was 100% of the market price ($\rho = .84$) as opposed to 50% of the market price ($\rho = .74$; $F(1, 85) = 4.07, p < .05$). There was also a replicate by size of discount interaction ($F(7, 595) = 4.29, p < .01$). An examination of the choice shares by replicate showed that subjects preferred the bundle with the discount assigned to the tie-in product more as the size of the discount increased for six of the eight replicates, the jeans/shirt replicate showing no difference and the cereal/milk replicate showing the opposite pattern (see table 1). With respect to the counterbalancing factor, people were more likely to find the bundle listed on the left side of the computer screen more attractive ($F(1, 85) = 7.82, p < .01$), but this factor did not interact with the discount manipulation ($F(1, 85) = 1.21, p > .10$).

**Discussion**

The results of experiment 1 show that people are more sensitive to a discount on the less important and less valued product in a bundle than an equivalent discount on the more important and more valued product in a bundle. The results also show that increasing the amount of the discount increases the preference for the bundle with the discount assigned to the less important and less valued product. These results are consistent with the predictions of the reference-dependent model. When a less valued product is located on a steeper portion of the value function than its more valued counterpart, a discount on the less valued product will result in a greater change in the attractiveness of the bundle offer. A discount to the product located on a shallower portion of the value function, in this case the more valued product, will result in less change in the attractiveness of the bundle offer.

Although the results of experiment 1 suggest the reference-dependent model is a viable explanation of price discount framing effects, there are some potential concerns. First, subjects may have inferred that a discount to the focal product indicated a decrease in its quality (e.g., close to the expiration date, out of style) and therefore preferred the bundle with the tie-in product discounted. We reran the 50% discount condition from experiment 1 with an additional...
quality inference measure. Subjects followed the same procedure as in experiment 1 and then were asked to revisit each of their choices and indicate whether they believed the quality of the focal or tie-in product varied by alternative. Subjects used a 201-point scale (ranging from −100 to +100) labeled “option A has lower quality” and “option B has lower quality” with a midpoint labeled “same quality” to independently judge the quality of each focal and tie-in product. The choice results replicated experiment 1 in that the bundle with the tie-in product discounted was preferred significantly more than chance (ρ = 70.3%; z = 5.21, p < .05). Subjects also indicated that there were no differences in the perceived quality of the focal or tie-in products in the two bundles. The relative quality of the focal product (Maggregate = −2.01) across the two bundles did not differ from the indifference point of zero (F(1, 35) = .59, p > .10). The relative quality of the tie-in product (Maggregate = .14) across the two bundles did not differ from the indifference point of zero (F(1, 35) = .01, p > .10). Logistic regressions testing the relationship between focal product quality ratings and choices for each of the eight replicates were nonsignificant (all p’s > .10). One of the eight logistic regressions testing the relationship between tie-in product quality ratings and choice was significant, but the relationship was in the unexpected direction (i.e., a drop in perceived tie-in product quality led to a greater likelihood of choosing that alternative).

A second concern is that the within-subject experimental procedure may have encouraged people to subjectively value the discounts relative to a referent provided by the competing bundle. To test this hypothesis, we ran experiment 1 using a between-subject design with the 50% discount condition. A repeated measures analysis showed that the discount on the tie-in product enhanced the evaluation of the bundle (Maggregate = 38.83) more than the discount on the focal product (Maggregate = 30.23; F(1, 76) = 4.73, p < .05).

A third concern is that the tie-in product, not the focal product, may have been the more important product in the bundle. To test this hypothesis, we modified the stimuli so that the focal stimulus was priced to be in the loss portion of the value function and the tie-in product was priced to be in the gain portion of the value function. Collapsing across replicates, data from 105 subjects showed a preference for the bundle (ρ = .65) containing the discounted focal product relative to the bundle (ρ = .35) containing the discounted tie-in product (z = 8.80, p < .01). We ran additional versions of these stimuli and confirmed that people were not sensitive to the presentation order of the focal and tie-in product in the bundle description.

