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The authors examine the effects of using a subtractive versus an additive option-framing method on consumers' option choice decisions in three studies. The former option-framing method presents consumers with a fully loaded product and asks them to delete options they do not want. The latter presents them with a base model and asks them to add the options they do want. Combined, the studies support the managerial attractiveness of the subtractive versus the additive option-framing method. Consumers tend to choose more options with a higher total option price when they use subtractive versus additive option framing. This effect holds across different option price levels (Study 1) and product categories of varying price (Study 2). Moreover, this effect is magnified when subjects are asked to anticipate regret from their option choice decisions (Study 2). However, option framing has a different effect on the purchase likelihood of the product category itself, depending on the subject's initial interest in buying within the category. Although subtractive option framing offers strong advantages to managers when product commitment is high, it appears to demotivate category purchase when product commitment is low (Study 3). In addition, the three studies reveal several other findings about the attractiveness of subtractive versus additive option framing from the standpoint of consumers and managers. These findings, in turn, offer interesting public policy and future research implications.

Choosing What I Want Versus Rejecting What I Do Not Want: An Application of Decision Framing to Product Option Choice Decisions

The way alternatives are presented or framed to and by decision makers can influence both the way information is processed and the nature of the ultimate decision (Brown and West 1997; Puto 1987). In a marketing context, decisions have been framed by altering the consideration set of brands in a choice task. Specifically, low-quality brands' evaluations may be framed or altered by the nature and number of brands in an internally or externally generated consideration set (Simonson, Nowlis, and Lemon 1993). Decisions may also be framed by asking consumers to either add desired product options to a base model or delete undesired product options from a fully loaded model. The task of selecting product options constitutes an important domain in consumer decision making, as there are several product/service categories in which consumers have some control over the number, type, and configuration of options they select. That such control exists is evidenced by the rapid growth of manufacturing systems that enable consumers to select a configuration of product options tailored to their needs. For example, National Bicycle Industrial Co. provides customized bicycles that support 11,231,862 product option configurations (Moffet 1990).

In the present study, consumers' decisions are framed in terms of whether product options are selected or rejected. Subjects are asked to either add desired product options to a base model or delete undesired product options from a fully loaded model. In the first case, the consumer's problem is to

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anticipate expected gains in utility, though these gains are achieved through the loss of monetary resources (i.e., a higher purchase price). In the second case, the consumer's problem is to anticipate a loss in utility by deleting options, though this loss is compensated by a lower price paid.

The notion that option choices are framed by asking consumers to add options to a base model (additive option framing; hereafter +OF) or subtract them from a full model (subtractive option framing; hereafter –OF) is indirectly supported by prior work. Indeed, we anticipate different choice outcomes from the option-framing tasks. These predictions are based on research on two factors that differentiate –OF from +OF: (1) the vantage point from which consumers start (e.g., the base model or the full model) and (2) the task they are asked to perform (e.g., adding or deleting options). The impact of both factors leads us to believe that when consumers are committed to buying within a specified product category, –OF will be a managerially preferred strategy over +OF, because it will result in a greater number of options chosen. We also anticipate, however, that several factors constrain the managerial attractiveness of –OF and therefore serve as boundary conditions for its effects. In the following sections, we present three experiments designed to explain how, when, and why option framing affects choice outcomes. We present the hypotheses and the results of each study sequentially. We then outline a set of conclusions regarding the theoretical and managerial implications of option framing in a general discussion section.

THEORETICAL BACKGROUND

Several theoretical approaches described subsequently lead to the expectation that managers will prefer –OF to +OF.

Reference Dependence and Loss Aversion

Considerable work in behavioral decision making supports the notion that decisions depend on the frame of reference from which choices are made (Puto 1987; Tversky and Kahneman 1991). Notably, the +OF and –OF tasks differ in the vantage point from which consumers begin their choice task. For +OF, consumers' vantage or reference point is the base model, whereas for –OF, the reference point is the fully loaded model. An interesting outcome of this difference in reference point is loss aversion. Loss aversion suggests that when an alternative is used as a reference state or anchor, losses from that state carry more impact than gains (Thaler 1985). Thus, the effect of a difference on a dimension is typically greater when it is evaluated as a loss than a gain (Tversky and Kahneman 1991).

Loss aversion implies that –OF consumers are more likely to be sensitive to the losses in utility incurred by deleting an option than consumers in the +OF condition are to the gains in utility by adding the same option. In contrast, consumers in the +OF condition are likely to be more sensitive to the economic losses incurred by adding an option than consumers in the –OF condition are to the economic gains incurred by deleting the same option. In addition, Hardie, Johnson, and Fader (1993) find that loss aversion for product quality (utility) is greater than aversion to price (economic losses). Because of this differential loss aversion, it is expected that consumers engaged in –OF will be more averse to deleting options (utility loss) than those engaged in +OF will be to adding them (economic loss). Thus, consumers are likely to choose more options when engaged in the former than the latter option-framing task.

Choosing Versus Rejecting

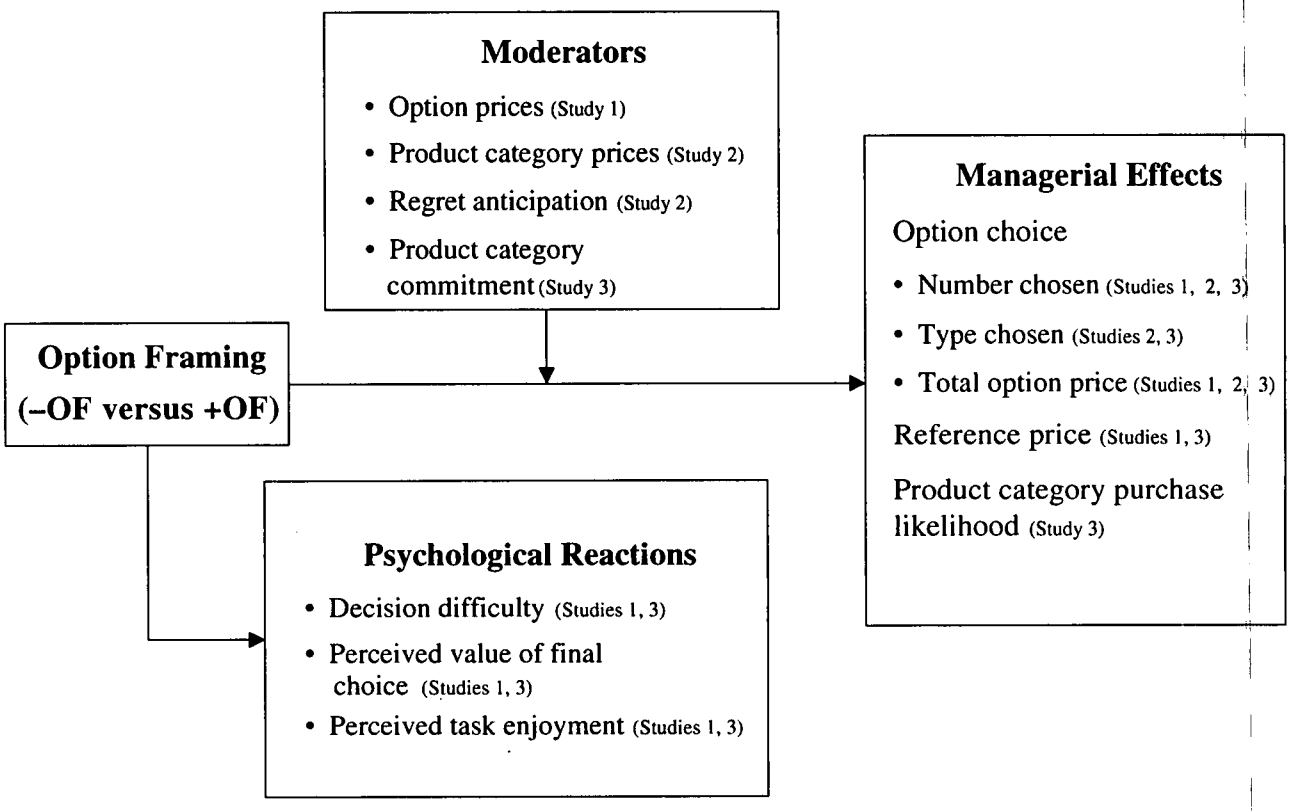
The managerial attractiveness of –OF versus +OF is also supported by Shafir (1993), who proposes that the relative weight given to positive and negative features depends on whether subjects are faced with a task of choosing or rejecting entities. An alternative's advantages provide reasons for choosing it, whereas its disadvantages provide reasons for rejecting it. This relative weight difference between choosing and rejecting was examined by Huber, Neale, and Northcraft (1987) in the context of personnel selection decisions. They presented subjects with resumes and application letters received by a firm in response to a newspaper advertisement. Subjects were asked to list the names of applicants they would accept for an interview or to list those they would reject. Significantly more candidates were chosen for the interview under the rejection than the acceptance frame. According to Shafir (1993), this result is due to the type of information available. Resumes are likely to be inherently biased toward candidates' strengths and provide few weaknesses explicitly. When deciding which candidates to accept, subjects choose those with the most impressive qualities and therefore choose only those few who stand out. When deciding on which to reject, subjects may find little to go by and end up rejecting relatively few. Because product options, like resumes, contain mostly positive features, we expect that subjects will generally choose more options with –OF than with +OF.

