The Impact of Affective Reactions on Risky Decision Making in Accounting Contexts

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ABSTRACT

In this study we examine whether managers' affective reactions influence their risk-taking tendencies in capital budgeting decisions. Prior research on risky decision making indicates that decision makers are often risk averse when choosing among alternatives that yield potential gains, and risk taking when the alternatives yield losses. The results reported here indicate that negative or positive affective reactions can change this commonly found risky behavior. Managers were generally risk avoiding (taking) for gains (losses) in the absence of affective reactions, as predicted by prospect theory. However, when affect was present, they tended to reject investment alternatives that elicited negative affect and accept alternatives that elicited positive affect, resulting in risk taking (avoiding) in gain (loss) contexts. The results also indicate that affective reactions can influence managers to choose alternatives with lower economic value, suggesting that managers consider both financial data and affective reactions when evaluating the utility of a decision alternative. These findings point to the importance of considering affective reactions when attempting to understand and predict risky decision making in accounting contexts.

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1. Introduction

Many accounting decisions are made in an uncertain or risky environment. For example, managers often evaluate the estimated future returns of competing investment alternatives when making capital budgeting decisions. Within this framework, they may consider the projected cash flows associated with each alternative along with the probability estimates that the cash flows will occur. Some of the investment options considered may involve more risk than others. For example, one alternative may offer fairly certain future cash flows, whereas another may have a chance of yielding higher cash flows but may also result in lower returns.

Research on these types of risky decisions indicates that decision makers will exhibit different types of risky behavior depending on whether the alternatives are in a gain or loss context. For example, prospect theory, one of the most influential theories of risky decision making, postulates that decision makers will tend to be risk averse when deciding between alternatives that would yield potential gains, and risk seeking when alternatives result in possible losses (Kahneman and Tversky [1979]). Considerable prior research yields such risk-taking tendencies in both nonaccounting and accounting contexts (e.g., Jegers [1991], Kahneman and Tversky [1979], Cohen and Trompeter [1998], Schisler [1994], Sullivan and Kida [1995]).

In this study we propose that affective reactions, such as emotions, are an integral component of accounting decision making, and that such reactions can create a strong decision preference that overshadows the often reported behavior of risk avoiding (taking) in gain (loss) contexts. This proposition is particularly relevant for accounting research because prospect-theory-type results have been observed, or have been assumed to occur, in many accounting contexts. For example, prior research uses prospect theory to examine managerial decision making (Lipe[1993], Sullivan and Kida [1995]), taxpayer compliance decisions (Christian and Gupta [1994], Schepanski and Kelsey [1990]), and auditors’ client acceptance decisions (Cohen and Trompeter [1998]). This research often assumes or concludes that decision makers will generally be risk avoiding in gain situations and risk taking in loss situations. However, that research does not consider the impact of affective reactions on risky behavior. And yet, affect may be present in these types of accounting contexts. For example, managers may have affective reactions toward individuals that are involved in various investment projects, taxpayers may have affective reactions toward the current tax laws, and auditors may have affective reactions toward a prospective client.

We argue that these affective reactions can negate the effects of the gain/loss context, and as a consequence, accounting decision makers’ behavior may not conform to prospect theory predictions. In effect, we argue that risk avoiding (taking) in gain (loss) contexts may be looked on as a default strategy that decision makers exhibit in the absence of other decision-relevant characteristics. When other relevant characteristics such
as affect exist, however, risky behavior can change. This view is consistent with recent research in psychology that suggests that other contextual variables can have a significant influence on risky behavior (e.g., Fagley and Miller [1997], Wang [1996]). Therefore, a consideration of affect in risky decision making can advance both accounting and psychological theories of risky decision making. In addition, the consideration of affect may explain the anomalous results that are sometimes found when investigating accounting decision making in gain/loss contexts (e.g., Dusenbury [1994], Martinez-Vazquez, Harwood, and Larkins [1992]).

This study focuses on the influence of emotional affective reactions. Specifically, we examine the impact of both negative and positive emotional reactions on managerial risky behavior in both gain and loss decision contexts. We focus on a managerial context because prospect-theory-type results are found in managers' investment decisions when affect was not considered. In addition, interpersonal relationships are prevalent in this context, and these relationships are likely to lead to interpersonal emotional reactions. We argue that managers are likely to reject decision alternatives that elicit negative affective reactions and accept alternatives that elicit positive reactions. This behavior can result in risk taking in gain contexts and risk avoiding in loss contexts, contrary to the predictions of prospect theory's reflection effect. The data from several experimental scenarios support our expectations. These results suggest that to more fully understand and predict risky decision making in accounting contexts researchers should explicitly consider a decision maker's affective reactions.

