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Anger, fear, and escalation of commitment

Ming-Hong Tsai and Maia J. Young
University of California, Los Angeles, CA, USA

Two studies examined how discrete emotions influence escalation of commitment. Study 1 demonstrated that anger was associated with more escalation of commitment than fear in a personnel hiring-appraisal context. In addition, it revealed the mediating effect of risk perception; angry compared to fearful individuals perceived lower risk in their initial decision, which in turn increased the tendency to escalate commitment. Study 2 replicated the pattern of results of Study 1 in a financial decision-making situation. Contrary to conclusions drawn from the results of prior research, the current studies suggest that not all negative emotions alleviate escalation of commitment.

Keywords: Anger; Fear; Risk perception; Escalation of commitment.

A common decision in organisational life is whether to continue along a path that initially produces failing results. There is ample evidence that when faced with such a decision, individuals often prefer to continue investing in the failing project instead of investing in an alternative venture (Brockner, 1992; Conlon & Parks, 1987). They do this in an effort to "turn things around", but in spending more money and resources on the failing venture, they escalate their commitment to their initial choice (Staw, 1997).

Over the past three decades, scholars produced a large body of research studying escalation of commitment (Staw, 1976, 1981), finding various economic, situational, and psychological factors that account for this phenomenon (see Brockner, 1992; Staw, 1997, for reviews). The tendency to escalate commitment has been investigated in a wide range of contexts, such as decisions concerning military involvement in war (Lipshitz, 1995), auctions (Ku, 2008a,b), financial investments (Ross & Staw, 1986; Wong, 2005), negotiations (Ku, 2008a), and selection and performance evaluation (Bazerman, Beekun, & Schoorman, 1982; Wong, Yik, & Kwong, 2006).

There are three key features in a typical escalation situation (Brockner, 1992; Staw, 1976, 1997; Staw & Ross, 1987). First, a decision maker invests significant resources (e.g., in an employee or project). Second, this decision maker gets feedback that the chosen course of action has been unsuccessful (e.g., the employee performs poorly or the project fails). Finally, the decision maker decides to continue to invest in the original course of action or to withdraw resources from his or her prior, losing, decision.

Research has increasingly focused on the role that emotions play in decision making, but there

Correspondence should be addressed to Ming-Hong Tsai, 110 Westwood Plaza, Collins Center A-407, Box 951481, Los Angeles, CA 90095–1481, USA. E-mail: mtsai@anderson.ucla.edu

Order of authorship is alphabetical and does not reflect relative contribution.

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has been little work on how emotions might affect escalation of commitment. Wong et al. (2006) initially explored the interacting effects of negative affect and personal responsibility on escalation of commitment. Their results showed that negative affect reduces escalation when one is personally responsible for a prior decision. However, their research measured negative affect as a broad construct representing a wide range of unpleasant emotions. Although this approach examined the general impact of negative affect on escalation of commitment, it did not explicitly test the effects of discrete negative emotions on escalation of commitment.

The distinction between negative affect and discrete negative emotions is important because the cognitive appraisals that accompany discrete negative emotions are not uniform (Smith & Ellsworth, 1985). For instance, compared with fear, anger is associated with greater personal control and less situational control. Moreover, research on the Appraisal-Tendency Framework suggests that emotions of the same valence can influence judgement and choice differently (e.g., Lerner & Keltner, 2000, 2001; Lerner & Tiedens, 2006; see also Keltner, Ellsworth, & Edwards, 1993). For example, anger leads to more optimistic risk estimates and choices, whereas fear leads to more pessimistic risk estimates and choices (Lerner & Keltner, 2001). Given that anger is one of the most commonly experienced emotions (Lerner & Tiedens, 2006) and fear is one of the most critical emotions in economic decisions (Delgado, Schotter, Ozbay, & Phelps, 2008), they both merit special attention in escalation of commitment. In short, anger and fear have the same valence, but they differ in terms of risk perception. Thus, it might be that these two emotions have opposite effects on escalation of commitment.

