

The Blissful Ignorance Effect: Pre- versus Post-action Effects on Outcome Expectancies Arising from Precise and Vague Information

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This article examines the effects on outcome expectancies of precise versus vague information across two contexts: prior to an action taken by the consumer (pre-action) and after the action is taken (post-action). Across three experiments, we show that with vague information individuals are more optimistic of outcomes post-action compared to pre-action; this difference is attenuated with precise information. We term this inconsistency the blissful ignorance effect and show that it arises due to the interplay of two goals in decision making, the goal to arrive at a desired conclusion (directional goal) and the goal to be accurate (accuracy goal) about one's outcome expectancies.

When shopping, consumers encounter product information that ranges from the precise to the vague. For example, the signage at a sampling station for a new chocolate brand may provide information describing the chocolate's ingredients and its nutritional content (more precise information), or it may provide information that describes the chocolate's ingredients but not the nutritional content (less precise information—Camerer and Weber [1992] suggest that not having complete information about an option creates informational vagueness). Further, based on the given information, consumers may form outcome expectancies, preferences, or both about the featured chocolate before sampling the chocolate (pre-action) or after

sampling it (post-action). How are consumers likely to react to the nature of the encountered product-related information, and how are these reactions likely to vary pre- versus post-action?

The answer to the above question might, at first blush, seem quite obvious. It is well documented in decision-making research that individuals, in general, tend to be averse to vagueness (e.g., Camerer and Weber 1992; Ellsberg 1961; Fox and Tversky 1995). Thus, one could conclude that individuals are likely to form favorable outcome expectancies, preferences, or both in pre- as well as post-action phases when the presented information is precise rather than vague. We propose that the answer to this question might not be as simple as it appears. Specifically, we propose that individuals tend to display an inconsistency pre-action (compared to post-action) with vague versus precise information; an inconsistency that in this research we will term the blissful ignorance effect (BIE). We propose that individuals have a tendency to expect more favorable outcomes with vague information after taking an action (e.g., sampling a piece of chocolate) than prior to taking the action; this tendency gets attenuated, even reversed, with more precise information.

To illustrate the BIE, let us consider a modification of the traditional experimental paradigm that has been used to demonstrate the classic Ellsberg's Paradox (e.g., Ellsberg 1961). Individuals are shown an urn that they are told contains blue and red balls, and "winning" entails picking a blue ball. In one set of conditions individuals are told that the urn contains three red and three blue balls (precise-information conditions); in another set of conditions individuals are told that

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the urn contains six balls, some red and some blue, in an unknown proportion (vague-information conditions). Individuals are asked to predict their outcome expectancies: how optimistic they are that they would pick the winning blue ball either before picking a ball from the urn (pre-action) or after picking a ball but before knowing the outcome (post-action) when their hand is still inside the urn. According to the BIE, and in line with findings on vagueness aversion, individuals in the pre-action condition would tend to be more optimistic with precise information than with vague information. (Past research has used the terms “vague” and “ambiguous” interchangeably to characterize such information; in line with Camerer and Weber [1992], we use the term “vague” to represent uncertainty created by information that is missing, but relevant, and could be known.) However, according to the BIE and contrary to the predictions of vagueness aversion, individuals would display more optimism with vague information than with precise information in the post-action conditions. Stated differently, with vague information individuals would tend to be more optimistic about outcomes in the post-action phase compared to the pre-action phase; this difference may be reduced or even inverted when the information is precise.

Preliminary evidence in support of the BIE derives from a pilot study that was in line with the experimental paradigm described above. In this study, 76 participants were randomly assigned to one of four conditions in an information (vague vs. precise) by action (pre vs. post) between-participants design. Participants' predictions of how optimistic they were about picking a winning blue ball on a 1 (not at all optimistic) to 7 (very optimistic) scale yielded a significant information by action interaction ($F(1, 72) = 5.22, p < .02$). Consistent with the predictions made by the BIE, with vague information participants were more optimistic in the post-action phase ($M = 4.75$) than in the pre-action phase ($M = 4.01; F(1, 72) = 6.23, p < .01$). In contrast, with precise information, participants tended to be more optimistic in the pre-action ($M = 4.17$) than in the post-action phase ($M = 3.95$), although the difference was not statistically significant. The difference in means within the pre-action conditions (i.e., $M = 4.17$ vs. $M = 4.01$) was not statistically significant, a finding that is consistent with prior research (e.g., Fox and Tversky 1995). According to this research, aversion toward vagueness is more likely to manifest with a joint presentation of the vague and precise options; when the options are presented separately as in our preliminary and some subsequent studies, aversion toward vagueness greatly diminishes and sometimes even disappears.

Having documented preliminary evidence in support of the BIE, we build on it in the subsequent sections. First we propose that the BIE arises due to a shift from accuracy goals in the pre-action phase to directional goals in the post-action phase. We then discuss potential alternative accounts and subsequently provide evidence across three experiments in different consumer decision-making domains in support of the goal-based account and against the alternative ac-

counts. We conclude with a discussion of the theoretical and practical implications of our findings and provide direction for future research.

CONCEPTUAL BACKGROUND

The BIE, as highlighted earlier, involves the interaction of two factors: the nature of the presented information varying from precise to vague (e.g., known vs. unknown proportions of balls in the urn task described above or more vs. less information on the signage at a chocolate sampling station) and the occurrence of an action (e.g., before or after picking a ball in the urn task; before or after sampling a chocolate). With vague information, individuals tend to be more optimistic about outcomes in the post-action phase compared to the pre-action phase; this difference tends to get attenuated, even reversed, with more precise information. What are the underlying psychological processes that potentially give rise to this shift in optimism, especially when the information is vague?

A large body of research suggests that two goals greatly influence our assessments about future outcomes—a goal of being accurate (accuracy goal) and a goal to arrive at a desired conclusion (directional goals; Kunda 1990; Moskowitz 2005). According to this account, the pattern of outcome expectancies manifest in the BIE arises from the interaction of accuracy and directional goals with the nature of the presented information in the pre- versus post-action phase. Specifically, in the pre-action phase, the goal of achieving a desired outcome is less pronounced, as one has not yet committed to the decision. Instead, accuracy goals play a larger role in influencing outcome expectancies in this phase. The post-action phase, however, is characterized by a perceived commitment to the action that has been taken; a commitment that results in directional goals becoming more pronounced—that is, one wants to feel good about the action that one took and would like to believe that the decision will yield positive consequences. However, directional goals do not operate without constraints; the decision maker also has the onus of coming up with justifiable reasons to feel good about the decision and come to a desired conclusion (Kunda 1999). As we discuss next, this is an issue that is pertinent to the BIE as it relates to the effects of post- versus pre-action with vague and precise information.

