

The Impact of Positive and Negative Mood on the Hypothesis Generation and Ethical Judgments of Auditors

Anna M. Cianci and James Lloyd Bierstaker

SUMMARY: This paper examines the impact of mood on the hypothesis generation and ethical judgments of auditors. Prior psychology research documents different effects of negative and positive mood on information processing such that negative (positive) mood leads to more systematic (heuristic) processing (e.g., Forgas 1995a; Bless 2000). Theoretical accounting research (Gaudine and Thorne 2001) proposes a positive relation between positive mood and ethical decision-making. Based on this research, we predict that negative (compared with positive) mood will enhance performance on a hypothesis generation task and impair performance on two ethical tasks. These predictions are tested in an experiment in which auditors perform an analytical procedures task involving the generation of explanations for fluctuations in financial ratios and two ethical tasks involving the truthful reporting of information. Consistent with predictions, the results show that auditors' judgments are influenced by their mood state. Specifically, auditors in a negative (compared with a positive) mood generated more correct explanations for fluctuations in financial ratios, but made less ethical judgments. The implications of these results are discussed, and suggestions for future research are offered.

Keywords: mood; auditor judgment; ethical tasks; hypothesis generation.

Data Availability: Data used in this study are available from the authors upon request.

INTRODUCTION

Ethical conduct is the cornerstone of the auditing profession (Flegm 2005). In the wake of corporate financial reporting scandals and the related audit failures involving well-known companies such as Enron and WorldCom, there has been a renewed interest in understanding the factors that influence auditors' professional and ethical judgments (Reinstein et al. 2006). In response to these scandals, regulations have been issued to enhance audit quality and auditor objectivity (U.S. House of Representatives 2002; Public

Anna M. Cianci is an Assistant Professor at Drexel University, and James Lloyd Bierstaker is an Associate Professor at Villanova University.

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Company Accounting Oversight Board [PCAOB] 2004). As a result, auditors face dramatically increased workloads and time pressure, inspections of audits of publicly held companies by the Public Company Accounting Oversight Board, and disgruntled client management burdened by the financial demands imposed by these regulations (Borrus 2005). Such changes in auditors' work environment are likely to give rise to different mood states.¹

Researchers in both psychology and accounting are increasingly acknowledging the importance of mood on decision-making (e.g., Beach 1990; Beach and Mitchell 1987; Finucane et al. 2000; Mellers 2000; Keren 1996; Kida and Smith 1995; Loewenstein 1996; Strack and Neumann 1996; Peters et al. 2006; Stone and Kadous 1997; Clore et al. 1994). In fact, Forgas (1995b) suggests that cognition uninfluenced by mood may be relatively rare. The growing body of evidence suggests that positive or negative mood sometimes improves performance and sometimes impairs it (e.g., Forgas 1995a; Bless 2000). Although various explanations, including the nature of the task (Au et al. 2003; Creyer and Kozup 2003), have been proposed to explain these mixed findings, the important, longstanding question remains (*cf.*, Janis and Mann 1977): Under what conditions will mood improve or impair judgment? The current study addresses this question by examining mood's impact on two different types of tasks performed by auditors: hypothesis generation and ethical judgments. Investigating how moods can influence different tasks is particularly relevant to an audit environment where the same auditor performs many different tasks on the same client.

Although research on mood has produced mixed results, one pervasive finding is a relation between mood and performance such that negative (positive) mood leads to more systematic (heuristic) processing, resulting in enhanced (impaired) performance (e.g., Forgas 1995a; Bless 2000). Based on this effect, we predict that negative (positive) mood will improve (impair) performance on a hypothesis generation task. In addition, although there has been very limited research examining the mood/ethical performance relation, theoretical accounting work suggests that positive (negative) mood will lead to more (less) ethical decisions (Gaudine and Thorne 2001). We test Gaudine and Thorne's (2001) model by predicting that positive (negative) mood will improve (impair) ethical task performance (i.e., lead to more [less] truth telling).