Discrete emotions and risk perception

How might discrete emotions affect the perception of risk in an escalation situation? In the Appraisal-Tendency Framework, anger and fear differ on the control dimension (Lerner & Keltner, 2001; Smith & Ellsworth, 1985); anger is associated with optimism because angry people perceive events as being controlled by persons, whereas fear is associated with pessimism because fearful people perceive the events as being controlled by the impersonal circumstances (Lerner & Keltner, 2001). Prior research demonstrated that optimism is inversely associated with perceived risk in a specific context (e.g., McGregor et al., 2004). Applying this model of discrete emotions to an escalation situation, it is expected that decision makers experiencing anger and fear will perceive different levels of risk associated with their original course of action. That is, angry individuals will perceive lower risk inherent in their initial decision, whereas fearful individuals will perceive higher risk inherent in their initial decision, which in turn will lead to different levels of escalation of commitment.

Risk perception and escalation of commitment

According to Sitkin and Pablo's (1992) risky decision making model, a perception of high risk causes individuals to make more risk-averse choices, whereas a perception of low risk causes individuals to make more risk-seeking choices (Sitkin & Weingart, 1995). Previous research confirmed the influence of risk perception in the context of escalation of commitment (McNamara, Moon, & Bromiley, 2002; Schaubroeck & Davis, 1994; Staw, Barsade, & Koput, 1997; Wong, 2005). Risk perception reduced continued commitment to loans (McNamara et al., 2002; Staw et al., 1997) and to failing financial investments (Wong, 2005) in past studies. The present paper also proposes a negative relationship between risk perception of the initial decision and escalation of commitment. Overall, our hypothesis in the present paper is that anger will lead to lower perceived risk than fear, and, thus, anger will lead to higher levels of escalation of commitment than fear.

Incidental and integral emotion

Emotions can be classified based on their focal objectives and their relevance to the task at hand (Cavanaugh, Bettman, Luce, & Payne, 2007).

Integral emotions are relevant to the situation and decision (e.g., Loewenstein, Hsee, Weber, & Welch, 2001). For instance, integral emotions in an escalation situation refer to emotions elicited by negative feedback related to the prior decisions in the same situation. In contrast, incidental emotions are a carryover from a prior situation, and thus they should be irrelevant to subsequent decision making.

The present article investigates the impact of discrete and incidental emotions—in particular, anger and fear—on escalation of commitment. There are several distinguishing factors between this work and prior investigations. First, prior work documented that negative affect reduces escalation of commitment (Wong et al., 2006), but the current work examines discrete negative emotions. Second, prior research investigated the impact of integral negative affect (Wong et al., 2006) and anticipated regret (Ku, 2008b; Wong & Kwong, 2007) on escalation of commitment, and the current research investigates incidental anger and fear. The distinction is important because research on emotions suggests that integral and incidental emotions can have different effects on a given phenomenon (Delgado et al., 2008; Lerner & Keltner, 2001). Third, although Lerner and Keltner (2001) demonstrated that anger and fear have opposite effects on optimism or risk seeking, escalation of commitment is a different type of decision task than the ones used in the prior research. The negative feedback inherent in this task could itself induce negative emotions, overriding the effect of incidental emotions that someone feels when approaching the task. Finally, the present paper investigates risk perception as a potential mediator of the relationship between emotions and the tendency to escalate commitment, whereas prior work has not simultaneously considered the link between emotions, risk perception and risk-seeking behaviour.

STUDY 1

Participants in Study 1 completed an emotion-induction task and then assumed the role of a sales manager who was making hiring decisions. Prior research on performance evaluations revealed that some supervisors who made an earlier hiring subsequently evaluated the employee positively even if the employee performed poorly (e.g., Bazerman et al., 1982). This evaluation bias is a form of escalation of commitment because the supervisors are personally responsible for their prior hiring decisions, are reluctant to admit that they may have made a mistake, and thus evaluate their subordinate more positively (Bazerman et al., 1982). As Zhang and Baumeister (2006) stated in their examples of escalation of commitment, "supervisors become overcommitted to those employees about whom they had expressed favourable opinion in hiring decisions" (p. 881). Similarly, Wong et al. (2006) used the evaluation scores of the hired employee as an indicator of escalation of comment to the prior hiring decision. Past research also indicated that organisational resources allocated to employees were strongly associated with hiring decisions and promotion decisions (Levi & Fried, 2008), or positive performance evaluations of employees (Preskill & Caracelli, 1997). In other words, attitudinal measures correlate with behavioural measures of escalation. Thus, positive evaluations of a previously chosen but poorly performing employee represent a situation in which escalation of commitment may emerge.