Vague information, by its basic nature, imposes fewer constraints on directional goals and on how the information can be “distorted” to come up with justifiable reasons that support these goals. In other words, vague information allows the decision maker in the post-action phase to augment some aspects of the presented information (e.g., positively valued attributes of a sampled chocolate) and downplay other aspects of the information (e.g., negatively valued attributes of a sampled chocolate; Moskowitz 2005). Thus, with vague information, a shift from accuracy goals in the pre-action phase to directional goals in the post-action phase results in greater outcome optimism post-action vis-à-vis pre-action, a prediction that is in line with the BIE.

However, precise information forces one to be relatively more objective, so that despite one's desire to feel good about the taken action in the post-action phase, one is unable to distort information (i.e., augment some aspects of the presented information and downplay others) to come up with justifiable reasons. In other words, precise information constrains the influence of the post-action directional goals on judgments; the result is that outcome optimism is likely to be quite similar across the post- and pre-action phases. This prediction is again consistent with the BIE and the findings of our preliminary study.

Can Vagueness Aversion, Mind-Set Theory, or Cognitive Dissonance Explain the BIE?

While a goal-based account seems to be a plausible explanation for the BIE, it is worth considering alternative accounts as well. Three accounts that at first appear to be relevant to the BIE are those based on vagueness (i.e., ambiguity) aversion, mind-set theory, and cognitive dissonance. Prior research has demonstrated that individuals have an aversion to ambiguity and prefer precise over vague information. It must, however, be noted that the evidence in support of vagueness aversion has been documented in pre-choice contexts. If one were to extrapolate the fundamental notion of vagueness aversion to the post-choice contexts, one would predict that individuals would continue to be averse to vagueness post-choice as with pre-choice contexts. In other words, an explanation based on vagueness aversion would predict only a main effect of the nature of information (precise vs. vague). This prediction is inconsistent with the BIE, which predicts an interaction—individuals displaying more optimistic outcome expectancies with vague information post-action compared to pre-action.

A second plausible account is mind-set theory. Mind-set theory (Gollwitzer 1990; Heckhausen and Gollwitzer 1987) proposes that goal pursuit consists of two distinct phases associated with different cognitive mind-sets. The deliberative stage consists of evaluating whether to pursue a goal, while the implementation stage consists of deciding where, when, and how to act to implement the chosen goal. These two stages are associated with distinct mind-sets that elicit different cognitive activities. Specifically, deliberative mind-sets are marked by more open-minded processing of information, whereas implemental mind-sets are characterized by more close-minded processing. Also, Gollwitzer and colleagues have observed that deliberative mind-sets lead to an accurate and impartial analysis of information that speaks to the feasibility and desirability of possible goals, while implemental mind-sets promote an optimistic and partial analysis of such information. One could argue that in the pre-action phase a person is in a deliberative mind-set and therefore is open to all aspects of the information. However, arguing that post-action a person employs close-minded processing would lead to similar pattern of results across vague and precise information—people with precise information would behave similar to people with vague information in

that they would display enhanced optimism because they are employing close-minded processing and are going to consider only information that supports their action. In other words, mind-set theory would predict a main effect of the action stage. However, what we propose and find is that the type of information interacts with the action stage (i.e., post-action vague information leads to higher outcome expectancies than precise information).

A third and plausible account is cognitive dissonance. According to Festinger (1957), holding two contradictory cognitions creates an unpleasant state of cognitive dissonance that a person strives to reduce by changing one or more of the relevant cognitions. The cognitions "I believe X" and "I have not acted in accordance with belief X" seem dissonant, and to reduce this dissonance, individuals change their beliefs to bring them into correspondence with their actions (Festinger and Carlsmith 1959). Thus, it could be argued that the post-action scenario in essence provokes dissonance through the prospect of becoming pessimistic about a choice one has made. Further, while dissonance theory does suggest that some cognitions are more malleable and open to interpretation than others and thereby predict the observed interaction, it does not predict our hypothesized shift from accuracy goals to directional goals between the pre- and post-action phases. Therefore, if we document such a shift in goals, it would reduce the viability of the dissonance account. We will provide evidence in support of this argument and against the cognitive dissonance account in experiment 3a.

Other Alternative Accounts

Two other alternative accounts are worth mentioning as well. The first is an account based upon focalism, wherein individuals tend to overly focus on the occurrence of a focal event and fail to consider the consequences of other events that are likely to occur (e.g., Kruger and Burrus 2004; Wilson et al. 2000). According to this account, the pre-action phase does not induce any focalism-related biases as individuals tend to focus on both the prospects of winning and losing the draw. However, post-action, since one has already taken an action, one tends to focus on the possibility of winning or obtaining the outcome of one's desire. While the precise option does not facilitate a focalism-related bias, the vague option permits one to fixate upon, and overrepresent, distributions with higher chances of winning, resulting in overoptimism post-choice.

Another account is based upon the notion of perceived competence (Heath and Tversky 1991). According to this account, any action creates a sense of competence, and, thus, individuals are likely to perceive themselves as being more knowledgeable about the outcomes of an action after, rather than before, taking the action. The perception of having more knowledge post-action may result in a greater tolerance for vagueness, thereby making individuals less averse to vagueness post- compared to pre-action. This account would predict the null effect we documented in the precise-information conditions of the preliminary study—after all, vague-

ness (and aversion toward it) is naturally less of an issue when the information is more precise. Note that this account makes no predictions about the underlying mechanisms that the focalism (i.e., a shift in focus on particular aspects of the presented information) or the goal-based accounts discussed earlier make.

Next, we present three experiments that provide support for the goal-based account and reduce the viability of alternative accounts across different operationalizations of vagueness (complete vs. incomplete information in experiments 1 and 2 as in Camerer and Weber [1992]; low vs. high perceived variance around the mean in experiments 3a and 3b). We also provide this evidence across different consumer decision-making domains such as sampling a chocolate (experiment 1), sampling a hand lotion (experiment 2), and purchasing movies (experiments 3a and 3b).

EXPERIMENT 1

Experiment 1 accomplished two broad objectives. The first objective was to replicate the BIE in the consumer decision-making context of sampling chocolates, a context that has been examined in previous research (e.g., Nowlis, Mandel, and McCabe 2004). The goal was to demonstrate that the outcome expectancies (manifest here by how many additional samples the consumer would like and whether the consumer would recommend the chocolate to others) are affected by the nature of the presented information (vague vs. precise) and by whether the outcome expectations are made before or after sampling the chocolate—that is, pre-action or post-action. The second objective of experiment 1 was to gain insights into the underlying psychological processes that potentially give rise to the BIE, specifically, to examine the viability of the goal-based account discussed earlier.