Our results also indicate that affective reactions can influence experienced managers' risky decision making such that they may choose alternatives with lower economic value. This behavior would be suboptimal from an economic standpoint if managers only consider financial outcomes in their utility assessment. However, the results suggest that managers consider both financial data and affective reactions when assessing the utility of a risky alternative. In effect, managers appear to consider their affective reactions as an emotional cost or an emotional benefit, which is then incorporated into their overall assessment of a risky alternative's utility. Viewed in this light, these results are consistent with expected utility theory when one considers other possible decision outcomes in addition to financial outcomes, and they point to the importance of considering affective reactions in utility assessment. The results obtained here also have practical implications for managers, in that they suggest that managers should consider affective reactions when attempting to understand and influence their coworkers' decision behavior. Managers should be aware that business decisions may not always be made based on financial information alone.

This article proceeds as follows. We first review prior research concerning both risky decision making and affect. We then present the research methodology, results from our six experimental conditions, and concluding remarks.
2. Related Literature and Hypothesis Development

2.1 Risky Decision Making

Decision making under conditions of risk is characteristic of many accounting decision contexts. For example, capital investment and product line decisions in management accounting contexts are primarily made with risky information. Tax compliance judgments can involve risk because the tax preparer or filer must decide whether to take a subjective tax deduction given the possibility of an audit. In addition, investors make stock buy and sell decisions based on risky forecasted returns.

Prospect theory predicts that, in risky choice contexts such as these, decision makers will evaluate alternatives in the decision problem relative to some reference point (Kahneman and Tversky [1979]). Outcomes above the reference point are viewed as gains, and outcomes below that point are viewed as losses. The theory proposes that risk-taking tendencies will differ if the context is viewed to be a gain or loss situation. A reflection effect is predicted, where decision makers will be risk avoiding in the gain domain and risk taking in the loss domain. Considerable research supports these predictions (e.g., Bromiley [1991], Shoemaker [1990], Tversky and Kahneman [1981, 1986, 1991]).

Such risk-taking tendencies are also found in accounting contexts. For example, Schisler [1994] finds that tax preparers with clients expecting to pay were significantly more risk taking (i.e., more willing to take a tax deduction) than with clients expecting to receive a refund (see also White, Harrison, and Harrell [1993]). In a managerial setting, research indicates that corporate managers tend to be more risk averse (taking) when considering investment alternatives that are above (below) both target and current return on investment (ROI) levels (Sullivan and Kida [1995]). In a similar vein, research shows that auditors' internal control judgments and substantive testing decisions were influenced by whether the decisions were perceived to be in gain or loss contexts (Emby [1994], Emby and Finley [1997]), and Lipe [1993] finds that managers' performance evaluations of variance investigation decisions were affected by their view of the decision context.

2.2 Affective Reactions

We propose that affect can result in a decision preference that overshadows the often-reported tendencies of risk avoiding (taking) in gain (loss) contexts. Affect refers to a range of reactions that include evaluations, moods, and emotions (Fiske and Taylor [1991]). Evaluations are relatively simple positive or negative reactions that an individual has toward a target. Moods are general positive or negative affective states that an individual brings to a task and are therefore typically not a reaction to specific data.¹

¹ See Isen, Nygren, and Ashby [1988], Mittal and Ross [1998], and Raghunathan and Pham [1999] for examples of research that examines the effect of a decision maker's mood on risky decision making.
Emotions refer to a complex assortment of affects toward a specific target that, although having a positive or negative component, go beyond simple good or bad feelings. These include reactions such as anger, frustration, joy, envy, and so on. In this study we are not investigating simple evaluative reactions or moods; rather, we focus on a decision maker’s emotional reactions to specific data that are observed when making a decision.2

Although the influence of affect is largely ignored in accounting contexts, some recent research addresses the role of evaluative reactions in encoding and retrieval in accounting decision making (Kida and Smith [1995], Kida, Smith, and Maletta [1998]). That research finds that experienced managers’ memory for numerical information and decisions in stock investment and financial difficulty contexts were influenced by their evaluative reactions (i.e., negative or positive reactions) to numerical data. In addition, Kida, Moreno, and Smith [2001] provide initial data on the impact of emotional affect, which suggest that such affective reactions can influence decision making in accounting contexts. However, their study does not examine affect’s influence on the risk-taking behavior of accounting decision makers, the focus of our study.

We argue that negative affective reactions toward decision data should generally result in avoidance behavior whereas positive affective reactions should result in approach behavior in risky decision contexts (Strack and Neumann [1996]). Support for this contention comes from various research streams. For example, appraisal researchers who identify distinctive action tendencies associated with specific emotions find that negative (positive) emotions are often associated with avoidance (approach) tendencies (Frijda [1987], Frijda, Kuipers, and Ter Schure [1989], Roseman, Wiest, and Swartz [1994]). In addition, several models of decision making (i.e., regret, disappointment, and equity theory) suggest that decision makers are motivated to avoid negative feelings such as regret and disappointment (Loomes and Sugden [1982, 1986], Mellers et al. [1997]). Empirical research finds that decision makers avoid regret and consider fairness issues, which can result in negative emotions such as anger (e.g., Ritov [1996], Zeelenberg and Beattie [1997], Kahneman, Knetzsch, and Thaler [1986], Taylor et al. [1998], Frijda, Kuipers, and Ter Schure [1989]). In fact, prior accounting research shows that perceptions of fairness can influence decision behavior in several contexts, such as participative budgeting, transfer pricing negotiations, tax reporting, and internal control system choices (e.g., Lindquist [1995], Luft and Libby [1997], Moser, Evans, and Kim [1995], Evans, Heiman-Hoffman, and Rau [1994], Kachelmeier, Limberg, and Schadewald [1991]). Consistent with our premise, these theories all propose a general avoidance for