Research Motivation

Combined, the research and logic noted previously leads to the prediction that consumers will select more options when they use –OF versus +OF. Although this prediction may be inferred indirectly from prior research outside of marketing, several additional and critical issues shown in Figure 1 motivate the three experiments. First, research in marketing has provided little direct insight into whether –OF is indeed more managerially attractive than +OF. Although enhancing the number of options selected would certainly be managerially attractive, empirical validation of the relative efficacy of –OF on the number of options selected would be desirable. Furthermore, although the number of options selected is a relevant variable of interest to managers, other managerially significant outcomes associated with –OF versus +OF are also relevant, including the total price consumers pay for options, the type of option they select, the perceived (reference) price of the brand, and product category purchase likelihood (see Managerial Effects in Figure 1). One objective of this research is to examine the effect of –OF versus +OF on a set of variables deemed relevant to managers.

Second, moderator variables that affect the differential attractiveness of –OF versus +OF must be explored. Because the two option-framing methods differ in their focus on potential gains or losses in money versus utility, factors that heighten attention to (1) monetary gains or losses or (2) utility gains and losses may affect the relative managerial attractiveness of these two option-framing methods. Those moderators examined in the present research are option prices, product category prices, regret anticipation, and product category commitment (see Moderators in Figure 1).

Figure 1
SCHEMATIC OVERVIEW OF OPTION-FRAMING EFFECTS AND MODERATORS EXAMINED IN STUDIES 1–3



Finally, although –OF may be attractive from the standpoint of managers, to what extent is it viewed as attractive by consumers? Do they perceive more value from their final choice? Which task is more difficult and time consuming? The third objective of this research is to examine the relative efficacy of –OF versus +OF on these consumer-relevant outcomes (see Psychological Reactions in Figure 1).

We examine these issues in three studies. Next, we identify hypotheses relevant to Studies 1 and 2. Study 3 was designed to build on the results of Studies 1 and 2, with additional dependent and moderator variables. Therefore, the logic and hypotheses relevant to this study are presented following the results of Studies 1 and 2.

HYPOTHESES: STUDIES 1 AND 2

Effects of Option Framing on Perceived Reference Price

In addition to expecting that option framing affects the number of options selected, we also expect that option framing will affect the brand's reference price. Specifically, we expect that with –OF, consumers will use the price of the fully loaded model as an anchor, because it is this price at which they start and to which they are first exposed. For the same reason, consumers will likely use the price of the base model as an anchor in the case of +OF. Because consumers form price perceptions on the basis of the anchor or starting price (Nagle and Holden 1995), option framing may affect consumers' perception of the product's reference price, even if consumers are given the same information regarding the product's price range. Thus, because their anchor price for the brand is higher, we anticipate that consumers will have a higher reference price for the brand when they engage in –OF as opposed to +OF.[1] This outcome, though consistent with research on loss aversion, has considerable impact for managers. If correct, it suggests that option framing may be a potentially powerful mechanism for establishing a price-based or premium-oriented positioning strategy.

H_1: Compared with consumers in the +OF condition, those in the –OF condition will perceive that the brand has a higher price.

Effects of Option Framing on Consumers' Psychological Reactions

We also anticipate that the two option-framing methods will have different effects on consumers' psychological reactions to the decision task. Several psychological reactions are examined next.

Decision difficulty and decision time. We predict that consumers engaged in –OF will perceive the task of making option choices as more difficult than will those engaged in +OF. This, we believe, is because –OF induces a more serious conflict in the consumer's mind than does +OF. When a consumer faces a choice that entails a desired option, –OF

[1]We assume that the anchor or starting price is equally salient for consumers in the +OF as for those in the –OF condition. Our manipulation of option framing (which clearly states the anchor or starting price) suggests that this assumption is reasonable at least within the confines of our manipulation.

may create a conflict between utility loss and monetary gain. In contrast, +OF creates a conflict between utility gain and monetary loss. Differential loss aversion suggests that consumers are more sensitive to utility losses than monetary losses (Hardie, Johnson, and Fader 1993; Tversky and Kahneman 1991). Therefore, consumers may perceive more conflict when making an option choice with –OF versus +OF as they face utility loss decisions. Moreover, because people tend to formulate decisions in terms of choosing rather than rejecting (Shafir 1993), subjects may also find the task of rejecting versus choosing options more difficult. As with personnel selection decisions (Huber, Neale, and Northcraft 1987), rejecting positive product options would likely be more difficult than accepting them. Decision difficulty is, in turn, likely to delay decision time.

Another reason suggests a delay in decision time for –OF. Specifically, because consumers must decide to forgo options as opposed to adding them, a decision task that involves deleting (versus adding) options may be emotion laden and negative (see also Chatterjee and Heath 1996). Prior research suggests that negative, emotion-laden decisions may increase decision time by stimulating more detailed processing. Luce, Bettman, and Payne (1997) find that when consumers are exposed to negatively emotion-laden decision tasks, they cope by engaging in more attribute-based processing and process information in a more thorough and accurate manner. Such extensive processing should lengthen decision time. Thus, we expect that

H_2: Compared with consumers engaged in +OF, those engaged in –OF perceive greater difficulty with option choice decisions and thus take more time in making option choices.

Value perceptions. Option framing may also affect consumers' perceptions of the value of the product they ultimately select by influencing consumers' perceptions of the benefits they receive for the price they pay. We anticipate that –OF induces consumers to select more options than +OF. If so, consumers engaged in –OF may perceive that their final choice delivers more benefits than do those engaged in +OF. Although an increase in the number of benefits comes at a price, the price paid for the benefits is likely to be perceived as relatively low with –OF versus +OF. Specifically, because consumers base price perceptions on the anchor or starting price and because this anchor price is higher in the –OF than the +OF condition (see H_1), consumers engaged in –OF may see the price they pay as low in relation to the (relatively high) base price. The difference between the base price and price paid becomes greater as they delete more options. In contrast, consumers in the +OF condition are likely to consider the price they pay high in relation to the (relatively low) base price. The difference between the base price and price paid becomes greater as they add more options. Combined, these arguments suggest that because consumers engaged in –OF may select more options than those engaged in +OF but consider the paid price low in relation to the anchor price, they are more likely to view the product as delivering more value—that is, more benefits for the price. Thus, we predict that

H_3: Compared with consumers in the +OF condition, those in the –OF condition perceive more value from their final choice.

Moderating Conditions Influencing the Effect of Option Framing

Although the previous hypotheses favor the managerial attractiveness of –OF, we are also interested in contextual factors that may enhance, reduce, eliminate, or even reverse this attractiveness. The following hypotheses focus on three such moderators: (1) option price, (2) product category price, and (3) anticipation of regret. The first two factors focus on the monetary losses and gains associated with option choice in the –OF and +OF conditions. The third focuses on benefit (or utility) losses and gains associated with these methods as well as monetary losses and gains.

The moderating role of option price. The first issue focuses on whether the price of an option itself affects the differential attractiveness of –OF over +OF. Consider, for example, the differential effect of –OF versus +OF when options are full-priced versus half-priced. Because consumers in the +OF condition are more sensitive to the monetary loss associated with adding an option than consumers in the –OF condition are to the monetary gains associated with deleting the same option, they may be more sensitive and pay more attention to monetary issues associated with an option's price. Therefore, more expensive options may be less likely to be chosen in the +OF than the –OF condition. Given this differential attention to monetary loss/gain information, we expect that the effect of a full- versus a half-priced option will exert a greater effect on consumers in the +OF condition than those in the –OF condition.

Research on proportionality of option prices in relation to the product's total price (Heath, Chatterjee, and France 1995; Mazumdar and Jun 1993) suggests another reason option prices may moderate the effect of option framing on the number of options chosen. For example, when consumers purchase a $1,000 product (a $1,500 product), adding (deleting) a $100 option represents a 10% price increase (a 6.6% price decrease). However, if the option price is halved ($50), adding (deleting) the option represents only a 5% price increase (a 3.3% price decrease). Because the difference between a 10% loss and a 5% loss is greater than the difference between a 6.6% gain and a 3.3% gain, consumers should be more sensitive to option prices when they use +OF versus –OF. Thus, although consumers are expected to select more options with –OF than +OF and although they may select more options when option prices are half versus full priced, we also expect an interaction between option price and option framing. Specifically,

H_4: Lower option prices lead to a greater increase in the number of options selected in the +OF than the –OF condition.