The second objective was accomplished by having some participants in experiment 1 evaluate the likelihood of favorable as well as unfavorable attributes of the to-be-sampled chocolate (in the pre-action conditions) and sampled chocolate (in the post-action conditions) before indicating their outcome expectancies by how many additional chocolate samples they would like to have and whether they would recommend the sampled chocolate to other people. If the goal-based account is valid, then a distortion of information ought to occur, with evaluations augmented for favorable attributes and diminished for unfavorable ones; while vague information facilitates such distortion, precise information should hinder it.

Design and Procedure

Experiment 1 used a 2 (action: pre vs. post) by 2 (information: vague vs. precise) by 2 (order: attribute evaluations followed by outcome expectancies and vice versa) between-participants design. One hundred and twenty-five participants were randomly assigned to one of the eight conditions. Participants were first told that a chocolate manufacturer was launching a new brand of chocolate and was in the

process of gathering consumer opinions (the brand name of the chocolate was not disclosed). The information factor was then manipulated in accordance with the work by Camerer and Weber (1992), which suggests that not having complete information about an option creates informational vagueness. Specifically, participants were given either more precise information, in the form of the chocolate's ingredients as well as its nutritional content, or more vague information, in the form of the chocolate's ingredients but not its nutritional content. Participants in the pre-action conditions then responded to the dependent measures prior to sampling the chocolate; participants in the post-action conditions first sampled the chocolate before responding to the measures. The order of performing the attribute evaluations and the outcome expectancies was counterbalanced. The sampling and rating tasks occurred completely out of sight of the experimenter, in order to control for social and normative factors, which could have otherwise influenced participants' decisions (see Ratner and Kahn 2002).

Measures

Two broad sets of measures were administered to participants: attribute evaluations and outcome expectancies. The order in which these sets of measures appeared was counterbalanced.

Outcome Expectancies. As indicated earlier, outcome expectancies were collected in the form of how many samples participants would pick if the company provides free samples of the chocolate (response options ranged from one to four samples) and whether participants would recommend the sampled/to-be-sampled chocolate to other individuals (responses were collected on a 1 = very unlikely to 7 = very likely scale).

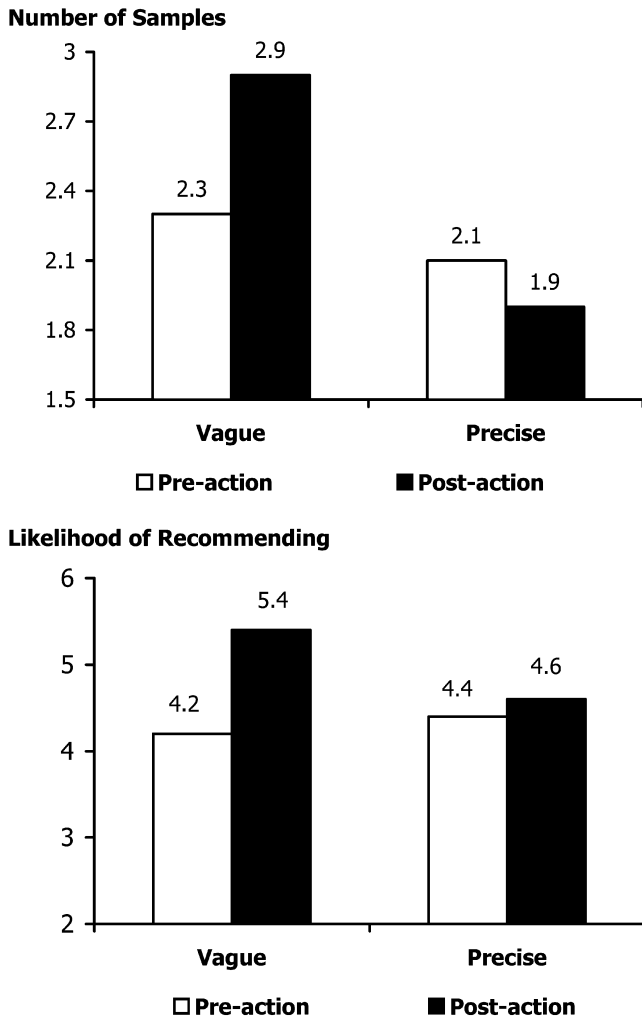
Attribute Evaluations. Based on the results of a pretest, two sets of measures were selected and used to assess participant's evaluations of the chocolate's attributes. Seven-point scale items anchored by 1 (completely disagree) and 7 (completely agree) were used for these measures. One set of measures served to assess the extent to which participants agreed that the chocolate contains the following positive attributes—"contains natural ingredients," "contains lower calories than other popular brands of chocolate," and "can provide the daily requirements of calcium." Similarly, another set of measures was administered to assess the extent to which participants agreed with the presence of negative attributes in the chocolate—"can increase cholesterol levels," "can harm my teeth," and "contains high levels of trans-fatty acids."

Results

Outcome Expectancies. The results of the outcome-expectancy measures were consistent with the BIE and are presented in figure 1. An ANOVA on the number of free chocolate samples participants picked yielded an action by

FIGURE 1

BLISSFUL IGNORANCE EFFECT RELATED TO THE NUMBER OF SAMPLES CHOSEN AND LIKELIHOOD OF RECOMMENDING THE SAMPLE—EXPERIMENT 1



information interaction ($F(1, 119) = 4.8, p < .03$), and the order factor did not interact with the other two independent variables (this finding has relevance for testing the viability of the focalism account, which will be discussed shortly). In line with the BIE, participants within the vague-information conditions chose more free samples in the post-action condition ($M = 2.9$) than in the pre-action condition ($M = 2.3$; $F(1, 119) = 5.3, p < .02$).