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2 When factor analyses are performed on a variety of emotions, a positive/negative valence dimension typically accounts for the largest percentage of variance in the dimensional structure of emotional affect (e.g., Frijda, Kuipers, and Ter Schure [1989], Smith and Ellsworth [1985]). As a consequence, because emotions have a positive/negative valence associated with them, they, in effect, encompass evaluative reactions.
negative affective reactions and suggest that a broader theory may be at work.

2.3 HYPOTHESES

Given the foregoing research, we argue that affective reactions to data within a risky decision context should affect the decision process such that decision makers will tend to reject alternatives that elicit negative emotions and accept alternatives that elicit positive emotions. In fact, we propose that affective reactions can create such a strong decision preference that they overshadow the predictions of prospect theory's reflection effect. Therefore, the following hypothesis is formally tested:

\[ H1: \text{Affect exerts a strong influence on accounting decision making, which can negate prospect theory's predictions, resulting in risk taking in gain contexts and risk aversion in loss contexts.} \]

3. Methodology

3.1 PARTICIPANTS

Participants in our study were 121 practicing managers and other individuals with significant business experience who were attending professional executive training programs. On average, the participants had seven years of business experience. The managers included individuals from middle-level management (e.g., project managers, production managers, purchasing managers, operations managers, and plant managers), as well as upper level management (e.g., CEOs, controllers, and finance directors). The non-management participants had extensive business experience and included consultants, financial analysts, and systems and marketing directors who would have sufficient background to evaluate project investments.\(^3\)

3.2 OVERVIEW OF EXPERIMENT

Subjects were given a decision scenario in which they had to choose one of two alternatives in a capital-budgeting context. They were asked to place themselves in the position of the corporate manager responsible for making the decision. They were told that there were no correct or incorrect responses and that they should use their professional judgment. Subjects in the experimental groups read information that was designed to generate an affective response toward one of the decision alternatives. They then received financial data on the two projects. Subjects in the control groups received the financial information in the same format as the affect subjects, but they responded to the decision problems without the affective contexts.

\(^3\) Demographic information indicates that the subject pool was 62% male and 38% female. There was no significant difference in risky behavior due to gender.
After reviewing the financial information, the managers made a risky choice between the two alternatives.  

3.3 DECISION SCENARIOS

To elicit an affective reaction toward data within a decision context, a trigger event is needed. For example, anger can be elicited in situations where someone is treated unfairly or is wronged by another individual (Frijda, Kuipers, and Ter Schure [1989], Roseman, Wiest, and Swartz [1994]). Because there is a close association between the trigger event and the emotional reaction, it is difficult to separate the impact of each on the resulting decision behavior. In effect, any test of the impact of affective reactions on decision behavior is to some extent a test of the trigger event and the emotional reaction.

To alleviate this concern, we developed three decision scenarios with three different trigger events that were designed to elicit either negative or positive affective reactions. If the data are consistent with expectations across the three different trigger events, it would be reasonable to conclude that the underlying affect is the driving force behind the decision behavior. That is, it is more likely that a single cause (affect) is the driving force as opposed to three separate causes (i.e., three different trigger events). This follows from the criterion of parsimony, which argues that a theory that can adequately explain a broader range of phenomena should generally be chosen over a more restricted theory (Gold [1984]).

The three decision scenarios concerned capital-budgeting investment decisions. Two of the scenarios were designed to elicit negative affective reactions such as frustration, anger, and dislike, whereas the third was designed to elicit positive affective reactions such as liking and happiness. Faculty members and doctoral students with managerial decision-making experience were used to pre-test the research instrument. Each decision scenario had a gain and a loss version; that is, the financial outcomes were stated either in terms of profits or losses. This resulted in six experimental conditions, representing the three affect scenarios in both a gain and loss context. These data were gathered between subjects, resulting in six experimental groups. Data for the control conditions were gathered from two groups of subjects. Because the control subjects had to read only the

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4 Subjects also rated their strength of preference for the chosen alternative on a five-point scale with endpoints indicating a strong or weak preference for the chosen alternative. Because the results from the ratings are consistent with subjects’ risky choice, only the analyses of subjects’ choice behavior are discussed.