The moderating role of relative product category price. Although the previous logic reflects consumers' sensitivities to proportional differences between an option's price and its total price, deviations from proportionality are likely (Heath, Chatterjee, and France 1995; Mazumdar and Jun 1993). Therefore, it is also useful to examine the effect of the absolute price difference in an option, controlling for proportionality. One way of manipulating absolute price while keeping proportionality constant is to manipulate product category price, keeping constant the proportion of an option's price to its total price. Consider, for example, three product categories that vary in price—one high priced

(e.g., cars), one priced somewhat lower (e.g., computers), and one priced even lower (e.g., treadmills). Assume also that option prices in the high-priced product category are proportionally the same as option prices in the moderate and low-priced product categories. Finally, consider that consumers are faced with the task of deciding to add or delete an option that costs 10% of the product's total price.

Notably, a 10% saving on a $1,500 personal computer is probably perceived as less than a 10% saving on a $15,000 car. Similarly, a 10% expenditure increase on a personal computer is probably perceived as less than a 10% expenditure increase on the car. Because loss aversion predicts that consumers in the +OF condition are more sensitive to the monetary loss associated with adding an option than consumers in the –OF condition are to the monetary gain associated with deleting it, anything that makes the monetary loss appear greater (e.g., a higher-priced product category) should create more sensitivity to adding than to deleting options. Thus, although consumers may select more options with –OF than +OF, they may also select more options when the price of the product category is low versus high. Product category price may thus interact with option framing to affect the number of options chosen. We therefore propose that

H_5: Lower product category prices have a greater increase in the number of options selected in the +OF than the –OF condition.

The moderating role of regret anticipation. Whereas H_4 and H_5 are concerned with price-related conditions, non–price-related conditions may also affect the managerial attractiveness of –OF. One such condition refers to the anticipation of regret regarding decision outcomes. Consumers often can anticipate how they would feel if their decisions yielded negative or less positive outcomes. Moreover, anticipation of regret and responsibility can be incorporated into the evaluation of alternatives, influencing what choices are ultimately made (Simonson 1992). In the context of product option choice, it might be surmised that decisions can be systematically influenced by manipulating consumers' anticipation of the regret and responsibility they would feel if they made the wrong decision regarding an option (Bell 1982; Simonson 1992). In contrast to the price manipulations described previously (which focus exclusively on monetary gains and losses), regret anticipation is likely to focus more on utility gains and losses.

A major finding in regret theory is that people experience greater regret and responsibility for decisions that deviate from default options (Kahneman and Tversky 1982). For example, a person who terminates a marital engagement may feel greater regret than the one who does not, because going through with the engagement is the default option. In a related vein, recent research has examined regret associated with outcomes resulting from action rather than inaction (Kahneman and Tversky 1982; Landman 1987; Spranca, Minsk, and Baron 1991). It has been found that people feel greater regret and responsibility for outcomes that result from their actions than from inaction. For example, an investor may feel less regret and responsibility if he decided not to sell his stock but later found that he would have been better off selling it than if he decided to sell his stock but later found that he would have been better off not selling it. Thus, omissions, compared with commissions, are less likely to be perceived as causes of outcomes. It has also been argued that omissions are often the more conventional choice alternative and are thus seen as default options (Kahneman and Miller 1986).

On the basis of this reasoning, we expect that regret anticipation will increase the probability of choosing inaction versus action. Thus, compared with consumers who are not asked to anticipate the regret and responsibility associated with making a wrong option choice, those who are asked to do so may add fewer options in the +OF condition and delete fewer options in the –OF condition. Therefore, we propose that

H_6: Choice outcomes in the –OF and +OF conditions will differ more when consumers are asked (versus not asked) to anticipate regret and responsibility associated with wrong option choices.

In addition to the previous effects, we also explore whether option framing affects the type of option chosen. Although it is difficult to determine a priori how option framing might affect the type of option chosen, we surmise that option importance is relevant to the option-selection task. Specifically, although loss aversion should occur for both important and less important options, it may exert more impact when options are important, because option importance correlates with perceived utility losses or gains. Subjects in the –OF condition may choose more important options than subjects in the +OF condition, because the difference in utility lost by giving up an important versus an unimportant option would be greater than the difference in utility gained by adding the important versus the unimportant option (because of the steeper loss curve).

In the sections that follow, we present the results of two studies designed to test these hypotheses. Experiment 1 is designed to test H_1–H_4. Experiment 2 is designed to test H_5 and H_6 and examine the effect of option framing on the type of option selected.

METHOD: STUDY 1

Stimulus Development and Pretesting

We first conducted a pretest to identify a product category perceived to be familiar to subjects and to identify appropriate product options for that category. We chose automobiles for Study 1, because the category was perceived to be familiar and rich in product options. Furthermore, option choice is often apparent among products in that category. We then identified a list of product options based on information published in *Consumer Reports,* brochures, advertisements, and relevant magazines. Subjects engaged in Pretest 1 (n = 20) were asked to rate product category familiarity (1 = not familiar at all, 7 = very familiar) and the perceived importance of a variety of product options (1 = not important at all, 7 = very important). As expected, subjects appeared to be familiar with the product category ($\bar{X}$ = 5.37). A set of ten product options was selected, five of which were rated as highly important (greater than five on a seven-point scale). The average price of the options selected was set at approximately 4% of the product's total price.

Design and Subjects

H_1–H_4 were tested in an experiment using a 2 (+OF versus –OF) × 2 (half- versus full-priced product options) be-

tween-subjects design. Subjects in one group were given option price information that listed options at their full option price (e.g., air cleaner $300). Subjects in the other group were given option price information that was half of the full option price (e.g., air cleaner $150). One hundred twenty-six business school students from four classes participated in the experiment. Subjects were paid $3 as a token of appreciation for their time. Questionnaires were counterbalanced such that each experimental group was equally represented in each class.

Independent Variables

To manipulate option framing, subjects were given a brief description of the product purchase context along with the product's starting and ending prices. In the +OF condition, subjects were given the base model and its price and were told that they could add options they deemed desirable—up to the full model. The opposite description was given to subjects in the –OF condition. In both the +OF and –OF conditions, subjects were given the same price range information before the option choice task.

To examine the option-framing effect when option prices differ, a half (versus a full) option price condition was added. In the half-price condition, option prices were set at half ($2,450) the full option prices ($4,900), and the price of the base model remained the same ($12,200). Thus, because of the decrease in option prices, the price of the fully loaded model was $14,650 in the half-price condition. Accordingly, the average price of the product options was lowered to approximately 2.2% of the total product price, compared with 4% of the total product price in the full option price condition.

Procedures

Subjects were told to respond to the questionnaire as if they were facing an actual car acquisition decision. Each subject was given a list of ten product options and their prices for a car called the ABC brand. Subjects were told that their task was to add (delete) the options they wanted (did not want). Subjects also used a large clock displayed in front of them to write down the beginning and ending time of their decisions. They also indicated the extent to which they found the choice task interesting and enjoyable and the extent to which they perceived value from their final choice. They also rated the difficulty of the decision task.

An independent task, described in detail in the measures section, was performed to identify subjects' reference price. This task was physically separated from the option choice decision task. Moreover, subjects were asked to indicate the reference price of the original ABC brand, not the final brand they chose. This mechanism reduced any potential confounding between the option framing and the reference price tasks. Subjects were then asked several price- and value-related questions about the brand. Finally, subjects' familiarity with the product was measured as a control variable. Upon completion of the questionnaires, subjects were debriefed and thanked.

Dependent Measures

Reference price. To test H_1, we included two indicators of reference price. The first is the price category to which subjects would assign the ABC brand (e.g., the extent to which they perceived it as belonging to a category of premium cars or a category of economy cars). The second is the price consumers expect to pay.

To assess price categorization, we asked subjects to perform a categorization task that indicated the extent to which the ABC brand could be categorized as a member of a premium versus an economy price category of cars. Subjects were first given a description of two price-based categories of cars (premium and economy mid-sized cars). For each category, they were also given the price ranges of five category members. For example, one member of the premium category was the Chevrolet premium car, whose price ranged from $15,855 to $18,955. A second was the Honda premium brand, whose price ranged from $14,550 to $19,003. The premium and economy brands of five manufacturers (Chevrolet, Honda, Ford, Mazda, and Nissan) were represented in each category. For example, Chevrolet had a brand in the premium category and another in the economy category. The average price of the premium category models was equal to the full price of the ABC brand (i.e., $17,100), whereas the average price of the economy category models was equal to the base price of the ABC brand (i.e., $12,200). In this way, the ABC brand could be perceived as belonging to either category with the same likelihood. The price ranges of the brands were also similar in each category, so subjects could easily form two distinct price categories. Brands in the premium category ranged in price from $15,380 to $18,823, with a range of $3,443. Brands in the economy price category ranged in price from $10,479 to $13,923, with a range of $3,444. The subjects' task was to review these two price categories and indicate the extent to which the ABC brand was representative of the premium category and the economy category (1 = not at all representative, 7 = strongly representative). To assess subjects' expected price, we used an open-ended question. Specifically, subjects were simply asked to indicate the price they expected to pay for the brand.