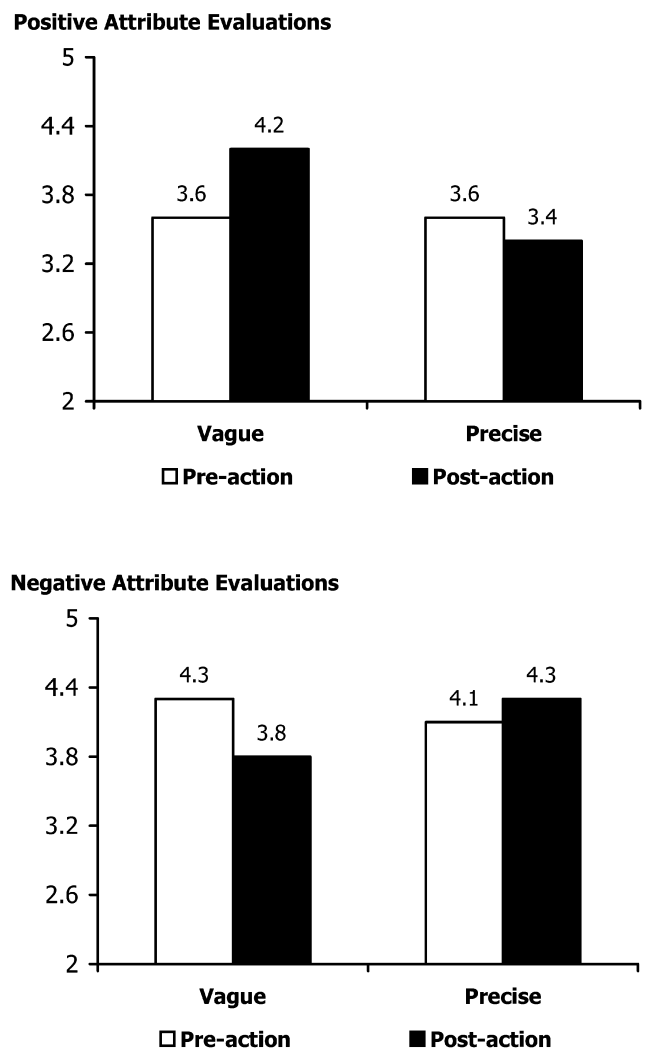
Furthermore, as in the preliminary urn study, the above difference that was observed in the vague-information conditions attenuated and even reversed (directionally) in the precise-information conditions (M 's = 1.9 and 2.1 in the post- and pre-action conditions, respectively; $F < 1$). Similar results were obtained on the second measure (i.e., the likelihood of recommending the sampled/to-be-sampled chocolate) that served as a proxy for outcome expectancies.

It yielded a significant action by information interaction ($F(1, 121) = 3.7, p < .05$). As shown in figure 1, participants who received the more vague information were more likely to recommend the sampled/to-be-sampled chocolate to other people in post- ($M = 5.4$) compared to the pre-action condition ($M = 4.2$; $F(1, 121) = 9.6, p < .002$). No such differences were observed in the precise-information conditions (M 's = 4.6 and 4.4 in the post- and pre-action conditions, respectively; $F < 1$).

Attribute Evaluations. An ANOVA on the positive attribute evaluations yielded a significant action by information interaction ($F(1, 121) = 7.0, p < .009$). As shown in figure 2, participants who received vague information perceived the chocolate more favorably on its positive attributes in the post-action condition ($M = 4.2$) than in the

FIGURE 2

POSITIVE AND NEGATIVE ATTRIBUTE EVALUATIONS—EXPERIMENT 1



pre-action condition ($M = 3.6$; $F(1, 121) = 8.8$, $p < .003$). No such differences were observed in the precise-information conditions (M 's = 3.4 and 3.6 in the post- and pre-action conditions, respectively; $F < 1$).

Another ANOVA on the negative attribute evaluations yielded a significant action by information interaction ($F(1, 121) = 4.8$, $p < .03$). As shown in figure 2, participants who received vague information perceived the chocolate to be less unfavorable on its negative attributes in the post-action condition ($M = 3.8$) than in the pre-action condition ($M = 4.3$; $F(1, 121) = 4.14$, $p < .04$). No such differences were observed in the precise-information conditions (M 's = 4.3 and 4.1 in the post- and pre-action conditions, respectively; $F(1, 121) = 1.1$, $p > .29$).

Discussion

Experiment 1 replicated the findings of the urn study discussed in the introduction, using a consumer decision-making context, namely, the sampling of chocolate. In line with the goal-based account of the BIE, the results of experiment 1 suggest that participants who received vague information appear to distort information, as evidenced in perceiving the chocolate to be more favorable on its positive attributes and less unfavorable on its negative attributes in the post-action phase compared to the pre-action phase.

Moreover, the pattern of results on the attribute evaluations reduces the viability of the mind-set, ambiguity-aversion, focalism, and perceived-competence accounts. Both the mind-set and the ambiguity-aversion accounts predict main effects. The mind-set account predicts that, post-action, people with precise information would behave similarly to people with vague information, in that they would have enhanced outcome expectancies since they are employing close-minded processing. The ambiguity-aversion account suggests that, post-action, people would display an aversion to vagueness. The results we obtained in this experiment rule out both of these accounts by showing that, post-action, people with vague information show higher outcome expectancies than people with precise information. For the focalism account to be valid, evaluating the attributes (both positive and negative) prior to judging outcome expectancies (as in one set of conditions related to the order factor) ought to diminish focalism-related biases with respect to outcome expectancies. Since this account suggests a fixation on the positive, explicitly drawing attention to negative features ought to attenuate this fixation bias. Specifically, the order factor did not interact with the other independent variables for both sets of outcome-expectancy measures, thereby reducing the viability of the focalism account. The results are also not consistent with the perceived-competence account, which does not make any predictions about attribute level distortions—that is, the perceived-competence account is theorized to operate at a global level, unmediated by attribute level distortions.

EXPERIMENT 2

The primary objective of experiment 2 was to further support the goal-based account of the BIE using a different consumer-decision-making context (the sampling of a hand lotion) and a different set of measures related to outcome expectancies. Participants were provided with claims made by a hand lotion manufacturer and informed either that the claims had been certified to be true for 50% of the population by lab reports (precise information) or that the lab tests had been completed but the reports were not available, and so the percentage of the population for whom the claims hold true is not known (vague information). Participants made predictions about the performance of the hand lotion either before or after applying it.

To test the goal-based account of the BIE, experiment 2 used a goal-priming paradigm wherein accuracy goals were primed in one set of conditions. Recall that the goal-based account posits that the pre- versus post-action differences in outcome expectancies occur due to a shift in goals—directional goals gain prominence in the post-action phase, whereas accuracy goals dominate in the pre-action phase. If this account is valid, then priming accuracy goals ought to cause accuracy goals to prevail in both the pre- and post-action conditions, thereby attenuating the effects found in the vague-information conditions of experiment 1. In other words, one ought to observe a three-way (action by information by goal priming) interaction.

Design and Procedure

Experiment 2 used a 2 (action: pre vs. post) by 2 (information: precise vs. vague) by 2 (goal priming: accuracy vs. control) between-participants design. Two hundred and forty-eight participants were randomly assigned to one of eight experimental conditions. The goal-priming manipulation was first carried out as part of a purportedly unrelated study. Participants in the accuracy goal-priming conditions were asked to describe an instance in the previous week in which they took “great care to collect information and make a very careful, unbiased, and accurate decision.” Participants in the control conditions were asked to “describe some events that occurred in the previous week.” All participants were then presented with claims made by a marketer of hand lotions. Participants in the precise-information conditions were told that the results of a laboratory test substantiating the marketer’s claims were available and that the hand lotion had lived up to the claims with 50% of its users. Participants in the vague-information conditions were told that the laboratory test had been conducted but that the results substantiating the marketer’s claims were not available. As in experiment 1, this manipulation of the information factor was in line with Camerer and Weber (1992).