5 Occam’s razor, an often-cited rule for scientific advancement, also argues that we should look for the most parsimonious explanation that covers the broadest range of data.

6 Because of emotional blending, situations that elicit frustration may also elicit anger, and situations that elicit liking may also elicit happiness. Because we predict that negative (positive) emotional reactions, in general, will elicit avoidance (approach) behavior, such emotional blending does not affect the expectations of the study.
Table 1

Summary of Experimental Conditions

<table>
<thead>
<tr>
<th>Decision Scenario</th>
<th>Gain Context</th>
<th>Loss Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1 (negative affect)</td>
<td>Negative affect associated with certain alternative</td>
<td>Negative affect associated with risky alternative</td>
</tr>
<tr>
<td>Scenario 2 (negative affect)</td>
<td>Negative affect associated with certain alternative</td>
<td>Negative affect associated with risky alternative</td>
</tr>
<tr>
<td>Scenario 3 (positive affect)</td>
<td>Positive affect associated with risky alternative</td>
<td>Positive affect associated with certain alternative</td>
</tr>
</tbody>
</table>

Subjects in the gain (loss) context received the financial outcomes of the certain and risky investment alternatives in terms of profits (losses). There were six experimental subject groups, representing the three decision scenarios in both a gain and a loss context. Two additional groups of subjects were used for the control conditions. They responded to the three decision scenarios in either a gain or a loss context. The control subjects received the identical financial information as the affect groups without the data designed to elicit affect.

Although prospect theory predicts risk avoiding (taking) in gain (loss) contexts, we performed a slightly stronger test of the impact of affect. That is, the financial data were constructed so that the investment alternative with the negative (positive) affect had a higher (lower) expected financial value as compared with the no-affect alternative in the choice set.

Subjects first read information on two investments (e.g., a new product or capital equipment investment) from which they had to choose. Each potential investment would require working with a different individual. Experimental subjects then received information designed to elicit either a negative or a positive affective reaction toward one of the investment alternatives. No such affect information was given for the other decision alternative. For example, in the first experimental condition, a negative affective context was associated with the certain alternative to determine whether affect would cause managers to choose the riskier option. The financial

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7 One control group received scenarios 1, 2, and 3 in a gain, loss, gain context, respectively, and the other group responded to the loss, gain, loss context. Of course, because control subjects responded within subject to both gain and loss scenarios, one could argue that it sensitized them to the gain/loss context manipulation and drove the results. However, the subjects did not know the results we were expecting (i.e., risk aversion (taking) in gain (loss) contexts), and one group started with a gain condition whereas the other started with a loss, so there was no reason for them to systematically be risk avoiding (taking) in gain (loss) contexts. In addition, considerable prior research finds that reflection effects can occur in both between-subjects (e.g., Cohen and Trompeter [1998], Emby [1994], Emby and Finley [1997], Lipe [1993], Ruchala [1999], White, Harrison, and Harrell [1993]) and within-subjects manipulations (e.g., Dusenbury [1994], Shoemaker [1990], Sullivan and Kida [1995], Tversky and Kahneman [1981], Weber and Milliman [1997]). Therefore, salience of the gain/loss context manipulation should not be a problem. In addition, the control subjects did not respond to any of the experimental scenarios with the affect manipulation.
information then indicated that the certain option yielded a certain profit of $481,000, whereas the more risky alternative offered a 40% probability of a $552,000 profit and a 60% probability of a $415,000 profit, resulting in an expected value of $469,800. The certain option had a higher expected financial value, which should further bias the managers to choose that risk-averse option. When this decision scenario indicated a loss context, the negative affective context was associated with the more risky alternative. The financial data were similar to the gain context but were presented in terms of losses. The subjects were told that because new products are often offered at low initial prices to customers to gain market share, both proposals would result in an initial loss in the coming year.

The experimental subjects in the first scenario had to choose between two product investments. Each investment would require working with a different sister division run by two different managers. The information indicated that both divisional managers had strong reputations for producing high-quality products on a timely basis and explicitly stated that either project would be successfully completed if chosen. Experimental subjects then received information concerning the trigger event, which suggested that the manager of one of the sister divisions associated with the certain alternative was arrogant and condescending. For example, it was stated that this manager told them that he was a key player in the firm and that they should learn from him, even though they were in similar managerial positions and were equally successful in the firm. The manager also boasted that, because of his training, his staff worked much more efficiently than the subject's employees. In effect, the information was related to the manager's arrogant and egotistical personality and was designed to elicit negative affective reactions such as frustration and dislike toward this decision option.

The second decision scenario had subjects choose between two new product investments that would again require working with a different sister division. To elicit a negative affective reaction, subjects were told that one of the divisional managers had offered a component at an unexpectedly high transfer price and was unwilling to negotiate to reach a more acceptable compromise, even though they had sold parts to the divisional manager in the past at reduced prices. In effect, the background information suggested that this divisional manager had not treated them fairly.