Decision difficulty and decision time. Decision time was measured in seconds by information subjects provided on the starting time and ending time of their option choice task. Subjects also used a seven-point scale (1 = very easy, 7 = very difficult) to rate how difficult it was to make their option choice decisions.

Perceived value. Subjects' perceptions of the value of the car they chose (H_3) were measured in two ways. First, subjects were asked to use a seven-point scale to indicate the extent to which they perceived benefits from their new car, given the options they chose and their prices (1 = very little benefit, 7 = a lot of benefit). Second, subjects used a seven-point scale to indicate whether the options they chose represented a poor value (1) or an excellent value (7). The two measures were highly correlated (r = .89) and therefore were averaged to form a composite perceived value measure (H_3).[2]

Task enjoyment. In addition to the measure of value perceptions, subjects' attitudinal reactions to the option-framing method were measured with multiple-item scales. Three

[2]Because the measures of value perception for the ABC brand were taken after the measure of expected price, these latter dependent variables may have been systematically influenced by exposure to the previous measure. To rule out this explanation, we replicated Study 1 (n = 132), changing both the order of the major dependent variables and the order of specific indicators of each dependent variable. The results of this study virtually replicated those reported in Study 1.

seven-point scales assessed the extent to which subjects found the option framing choice task enjoyable (1 = not enjoyable at all, 7 = very enjoyable), interesting (1 = not interesting at all, 7 = very interesting), and pleasant (1 = not pleasant at all, 7 = very pleasant). These three measures (Cronbach's α reliability coefficient = .87) were averaged to form a composite index.

Choice outcomes. The number of options chosen was measured to validate our expectation that more options would be chosen in the –OF than the +OF condition and to test the three moderating effects (H_4–H_6). We also examine total option prices, expecting the same pattern of results predicted for the number of options. Total option price was measured by summing the individual prices of the options selected.

RESULTS: STUDY 1

Analysis of variance (ANOVA) and cell means results are reported in Table 1.[3] As expected, option framing differentially affected the number of options selected. Subjects engaged in –OF selected more options ($\bar{X}$ = 6.91) than did subjects engaged in +OF ($\bar{X}$ = 4.65; F = 76.77, $p < .01$). Total option price was also higher for subjects engaged in –OF ($\bar{X}$ = 2,472.58) than those engaged in +OF ($\bar{X}$ = 1,742.01; F = 43.28, $p < .01$). Thus, as expected, we observed that option framing affects the number of options selected. Subsequent analyses were designed to assess the results' fit with the hypothesized anchoring and differential loss aversion predictions.

H_1 predicts that consumers will assign a higher reference price to the product when –OF versus +OF is used. The results strongly suggest that option framing affects subjects' reference price. Subjects in the –OF condition were less likely to categorize the product as a member of the economy car category ($\bar{X}$ = 3.53 versus = 4.71 for subjects in the –OF and +OF conditions, respectively; F = 20.41, $p < .01$) and were more likely to categorize the product as a member of the premium car category ($\bar{X}$ = 5.16 versus X = 3.64 for subjects in the –OF and +OF conditions, respectively; F = 31.43, $p < .01$). In addition, subjects in the –OF condition had a significantly higher expected price for the target brand ($\bar{X}$ = 14,470.63) than did subjects in the +OF condition ($\bar{X}$ = 13,651.43; F = 16.68, $p < .01$). Combined, this evidence strongly supports the idea that option framing affects perceptions of the product's reference price.

H_2 predicts greater decision difficulty and longer decision time for –OF than for +OF. As predicted, subjects engaged in –OF perceived the option choice task to be more difficult

[3]Because of the potential intercorrelations among some of the dependent variables (e.g., number of options chosen, total option price, expected price), we also performed a multivariate analysis of variance (MANOVA) using all of the dependent variables reported in Table 1. The results of the MANOVA replicated the ANOVA results reported in Table 1.

Table 1
ANOVA RESULTS AND CELL MEANS FOR STUDY 1

	ANOVA Results		+OF		–OF	
Dependent Variable	Source	F	Half-Priced (n = 34)	Full-Priced (n = 30)	Half-Priced (n = 31)	Full-Priced (n = 31)
Number of options chosen	Option price	5.59**	5.00	4.30	7.16	6.65
	Option framing	76.77***				
	Interaction	.13				
Total option price	Option price	116.45***	$1,232.35	$2,251.67	$1,783.87	$3,161.29
	Option framing	43.28***				
	Interaction	2.60				
Economy category membership	Option price	1.38	4.24	5.17	3.69	3.37
	Option framing	20.41***				
	Interaction	5.87**				
Premium category membership	Option price	1.97	4.09	3.18	5.08	5.23
	Option framing	31.43***				
	Interaction	3.76*				
Expected price	Option price	28.81***	$13,216.18	$14,086.67	$13,829.03	$15,112.23
	Option framing	16.68***				
	Interaction	1.06				
Option choice difficulty	Option price	1.35	5.00	5.30	5.52	5.71
	Option framing	4.77**				
	Interaction	.06				
Decision time	Option price	4.26**	49.68	61.93	66.26	74.65
	Option framing	8.58***				
	Interaction	.15				
Perceived value	Option price	.02	4.99	4.92	5.26	5.37
	Option framing	5.16**				
	Interaction	.32				
Task enjoyment	Option price	.15	4.85	4.68	5.11	5.15
	Option framing	4.12**				
	Interaction	.32				

*$p < .10$.
**$p < .05$.
***$p < .01$.

than did those engaged in +OF ($\bar{X}$ = 5.62 and $\bar{X}$ = 5.15, respectively; F = 4.77, $p < .05$). Notably, framing effects on perceived difficulty remained significant (F = 5.88, $p < .05$), even when the number of options chosen was added as a covariate (F = .88, $p > .05$ for the covariate). This effect suggests that difficulty perceptions are not simply driven by –OF subjects choosing more options. Subjects engaged in –OF also took more time in making decisions than those engaged in +OF ($\bar{X}$ = 70.46 versus $\bar{X}$ = 55.81, respectively; F = 8.58, $p < .01$). Decision time was also affected by relative option price. Subjects took significantly more time in making option choices when the options were full priced ($\bar{X}$ = 68.29) than when they were half priced ($\bar{X}$ = 57.97; F = 4.26, $p < .05$), perhaps because of the higher economic risk associated with the full-priced option choices.

H_3 predicts that consumers engaged in –OF versus +OF will assign more value to their final product. The results support H_3, showing that consumers perceive more value from the product and options they choose in the –OF ($\bar{X}$ = 5.32) than the +OF ($\bar{X}$ = 4.96; F = 5.16, $p < .05$) condition. As expected, subjects also evaluated the option choice method more positively when –OF ($\bar{X}$ = 5.13) versus +OF was used ($\bar{X}$ = 4.77; F = 4.12, $p < .05$).

H_4 predicts that lower option prices increase the number of options chosen in the +OF condition more than in the –OF condition. As evidence of the success of the pricing manipulation, subjects in both conditions selected more options when the options were half priced ($\bar{X}$ = 6.08) than when they were full priced ($\bar{X}$ = 5.48; F = 5.59, $p < .05$). More relevant to the hypothesis, however, is whether the results reveal a significant interaction between option framing and relative option price. Although the means are directionally consistent with the prediction made in H_4, the interaction was not significant. Instead, the main effect results for option framing suggested that the differential effectiveness of –OF versus +OF holds when option prices are half priced as well as when they are full-priced (F = 76.77, $p < .01$).

DISCUSSION: STUDY 1

Several findings were observed in Study 1. First, subjects engaged in –OF selected more options than did those engaged in +OF, both when option prices were full priced and when they were half priced. Total option price was also higher in the –OF than the +OF condition—again, both when the option prices were full priced and when they were half priced. That the –OF consumers chose more product options across both option price conditions suggests that the effect of option framing is robust across pricing manipulations. Although we had hypothesized and found directional support for an interaction effect (suggesting that consumers are more sensitive to monetary considerations in the +OF than the –OF condition), the interaction was not significant.

Second, the two option-framing conditions differentially affected the brand's reference price. Specifically, the price that consumers expected to pay for the brand was significantly higher in the –OF than the +OF condition. Subjects in the –OF condition were also more likely than those in the +OF condition to view the product as a member of a premium versus an economy price category. This difference in price perception is likely to be one factor that explains why subjects also perceived more value from their choices when they engaged in –OF versus +OF. Subjects in the –OF condition also found the choice task to be more enjoyable than did those in the +OF condition.