The hand lotion was then presented in a bottle that did not carry a brand name. In the pre-action conditions, participants rated the dependent measures prior to using the hand lotion. Those in the post-action conditions applied the hand lotion before responding to the dependent measures.

Measures

Outcome expectancies were assessed differently in experiment 2 than experiment 1. Based on the results of a pretest, six measures were chosen to assess participants' outcome expectancies on 1 (unlikely) to 7 (highly likely) scales: "With frequent use, the lotion will (1) clog the pores of the skin [reverse coded], (2) improve the texture of the skin, (3) provide benefits for a long time, (4) provide the skin with the needed nourishment, (5) irritate the skin [reverse coded], and (6) protect the skin from harmful ultraviolet rays." An index representing the mean of these six measures was used in the analysis. Since there was a possibility of gender effects owing to the nature of the product being used (hand lotion), information about the gender of the participants was also collected. Gender of the participants did not interact with any of the other independent variables and, thus, will not be discussed further.

Results

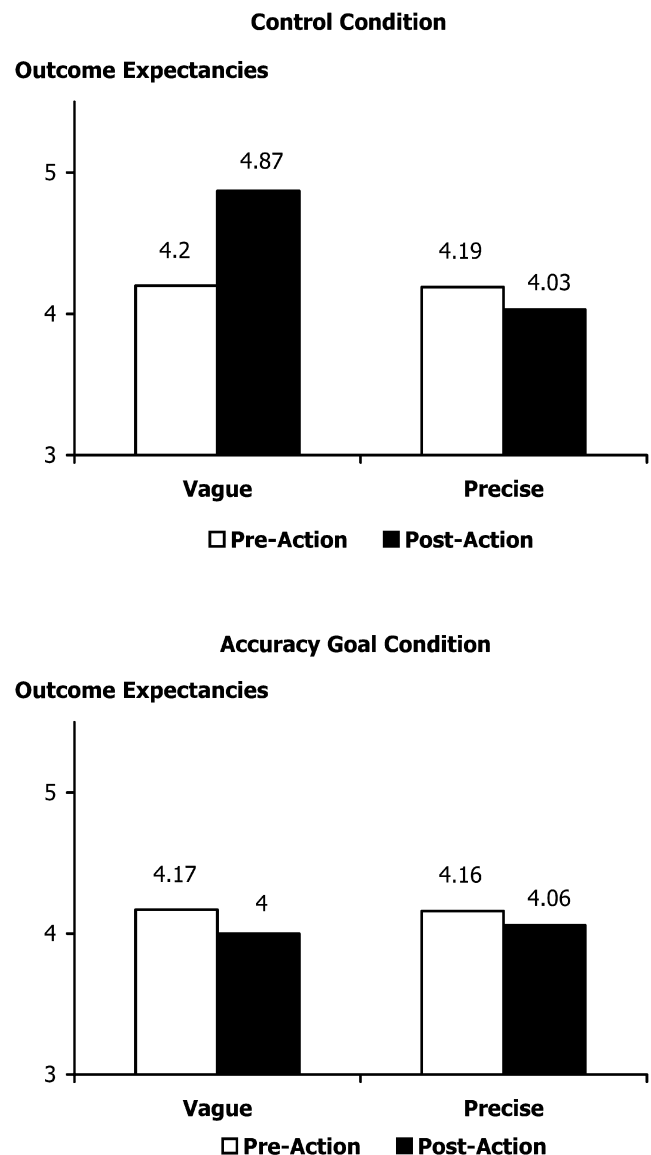
As predicted by the goal-based account, an ANOVA on the outcome-expectancy measure yielded a three-way, action by information by goal-priming interaction ($F(1,240) = 6.8, p < .009$), in addition to main effects of goal priming ($F(1,240) = 6.7, p < .01$) and information ($F(1,240) = 5.3, p < .02$). This account is further supported by examining the interaction within the control and the accuracy goal-prime conditions: while a significant action by information interaction was observed in the control condition in which accuracy goals were not primed ($F(1,107) = 14.32, p < .003$), no such interaction emerged in the accuracy goal-prime condition ($F < .1$).

An examination of the means in the various conditions provides additional support for the goal-based account. As shown in figure 3, when accuracy goals were not primed, participants with vague information showed higher outcome expectancies in the post-action ($M = 4.87$) than in the pre-action conditions ($M = 4.2$; $F(1,107) = 17.66, p < .0001$). Participants with precise information displayed no such differences (M 's = 4.03 and 4.19 in the post- and pre-action conditions, respectively; $F(1,107) = 1.14, p > .28$).

When accuracy goals were primed, participants with vague information displayed no differences across pre- and post-action conditions (M 's = 4 and 4.17 in the post- and pre-action conditions, respectively; $F < 1$). A similar pattern emerged for the participants with precise information (M 's = 4.06 and 4.16 in the post- and pre-action conditions, respectively; $F < 1$). For the participants with vague information, a comparison of their post-action outcome expectancies across goal-priming conditions (accuracy vs. control) provided further support for the goal-based account. Participants primed with the accuracy goal displayed significantly lower post-action outcome expectancies than the participants in the control condition (M 's = 4 and 4.87, respectively; $F(1,124) = 20.18, p < .0001$). These results showed that priming the accuracy goal reduces the post-action optimism with vague information.

FIGURE 3

OUTCOME EXPECTANCIES WITHIN EACH LEVEL OF THE GOAL-PRIME FACTOR—EXPERIMENT 2



Discussion

The results on outcome expectancies in the control conditions of experiment 2 were consistent with those of experiment 1 and with the BIE. Moreover, the fact that an accuracy goal prime attenuated the effects within the vague-information conditions provides further support to the goal-based account. Experiment 2 also continued the process of reducing the viability of the alternative accounts. Since none of the alternative accounts (ambiguity aversion, cognitive dissonance, focalism, and perceived competence) invoke the role of accuracy versus directional goals in accounting for

the BIE, the fact that a goal prime by action by information interaction was observed further reduces the viability of these accounts. While the product in experiment 1 (chocolate) was more likely to provoke dissonance since its consumption was presumably a somewhat "guilt-ridden" hedonic process, it would seem less likely that dissonance would be provoked for the hand lotion (possessing low arousal properties; Zanna and Cooper 1974) used in experiment 2.