The data from experiment 1 and these additional tests suggest that people do not assign more weight to the evaluations of the focal product, the tie-in product, or the first product listed in a bundle description when assessing the overall attractiveness of a bundle. Yet, before we can conclude that the reference-dependent model is a viable explanation of how people respond to price discount framing in a bundled offer, there is a final weighting hypothesis. It is possible that the product in a bundle that has an offer price furthest above the consumer’s price referent will have the most weight in an overall evaluation, a form of negativity bias (see Fiske 1980; Skowronski and Carlston 1989). To illustrate, reconsider the data from experiment 1, replicate 1. We found that people thought that a bundle with a pizza priced at $7.99 and wings priced at $3.99 was more attractive than a bundle with a pizza priced at $3.99 and wings priced at $7.99. The pizza and wings in the first bundle are priced at consumers’ reference prices; hence, each product should be valued neutrally.1 The pizza and wings in the second bundle are priced $4 below and $4 above consumers’ reference prices, respectively, and, in accordance with the weighted additive model assumption of constant utility, should have equivalent opposite values (e.g., $4 and −$4). Generalizing, the negativity bias hypothesis to this context implies that the second bundle is less attractive because the consumer puts more weight on the negative value associated with the wings than on the positive value associated with the pizza. We test for this alternative weighting hypothesis in experiment 2.

**EXPERIMENT 2**

Experiment 2 investigated the predictions of the reference-dependent model and the hypothesis that people place more weight on the value of the less attractive product in the bundle. The reference-dependent model assumes a value function in which the loss function is steeper than the gain function. A weighted additive model with more weight on the less valued product offer assumes a value function in which the loss and the gain functions are symmetric. To differentiate these views, we constructed bundle offers that manipulated whether the focal product or the tie-in product was offered at an unattractive price. To illustrate, consider two sets of the pizza/wing bundles. Bundle A1 is “Buy a large 1-item Papa John’s pizza for $7.99 and get an order of 10 wings for $3.99” and bundle A2 is “Buy an order of 10 wings for $7.99 and get a large 1-item Papa John’s pizza for $3.99.” Bundle B1 is “Buy a large 1-item Papa John’s pizza for $7.99 and get an order of 10 wings for $3.99” and bundle B2 is “Buy a large 1-item Papa John’s pizza for $11.98 and get an order of 10 wings for free.” Note that bundle A2 makes the wings offer unattractive and bundle B2 makes the pizza offer unattractive by offering these products at approximately $4 above the consumer’s reference price.

The weighted additive model and reference-dependent model make different predictions about the extent of a consumer’s preference for bundle A1 over A2 relative to a consumer’s preference for bundle B1 over B2. If people are adjusting the product offer weights according to the relative attractiveness and unattractiveness of individual product of-

---

1 If reservation prices exceed reference prices, as we assume, our values would increase by a positive constant. The directional predictions are not influenced by this constant.
fers, then their preference for one bundle over another should remain constant across equivalent bundles. For example, if bundle A1 has the pizza offer valued at \(v(\$0)\) and the wings offer valued at \(v(\$0)\) and bundle A2 has the pizza offer valued at \(v(\$4)\) and the wings offer valued at \(v(\$4)\) and bundle B1 has the pizza offer valued at \(v(\$0)\) and the wings offer valued at \(v(\$0)\) and bundle B2 has the pizza offer valued at \(v(\$0)\) and the wings offer valued at \(v(\$4)\), then the relative preference for A1 over A2 and B1 over B2 should be equivalent. The value profiles are equivalent in the two choice situations.

The reference-dependent model makes a directional prediction about the magnitude of the consumer’s preference for bundle A1 over A2 relative to the consumer’s preference for bundle B1 over B2. In the case of bundle A2, the wings are being offered at a price twice the reference price (i.e., a loss that is a factor of \(-1\)) and the pizza is being offered at a price that is half the reference price (i.e., a gain that is a factor of \(0.5\)). In the case of bundle B2, the pizza is being offered at a price that is 50% above the reference (i.e., a loss that is a factor of \(-0.5\)) and the wings are being offered free (i.e., a gain factor of 1). Given that losses loom larger than gains, the preference for bundle A1 over A2 should be greater than the preference for bundle B1 over B2.

**Design, Stimuli, and Procedure**

The design was a 2 (amount of premium/discount) × 2 (premium/discount assigned to focal/tie-in product) × 2 (focal product presented first or second counterbalance factor) × 2 (location on screen counterbalance factor) design with eight replicates. The amount of the premium/discount and counterbalance factors were between-subject manipulations, and the framing of the premium/discount and replicate factors were within-subject manipulations. The replicates, procedure, and dependent variable were identical to those used in experiment 1. The full design is presented and the prices used for each replicate are shown in the appendix. A pretest confirmed that the values of the A1/B1 focal product offers at their market prices \(M = 28.1\) were not less than the values of A1/B1 tie-in product offers at their market prices \(M = 13.6; F(1, 32) = 17.72, p < .05\), a necessary condition for the predictions of the reference-dependent model to be unambiguous.