The third scenario concerned the likability of an individual. Subjects were told they would be investing in a new product line that required new capital

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8 Based on prior research that examines prospect theory's predictions, one investment alternative was risky in the sense that it offered the chance of making different financial outcomes, whereas the other was not risky because it offered a certain profit or loss. Note that some investment alternatives can offer reasonably certain outcomes, and pre-testing on individuals with managerial experience did not indicate that this was unrealistic.

9 Similar information was given in the other affect scenarios to induce a loss context. In addition, the relative financial outcomes in the other scenarios were similar, and the probabilities for the risky alternatives were the same (i.e., 40% and 60%).
equipment and were asked to choose between two equipment manufacturers. To elicit a positive affective reaction, subjects were told that one of the companies was owned by a good friend. Thus, the information was designed to elicit a personal liking toward this individual. As with the first two scenarios, the information emphasized that either decision alternative would be successfully completed if chosen, and that both managers had strong reputations for producing high-quality products on time.

3.4 MANIPULATION CHECK

After the risky choice was completed, subjects indicated their level of agreement with six statements concerning their affective reactions, or indicated that they did not remember. They responded to a seven-point scale with endpoints labeled “strongly agree” and “strongly disagree,” and the midpoint labeled “neutral.” The six affects measured were frustration, anger, fear, liking, happiness, and elation. Emotions such as frustration, anger, and dislike were expected to be elicited in the negative affect scenarios, whereas fear, happiness, and elation were not expected to occur in these scenarios. Similarly, the positive scenario was designed to elicit feelings of liking and happiness toward the alternative, whereas the negative emotions were not expected to occur.10

4. Results

4.1 AFFECT MANIPULATION CHECKS

We compared the experimental and control subjects’ affect ratings for the decision scenarios designed to elicit a negative emotional reaction. The mean frustration rating for the affect subjects was significantly higher than for the control subjects (5.04 vs. 3.45, respectively, \( p < .001 \)). In addition, the mean anger rating was significantly higher and the mean liking rating was significantly lower for the affect subjects, suggesting that these subjects had feelings of anger and dislike for the target individuals (anger: 4.47 vs. 3.21; liking: 2.48 vs. 4.23, respectively, both \( p’s < .001 \)).11 Manipulation checks for the positive scenario indicated that the affect subjects felt more positive toward the target individual than the control subjects (liking: 6.55 vs. 4.17, \( p < .001 \); happiness: 6.12 vs. 4.17, \( p < .001 \); elation: 4.30 vs. 3.53, \( p < .02 \)).

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10 Elation is a more intense positive emotion and therefore may not be elicited. We measured different emotions to see whether subjects discriminated between different positive or negative reactions in the face of emotional blending. For example, although fear is a negative emotion, it was not expected to occur because nothing in the experimental scenarios should have made one fearful of the alternative. Because the control subjects received the decision scenarios without an affective context, the investigation of affect should not be obvious, and therefore the manipulation test was given immediately after each of the three decision scenarios.

11 Analyses of the manipulation checks for the two negative affect scenarios were considered separately and the results were consistent. Also, because the scales were strongly disagree to strongly agree, a lower score on the liking scale would suggest dislike.
respectively). These manipulation checks indicate that the decision scenarios were successful in eliciting the negative and positive emotional reactions of interest from the experimental subjects.

4.2 DECISION SCENARIOS

Panel A of table 2 presents the total number and percentage of subjects selecting the investment alternative, consistent and inconsistent with prospect theory's reflection effect for the three decision scenarios. Panel B presents loglinear analyses conducted on each of the three scenarios with affect, the decision context, and subjects' risky choice included in the analyses. In the first scenario, 93.3% (80.0%) of the control subjects in the gain (loss) context chose the alternative that was consistent with prospect theory's predictions. However, when negative affect was incorporated into the decision scenario, only 28.5% (29.5%) of the subjects chose that alternative in the gain (loss) context. The loglinear analysis for scenario 1 reveals a significant main effect for affect ($\chi^2 = 22.18, p < .001$), whereas the main effect for the decision context ($\chi^2 = .36, p = .55$) and the interaction ($\chi^2 = .82, p = .37$) were insignificant. These results indicate that affect influenced managers' risky behavior, and that the effect occurred in both gain and loss contexts.