EXPERIMENT 3A

Experiment 3a accomplished four objectives. One objective was to provide more direct evidence supporting the idea that the BIE arises due to a shift in the nature of the goals predominating the pre- versus the post-action phases. Recall that the goal-based account posits that in the pre-action phase the directional goal to achieve a desired outcome is less pronounced, and thus accuracy goals play a bigger role in influencing outcome expectations. In contrast, the post-action phase is characterized by a perceived commitment to an action that has already been taken, which results in directional goals becoming more pronounced. While experiment 2 provided evidence in support of our conceptualization by priming accuracy goals, the goal of experiment 3a was to provide further and more direct evidence for the role of goal shifts in the BIE.

A second objective of experiment 3a was to provide evidence for the BIE using a design consistent with past work on vagueness aversion in which participants choose from a joint presentation of vague- and precise-information options. (Note that the experiments reported thus far use a between-participants design in which participants were presented with either the precise- or the vague-information option.) A third objective was to demonstrate the BIE using an operationalization of vagueness that was different from that used in experiments 1 and 2—instead of using missing information, as in the previous experiments, experiment 3 used a disagreement among experts to create vagueness.

Finally, experiment 3a served to provide further evidence against the dissonance account. Recall that the dissonance account suggests that dissonance is triggered in the post-action phase and that vague information provides more malleable cognitions for the dissonance reduction process to ensue. It should be noted, however, that the dissonance account does not invoke notions of a shift from accuracy to directional goals between the pre- and post-action phases. Thus, if we documented the proposed shift from accuracy goals to directional goals, that would render the dissonance account much less viable.

Method

One hundred and fifty-nine participants took part in this experiment, and all were told that the objective was to study how people purchase movies online. The names of two Japanese animation movies were shown to the participants. Each movie name was accompanied by the ratings given to

it by four movie critics. Participants were told that the critics rated the movies based on how entertaining, interesting, and enjoyable they found the movies. Ratings of 1 indicated a poor rating, 3 an average rating, and 5 an excellent rating. Participants were asked to choose a movie. To ensure that their action had real consequences, they were told that two participants would be chosen by a random draw at the end of the experiment to receive the movie of their choice.

One of the movies had critics' ratings in a vague form, while the other had ratings in a precise form. The vagueness or preciseness of ratings was manipulated in accordance with past work (Camerer and Weber 1992; Einhorn and Hogarth 1985) that has suggested that disagreement among experts gives rise to vagueness. Therefore, the movie with vague ratings had two critics giving it a rating of 5 and two critics giving it a rating of 1 (i.e., expert disagreement). In contrast, the movie with precise ratings had all four critics giving a rating of 3 (i.e., no expert disagreement). The titles of the movies (*Skyhigh* and *Perfect Blue*) were chosen based on a pretest that revealed that participants were unfamiliar with those titles. Nonetheless, to ensure that the findings were not an artifact of participants' familiarity with the titles, the order in which precise and vague ratings accompanied these movie titles was counterbalanced. One group of participants saw vague ratings with *Skyhigh* and precise ratings with *Perfect Blue*, whereas another group saw the ratings in a counterbalanced form.

After making a choice from the given set of two movies, participants responded to three dependent measures designed to assess their outcome expectations of the movie they had chosen. Participants indicated how "interesting," "entertaining," and "enjoyable" the movie would be on a 7-point scale anchored at 1 (not at all) and 7 (very). The three scales were highly interrelated ($\alpha = .93$) and were combined for subsequent analysis.

As noted earlier, one of the objectives of this experiment was to examine the relative presence of directional and accuracy goals in the pre- and post-action conditions. To achieve this objective, participants were presented with eight brief scenarios of everyday decision making. Four scenarios described consumers using an accuracy goal (e.g., a scenario in which an individual carefully compares attributes of various watches before buying one of the brands), and four scenarios described consumers using a directional goal (e.g., a scenario in which an individual likes the first apartment he sees, and, despite advice from others to seek more information about the apartment, he feels that the apartment is just right for him). Of the four accuracy goal scenarios, two scenarios described consumers using an accuracy goal in pre-action situations; the other two described consumers using such a goal in post-action situations. The scenarios for the directional goal paralleled those for the accuracy goal.

Participants indicated on a 7-point scale whether they disagreed (1) or agreed (7) with the manner in which each consumer was making a decision. One group of participants responded to the scenarios before choosing the movie (while

they were contemplating which movie to choose, a point at which we have suggested that accuracy goals predominate), whereas another group responded after choosing the movie and indicating their expectations of the movie (a point at which we have suggested directional goals burgeon and gain prominence). The logic behind this task is that if the relative predominance of accuracy versus directional goals changes across the action phases, then we should see a mitigated endorsement of accuracy goals by participants in the post-action phase relative to participants in the pre-action phase. This logic also conversely follows that we should observe a greater endorsement of directional goals by participants in the post-action phase relative to participants in the pre-action phase. Specifically, the goal-based account would predict a two-way scenario presentation by scenario goal endorsement interaction.

Therefore, participants were presented with the movies and the information associated with the movies. While they were deliberating their choice, half the participants were presented with the scenarios and asked for their endorsements of the decision process in the scenarios. After making a choice and providing optimism ratings, the other half of the participants were presented with the scenarios and asked for their endorsements of the decision process. Experiment 3, therefore, used a 2 (movie order: first movie with vague ratings vs. second movie with vague ratings) by 2 (presentation of scenarios: pre- vs. post-action condition) by 2 (scenario goal: accuracy vs. directional) by 2 (scenario stage: predecision vs. postdecision) mixed design with the first and second factors being manipulated between participants and the third and fourth factors being manipulated within participant.

Results

Choice and Expectancy Analysis. Consistent with the previous work on vagueness aversion (Ellsberg 1961), when participants were asked to choose between the movies with vague and precise ratings, 71.7% chose the one with precise ratings, while 28.3% chose the one with vague ratings ($\chi^2(1) = 29.94, p < .001$), a pattern that documents a marked aversion toward vague information. (Note that the between-participant factors, movie order and scenario presentation, did not influence movie choice; $\chi^2(1)$'s $< .75$.) However, an opposite pattern of results emerged for participants' expectations related to the chosen movie. An analysis on the composite measure of participants' expectations about the chosen movie yielded a significant influence of the form of information. Specifically, participants who had chosen the movie with vague ratings displayed more positive expectations related to the movie than those who had chosen the movie based on precise ratings ($M = 4.63$ vs. 3.98 ; $F(1, 157) = 7.69, p < .006$). Again, participants expectancy ratings were not influenced by the between-participant factors of movie order and scenario presentation (F 's $< .5$).