**Analysis and Results**

One hundred subjects from an undergraduate subject pool received extra credit to participate in the experiment and were randomly assigned to conditions. Each subject made eight choices for a total of 800 choices. A repeated measures analysis revealed a significant main effect of whether the higher-priced focal product or the lower-priced tie-in product had the inflated price \(F(1, 92) = 34.14, p < .05\). Subjects preferred the bundles with the products priced at their reservation prices (A1) over the bundles with the inflated tie-in product price (A2) 79.1% of the time, but they preferred the bundles with the products priced at their reservation prices (B1) over the bundles with the inflated focal product price (B2) only 48.7% of the time. This finding is consistent with the reference-dependent model, but it is inconsistent with the weighted additive model that assumes that more weight to the evaluation of the less valued offer in the bundle. In addition, there was no influence of whether the same or a different product was listed first in each bundle \((F(1, 92) = .58, p > .05)\) or the screen location of the offer \((F(1, 92) = .37, p > .05)\).

We note that the replicate factor did interact with whether the higher-priced focal product or the lower-priced tie-in product had the inflated price \((F(7, 644) = 2.70, p < .05)\). An investigation of the univariate choice proportions showed that all eight replicates had the same ordinal pattern of choice shares (i.e., pairwise differences) and that the significant interaction was a consequence of the magnitude of these differences (i.e., the difference between A1 and B1 choice shares ranged from 11% to 49%). All higher order interactions were not statistically significant (all \(p > .10\)).

**Discussion**

Experiment 2 provides further evidence that the reference-dependent model provides a viable explanation for price discount framing effects. People were more sensitive to a price discount frame that resulted in a 100% increase in the price of a tie-in product and a 50% decrease in the price of a focal product than a price discount frame that resulted in a 50% increase in the price of a focal product and a 100% decrease in the price of a tie-in product. The first bundle represented a large loss and a small gain relative to the consumer’s price referents, and the second bundle represented a small loss and a large gain relative to the consumer’s price referents. The data are inconsistent with the hypothesis that people simply put more weight on the less valued product in a bundle when integrating the product evaluations into an overall bundle evaluation. Bundle B1 had the focal product valued at \(v(\$0)\) and the tie-in product valued at \(v(\$0)\), whereas bundle B2 had the focal product valued at \(v(\$4)\) and the tie-in product valued at \(v(\$0)\). If the weight on a value becomes greater as the value becomes more negative, then bundle B1 should have been preferred to bundle B2.

Although the data from experiments 1 and 2 are consistent with the reference-dependent model, they are inconsistent with Yadav’s (1995) finding that a discount on a focal product enhances the bundle evaluation. One possible reason for this inconsistency is that Yadav (1995) used a pair of products in which one product offer (e.g., an appealing magazine) had a slightly positive utility and the other product offer (e.g., an unappealing magazine) had severe negative utility. Recall, Yadav’s stimuli were one of two entertainment magazines (normal prices \$80 and \$52, discounted prices \$40 and \$26) and one of two sports magazines (normal prices \$70 and \$30, discounted prices \$35 and \$15) marketed to an entertainment-oriented segment or a sports-oriented segment. Thus, it could be the case that the focal product in Yadav’s study (i.e., the correct product for the
segment) was valued on a steep portion of the value function (i.e., the $80 offer is near the consumer’s reference price). In contrast, the tie-in product in Yadav’s study (i.e., the incorrect product for segment) was valued at a relatively flat portion of the loss curve (i.e., the $70 offer is far from the consumer’s reference price of approximately $0). If this were so, a discount to the focal product should be perceived as more appealing than a discount to the tie-in product.

**EXPERIMENT 3**

The goal of experiment 3 was to assess whether making the valuation of the tie-in product severely negative would encourage consumers to value discounts to the focal product more than discounts to the tie-in product, thus reversing the pattern of results we observed in experiment 1. In the base condition, we used the same prices as those in experiment 1 and applied discounts of approximately 20% to the price of each product. The severe negative valuation condition priced the tie-in products at two times the original market price (e.g., wings at $2 \times \$7.99 = \$15.98) and applied the same 20% discount. These conditions can be illustrated by the following examples: (A1) “Buy a large 1-item Papa John’s pizza for $7.99 and get an order of 10 wings for $6.49,” (A2) “Buy an order of 10 wings for $7.99 and get a large 1-item Papa John’s pizza for $6.49,” (B1) “Buy a large 1-item Papa John’s pizza for $7.99 and get an order of 10 wings for $14.48,” and (B2) “Buy an order of 10 wings for $15.98 and get a large 1-item Papa John’s pizza for $6.49.” In effect, the B stimuli paralleled Yadav’s (1995) bundles of a positive utility focal product offer and a very negative utility tie-in product offer.