Third, subjects found the option choice decision more difficult and took significantly longer in making decisions when –OF versus +OF was used. These results are consistent with the idea that the task of deleting options seems to be more difficult than the task of adding options (Shafir 1993). They are also consistent with the notion that consumers face more conflict between utility losses and monetary gains than between utility gains and monetary losses (Hardie, Johnson, and Fader 1993).

Study 2 was designed to extend the results of Study 1. Specifically, we examined the effect of a different price variable—the price of the product category itself (H_5). We also examined whether the effects of option framing on choice outcomes observed previously are magnified when subjects are asked to anticipate regret (H_6).

METHOD: STUDY 2

Stimulus Development and Pretesting

Product category pretest. Before data collection, several pretests were conducted. They identified familiar product categories perceived to differ in relative price and minimized the possibility that the effects of product category price on option choice are confounded with the importance consumers assign to product options. On the basis of informal interviews, three familiar product categories, each with a different price level, were identified: automobiles, computers, and treadmills. For each product category, we identified a list of possible product options from *Consumer Reports*, brochures, advertisements, and relevant magazines.

Subjects engaged in the pretest (n = 20) were asked to indicate their familiarity with each of the three product categories and to rate the perceived importance of various product options. As expected, the three product categories did not differ in familiarity. On the basis of the option importance ratings, a set of ten options for each product category was selected. The options in each category had a similar pattern of option importance ratings; approximately five in each category were perceived to be highly important (greater than five on a seven-point scale). These steps helped rule out a possible confounding between product category price and option importance ratings. The option list for automobiles was the same as that used in Study 1. The average option price in each category was set at approximately 4% of the product's total price.

Regret anticipation pretest. An additional pretest was conducted to identify an effective manipulation of regret anticipation. We first conducted informal interviews to identify the most appropriate way of creating regret anticipation. On the basis of several possible manipulations (e.g., no refund policy), we selected a manipulation that described a dealer policy that did not allow option choices to be changed following purchase. This manipulation was regarded as both realistic and capable of producing symmetric effects on option choices.[4] This manipulation of regret anticipation was

[4]For example, a policy that allows no future addition of product options is not appropriate for our study, because it creates regret only for those who decide to have fewer options. However, the policy used in our study (one that does not allow future change of options) is expected to create regret for those who decide to have more options as well as those who decide to have fewer options.

also consistent with previous research. For example, Simonson (1992) manipulated regret anticipation by telling subjects that they would receive postdecision feedback about whether their decision was correct.

Another pretest was designed to test the success of this manipulation. Although we believed that consumers would normally feel more regret when they engaged in action (i.e., they added options in the +OF condition or deleted options in the –OF condition) than in inaction, we expected that this phenomenon would be stronger in the regret versus the nonregret condition. Eighty-one subjects were used in this 2 (regret versus nonregret anticipation) × 2 (+OF versus –OF) between-subjects design pretest. Two measures of regret anticipation were used. First, subjects were asked, "When would you be more upset with yourself?" They used two nominal response categories: 1 = when I purchased the product with some options added (deleted) and found out later that the added (deleted) options were not necessary (were necessary) and not useful (were useful); 2 = when I purchased the product without adding (deleting) options and found out later that some options were necessary (not necessary) and useful (not useful). Second, subjects used the same scales to indicate when they would feel greater regret. The results were consistent with the manipulation check in the main experiment. Note that the regret anticipation scale only asks subjects to choose one of two options on each scale.

Design and Subjects

H_5 and H_6 were tested in an experiment using a 2 (+OF versus –OF) × 2 (regret anticipation: high versus low) × 3 (relative product category price: high = automobiles, moderate = computers, and low = treadmills) between-subjects design. Three hundred two undergraduate and graduate business students from a major university were run in small groups and were randomly assigned to one of the 12 experimental conditions. Each condition had between 23 and 27 subjects. Subjects were paid $3 for their time.

Procedures

Subjects were told that the study was designed to measure consumers' reactions to various product options and their prices. The option choice, product category price, and regret anticipation manipulations were executed through instructions. Subjects in the regret anticipation condition received a description about a dealer policy that did not allow for option changes after purchase. No such policies were mentioned to subjects in the nonregret condition. Subjects then received a list of ten product options and their prices and were asked to add (delete) the options they wanted (did not want) for their final model. Product category familiarity was assessed to test for possible differences in subjects' familiarity with the three product categories. Regret anticipation measures (the same as those used in the pretest) were also taken to check the manipulation of regret anticipation. Upon completion of the questionnaires, subjects were debriefed and thanked.

RESULTS: STUDY 2

Before testing the hypotheses, analyses were conducted to (1) assess consumers' familiarity with the three product categories (car, computer, and treadmill) and (2) ensure that the manipulation of regret anticipation was successful. Consistent with the pretests, the results showed that consumers perceived the three product categories to be equally familiar ($\bar{X}$ = 5.45, $\bar{X}$ = 5.30, and $\bar{X}$ = 5.33 for automobiles, computers, and treadmills, respectively; F = .39, $p > .05$). The manipulation check of regret anticipation was also successful. Subjects in the nonregret/+OF condition indicated more regret when they added options (n = 48) than when they did not add options (n = 29). However, those in the regret/+OF condition indicated even more regret when they added options (n = 66) than when they did not add options (n = 10; chi-square = 12.01, $p < .01$). The same pattern occurred for the –OF condition. Subjects in the nonregret condition (n = 51) indicated more regret when they deleted options than when they did not delete options (n = 24). In the regret condition, however, subjects (n = 64) indicated far greater regret when they deleted options than when they did not (n = 10; chi-square = 7.23, $p < .01$). These results were replicated for the other measure of regret anticipation (i.e., "feeling more upset with yourself").

Two 2 × 2 × 3 ANOVAs were conducted to test H_5 and H_6. Table 2 reports cell means for the number and total price of the options chosen.

H_5 predicts that lower product category prices increase the number of options purchased in the +OF condition more than in the –OF condition. This hypothesis was based on the expectation that consumers in the +OF condition are more sensitive to the economic costs involved in adding options than

Table 2

EXPERIMENT 2: CELL MEANS AND STANDARD DEVIATIONS

Product Category Price	*Dependent Measures*	*+OF*		*–OF*	
		Nonregret	*Regret*	*Nonregret*	*Regret*
Treadmill	Number of selected options, total option price ($)	n = 24 6.67 (1.27) 91.67 (22.63)	n = 27 6.26 (1.72) 84.81 (23.27)	n = 26 6.92 (1.20) 94.04 (16.31)	n = 26 7.08 (.74) 95.19 (12.92)
Computer	Number of selected options, total option price ($)	n = 27 6.11 (1.76) 525.19 (162.68)	n = 24 5.50 (1.74) 484.58 (147.12)	n = 23 6.48 (1.97) 536.09 (159.91)	n = 23 6.74 (1.21) 603.48 (116.64)
Car	Number of selected options, total option price ($)	n = 26 5.38 (1.83) 2644.23 (1110.25)	n = 25 4.80 (1.73) 2304.00 (924.88)	n = 26 6.12 (1.93) 3101.92 (972.88)	n = 25 6.44 (1.53) 3404.00 (679.75)

Notes: Standard deviations are given in parentheses.

consumers in the –OF condition are to the economic gains in deleting them. This, in turn, led to the expectation that though consumers might choose fewer options when product category prices were high versus low, consumers in the +OF condition would be particularly sensitive to the effect of a high versus a low product category price. Thus, in addition to the main effects of option framing and product category price, we anticipated an interaction between the two.

Consistent with these expectations, the results revealed main effects of option framing and of product category price. Consumers selected more options (Table 2) in the –OF ($\bar{X}$ = 6.63) than the +OF ($\bar{X}$ = 5.79; F = 20.96; $p < .01$) condition. They also selected more options (F = 11.01, $p < .01$) when the product's price was low ($\bar{X}$ = 6.73, standard deviation [s.d.] = 1.31 for the treadmill) than when it was moderate ($\bar{X}$ = 6.20, s.d. = 1.74 for the computer; t = 2.42, $p < .01$) and more when it was moderate than when it was high ($\bar{X}$ = 5.69, s.d. = 1.85 for the car; t = 2.00, $p < .05$). Marginal means are also consistent with the idea that consumers in the +OF condition were more sensitive to the price of the product category than were consumers in the –OF condition. However, the interaction predicted by H_5 was not significant (F = 1.07, $p > .05$). Thus, subjects were as sensitive to the proportional difference between gains and losses of the option-framing methods in the low product category price condition as in the high product category price condition.

H_6 proposes that the effect of –OF versus +OF on the number of options selected would be magnified when consumers were (versus were not) asked to anticipate regret. Consistent with H_6, the hypothesized interaction between option framing and regret anticipation was significant (F = 4.51, $p < .05$). The magnitude of the effect showed that the effect of –OF and +OF was particularly acute when subjects were asked to anticipate regret ($\bar{X}$ = 6.76 versus 5.52, respectively) compared with when they were not ($\bar{X}$ = 6.51 versus 6.05, respectively).