Interplay of Goals. Participants' eight ratings (of how much they endorsed the manner in which the fictitious con-

sumers in the scenarios were making decisions) were subjected to a repeated-measures ANOVA. The analyses revealed that the scenario stage and movie order did not interact with the other two factors (scenario presentation and scenario goal; F 's $< .5$). That is, the decision-making stage at which the target of the scenarios was (i.e., whether the consumer in the scenario was in the pre- or postdecision stage) had no influence on the ratings. Similarly, whether the first or the second movie was coupled with the vague ratings had no influence on the participant ratings.

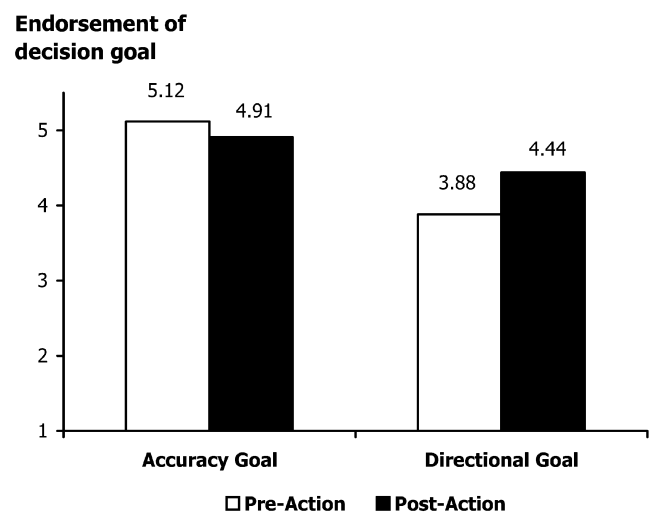
The repeated-measures ANOVA yielded a significant scenario presentation by scenario goal interaction ($F(1, 157) = 15.78, p < .001$). Specifically, participants' endorsement of directional goals guiding decisions in the scenarios was higher when participants were in the post-action condition (after choosing the movie) compared to the pre-action condition ($M = 4.44$ vs. 3.88 ; $F(1, 157) = 18.86, p < .001$). However, participants' endorsement of accuracy goals guiding decisions in the scenarios attenuated from when participants were in the pre-action compared to the post-action condition ($M = 5.12$ vs. 4.91 ; $F(1, 157) = 2, p = .15$). In conjunction, they reveal the relative increase in the salience of directional, as opposed to accuracy, goals (see fig. 4).

Discussion

This experiment demonstrates the BIE in a within-participant design and provides evidence in support of a key facet of the goal-based account, namely, a dynamic shift in motivational states at the point of taking an action. Specifically, the results of experiment 3a suggest that while accuracy goals dominate directional goals prior to taking an action, directional goals gain greater prominence post-action. This experiment provides additional evidence against the cognitive dissonance-based alternate account. One

FIGURE 4

ENDORSEMENT OF DIRECTIONAL AND ACCURACY GOAL SCENARIOS—EXPERIMENT 3A



could, however, argue that the BIE emerged in this experiment due to a self-selection bias. That is, participants who chose the movie based on vague information were dispositionally more optimistic and thus displayed higher optimism after choosing the movie. Considering the results of experiment 3a in isolation, this account may appear plausible; however, in conjunction with the results of experiments 1 and 2 demonstrating the BIE in a between-participants design, this account becomes less plausible. To provide more direct evidence addressing this concern, we conducted experiment 3b.

EXPERIMENT 3B

The self-selection-bias-based account argues that a higher optimism with vague information compared to precise information in post-action could be driven by a self-selection bias. Research has shown that optimism is positively related to risk-taking behavior (Ashford et al. 1998; Felton, Gibson, and Sanbonmatsu 2003). Therefore, this alternate account suggests that people high on dispositional optimism are more likely to choose the option with vague information and show higher post-choice outcome expectation. That is, observing higher post-choice outcome expectation with vague, as opposed to precise, information in the post-action condition is not caused by the vagueness of the information but rather due to the dispositional optimism of individuals, who predominantly choose the vague option because they are more optimistic about achieving the desired outcome. Experiment 3b was designed to address this concern.

The procedure was largely similar to experiment 3a. One hundred and forty participants took part in the experiment and were told that the objective was to study how people purchase movies online. Participants went through the same procedure as experiment 3a in which they first made a choice between two Japanese animation movies. One of the movies had critics' ratings in a vague form, while the other had ratings in a precise form. The movie with vague ratings had two critics giving it a rating of 5 and two critics giving it a rating of 1 (i.e., expert disagreement). In contrast, the movie with precise ratings had all four critics giving it a rating of 3 (i.e., no expert disagreement; Camerer and Weber 1992; Einhorn and Hogarth 1985). The order in which precise and vague ratings accompanied these movie titles was counterbalanced. After making a choice from the given set of two movies, participants responded to three dependent measures designed to assess their outcome expectations related to the movie they had chosen. Participants indicated how "interesting," "entertaining," and "enjoyable" the movie would be on a 7-point scale anchored at 1 (not at all) and 7 (very).

The experimental procedure was different from experiment 3a on two counts. First, there was no assessment of the presence of directional and accuracy goals in the pre- and post-choice condition. Second, participants' dispositional optimism was measured in an unrelated task using the revised life orientation test (LOT; Scheier, Carver, and Bridges 1994; the appendix presents the items used in the

revised LOT). This test has been widely used to measure dispositional optimism (Carver, Lehman, and Antoni 2003; Carver et al. 2005; Matthews et al. 2004), with findings indicating that individuals high in optimism tend to generally expect positive outcomes across various life domains. If dispositional optimism was responsible for the BIE, then we should expect (1) participants with higher dispositional optimism ratings choosing the movie with vague ratings, (2) dispositional optimism ratings predicting the movie choices, and (3) dispositional optimism ratings predicting post-choice outcome expectancies. The absence of these three patterns of results would rule out the self-selection-bias-based explanation.

Results

Consistent with experiment 3a, when participants were asked to choose between the movies with vague and precise ratings, 72.9% chose the one with precise ratings, while 27.1% chose the one with vague ratings ($\chi^2(1) = 29.2$, $p < .001$), a pattern that documents a marked aversion toward vague information. An analysis of the composite measure of participants' expectations (participants ratings of how "interesting," "entertaining," and "enjoyable" the movie would be) about the chosen movie showed a significant influence of the nature of information. Participants who had chosen the movie with vague ratings displayed more positive expectations related to the movie than those who chose the movie based on precise ratings ($M = 4.4$ vs. 3.48; $F(1, 138) = 11.17$, $p < .001$).