Support for our hypothesis was also found in scenarios 2 and 3. The loglinear analysis for scenario 2 reveals a significant main effect for affect ($\chi^2 = 7.21, p = .007$) and for the decision context ($\chi^2 = 4.33, p = .04$), but an insignificant main effect for the interaction ($\chi^2 = 1.87, p = .17$). Overall, these results provide support for affect's influence on risky behavior, because 60% of the control subjects chose the alternative consistent with prospect theory, whereas only 26.65% of the affect subjects chose that alternative over the gain and loss contexts. The loglinear analysis for scenario 3 reveals a significant main effect for affect ($\chi^2 = 10.96, p < .001$), but an insignificant effect for the decision context ($\chi^2 = .08, p = .78$) and the interaction ($\chi^2 = .05, p = .83$) were insignificant. Once again, these results

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12 As expected, ratings for happiness and elation in the negative affect scenarios were significantly lower for the affect subjects than for the control subjects (all $p$'s < .05). Subjects should not feel positively if they had a strong negative affective reaction to the alternative. Similarly, frustration and anger were significantly lower for the affect subjects than for the control subjects (all $p$'s < .05) in the positive affect scenario, because these subjects should not experience negative emotions in the positive scenario. Fear was not expected to be elicited in any of the three decision scenarios, and the mean ratings for fear were below the neutral midpoint of the affect scale, indicating that fear was not elicited.

13 The significant effect for the decision context indicates that there was a higher proportion of subjects that chose the prospect-theory-consistent choice in the gain versus the loss context in this scenario. This was the result of two factors. The risky choices of affect subjects in the gain context and the choices of control subjects in the loss context were more evenly split. In effect, the influence of affect in the gain context was not as strong as in the other experimental conditions, and the control subjects' decisions in the loss domain were not strongly supportive of prospect theory. This reflects some prior research that finds weaker support for risk-taking behavior in the loss domain (Fagley and Miller [1987], Schneider [1992], Sullivan and Kida [1995]).
TABLE 2
Summary of Experimental Results

Panel A: Total Number of Subjects (percentage) Selecting the Alternative Consistent and Inconsistent with Prospect Theory

<table>
<thead>
<tr>
<th>Decision Scenario</th>
<th>Decision Context</th>
<th>Consistent with Prospect Theory</th>
<th>Inconsistent with Prospect Theory</th>
<th>Consistent with Prospect Theory</th>
<th>Inconsistent with Prospect Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Affect Condition(a)</td>
<td>No-Affect Condition(b)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Gain</td>
<td>4 (28.5%)</td>
<td>10 (93.3%)</td>
<td>14 (6.7%)</td>
<td>1 (28.5%)</td>
</tr>
<tr>
<td></td>
<td>Loss</td>
<td>5 (29.5%)</td>
<td>12 (80.0%)</td>
<td>12 (80.0%)</td>
<td>3 (29.5%)</td>
</tr>
<tr>
<td>2</td>
<td>Gain</td>
<td>6 (46.2%)</td>
<td>7 (66.7%)</td>
<td>10 (33.3%)</td>
<td>5 (46.2%)</td>
</tr>
<tr>
<td></td>
<td>Loss</td>
<td>1 (7.1%)</td>
<td>13 (92.9%)</td>
<td>8 (33.3%)</td>
<td>7 (7.1%)</td>
</tr>
<tr>
<td>3</td>
<td>Gain</td>
<td>7 (42.9%)</td>
<td>8 (53.3%)</td>
<td>12 (46.7%)</td>
<td>3 (42.9%)</td>
</tr>
<tr>
<td></td>
<td>Loss</td>
<td>6 (36.8%)</td>
<td>12 (80.0%)</td>
<td>12 (80.0%)</td>
<td>3 (36.8%)</td>
</tr>
</tbody>
</table>

Panel B: Loglinear Analysis of Risky Choice Data

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Chi-square</th>
<th>p-value</th>
<th>Chi-square</th>
<th>p-value</th>
<th>Chi-square</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1(d)</td>
<td>22.18</td>
<td>&lt;.001</td>
<td>7.21</td>
<td>.007</td>
<td>10.96</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>.96</td>
<td>.55</td>
<td>4.33</td>
<td>.04</td>
<td>.08</td>
<td>.78</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>1.87</td>
<td>.17</td>
<td>.05</td>
<td>.83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(a\) Affect was manipulated using three decision scenarios. Scenarios 1 and 2 manipulated negative affect, and scenario 3 manipulated positive affect. Each of the three decision scenarios had a gain or loss version. A negative affect was associated with the certain (risky) alternative in the gain (loss) context in scenarios 1 and 2, whereas a positive affect was associated with the risky (certain) alternative in the gain (loss) context in scenario 3.

\(b\) Subjects in the no-affect condition received the financial data in the same format as subjects in the affect condition, but they responded to the investment decision without the affective context.

\(c\) Prospect theory predicts risk aversion (risk taking) in gain (loss) contexts.

\(d\) A loglinear analysis was performed on each of the three decision scenarios with affect, the decision context, and subjects' risky choice included in the analysis.

indicate that affect influenced managers' risky decision making in both gain and loss contexts.