In addition to the number of options chosen, we also examined the total price of the options chosen. As expected, the results were similar in direction and magnitude to those observed for the number of options chosen. Specifically, a significant main effect of option framing revealed that total option price was significantly higher in the –OF condition ($\bar{X}$ = 1321.34) than the +OF condition ($\bar{X}$ = 1023.86; F = 19.88, $p < .01$; see Table 2). The main effect of product category price was also significant (F = 741.07, $p < .01$). In addition, the results revealed a significant interaction (F = 3.95, $p < .05$) between option framing and regret anticipation. The difference in the total option price between the two option-framing methods was greater in the regret anticipation condition than in the nonregret anticipation condition.

Finally, we examined whether option framing affected the type of option chosen. An examination of the selected options shows a strong relationship between an option's importance and its selection. Subjects in the –OF condition chose significantly more options regarded as less important than subjects in the +OF condition ($\bar{X}$ = 2.68 and 1.76, respectively; t = 6.22, $p < .05$). However, subjects in the –OF condition did not select important options more often than subjects in the +OF condition ($\bar{X}$ = 4.00 and 3.80, respectively; t = 1.62, $p > .05$).

DISCUSSION: STUDY 2

Similar to Study 1, Study 2 shows that consumers selected more options in the –OF than the +OF condition. The differential effectiveness of –OF remained strong across the three product category price levels. Although marginal means were consistent with the interpretation that consumers in the +OF condition were more sensitive to monetary losses, the proposed interaction was not statistically significant. The results also showed that the effect of option framing on the number of options chosen was enhanced by consumers' anticipation of regret that might result from their decisions. The results were replicated using total option price as a dependent variable. The total price of the selected options was higher in the –OF than the +OF condition, and the price difference between the two option-framing methods was more pronounced in the regret than the nonregret condition. Finally, subjects in the –OF condition chose a greater number of less important options than did those in the +OF condition. This last result is explored further in Study 3.

STUDY 3

Studies 1 and 2 asked subjects to make option choices but implied that they had already decided to buy within the specified product category. Thus, subjects' commitment to buying within the designated product category was assumed to be high. In reality, however, commitment need not be high. Consumers often make choices among one or more product categories, and their commitment to purchasing within a given category can vary greatly. A basic question guiding Study 3 is therefore how or whether option framing affects purchase decisions when commitment to buying within the product category is low (versus high).

Hypotheses

We examine in Study 3 whether the framing of options of a brand affects consumers' intentions to purchase within the product category. Because –OF made the brand appear more expensive, it is natural to ask whether it reduces consumers' propensities to buy within the category as a whole. We anticipate that it may indeed have these effects, but only under conditions in which consumers' commitment to buying within the product category is low.

As commitment to purchasing within the category becomes low (i.e., consumers are not interested in purchasing within the category), the price of a given brand may become a more important basis for deciding not to buy *any* brand within the category (Monroe 1990). Thus, consumers who are low in their product category commitment may be highly sensitive to price. In Study 1 we found that subjects perceive the brand as more expensive when –OF versus +OF is used. If subjects do attend more to price when category commitment is low (versus high) and if the price of the brand is perceived to be higher when –OF versus +OF is used, –OF is likely to enhance the perceived economic risk of purchasing within the category and subsequently reduce category purchase intentions (H_{7a}).

In contrast, when commitment to the category is high, the effect of the higher perceived price of the brand in –OF versus +OF on category purchase decisions should be limited. Because consumers are highly committed to buying within

the category, they have already decided to buy within the category (by definition). Therefore, their purchase likelihood in the product category should be unaffected by –OF and +OF. Accordingly, option framing should have no significant effect on purchase of the product category (H_{7b}). This leads to the following:

H_{7a}: When product category purchase commitment is low, consumers will reveal less category purchase when –OF versus +OF is used.

H_{7b}: When product category purchase commitment is high, option framing has no effect on consumers' category purchase.

In Study 1 we found that option framing had several effects, as noted in Figure 1. We anticipated that these effects would be replicated in Study 3. Thus, we expected that if consumers did decide to purchase the target brand, they would choose more options when –OF versus +OF was used (and that they would perceive the brand's reference price as higher). We also expected that subjects would find the decision task more difficult yet also more enjoyable when –OF versus +OF was used.

Finally, in Study 3 we explore further the effect of option framing on the type of options selected. In Study 2 we found that option framing influenced the number of unimportant options chosen but had no effect on the number of important options subjects chose. Given the unexpected effect of option framing on the number of important versus unimportant options chosen, we attempted to determine if this effect was replicable in Study 3.

METHOD: STUDY 3

Stimulus Development and Pretests

Product option selection pretest. To maintain consistency across the studies, we used cars as the product category for Study 3. Studies 1 and 2 used car options whose importance range was relatively limited (all options were above the midpoint on a seven-point importance scale). To enhance the ecological validity of the options included, we replaced those options with ones that varied in importance. A pretest was conducted to select such options. Fourteen options and their associated prices were presented to 35 business student subjects who used a seven-point importance scale to rate the importance of each option. On the basis of the pretest results, ten options were chosen, five of which were viewed as important: power door lock ($\bar{X}$ = 6.12), three-year warranty ($\bar{X}$ = 5.88), anti-lock four-wheel disc brakes ($\bar{X}$ = 5.73), remote keyless entry with alarm ($\bar{X}$ = 5.21), and sun roof ($\bar{X}$ = 4.70). The remaining options were relatively less important: in-dash CD player ($\bar{X}$ = 4.31), leather seats ($\bar{X}$ = 3.89), forged alloy wheels ($\bar{X}$ = 3.80), remote fuel-door release ($\bar{X}$ = 3.70), and leather-wrapped steering wheel ($\bar{X}$ = 3.17).

Product category commitment pretest. Another pretest was conducted to identify product category alternatives used in the product category commitment manipulation. Twenty-three subjects were asked to identify product categories as expensive as new cars that students like themselves would like to buy. The most common categories listed were investing in the stock market, installing a multimedia entertainment center in one's home, and taking a trip to a famous international resort.

A final pretest (n = 38) was conducted to examine the manipulation of low and high product category commitment. Commitment was manipulated by asking subjects to assume that they had a low (high) likelihood of buying a new car compared with spending money on the other three categories. The specific manipulation of commitment is shown in the Appendix. In both commitment conditions, subjects were told that they would likely buy the ABC brand if they decided to buy a new car. This was necessary so as not to confound product category and brand commitment. Pretest results supported the success of the commitment manipulation.

Design and Subjects

Study 3 used a 2 (+OF versus –OF) × 2 (low versus high commitment) between-subjects design. One hundred one graduate business students from two classes at a major west coast university were randomly assigned to one of the four experimental conditions. Each condition had between 24 and 27 subjects.

Measures and Procedures

Following random assignment of subjects to each condition, subjects were given a questionnaire that contained the manipulations and dependent variables. The experimental task was explained on the first three pages of the questionnaire. On the first page, subjects were told that the study was designed to measure consumers' reactions to various product options. On the second page, subjects were given the category commitment manipulation instructions shown in the Appendix. The third page contained the option-framing manipulation. The +OF and –OF manipulation was the same as that used in Studies 1 and 2. The total price of the car with all of the options chosen was set at $17,000 (for –OF) and $12,000 (for +OF). Thus, before responding to any questions, subjects were told how they could choose options and were given information regarding the price of the car and the price of each option. They were then asked to respond to a set of questions described subsequently.

Purchase decision. Following the experimental manipulations (product purchase commitment and option framing), several purchase intention–related dependent variables were assessed. A binary choice measure asked subjects whether they would or would not buy a car at the present time. Subjects were then asked to describe in their own words why they decided to buy or not buy a car at the present time. A seven-point likelihood scale (1 = not likely at all, 7 = very likely) asked subjects to indicate the likelihood that they would purchase a car at the present time.

Commitment manipulation check. Three questions were used to assess the success of the product category commitment manipulation: (1) a binary measure of intentions to purchase a car, (2) a rating measure of likelihood of purchasing a car, and (3) the extent of information search for other products before deciding to buy a car. Whereas the first two items directly assess product category commitment, the third indicates it indirectly, because low commitment to the car category should correspond with a greater willingness to search for information about other products (Dhar 1997). Specifically, some research (Dhar 1997; Tversky and Shafir 1992) finds that one way to resolve a conflict between two similarly attractive alternatives is to defer the choice decision and search for additional information.

Replication, process, and attribute importance measures. After the manipulation and collection of data relevant to H_7,

subjects were told to assume that they had decided to purchase the ABC brand. Because subjects were told at this point to assume that they had decided to purchase the ABC brand, brand commitment was assumed to be high (as was the case in Studies 1 and 2). A set of questions designed to replicate several effects observed in Studies 1 and 2 was then asked. Subjects first were asked to identify which options they would select for their final model. As in Studies 1 and 2, this measure provided information regarding the total number of options chosen and the total option price.