The predicted outcomes of this experiment are as follows. If people are valuing price discounts relative to a referent, the bundle with the discount applied to the product offer valued at a steeper portion of the value function should be preferred over the bundle with the discount applied to the product offer valued at the shallower portion of the value function. This implies that A1 should be preferred over A2, replicating experiment 1, and B2 should be preferred over B1, replicating Yadav’s results. In the case of the A stimuli, the tie-in product offer is valued on a steeper portion of the value function (e.g., $7.99 wings discounted to $6.49 wings) than the focal product offer (e.g., $7.99 pizza discounted to $6.49 pizza). In the case of the B stimuli, the tie-in product offer is valued on a shallower portion of the value function (e.g., $15.98 wings discounted to $14.48 wings) than the focal product offer (e.g., $7.99 pizza discounted to $6.49 pizza). The replicates, procedure, and dependent variable were identical to those used in experiments 1 and 2.

**Analysis and Results**

Sixty-seven subjects from an undergraduate subject pool received extra credit to participate in the experiment and were randomly assigned to conditions. Each subject made eight choices for a total of 536 choices.

**Valuation Manipulation Check.** An analysis was performed to confirm the assumption that highly priced tie-in product offers were very negatively valued and hence were likely to be on a shallow portion of the loss function. We used the ratings of the tie-in products at the initial offer price (i.e., prior to the discount) to confirm this assumption. On average, the attractiveness of the tie-in product offers in the severe negative valuation condition (\(M = -66.1\)) was significantly below the attractiveness of the tie-in product offers in the base condition (\(M = -17.7\); \(F(1,63) = 48.75, p < .05\)). The severe negative rating of the tie-in product offers in the severe negative valuation condition suggests that these offers were valued on a shallower portion of the value function.

**Choice Shares.** A repeated measures analysis showed a significant difference in preference when the tie-in product offers were slightly or highly overpriced (\(F(1,63) = 18.43, p < .05\)). Subjects preferred bundles with the price of the tie-in product discounted over bundles with the price of the focal product discounted (\(A1 > A2\)) 63.6% of the time in the base condition (\(z = 2.83, p < .05\)). This replicates the results of experiment 1. Subjects preferred the bundles with the price of the focal product discounted over bundles with the price of the tie-in product discounted (\(B2 > B1\)) 66.8% of the time in the severe negative valuation condition (\(z = 3.27, p < .05\)). This replicates the results of Yadav (1995). We note that the interaction between the location of the bundle on the screen factor and the price factor was not significant (\(F(1,63) = .11, p > .05\)). In addition, the replicate factor did not interact with whether the tie-in product was slightly or highly overpriced (\(F(7,441) = 1.30, p < .10\)) or with the location of the bundle on the screen (\(F(7,441) = .95, p > .10\)). The replicate by price by location interaction was not significant (\(F(7,441) = .91, p > .10\).

**Discussion**

Experiment 3 provides further support for the claim that the reference-dependent model is a viable explanation of price discount framing effects. When the initial offer price of the tie-in product resulted in a valuation on the steepest part of the value function (e.g., wings priced at $7.99), a discount to the tie-in product was more valued than a discount to the focal product. When the initial offer price of the tie-in product resulted in a valuation on the shallow part of the value function (e.g., wings priced at $15.98), a discount to the tie-in product was less valued than a discount to the focal product. We note that, in each situation, the comparison bundle offered an identical discount to the focal product (e.g., pizza discounted from $7.99 to $6.49).

Our goal in the first three experiments was to document that the reference-dependent model explanation of price discount framing effects is viable, not that it is dominant. There are certainly situations in which differential weights may contribute to price discount framing effects. Thus, our final goal is to explore conditions in which valuations from a
reference-dependent model will receive different weights when they are summed to determine the overall bundle evaluation. These boundary conditions are important given published results that support a weighted additive model of bundle evaluation (e.g., Morwitz et al. 1998; Yadav 1994).