Method

Participants

Participants were 47 adults (79% female), ages 20 to 64 years ($M = 35.85$, $SD = 11.95$). All were recruited by an e-mail listserv of people interested in completing behavioural studies. Participants received an e-mail with a link to the online study. Participants earned $5 for completing the study. The whole process of each study took approximately 15 minutes.

Design and procedure

The study was a 2 Emotion (fear, anger) between-subject design. The study included two parts that were presented as two separate studies. The first

part comprised the emotion manipulation. Participants were randomly assigned to two conditions in an emotional induction task. Participants in the Anger condition were asked to recall and write about a single event which made them feel extremely angry; participants in the Fear condition were asked to recall and write about a single event which made them feel extremely fearful (e.g., Keltner et al., 1993). In the second part of the experiment, participants completed a personnel hiring task that required participants to play the role of a senior sales manager of a large technology company (Wong et al., 2006). Specifically, participants were told there was a recent sales opening for which two job candidates remained. They were given two figures summarising both candidates' performance in the past 10 years (see appendix, Figure 1)[1] and were asked to select the best person for their team. They then completed a measure of the amount of risk they perceived in their choice.

Participants were informed that the selected candidate joined their team, and the unselected candidate joined another team in their company. Then they were asked to assume that five years have passed, and they were given two figures that summarised both candidates' sales over those five years. Irrespective of the participants' selection, the data indicated that their selected candidate had performed poorly, whereas their unselected candidate had performed well; that is, they received negative feedback about their initial decision. Specifically, when participants selected Candidate B, the figures showed that Candidate A's performance gradually improved but Candidate B's performance steadily deteriorated (see appendix, Figure 2). The opposite pattern was shown if participants selected Candidate A. In short, the figures always demonstrated that the performance of the candidate participants chose was poor. Given this information, participants were asked to evaluate their candidate's 5-year performance. Finally, participants completed the emotion manipulation check.

Measures

Risk perception. Immediately after making the initial hiring decision, participants responded to two items that measured risk perception about their decision: "How risky is this decision?" and "How much risk is involved in this situation?" Participants responded on 7-point scales with endpoint anchors of 1 (*no risk at all*) and 7 (*highest risk*). The items were averaged for use in analysis ($\alpha = .84$).

Candidate performance. Participants completed three items that measured the performance of the candidate they chose (Wong et al., 2006): "How would you describe your subordinate's performance in sales?"; "How would you describe your subordinate's overall performance?"; and "How would you describe your subordinate's overall contribution to your team?" Participants responded on 7-point unipolar scales. Higher numbers were associated with stronger performance. These items were averaged for use in analysis ($\alpha = .91$).

Emotion manipulation check. Two items assessed the success of the emotion manipulation. Participants were asked, "To what extent did you feel angry [fearful] after completing the writing exercise?", and responded on 7-point scales with endpoint anchors of 1 (*not at all*) and 7 (*very much*).

Results and discussion

Manipulation checks. Participants in the Anger condition ($M = 3.70$, $SD = 1.92$) reported feeling more angry than participants in the Fear condition ($M = 2.29$, $SD = 1.57$); $t(45) = 2.75$, $p < .01$. Participants in the Fear condition ($M = 3.70$, $SD = 1.76$) reported feeling more fearful than

[1] In accounting, a negative value in sales refers to an instance when the sum of sales is lower than the sum of sales returns, allowances, and sales discounts (Williams, Haka, Bettner, & Carcello, 2006).

participants in the Anger condition ($M = 2.35$, $SD = 1.58$); $t(45) = -2.78$, $p < .01$.

The effect of emotion condition on risk perception and escalation of commitment. We predicted that anger compared to fear would lead to a lower risk perception and more escalation of commitment. Participants in the Anger condition ($M = 4.20$, $SD = 1.13$) reported a lower perception of risk than those in the Fear condition ($M = 5.00$, $SD = 0.74$); $t(45) = -2.91$, $p < .01$. Participants in the Anger condition also exhibited a higher degree of escalation of commitment ($M = 2.46$, $SD = 1.33$) than those in the Fear condition ($M = 1.61$, $SD = 0.80$); $t(45) = 2.64$, $p < .05$.[2]