Plausibility of the Self-Selection-Bias-Based Explanation. Three separate analyses were carried out to examine the viability of the self-selection-based account. The first analysis examined whether participants high on dispositional optimism would predominantly choose the movie with vague ratings. No significant difference in dispositional optimism emerged across participants choosing a movie based on vague versus precise information ($M = 2.52$ vs. 2.46; $F(1, 138) = .32$, $p > .55$). The second analysis was run to assess whether dispositional optimism can predict movie choices. Results of a regression analysis revealed that dispositional optimism did not influence the choice of the vague-information option (estimate = .18, Wald's $\chi^2 = 0.31$, $p > .56$), indicating that individuals who are high on dispositional optimism are no more likely to choose the vague-information option, compared to individuals who are low on dispositional optimism. The third analysis was run to see whether dispositional optimism can predict post-choice outcome expectancies. Participants were divided into groups of high versus low dispositional optimists by performing a median split on their dispositional optimism scores. An ANOVA using dispositional optimism (high vs. low) and choice of movie (with vague vs. precise ratings) as the independent variables and post-choice outcome expectation as the dependent variable yielded an insignificant dispositional optimism by choice interaction ($F(1, 136) = 1.03$, $p > .31$). Thus, the tendency to display higher outcome

expectation post-choice is not moderated by dispositional optimism. The results in these three different analyses rule out the notion that self-selection bias could account for the results obtained in experiment 3a.

GENERAL DISCUSSION

The broad goal of this research was to demonstrate an inconsistency in pre- compared to post-action optimism with vague versus precise information. We termed this the blissful ignorance effect (BIE). The BIE suggests that individuals have a tendency to expect more favorable outcomes with vague information after taking an action than prior to taking the action; this tendency attenuates with precise information. Evidence in support of the BIE was initially documented in our preliminary urn study, which employed a procedure adapted from tasks that have been used to demonstrate the classic Ellsberg's paradox. Having documented the BIE, we highlighted the underlying process based on the interplay of two goals—the goal of being accurate (accuracy goal) and the goal of feeling good about one's decision (directional goal). The proposed underlying process was tested across three experiments. Using a chocolate-sampling task, the first experiment replicated the findings of the urn task and demonstrated a distortion of vague information in the post- compared to the pre-action phases—participants who had received vague information perceived the chocolate to be more favorable on its positive attributes and less unfavorable on its negative attributes in the post-action phase compared to the pre-action phase. In the second experiment, we provided further support for the goal-based account by explicitly activating accuracy goals, which resulted in eliminating the core effects of the BIE. The third experiment used an online movie purchase task in which the relative presence of directional and accuracy goals was measured by asking participants to endorse decisions based on either accuracy or directional goals. Consistent with the goal-based account, the results confirmed that accuracy goals were prominent relative to directional goals in the pre-action phase, but directional goals gained prominence in the post-action phase. It should be noted that the empirical evidence is inconsistent with the focalism account, the cognitive dissonance account, and the perceived-competence account.

Practical Implications

The BIE documented in this research has implications for word of mouth, purchase of extended warranties, medical decision making, and stock market investment. First, the BIE would predict that people are more likely to be optimistic about product performance when their purchase decision was based on vague information, which would then translate to higher product recommendations as demonstrated in experiment 1. It would behoove marketers to capitalize on this enhanced optimism as part of their "buzz" marketing campaigns. Second, a general tactic for selling warranties and insurance by retailers is at checkout counters, that is, after a consumer has already selected a product. If

one could assume that new products are inherently associated with vague information, then the BIE would suggest that marketers may be better off bundling warranties with new products—when warranties are unbundled, consumers who have decided on buying a new product are likely to become optimistic about its performance and, therefore, less likely to purchase a warranty.

The BIE also has potential ramifications for areas such as medical decision making (Kahn and Luce 2003). For instance, patients frequently encounter choices between established medical procedures with relatively precise estimates of the probability of success based on actuarial data and new but promising medical procedures for which precise estimates are unavailable. Past research has shown that people tend to prefer established procedures to new ones. However, the findings of the BIE would predict that after undergoing a surgical procedure, patients who underwent the new procedure would be more optimistic about their recovery than those who underwent the established procedure. This, in turn, may have actual advantageous postsurgery recovery effects in the form of favorable placebo effects (Shiv, Carmon, and Ariely 2005). Were this to be the case, it would raise important policy implications.

The BIE could also be used to explain an interesting observation in the stock market. Past research has shown that, after adjusting for market risk, stock prices of new and smaller firms rise more than prices of large firms (Keim 1983). Following the BIE, it could be argued that information about the future performance of new companies is more vague than that of more established companies, and thus investors are more likely to be optimistic and retain the stocks of new companies compared to those of established companies.

Theoretical Contributions and Direction for Future Research

This research makes several theoretical contributions. For instance, our research extends the findings on uncertainty and vagueness to post-action scenarios, a relatively less explored area in the decision-making literature. Our research also adds to the past literature on modeling decision making under uncertainty (Kahn and Sarin 1988). By incorporating the findings of BIE, these models can be extended to predict consumers' choices in postpurchase decision making. Furthermore, this research builds on the emerging body of evidence suggesting that goals are central to consumer decision making (Bettman, Luce, and Payne 1998; Chernev 2004; Fishbach and Dhar 2005).

Despite making several theoretical contributions, more research is needed to extend the scope of our findings. For example, there are many situations in which consumers possess considerable prior knowledge about a category (Peracchio and Tybout 1996), a factor that was not examined in our studies. It would be worthwhile to investigate the moderating role of prior knowledge on the BIE. Another promising avenue for future research is to examine the way

the nature of the information influences the endowment effect (Nayakankuppam and Mishra 2005) and the phenomenon of option attachment, in which choosing an option makes the forgone option more attractive (Carmon, Wertenbroch, and Zeelenberg 2003). An interesting question is whether vague information will attenuate some of the effects documented in previous research on option attachment by enhancing optimism for the chosen option in the post-choice phase. Finally, the literature on well-being and happiness has received considerable attention in recent years (see Kahneman, Diener, and Schwarz 1999). Is it possible that, as the BIE would suggest, vagueness might actually be a source of happiness? In other words, it might be possible that, despite one's aversion toward vagueness, vagueness can actually make one happy about the outcomes of one's actions by allowing one to see what one wants to see—a case when ignorance is truly bliss.

APPENDIX

REVISED LIFE OPTIMISM TEST ITEMS

The revised LOT is composed of 10 items; four of them are filler items. The items are

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax (filler item).
3. If something can go wrong for me, it will.^a
4. I'm always optimistic about my future.
5. I enjoy my friends a lot (filler item).
6. It's important for me to keep busy (filler item).
7. I hardly ever expect things to go my way.^a
8. I don't get upset too easily (filler item).
9. I rarely count on good things happening to me.^a
10. Overall, I expect more good things to happen to me than bad.

^aThese items were reverse scored before scoring and analysis.

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