After completing the option choice task, subjects were asked several additional questions. The theoretical process underlying H_7 was that subjects in the low-commitment condition would be more sensitive to the amount of money they spent. To assess whether this process was operating, two questions assessed subjects' sensitivities to the amount of money they would spend for a car and its options. Subjects were asked the extent to which they were concerned about whether the money spent on the car and its options was justifiable (1 = concerned very little, 7 = concerned very much). They were also asked to indicate the extent to which they thought about the amount of money they had saved when choosing a car and its options (1 = thought very little, 7 = thought very much). These price sensitivity–related questions followed (rather than preceded) the option choice task so as not to affect option choice responses.

To determine whether option choices are affected by option importance, subjects were also asked to indicate the importance they attached to each of the ten product options (1 = not important at all, 7 = very important). The remaining questions assessed price perceptions, price categorization, decision difficulty, perceived value of the final model, and task enjoyment. The questions used the same format as those in Study 1. We anticipated that the effects observed in Study 1 would be replicated in Study 3.

RESULTS: STUDY 3

Manipulation Check

The manipulation checks for product category commitment showed that the commitment manipulation was successful. Significantly fewer consumers in the low- versus the high-commitment group intended to purchase a car (12 of 53 versus 27 of 48, respectively; $t = 3.47$, $p < .01$). Compared with consumers in the high-commitment condition, those in the low-commitment condition were also less likely to buy a car ($\overline{X} = 4.65$ and $\overline{X} = 3.00$, respectively; $F = 27.73$, $p < .01$) and were more likely to search for information about other product categories ($\overline{X} = 3.84$ and $\overline{X} = 5.22$, respectively; $F = 23.85$, $p < .001$).

Purchase Decision

The same analyses revealed a set of interaction effects that supports H_7. A significant interaction between option framing and product category commitment on category purchase likelihood ($F = 4.01$, $p < .05$) showed that when commitment to buying a car was low, category purchase intentions were higher when +OF versus –OF was used ($\overline{X} = 3.50$ and $\overline{X} = 2.52$, respectively; $t = 2.36$, $p < .05$; see Table 3). However, when commitment to buying a car was high, there was no discernable difference in category purchase likelihood between subjects in the +OF versus –OF conditions ($\overline{X} = 4.52$ and $\overline{X} = 4.79$, respectively; $t = .58$, p = n.s.). Identical effects were observed for the brand purchase intention dependent variable (see Table 3). The same pattern of effects was observed when the binary choice variable (buying versus not buying a car at the present time) was used as the dependent variable. Although this result is not amenable to statistical testing because of the small sample size, the results show that when commitment to buying a car was low, more subjects indicated an intention to buy a car in the +OF (n = 8) than in the –OF (n = 4) condition. When commitment to buying a car was high, the number of subjects who indicated an intention to buy a car did not differ across the +OF (n = 13) and –OF (n = 14) conditions. Both results strongly suggest that the effect of –OF versus +OF on category purchase likelihood is negative for those whose initial interest in buying a car is low, but not for those whose initial interest in buying a car is high.

The information search results were consistent with those reported previously. Although the interaction between option framing and category commitment did not reach the conventional level of significance ($F = 3.56$, $p < .10$), the pattern of results supports H_{7a} and H_{7b}. Subjects in the low-commitment case indicated a greater intention to search for information about other categories when –OF versus +OF was used ($\overline{X} = 5.96$ versus $\overline{X} = 5.08$, respectively). However, in the high-commitment case, –OF and +OF subjects did not differ in their intentions to search for information about other products ($\overline{X} = 3.63$ versus $\overline{X} = 4.04$, respectively). One reason for the relatively small difference between the +OF and –OF conditions in the low-commitment case was that a decision not to purchase a category does not always involve a search for information about other categories. Thus, the indirect nature of this measure may explain the relatively weak effects observed.[5]

To gain possible process insight into the reasons behind these interactions, we examined the effects of product category commitment and option framing on three additional variables: (1) expected price, (2) attention to price, and (3) thought statements. We expected that subjects in the –OF condition would perceive the car as more expensive than those in the +OF condition. We also reasoned that consumers would pay considerable attention to the price of the product when commitment was low compared with when it was high. These combined effects, if observed, would provide insight into why consumers in the –OF condition were less likely than those in the +OF condition to buy within the category when commitment was low (i.e., they pay attention to price, and price is perceived to be high).

As hypothesized, the results for expected price revealed a main effect of option framing ($F = 13.32$, $p < .01$). Consumers had a higher expected price for the brand when –OF ($\overline{X} = \$15{,}574.84$) versus +OF ($\overline{X} = \$13{,}959.11$) was used. Subjects also reported paying more attention to price when commitment to the product category was low ($\overline{X} = 3.59$) than when it was high ($\overline{X} = 3.01$); however, the effect only approached significance ($F = 3.64$, $p < .10$).

[5]In addition to the univariate ANOVA tests, we also conducted a MANOVA analysis using product purchase intentions, brand purchase intention, and information search as the dependent variables, as all are intercorrelated. The results replicate the univariate ANOVAs.

Table 3
ANOVA RESULTS AND CELL MEANS FOR STUDY 3

	ANOVA Results		+OF		–OF	
Dependent Variable	Source	F	Low Purchase Commitment (n = 26)	High Purchase Commitment (n = 24)	Low Purchase Commitment (n = 27)	High Purchase Commitment (n = 24)
Product purchase intention	Option framing	1.29	3.50	4.52	2.52	4.79
	Commitment level	27.73***				
	Interaction	4.01**				
Brand purchase intention	Option framing	.81	3.62	4.27	2.85	4.54
	Commitment level	18.26***				
	Interaction	3.55*				
Intention to search for other products	Option framing	.46	5.08	4.04	5.96	3.63
	Commitment level	23.85***				
	Interaction	3.56*				
Expected price	Option framing	13.32***	$13,826.92	$14,091.30	$15,653.85	$15,495.83
	Commitment level	.01				
	Interaction	.23				
Attention to price	Option framing	.01	3.60	3.06	3.59	2.96
	Commitment level	3.64*				
	Interaction	.09				
Number of options chosen	Option framing	6.93***	5.81	6.13	6.63	7.17
	Commitment level	1.46				
	Interaction	.10				
Total option price	Option framing	8.65***	3003.85	3200.00	3477.78	3487.50
	Commitment level	1.96				
	Interaction	.10				
Perceived value	Option framing	5.89**	4.62	4.73	5.13	5.27
	Commitment level	.33				
	Interaction	.01				
Decision difficulty	Option framing	21.35***	1.81	1.83	2.37	2.92
	Commitment level	2.58				
	Interaction	2.14				
Task enjoyment	Option framing	3.58*	4.44	4.30	4.93	4.98
	Commitment level	.02				
	Interaction	.10				
Number of important options chosen	Option framing	.30	3.96	4.13	3.93	4.38
	Commitment level	2.41				
	Interaction	.52				
Number of unimportant options chosen	Option framing	9.28***	1.85	2.00	2.70	2.79
	Commitment level	.20				
	Interaction	.02				

*$p < .10$.
**$p < .05$.
***$p < .01$.

The thought statements subjects provided about why they decided to purchase (or not purchase) a car reinforced the "attention to price" self-report data. Two coders, blind to the condition of subjects, categorized thought responses as falling into one of four categories: (1) need-based (e.g., "I badly need a new car now"), (2) economic investment–based (e.g., "I want to make the best use of my money when buying a major product"), (3) comparison shopping–based (e.g., "before committing myself, I want to compare it with other models"), and (4) time consideration–based (e.g., "I need more time to think about what I really need"). Intercoder agreement was 91%, and coding differences were resolved among the coders.

The results show that the only type of thought for which significant effects emerged was economic investment (price)–based. As expected, more economic investment (price)–based reasons were noted when commitment was low and –OF was used (12 of 26 statements) than under any other condition (4 of 25 statements for –OF and high commitment, $t = 2.31$, $p < .05$; 4 of 26 for +OF and low commitment, $t = 2.42$, $p < .05$; and 5 of 23 statements for +OF and high commitment, $t = 1.85$, $p < .05$).

Replication Effects

A set of additional analyses was also conducted to determine whether the effects observed in Studies 1 and 2 could be replicable. Recall that at this point in the experiment, all subjects were told to assume that they had decided to buy the ABC brand. Because of this, the issue of commitment to buying within the category becomes irrelevant, and no effects for product category commitment are expected.