The effect of emotion condition and the mediating effect of risk perception. Regression procedures (Baron & Kenny, 1986) were used to test the proposed mediated model.[3] We predicted that risk perception would mediate the relationship between emotion condition and escalation of commitment. First, escalation of commitment was regressed on emotion condition (Anger vs. Fear). Consistent with the predictions, Emotion condition was significant ($\beta = .37$, $p < .05$), replicating the *t*-test results reported above. Second, risk perception was regressed on emotion condition; again, emotion condition was significant ($\beta = -.40$, $p < .01$). Finally, risk perception and emotion condition were regressed on escalation of commitment. Risk perception was associated with escalation of commitment ($\beta = -.39$, $p < .01$), but emotion condition was no longer associated ($\beta = .22$, $p > .05$). Therefore, the results supported the hypothesis that perceiving high risk in an initial decision mediates the relationship between emotion condition and escalation of commitment (Sobel test, $z = 2.00$, $p < .05$).

Together, the results of Study 1 indicate that angry compared to fearful individuals perceived lower risk in their initial decision, which in turn increased their tendency to escalate commitment. The goal of Study 2 was to conceptually replicate these findings in a different decision context (i.e., a financial decision-making situation) and to include another measure of escalation of commitment (i.e., a behavioural measure).

STUDY 2

Study 2 was a conceptual replication of Study 1. Participants completed the same emotion-induction task as in Study 1, and then they assumed the role of a financial manager making financial decisions (Staw, 1976). Escalation of commitment was then measured by the amount of money participants allocated to their previously chosen division, even though this division had performed poorly after the initial investment.

Method

Participants

Participants were 51 adults (69% female), ages 20 to 62 ($M = 34.84$ years, $SD = 10.46$). As in Study 1, participants were recruited by an e-mail listserv of people interested in completing behavioural studies. Participants received an e-mail with a link

[2] In a Neutral emotion condition, participants were asked to write about everyday activities during the last 24 hours (Keltner et al., 1993). One-way ANOVA tests revealed that there were significant condition differences in risk perception, $F(2, 62) = 5.09$, $p < .01$, and in escalation of commitment, $F(2, 62) = 3.54$, $p < .05$, among the three conditions. The means of risk perception ($M = 4.83$, $SD = 0.77$) and escalation ($M = 1.98$, $SD = 1.12$) in the Neutral condition fell in between those in the Anger and Fear conditions. Post hoc analyses with Bonferroni corrections explored the differences in risk perception and escalation of commitment as a function of condition. Risk perception and escalation of commitment differed between Anger and Fear Conditions (risk: $p < .05$; escalation: $p < .05$), but no differences emerged between the Anger and Neutral conditions, nor between Fear and Neutral conditions.

[3] Originally, the regression model included age, gender, and knowledge of financial decision making as control variables because age, gender (Slovic, 1966; Vroom & Pahl, 1971), and domain knowledge (Fox, Schmida, & Yinon, 1996; Whyte, Saks, & Hook, 1997) are associated with risk-taking behaviour. However, these variables were not significantly related to emotion condition, the perception of risk, or escalation of commitment in the present studies.

to the online study. Participants earned $5 for completing the study.

Design and procedure

The study was a 2 Emotion (fear, anger) between-subject design. The study included two parts that were presented as two separate studies. Participants first completed the same emotional induction task as in Study 1. Next, participants were told they were in charge of the distribution of some research and development (R&D) funding. The case described a company that had recently begun to decline in earnings, mainly because of a shortage of R&D funding. Participants were told that $5 million was available for R&D and needed to be allocated to only one of two divisions, consumer products or industrial products. Similar to the paradigm used in Study 1, participants were given two figures summarising earnings performances of these two divisions in the past 10 years. The two figures indicated that the performances of these two divisions were very similar. Participants were asked to distribute the money to the division that would bring the greatest financial advantage to their company. After making their decision, participants completed the risk perception items.

Next, participants were asked to assume that five years had passed. Then they reviewed two figures that summarised the earnings performance of the two divisions over the time that had lapsed. As in Study 1, participants received negative feedback about their decision. If participants selected the consumer products division, the figures showed that the performance of the industrial products division improved but the performance of the consumer products division declined. The opposite was true if participants chose the industrial products division.

Participants then learned that the departments were still in need of R&D funds, and an additional $10 million was now available to invest. In this decision, however, participants were able to divide the R&D funds between the two departments in any percentage they saw fit.

Measures

Risk perception. Participants responded to the same two items that measured risk perception as in Study 1 ($\alpha = .87$).