Overall, these results indicate that both positive and negative affect significantly affected managers' risky decision behavior.\(^{14}\) Across all six

\(^{14}\) Additional data were also gathered to examine whether other factors could have explained the results. Forty-five MBA and undergraduate business students, divided into three groups, responded to one of the three decision scenarios. After making their risky choice, the subjects were given 10 additional items along with the six emotional affects and were asked to indicate the degree to which each item influenced their financial decisions. The 10 additional items were cultural expectations, ethical reasons, and social norms, as well as variables related to the trigger events (i.e., the data were unreliable, and the target person was friendly, supportive, unfair, a liar, unreasonable, and untrustworthy). Subjects rated each item on a seven-point scale with endpoints labeled "strong influence" and "no influence." Because frustration (liking) was
experimental conditions, 75.55% of the control subjects chose the alternative consistent with prospect theory, whereas only 31.8% of the affect subjects were consistent with prospect theory. These results provide support for our hypothesis, indicating that affect can create a strong decision preference that overshadows the prospect theory prediction of risk avoiding (taking) in gain (loss) contexts.

4.3 ADDITIONAL ANALYSIS

To provide a stronger test of the influence of affect, we gave additional subjects the first decision scenario, which concerned a negative affective reaction generated from information about an arrogant divisional manager. The financial data were constructed to provide even greater economic incentives to choose the alternative associated with the negative affect information. Twenty-eight managers responded to the scenario, with half receiving financial information indicating profits and half indicating losses. The financial data differed from the main experiment in two ways. First, the difference in the expected values of the alternatives was approximately doubled. Second, the no-affect alternative could not, ex post, result in a more advantageous financial outcome than the negative affect alternative. For example, in the gain context, the negative affect option yielded a certain profit of $481,000, whereas the more risky, no-affect alternative offered a 40% probability of a $420,000 profit and a 60% probability of a $481,000 profit, resulting in an expected value of $456,600. In essence, the financial data were constructed so that the no-affect alternative would not yield a more attractive financial outcome, either through the overall expected value or the potential financial outcomes. Therefore, subjects had no financial incentive to choose the no-affect alternative. The same numbers were used in the loss context.

The results indicate that the managers' risky behavior was still affected in the presence of these greater incentives. That is, consistent with the results reported earlier, when a negative affect was associated with the certain option, the experimental subjects were significantly more risk taking in the gain context (affect group: 64% risk taking vs. 36% risk avoiding; control group: 7% risk taking vs. 93% risk avoiding). Results in the loss condition also were consistent with the main experiment. Subjects were significantly

the primary negative (positive) emotional reaction in the decision scenarios, we compared these affects with the 10 additional items. The results indicated that the affect was rated as high or higher than any of the other 10 additional variables across all three decision scenarios. As a consequence, no one other variable had as great an influence as affect across all three decision scenarios. These results therefore provide additional support for the impact of affect on decision behavior.

Because the same decision scenario was used in the main experiment, we compared the data from the additional affect subjects with the control subjects from the main experiment. This is a more conservative test because control subjects would have even more incentive to choose the alternative, consistent with prospect theory's reflection effect with the current financial information.
more risk averse when negative affect was associated with the more risky alternative (affect group: 79% risk avoiding vs. 21% risk taking; control group: 20% risk avoiding vs. 80% risk taking). The results from the loglinear analysis indicate a significant main effect for affect ($\chi^2 = 22.23, p < .001$) and an insignificant main effect for the decision context ($\chi^2 = 1.77, p = .18$) and the interaction ($\chi^2 = .13, p = .72$). These results provide additional support for the influence of affect on managers' risky behavior.

5. Discussion

This study reveals that affective reactions can significantly influence managers' risky decision making. Although prospect theory predicts risk aversion in a gain context and risk taking in a loss context, managers generally exhibited greater risk taking for gains and risk avoidance for losses when affect was present. In general, the managers tended to avoid (choose) negative (positive) affect decision alternatives. The results also indicate that affective reactions may influence managers to choose alternatives with lower economic value. From an economic standpoint, this behavior would be suboptimal if one considers only financial data when measuring utility. However, these results suggest that managers consider their affective reactions along with financial data when evaluating the utility of a risky alternative. In effect, negative affect may be viewed as an emotional cost and positive affect as an emotional benefit that are factored into a decision maker's overall utility assessment.