**EXPERIMENT 4**

In experiment 4, we investigated situations in which people could differentially weight evaluations of the offer prices associated with products in the bundle. In experiment 4A, we tried to reduce the salience of price referents and allow the relative value of each product in the bundle to become more influential. In experiment 4B, we used purchasing instructions that encouraged people to put more weight on the evaluation of one product in the bundle because of the purchase goals. In experiment 4C, we used bundles in which consumers were aware that one of the products was focal and the other product was an add-on purchase.

**Experiment 4A**

Experiments 1–3 investigated bundling as a form of segment-based price discrimination. However, bundling can also be used as a strategy to reduce transaction costs or increase stockpiling. In these cases, it is possible that the value of the product, rather than the value of the product offer at a given price, will drive the bundle evaluation process. To investigate this issue, we made two changes to the procedure used in experiment 1. First, we set the market prices seen at time one to be equal to the consumer’s reference prices (e.g., pizza at $7.99, 10 wings at $3.99). Second, we did not encourage people to focus on a price referent when they were determining the value of the bundle offer. For example, the wording of the discounted offers for the pizza/wings replicate was changed to “Save $3 on a large 1-item Papa John’s pizza when you order the pizza and 10 wings” or “Save $3 on an order of 10 wings when you order the wings and a large 1-item Papa John’s pizza.” The goal was to discourage subjects from directly comparing the discounted price to a price referent. If this procedure encouraged overweighting the value of the focal product offer relative to the tie-in product offer, people should prefer the bundle with the focal product offer discounted. If the discount continued to be valued relative to a referent, then a $3 discount on the $3.99 tie-in product should be preferred to a $3 discount on the $7.99 focal product because the value function exhibits diminishing sensitivity.

Thirty-seven subjects participated in a two-cell (discount assigned to focal product/discount assigned to the tie-in product) between-subject design with eight replicates. The manipulation check measures showed that the attractiveness of both the focal product offer ($M_{aggregat} = 23.0; F(1, 36) = 31.89, p < .01$) and the tie-in product offer ($M_{aggregat} = 11.3; F(1, 36) = 6.94, p < .01$) were significantly greater than zero and that the focal product offers were significantly more attractive than the tie-in product offers ($F(1, 35) = 4.02, p = .05$). A repeated measures analysis showed that the discount on the tie-in product offers enhanced the evaluation of the bundles ($M_{aggregat} = 29.7$) more than the discount on the focal product offers ($M_{aggregat} = 18.1; F(1, 35) = 4.53, p < .05$). There was no replicate by discount interaction ($F(7, 245) = 8.2, p > .10$). Thus, dissociating the price discount from the original price of the products did not encourage consumers to value the discounts to the focal products more than the discounts to the tie-in products. The value of the discounts continued to depend on the location of each product offer on the value function.

**Experiment 4B**

Another bundle scenario is one in which the consumer intends to buy two or more products prior to the searching for available alternatives, as is the case with the purchase of a software suite or a vacation package. For example, Yadav’s (1994) subjects evaluated bundles of complementary products (e.g., a computer and a printer, a bed and a headboard) in a situation that encouraged joint consideration. In this situation, consumers are not encouraged to decouple the components of the offer. This lack of decoupling may encourage consumers to use a weighted additive model in which the value of the focal product offer receives more weight in the overall evaluation of the offer.

In experiment 4B, subjects were given scenarios that encouraged them to believe that the bundled products would be jointly consumed. To illustrate using the pizza and wings scenario, subjects were told, “Imagine you have a couple of friends coming over to your place to watch a Gator football game. You call them to check whether they are hungry and they say they are starving. You decide that a large pizza might not be sufficient to feed everyone and decide to add some wings to the order.” If the consumer uses a weighted additive model to sum the values of individual products in the bundle, then an increase in the discount to the more important product in the bundle (e.g., the focal product) should increase the number of subjects preferring this bundle.

Thirty-one subjects participated in a 2 (discount assigned to focal or tie-in product) × 2 (50% discount or 100% discount) × 2 (location on the screen counterbalance) design with eight replicates. Subjects preferred bundles with the discount applied to the tie-in product price 66.7% of the time, a choice proportion significantly greater than 50% ($z = 5.58, p < .01$). A repeated measures analysis revealed that subjects also preferred bundles with the discount applied to the tie-in product price more when the discount was 50% of the retail price ($p = .73$) as opposed to 100% of the retail price ($p = .60; F(1, 29) = 2.76, p = .10$). There was no replicate by location on the screen interaction ($F(7, 189) = .98, p > .10$) or replicate by discount level interaction ($F(7, 189) = .75, p > .10$). Although the data show that people prefer discounts to the tie-in product offer price, the reduction in preference for the bundle with the discounted tie-in product offer when the discount was increased to 100% suggests that the evaluation of the focal product offer had more weight in the evaluation of the bundle. The failure to
get more than 50% of the people to prefer bundles with the discount applied to the focal product offer price suggests that the discount is exerting more influence through changes in perceived value than through the relative weights used to sum the values.