Investment decision. Participants were asked, "How do you choose to allocate the $10 million research and development funding? (Total must sum to $10 million)". According to prior studies (Brockner, 1992; Staw, 1976), reinvestments to the initially selected, losing department represent participants' tendency to escalate commitment.

Results and discussion

The effect of emotion condition on risk perception and escalation of commitment. We predicted that anger compared to fear would lead to lower risk perception, but to a greater escalation of commitment. In support, participants in the Anger condition ($M = 4.93$, $SD = 1.03$) had a lower perception of risk than those in the Fear condition ($M = 5.62$, $SD = 0.91$); $t(49) = -2.53$, $p < .05$. Further, participants in the Anger condition ($M = 5.32$, $SD = 3.01$) exhibited a higher level of escalation of commitment than those in the Fear condition ($M = 2.90$, $SD = 2.69$); $t(49) = 3.02$, $p < .01$.[4]

The effect of emotion condition and the mediating effect of risk perception. Baron and Kenny's (1986) regression procedures were used to test

[4] When including a Neutral emotion condition, there were again significant condition differences in risk perception, $F(2, 67) = 3.55$, $p < .05$, and in escalation of commitment, $F(2, 67) = 5.03$, $p < .01$. Replicating the pattern in Study 1, the means of risk perception ($M = 5.29$, $SD = 0.77$) and escalation ($M = 3.89$, $SD = 2.31$) in the Neutral condition fell in between those in the Anger condition and the Fear condition. Post hoc analyses with Bonferroni corrections explored the differences in risk perception and escalation of commitment as a function of condition. Risk perception and escalation of commitment differed between Anger and Fear conditions (risk: $p < .05$; escalation: $p < .01$), but no differences emerged between the Anger and Neutral conditions, nor between Fear and Neutral conditions.

our mediation hypothesis. Consistent with predictions, emotion condition significantly predicted escalation of commitment ($\beta = .40$, $p < .01$), such that higher levels were found in the Anger condition. Second, there was a significant effect of Emotion condition on risk perception ($\beta = -.34$, $p < .05$), such that lower risk perception was found in the Anger condition. Finally, a multiple regression was performed. Risk perception continued to predict escalation of commitment ($\beta = -.45$, $p < .001$), but Emotion condition was no longer significantly predictive of escalation of commitment ($\beta = .25$, $p > .05$, Sobel test, $z = 2.07$, $p < .05$). Therefore, the results conceptually replicate those of Study 1 in all specifics.

GENERAL DISCUSSION

In two types of escalation situations, the results showed that angry individuals escalated their commitment more than fearful individuals on both attitudinal (Study 1) and behavioural (Study 2) measures of escalation of commitment. The findings also indicated that the discrete emotions–escalation tendency relationship was mediated by risk perception associated with the decision makers' prior, losing decision. That is, anger relative to fear led to lower risk perceptions, which in turn increased the tendency to escalate commitment.

These results further our understanding of escalation of commitment by revealing that the effects of affect and emotion on escalation of commitment are more complex than previously identified. The current research differs from prior research on affect and escalation in at least two important ways. First, Wong et al. (2006) defined negative affect as a broad construct, which may cover a variety of negative emotions, such as anxiety, fear, and depression, whereas we focused on the discrete emotions of anger and fear. Wong et al. (2006) demonstrated a negative association between negative affect and escalation of commitment when one is personally responsible for one's prior decision, but the results of the current studies demonstrated that anger and fear have opposite effects on escalation of commitment. Therefore, this research advances the existing emotions literature by highlighting the utility of focusing on discrete emotions. While others have advocated classifying emotions into groups based on valence or activation (e.g., Tellegen, Watson, & Clark, 1999), our findings reveal that anger and fear have different behavioural and cognitive effects, although they are both considered to be strong forms of negative affect.

A second way the current research differs from prior research is that Wong et al. (2006) investigated emotional traits and integral emotions, whereas the present paper investigated the effect of incidental emotions on escalation tendency. Integral negative affect reduced escalation of commitment because negative emotion likely increased the probability of using a withdrawal strategy to solve the problem (Endler & Parker, 1990; Miller, Brody, & Summerton, 1998). The results of the current studies speak more pointedly to the breadth of the effects of emotions on judgement and decision making, and reinforce the notion that an affective evaluation process is at least in part responsible for escalation of commitment (Cavanaugh et al., 2007). In other words, individuals consistently use emotional information while making evaluative judgements, and emotions at a single time point can affect subsequent processing, judgement, and decision making (Andrade, 2005). Therefore, the potential impact of emotions is not limited to situations that arouse strong feelings. Instead, emotions are likely to permeate a wide range of decision circumstances that might otherwise be construed as purely cognitive exercises.