The results show that replication effects are observed. As in Study 1, consumers selected more options ($F = 6.93$, $p < .01$) and spent more on options ($F = 8.65$, $p < .01$). They perceived more value in their final choice when –OF versus +OF was used ($F = 5.89$, $p < .01$). They found the decision of choosing options more difficult ($F = 21.35$, $p < .01$) yet also found the task of choosing options more enjoyable ($F = 3.58$, $p < .10$). As expected, category commitment did not affect any of the option choice–related variables.

Option Framing Effects on the Type of Option Selected

We examined whether option framing affected the number of important and unimportant options chosen. Recall that the option choice task included ten options, five of which were important and five of which were less important. The notion that the options differed in importance was confirmed by the data. Subjects' ratings of each of the options revealed that the five important options were viewed as significantly more important ($\bar{X} = 5.19$) than the remaining options ($\bar{X} = 3.19$; $t = 20.06$, $p < .01$).

The results show that option framing affected subjects' choice of unimportant options ($F = 9.28$, $p < .001$) but had no effect on their choice of important options ($F = .30$, $p > .05$). Subjects chose more unimportant options in the –OF ($\bar{X} = 2.75$) than the +OF ($\bar{X} = 1.92$) condition. The choice of important options did not differ across the option-framing conditions (–OF condition, $\bar{X} = 4.15$, and +OF condition, $\bar{X} = 4.04$). These combined results from Studies 2 and 3 regarding option importance suggest that option importance serves as a boundary condition for the effects of option framing. Option framing does not appear to alter subjects' choice of options important to purchase satisfaction. However, it does appear to alter their selection of less important options.[6]

DISCUSSION: STUDY 3

Study 3 replicates and extends the results of Studies 1 and 2. Consistent with Studies 1 and 2, we found that consumers selected more options and expected higher brand prices when –OF versus +OF was used. Consistent with Study 1, we also found that compared with subjects in the +OF condition, those in the –OF condition perceived more value from the set of options chosen. They found the task of choosing options more enjoyable yet found the task of choosing options more difficult.

Extending Studies 1 and 2, we found that the effects of option framing on purchase likelihood of the product category depended on subjects' initial commitment to buying within the category. Subjects who were less committed to buying within the category were significantly less likely to buy within the category when –OF versus +OF was used. When subjects were committed to buying within the category, option framing had no effect on category purchase likelihood.

Consistent with Study 2, Study 3 also showed that subjects in the –OF condition chose more unimportant options than did those in the +OF condition. However, subjects in the –OF condition did not choose more important options than did those in the +OF condition. Theoretical issues regarding the results for option importance are articulated in the following section.

OVERALL DISCUSSION

Combined, the three studies reveal several interesting findings about the effects of option framing on choice decisions. In all three studies, consumers chose more options and paid more for options when –OF versus +OF was used. This effect held across varying option prices (Study 1) and product category price levels (Study 2), and it was magnified when subjects were asked to anticipate regret from their option choice decisions (Study 2). Studies 1 and 3 also showed that consumers found that the option choice task was more enjoyable when –OF versus +OF was used. The results of Study 3, however, suggest that these desirable managerial outcomes should be considered only in the context of high commitment to the product category. When commitment to buying a car is low, –OF had a debilitating effect on product category purchase. Thus, although –OF has positive effects on several managerially relevant variables, high product category commitment appears to serve as an important boundary condition for its effects.

The results of these studies also raise potentially thorny public policy implications. First, consider that consumers choose more options and pay a higher total option price yet feel greater value from a choice task when –OF versus +OF is used. Knowledge of this effect may lead to a situation in which marketers intentionally load a brand with options to realize a higher purchase price, irrespective of the actual value delivered by such options. Second, although –OF seems to be a legitimate consumer-oriented marketing practice, questions may be raised about consumers' long-term welfare if the use of –OF becomes the norm for marketers' decisions regarding product options. Because both income and time are relatively fixed, the added time and monetary costs that accompany –OF may make choice task costly and time burdened. Finally, if used extensively, –OF may reduce the allocation of consumers' income to other, more welfare-enhancing investments.

Further Research

The three studies also raise several issues relevant to further research on option framing. First, if our results are generalizable, research is needed to examine when the effects of –OF (when used as a devious selling approach) may be mitigated. For example, it would be interesting to determine whether presenting a –OF and a +OF choice set simultaneously makes consumers aware that the two choice tasks are functionally equivalent.

Second, subjects in our study made category judgments of the target brand (e.g., expected price, price category to which the brand belonged) after they made the option selec-

[6]In addition to the univariate ANOVA tests, we also conducted a MANOVA analysis using the number of important and unimportant options chosen as the dependent variables. The results replicate the univariate ANOVAs.

tion decision. We wonder if these same categorization effects would be observed if subjects had been shown the exact same configuration of options yet half were told that these options came from a –OF choice set, whereas the remaining were told that they came from a +OF choice set. Replication of the price categorization effects using this type of manipulation is needed for further research, because it would provide a compelling case for the claim that option framing affects price categorization judgments.

Third, because the results of Study 2 were robust across varying price manipulations, additional research that examines if, when, and why other price-related variables moderate the option framing–choice relationship is warranted. Our manipulation might have been too subtle, as we did not ask subjects to focus on proportionality. Alternatively, that our results for the option price and product category price manipulations were only directionally consistent with the proposed interaction may be tied to the fact that we studied hypothetical versus actual choice. Sensitivities to monetary loss may be particularly salient in real versus hypothetical choices.

Fourth, our exploratory examination of the effects of option framing on the type of option selected reveal some interesting effects. In Studies 2 and 3, we found that consumers selected more options when they engaged in –OF versus +OF, but only when options were less important. Perhaps option framing is more likely to affect decisions when they are uncertain. When options are important (less important), certainty regarding their necessary inclusion is likely to be high (low). When certainty is high, consumers may be less susceptible to contextual factors such as those imposed by the option-framing manipulation. This explanation offers an interesting boundary condition for the loss aversion phenomena (Wicker et al. 1995). Perhaps consumers pay differential attention to important versus unimportant options, and this differential attention affects the impact of option framing. When options are important, consumers are likely to attend to them no matter how they are framed. However, when options are unimportant, they receive less attention and are therefore more susceptible to the effects of option framing.

Fifth and finally, in addition to the relative effectiveness of –OF versus +OF on the selection of important and less important options, other dimensions characterizing options might be examined in future research. For example, Levin and Gaeth (1988) find that consumer choices are affected by whether a product attribute is positively (80% lean) or negatively (20% fat) framed. It is interesting to consider whether the description of options framed positively or negatively affects option choices when –OF versus +OF is used. Given the effect of regret anticipation observed in Study 2, it is also interesting to consider whether the framing of benefits that stem from options affects option choices. An option (e.g., grooved seats) can be framed as having a positive benefit (allows you to sit comfortably) or a negative benefit (prevents you from slipping) (Maheshwaran and Sternthal 1990). Because the latter focuses on risk associated with not choosing options, it is more likely to induce regret anticipation. Analogously, Chakravarti and colleagues (1992) examine the effect of a budget on options that increase consumption value (e.g., an ice-maker in a refrigerator) versus those that increase insurance value (e.g., a warranty). They find that subjects are less willing to pay for the latter than the former when budgets are constrained. In an option-framing context, subjects engaged in +OF may be more averse to selecting options that increase insurance value, because they bring more intangible benefits. Conversely, subjects engaged in –OF may be averse to deleting them, because they make risk (and risk anticipation) salient. Thus, although +OF and –OF may not differ in the selection of options that increase consumption value, they may differ in the selection of options that increase insurance value.

Appendix

PRODUCT CATEGORY COMMITMENT MANIPULATION: STUDY 3

High Commitment

Assume that you have been accumulating a large amount of money. Given your own purchase needs, you have been considering spending this money on investing in the stock market, installing a multimedia entertainment center in your home, taking a trip to a famous international resort, *or buying a new car. Given your purchase needs, however, you have been primarily interested in spending this money on a car.** One day, on your way home, you pass by an automobile dealership featuring, among other interesting cars, an exciting new model called the "ABC brand." You have heard about it from your friends and read reviews about it from independent automobile experts. Everything that you have read and heard about it has been extremely favorable. *Since you are thinking about buying a new car,** you decide to pull into the dealership to look at the ABC model more carefully. Your gut feeling is that the ABC brand would be your choice if you were to buy a new car now.

Low Commitment

Assume that you have been accumulating a large amount of money. Given your own purchase needs, you have been considering spending this money on investing in the stock market, installing a multimedia entertainment center in your home, or taking a trip to a famous international resort. One day, on your way home, you pass by an automobile dealership featuring, among other interesting cars, an exciting new model called the "ABC brand." You have heard about it from your friends and read reviews about it from independent automobile experts. Everything that you have read and heard about it has been extremely favorable. *Although you are not thinking about buying a new car now since your current car has been running fine,** you decide to pull into the dealership to look at the ABC model more carefully. Your gut feeling is that the ABC brand would be your choice if you were to buy a new car now.

*Italics added to highlight differences between the two commitment manipulations.

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