Experiment 4C

In experiment 4C, we attempted to further increase the relative weight on focal product offer evaluations by selecting tie-in products that would have little utility if not consumed or used with the focal product (i.e., complementarity). Prior research has shown that, when the tie-in product has little utility without the focal product, people may apply weights to the product offers prior to summing the values (Gaeth et al. 1990; Yadav 1995). In this case, it is likely that people will clearly consider the focal product the most important product in the bundle, and bundles with the focal product price discounted should be preferred to bundles with the tie-in product price discounted. In addition, an increase in the discount amount should increase the attractiveness of the bundle with the focal product price discounted.

Sixty-five subjects participated in a 2 (discount assigned to focal or tie-in product) × 2 (50% discount or 100% discount) × 2 (location on the screen counterbalance) design with eight replicates. To comply with the assumptions of complementarity and utility dependence, we created a new set of stimuli. The new set of eight replicates (with market prices) included the following bundles: a Phillips 25 Stereo TV and a Sony 4-Head Hi-Fi Stereo VCR ($239 each), a HP Intel Celeron 1.1 GHz desktop computer and a HP B&W laserjet printer ($899 each), a 24 oz. Pantene ProV Shampoo and a 12 oz. Pantene ProV Conditioner ($3.59 each), a Sony DVD Player and a package of 5 DVD movies of your choice ($199.99 each), a Reach toothbrush and 24 yd of Reach dental floss ($2.39 each), a 100 oz. All laundry detergent and 50 sheets of Great Value fabric soften ($5.99 each), Levi’s Red Tab 570 jeans and a Dickies Two-Prong work belt ($29.99 each), and a 14.5 oz. Doritos tortilla chips and a 8 oz. Ortega salsa ($3.29 each). Similar to previous studies, focal products had reference prices twice that of tie-in products.

The manipulation check showed that the focal product offers ($M_{frequency} = 30.58$) were valued significantly above zero ($F(1, 64) = 83.73, p < .01$) and tie-in product offers ($M_{frequency} = -10.42$) were valued significantly below zero ($F(1, 64) = 9.62, p < .01$). Subjects preferred the bundle with the discount applied to the price of the tie-in product 83% of the time, a choice proportion significantly greater than 50% ($\chi^2 = 18.82, p < .01$). Consumers preferred the bundle with the tie-in product price discounted 89.3% of the time when the discount was 50% but only 75.8% of the time when the discount was 100% ($F(1, 63) = 9.98, p < .05$). The replicate factor did not interact with the side-of-screen factor ($F(7, 427) = .67, p > .10$) or the level of the discount factor ($F(7, 427) = 1.00, p > .10$).

These results parallel the results obtained in experiment 4B. A majority of the people preferred bundles with the tie-

in product’s price discounted to bundles with the focal product’s price discounted, a finding consistent with the reference-dependent model. This preference decreased as the amount of the discount increased, a finding consistent with a greater weight on the value of the focal product offer. Like experiment 4B, the price discount is exerting more influence through changes in perceived value than through the differences in the weights used to sum the values.

Discussion

One concern about experiments 1–3 was that the stimuli combinations and prices were not representative of the variety of bundling situations observed in the marketplace. The results of experiments 4B and 4C show that, when people anticipate the joint purchase of the two products and clearly know which product is more important, or when there is a high degree of utility dependence between complementary products, focal product values have more weight in the bundle evaluation. Still, the impact of these differential weights on the value of a price discount is smaller than the impact of the referent-dependent value. We conclude that referent-dependent value must be considered when trying to understand the influence of price discount framing on the evaluation of a bundle.

GENERAL DISCUSSION

Six studies provide evidence that consumers subjectively value individual products in a bundle and then sum these values to arrive at an overall evaluation of the bundle. When price discounts are assigned to an individual product in a bundle, the value of these discounts are referent dependent. Price referents anchor the value of a market-priced product offer on a value function, and price discounts are valued as movements along the value function. Thus, as shown in experiment 1, people perceive more value in a discount to a preexisting market price that is above their reference price than in a discount to a preexisting market price that is at or below their reference price. People are also more sensitive to losses than gains and are less sensitive to increasing losses or gains. As shown in experiment 4A, people perceive more value in a discount to a less valued product with a market price near its reference price than to a more valued product with a market price near its reference price.