These results also contribute to a growing body of work that illuminates the differential risk estimates and choices associated with anger and fear. The present findings show that, compared with incidental fear, incidental anger leads individuals to perceive less risk, and they thereby escalate their commitment (i.e., making risk-seeking choices), which may ultimately lead to further losses. This result is consistent with prior research that has documented that chronically angry

individuals tend to underestimate risk in alcohol consumption (Almada et al., 1991), irregular sleep (Miller, Smith, Turner, Guijarro, & Hallet, 1996), unhealthy diet (Musante, Treiber, Davis, Strong, & Levy, 1992), tobacco use (Suinn, 2001), and poor compliance with medical treatment (Lee et al., 1992). In contrast, fear is associated with overestimates of risk. For example, fear of the 11 September 2001 terrorist attacks led individuals to overestimate the risk of subsequent airline travel, and this thereby contributed to the downturn in domestic air travel in the year after the 9/11 attacks (Ropeik, 2004). In summary, the current results on incidental fear and anger are thus consistent with prior work on the effects of chronic or temporal emotional states.

Practical implications

One practical implication of the present research is the identification of anger and fear as two essential emotional determinants that affect escalation of commitment. Thus, situationally induced anger and fear could affect an individual's propensity to escalate commitment. Leaders in a business or an organisation might predict or even influence subordinates' escalation tendencies by noticing their emotional tendencies and possibly advocating emotion-control training. For example, employees can be taught skills to reduce fear (Aspinwall & Taylor, 1997) or anger (Eggert, 1994), each of which may have decision-making benefits depending on the decision being made.

Another practical implication of the present research is that people need to further understand the generalisability of the associations of specific emotions with escalation of commitment in organisational settings. To effectively mitigate the influence of specific emotions on escalation of commitment, managers should not only take into account financial decision making, but also consider performance evaluations as another possible escalation situation. Based on the current finding, compared with fear, anger may lead a leader to promote his or her subordinate with poor performance. Despite the subordinate's performance, the leader will still invest resources into this person. Thus, managers should pay attention to all potential escalation situations.

Future research

Recent work on the effects of discrete emotions on risk-seeking choices has gradually shifted to examine discrete emotions within specific contexts. For example, Wong and Kwong (2007) investigated integral fear and escalation and discovered that fear of losing a sunk cost increased escalation of commitment, whereas fear of losing extra money decreased escalation of commitment. Future research on anger could also investigate the target of anger in escalation situations. Perhaps anger about one's own decision will spark different escalation tendencies than fear about the situation or about the chosen candidate's performance.

Other work has found that the relationship between emotions and risk assessment may be more complicated than originally thought. Kugler, Ordóñez, and Connolly (2009) found that the type of task moderated the relationship between emotions and risk perception; fearful participants were more risk averse than angry participants in a non-interactive decision-making task (one in which risk was based on a randomising device), but angry participants were less risk averse in an interactive decision-making task (in which risk was based on the decision of another human). Using a similar logic, angry individuals may be more likely to escalate their commitment than fearful individuals in a non-interactive auction task (as the current results confirm), whereas fearful individuals may be more likely to escalate their commitment than angry individuals in an interactive auction task.