Because risk avoiding (taking) in gain (loss) contexts has been observed, or has been assumed to occur, in various accounting contexts, our findings have potential implications for many areas of accounting research. For example, investigation into managerial decision making shows that managers exhibit such risky behavior in investment contexts when affect is not considered (e.g., Case and Shane [1998], MacCrimmon and Wehrung [1986], Sullivan and Kida [1995]). However, as found in the current study, managers' affective reactions could result in behavior contradicting prospect theory's predictions. Similarly, managers' tendencies to continue to invest in a failing project (i.e., the escalation effect) is attributed to risk-taking behavior in loss contexts (e.g., Rutledge [1995], Sharp and Salter [1997]). However, if a manager has a negative affective reaction to an individual on the current failing project, escalation effects may not be observed. In a variance-investigation decision, Lipe [1993] finds that the frame of the decision affected managers' performance evaluations. However, a manager's affective reactions toward an individual may influence his or her performance evaluation, overshadowing the effects of the decision context. Therefore, although prospect-theory-type results are found in several managerial contexts, when affect is incorporated into these contexts the resulting decision behavior may be contrary to prospect theory's predictions.
Risk-avoiding or risk-taking behavior is also used as an underlying framework to explain individuals' tax-filing behavior. For example, some research finds that individuals in a "balance-due position" (loss context) have a tendency to adopt more aggressive reporting behavior and report less income than taxpayers in a "refund position" (gain context) (e.g., Dusenbury [1994], Christian and Gupta [1994], Chang, Nichols, and Schultz [1987], Schepanski and Kelsey [1990], White, Harrison, and Harrell [1993]). However, several other studies do not find that the frame influences reporting behavior (e.g., Hite, Jackson, and Spicer [1988], Schadewald [1989], Martinez-Vazquez, Harwood, and Larkins [1992]). In addition, even studies supporting decision-context effects indicate that individuals tend to be overall risk averse in their tax-filing choices (e.g., Dusenbury [1994], Christensen and Hite [1997], Collins, Milliron, and Toy [1990]). Affective reactions, such as taxpayer fear of IRS audits and penalty sanctions, could lead to overall risk aversion regardless of the decision context. Alternatively, individuals may have a strong positive affective reaction toward the social services that taxes support, which could also result in risk-averse behavior. In addition, although overall risk aversion is found, prior research also notes that there is a substantial number of taxpayers who prefer aggressive tax reporting regardless of prepayment position or decision context (e.g., Chang, Nichols, and Schultz [1987]). These individuals could have a strong negative affective reaction (e.g., dislike or anger) toward the government, which could lead to risk-taking behavior in gain or loss contexts. In effect, affective reactions may explain inconsistencies found with general risk avoiding and taking behavior.

Experimental research also suggests that audit partners generally behave in a manner consistent with prospect theory in client acceptance and retention decisions (Johnstone [2000], Asare, Cohen, and Trompeter [2001], Cohen and Trompeter [1998]). For example, audit partners are more likely to reject more risky and accept less risky new clients, consistent with risk aversion in gain contexts. Similarly, Cohen and Trompeter [1998] find that auditors were more risk taking when deciding to retain an existing client (loss context) than when accepting a new client (gain context). However, this experimental research did not consider auditors' affective reactions to client personnel. Because auditors interact with present and potential client management, affective reactions may affect their tendencies to accept less risky or reject more risky clients.

In summary, although risk-avoiding (risk-taking) behavior in gain (loss) contexts is found in many accounting research contexts, the results from our study suggest that when affect is incorporated into the decision context, prospect theory's predictions may not hold. In addition, even in studies that generally find results consistent with prospect theory, many decision makers make risky decisions that do not conform to prospect theory predictions. For example, although auditors generally reject more risky new clients, they sometimes accept those clients. Other factors may explain such behavior. In fact, research in psychology indicates that context variables can
have a significant influence on risky behavior, suggesting that risk-avoiding (risk-taking) behavior in gain (loss) contexts may be a type of default strategy that decision makers fall back on when other decision-relevant data do not exist (Wang [1996]). The results of this study suggest that affect can be an important factor considered by decision makers that can negate prospect theory’s predictions. As a consequence, we should not automatically assume that accounting decision makers will conform to prospect theory predictions. Instead, they may exhibit risk taking in gain contexts and risk avoiding in loss contexts, and one must consider the factors that could lead to such behavior to better explain and understand accounting decision making.

As with all empirical research, our study’s limitations should be considered when evaluating the findings. Although the managers were told to place themselves in the position of the corporate manager responsible for making the decision under consideration, the task was still an abstract of reality. For example, managers in this study did not experience any actual consequences from their choices. However, efforts were made to emphasize the importance of the research, and results from the recall test indicate that the managers took the task seriously and read the data carefully. In addition, although we pre-tested and gathered additional data to address the effect of other factors on our results, the potential still exists that subjects may have imputed a real cost in the negative affect scenarios. Finally, the amount of information presented was limited to construct a task that was manageable and to ensure adequate experimental controls. The data typically evaluated for capital budgeting decisions are more complex than the information presented in our study. We hoped that the managers viewed the decision scenarios as exemplars and used their expertise to perform the task.

A major challenge for accounting researchers is to integrate affect into current cognitive models of decision making. Additional research is needed to develop descriptive models of decision making that reflect greater descriptive and predictive validity. For example, future research could consider the differential influence of the gain/loss decision context and affective reactions on decision making. In this study, the affect manipulation was strong enough to overshadow the effects of the gain/loss context. However, decision behavior may be the result of a complex interaction between the decision context and the type and strength of the affective reaction. In effect, future research is needed to investigate the impact of affective reactions of varying strength in differing decision contexts. The results from this study suggest that a consideration of affect is necessary to fully understand risky behavior in accounting contexts.

REFERENCES


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