If the value of bundled offers depends on product-specific referents, then it is important to anticipate how these referents will be generated, their level of specificity, and the extent to which they will remain stable. For example, our results suggest that people use a referent based on an integration of the product attributes (i.e., reference price), as opposed to an array of referents for individual product attributes. To appreciate this distinction, consider two different assumptions about how people assess the attractiveness of an offer for a single product. First, an offer’s value could be determined by comparing each attribute of the offer to its own referent using a value function and then summing these referent-based values. For example, a pizza could be...
valued by comparing its individual attribute values on crust, topping quantity, topping quality, and temperature to referents for each of these attributes and then summing these referent-based values to arrive at an overall offer evaluation (Tversky and Kahneman 1991). Alternatively, an offer’s value could be determined by integrating the values of the product attributes, establishing a referent expressed as a reference price, and then comparing this reference price to the offer price. We will refer to the first type of process as an elemental reference-dependent process, because the referents exert their influence at the level of the elements of each product offer, and to the second type of process as a configural reference-dependent process, because the price referent used to establish the value function depends on the configuration of elements in the offer.

The results of the experiments are consistent with a configural reference dependent process. The price referent is a function of the product being offered for sale. Each product in the bundle has a price referent that is compared to an offer price in order to value the offer. As such, price discounts should be assigned using the existing offer price/price referent relationship as a guide. When one of the products in the bundle has an offer price that is above the consumer’s reference price and the other product has an offer price below the consumer’s reference price, the discount should be assigned to the less attractively priced item (e.g., experiment 1). When both of the products in the bundle have an offer price above the consumer’s reference prices, the price discount should be segregated and partially assigned to each product. When both of the products in the bundle have an offer price below the consumer’s reference prices, the price discount should be listed as a separate item. In each case, the goal is to let the price discount alter value from a point on the steepest portion the value function. We note that many bundle offers include a product priced above the consumer’s reference price and a product priced below the consumer’s reference price, a product configuration that is consistent with the manufacturers motivation for bundling.

We can offer hypotheses about when reference dependence is likely to be configural and when it is likely to be elemental. A configural reference-dependent process is more likely when products are holistically described and have well-established price referents for consumers. Consumers find it easy to establish price referents for frequently purchased items like milk, coffee, and soda; hence it is easy to compare the offer prices of these products to a price referent. It is much more difficult to establish price referents for products that are described in piecemeal fashion or that are unfamiliar. Describing the components of a vacation, the option packages on a car, or the warranty and financing information for an appliance purchase encourages a person to set performance-based referents as opposed to establishing price referents. In these cases, monetary discounts may be compared to a discount referent of $0 instead of a price referent based on the attributes that make up the product. When discount referents of $0 are used, many smaller discounts will be preferred to a few large discounts. Johnson et al. (1999) confirm these predictions. When consumers were asked to judge automobile offers consisting of a base car and option packages or an extended list of options, more discounts were preferred to a single discount. The difficulty of establishing price referents for option packages and individual options made it easier to value each discount independently; hence, more small discounts were better.

Our discussion of elemental referent-dependence and configural referent-dependence during valuation at the product level can be generalized to the bundle level. Wherein product valuations have a tendency to rely on a configural reference-dependent process owing to the consumer’s familiarity with purchasing and consuming products, bundle valuations have a tendency to rely on an elemental reference-dependent process. It may be that bundle evaluations are only elemental to the extent that the bundle consists of two unique elements (i.e., pizza and wings vs. large and medium pizza). It may also be that repeated purchasing of a bundle will make this reference-dependent process more configural.