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APPENDIX

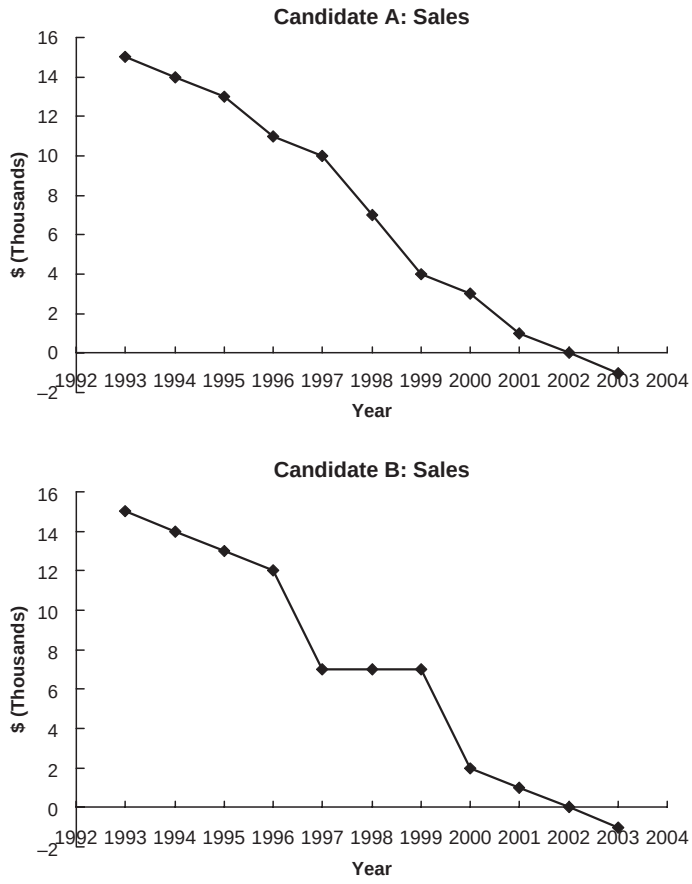

Figure 1. *Candidates' past performance data, Study 1.*

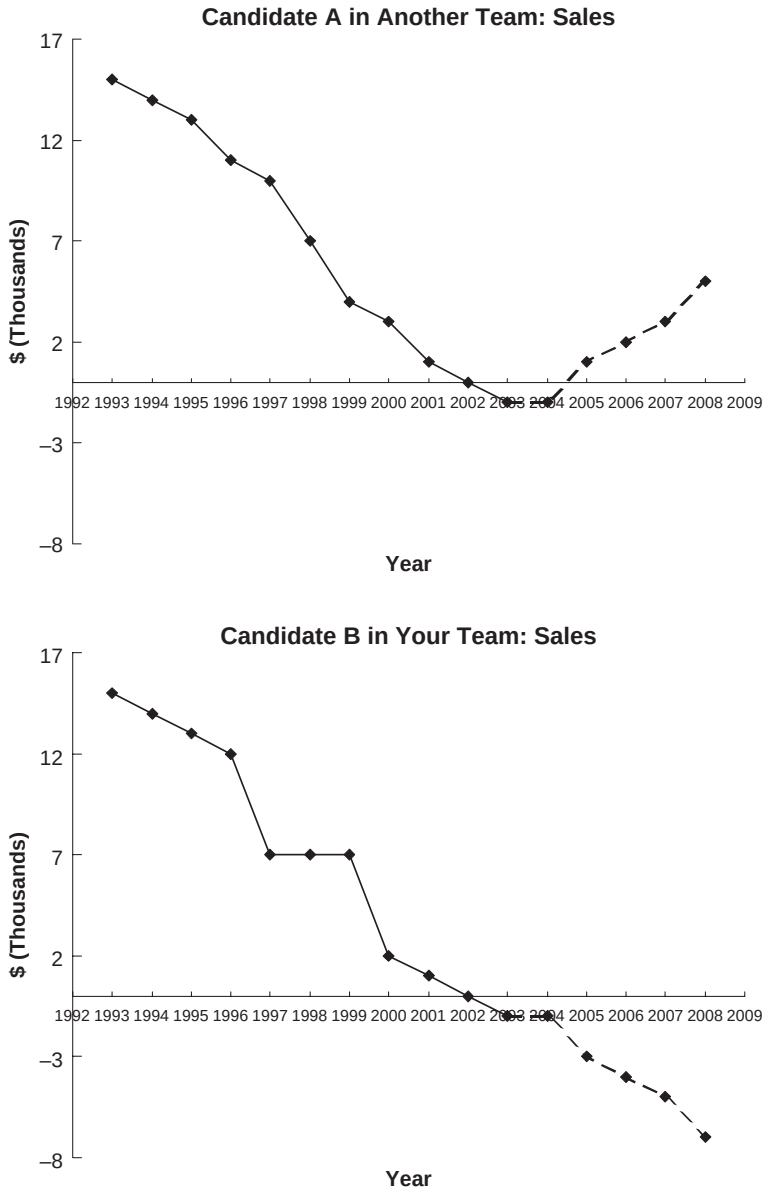

Figure 2. *Candidates' subsequent performance data given that the initial choice was Candidate B, Study 1.*