Anytime the bundle evaluation process is elemental, there is the potential to have the value of one of the product offers in the bundle have more influence on the overall evaluation of the bundle. This increased weight could be a consequence of one product being significantly more valuable than the other products in the bundle, one product being the primary reason for the purchase (experiment 4B), or one product being necessary to the utility of the bundled products (experiment 4C). Thus, the elemental natural of the bundle valuation process does not encourage people to assign more weight to one product valuation or another, as evidenced by experiments 1–4A. Instead, the elemental natural of the bundle valuation process simply creates the potential for stimulus and contextual factors to influence the relative importance of the product valuations.
### APPENDIX

#### TABLE A1
THREE EXPERIMENTS

<table>
<thead>
<tr>
<th>Experiment 1 stimuli</th>
<th>Focal product</th>
<th>Reference price ($)</th>
<th>Base price ($)</th>
<th>50% discount to Tie-in price ($)</th>
<th>Focal price ($)</th>
<th>100% discount to Tie-in price ($)</th>
<th>Focal price ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 cans of Coca-Cola</td>
<td>2.95</td>
<td>2.99</td>
<td>2.99</td>
<td>1.49</td>
<td>2.99</td>
<td>Free</td>
<td>6 oz. bag of Tostitos</td>
</tr>
<tr>
<td>1 Blockbuster movie rental</td>
<td>3.08</td>
<td>3.19</td>
<td>3.19</td>
<td>1.59</td>
<td>3.19</td>
<td>Free</td>
<td>2.6 oz. M&amp;M candy</td>
</tr>
<tr>
<td>1/2 gal. Florida Natural orange juice</td>
<td>3.38</td>
<td>2.39</td>
<td>2.39</td>
<td>1.19</td>
<td>2.39</td>
<td>Free</td>
<td>1 dozen eggs</td>
</tr>
<tr>
<td>20 oz. Kellogg's Frosted Flakes</td>
<td>3.03</td>
<td>3.29</td>
<td>3.29</td>
<td>1.65</td>
<td>3.29</td>
<td>Free</td>
<td>1/2 gal. milk</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Experiment 2 stimuli</th>
<th>Focal product</th>
<th>Reference price ($)</th>
<th>Base price ($)</th>
<th>A1 ($)</th>
<th>A2 ($)</th>
<th>B1 ($)</th>
<th>B2 ($)</th>
<th>Tie-in product price ($)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12 cans of Coca-Cola</td>
<td>2.95</td>
<td>2.99</td>
<td>2.99</td>
<td>1.49</td>
<td>2.99</td>
<td>5.98</td>
<td>2.39</td>
<td>Free</td>
<td>1.49</td>
</tr>
<tr>
<td>1/2 gal. Florida Natural orange juice</td>
<td>3.38</td>
<td>2.39</td>
<td>2.39</td>
<td>1.19</td>
<td>2.39</td>
<td>4.78</td>
<td>1 dozen eggs</td>
<td>1.24</td>
<td>1.19</td>
</tr>
<tr>
<td>20 oz. Kellogg's Frosted Flakes</td>
<td>3.03</td>
<td>3.29</td>
<td>3.29</td>
<td>1.65</td>
<td>3.29</td>
<td>6.58</td>
<td>1/2 gal. milk</td>
<td>1.80</td>
<td>1.65</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Experiment 3 stimuli</th>
<th>Focal product</th>
<th>Reference price ($)</th>
<th>Base price ($)</th>
<th>A1 ($)</th>
<th>A2 ($)</th>
<th>B1 ($)</th>
<th>B2 ($)</th>
<th>Tie-in product price ($)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12 cans of Coca-Cola</td>
<td>2.95</td>
<td>2.99</td>
<td>2.99</td>
<td>1.49</td>
<td>2.99</td>
<td>2.39</td>
<td>2.39</td>
<td>Free</td>
<td>1.49</td>
</tr>
<tr>
<td>1 Blockbuster movie rental</td>
<td>3.08</td>
<td>3.19</td>
<td>3.19</td>
<td>1.59</td>
<td>3.19</td>
<td>2.39</td>
<td>2.39</td>
<td>Free</td>
<td>1.59</td>
</tr>
<tr>
<td>1/2 gal. Florida Natural orange juice</td>
<td>3.38</td>
<td>2.39</td>
<td>2.39</td>
<td>1.19</td>
<td>2.39</td>
<td>4.78</td>
<td>1 dozen eggs</td>
<td>1.24</td>
<td>1.19</td>
</tr>
<tr>
<td>20 oz. Kellogg's Frosted Flakes</td>
<td>3.03</td>
<td>3.29</td>
<td>3.29</td>
<td>1.65</td>
<td>3.29</td>
<td>6.58</td>
<td>1/2 gal. milk</td>
<td>1.80</td>
<td>1.65</td>
</tr>
</tbody>
</table>

[David Glen Mick served as editor and Michael D. Johnson served as associate editor for this article.]

### REFERENCES

- Gaeth, Gary J., Irwin P. Lewin, Gautam Chakraborty, and Aron...