To test our predictions, we conducted an experiment with 54 practicing auditors assigned to one of three conditions: positive, negative, or neutral mood. Each participant read a series of statements designed to produce a negative, positive, or neutral mood state. Then participants were asked to complete a hypothesis generation task (involving the generation of explanations for fluctuations in gross margin and inventory turnover ratios) and two ethical judgments (one involving the reporting of audit work and the other involving writing off obsolete inventory).

Consistent with expectations, auditors in the negative (compared with positive) mood condition performed better on the hypothesis generation task by generating more correct explanations for fluctuations in the gross margin and inventory turnover ratios. Also consistent with expectations, auditors in the negative (compared with positive) mood condition made less ethical judgments on both ethical tasks. Overall, these results show that negative

¹ Concepts such as affect, mood, and emotion are often used interchangeably. The term "affect" refers to a range of reactions including emotions and mood. Moods are differentiated from emotions in that they are less intense, are of longer duration, and are not directed at a specific target (Frijda 1993; Forgas and George 2001). In this paper, we use the term "mood" and make little distinction between emotions and moods because their boundaries are "unsharp" (Frijda 1986, 60).

mood, which has a functional effect on hypothesis generation performance, can have an unintended deleterious effect on ethical judgments.

This study contributes to the scant empirical and theoretical accounting research on the effect of moods on auditors' judgments. First, this study builds upon and extends *empirical* accounting research by providing evidence on the differential effects of negative, positive, and neutral mood on different types of tasks. The need to understand the factors that affect auditors' judgment seems apparent given the corporate scandals and audit failures mentioned previously and the call for improved audit decision-making by the media, accounting researchers, and regulators (e.g., Abdolmohammadi et al. 2003; Byrnes et al. 2002; Nelson 2002; Caldwell and Karri 2005; Geva 2006). However, research on mood, a pervasive environmental factor, has only begun to be considered in the accounting literature (e.g., Bhattacharjee and Moreno 2002; Chung et al. 2008), and the current study is one of the first in accounting to examine positive, negative, and neutral mood conditions. For example, Bhattacharjee and Moreno (2002) only focus on negative mood. In addition, the study of *moods* in particular is important since they are more common, longer lasting, and less noticeable than emotional states (e.g., Diener et al. 1985; Russell 1980; Watson and Tellegen 1985), suggesting that their potential effects on judgments may be significant.

Second, this study builds upon and extends the *theoretical* work in accounting on mood's influence on ethical decision-making by testing the propositions proposed by Gaudine and Thorne (2001). In addition, prior research has described the need for a general and overarching model to guide research on mood (see Beal et al. 2005). The results of the current study suggest that the nature of the task should be considered in the development of such a model.

The remainder of this paper is organized as follows. The second section presents prior research on the influence of mood on judgment performance and develops hypotheses that suggest that its influence depends on the nature of the task (i.e., hypothesis generation or ethical). The third and fourth sections present the experiment and the results, respectively. The fifth section discusses the implications of the results and offers suggestions for future research.

LITERATURE ANALYSIS AND HYPOTHESIS DEVELOPMENT

The Effects of Positive and Negative Mood on Judgment

Research suggests that mood can be described as a two-dimensional construct, with separate dimensions for positive and negative mood (Bower 1981; Isen 1984; Lewinsohn and Mano 1993; Mano 1991; Russell 1980; Thayer 1978; Watson and Tellegen 1985). Positive mood is characterized by subjective feelings of elation, pleasure, and self-satisfaction, while negative mood is characterized by feelings of threat, fear, and anger (Mano 1992; Watson and Tellegen 1985).

Behavioral decision researchers now recognize the need to explicitly consider the role of mood to fully understand decision-making behavior (Finucane et al. 2000; Keren 1996; Kida and Smith 1995; Loewenstein 1996; Mellers 2000; Strack and Neumann 1996). A considerable body of evidence suggests that one's mood influences decision-making (e.g., Isen 1984, 1987; Johnson and Tversky 1983; Mano 1991, 1992, 1994; Lewinsohn and Mano 1993; Ashby et al. 1999; Mittal and Ross 1998; Raghunathan and Pham 1999; Varma et al. 1996). However, in general, the effects on judgment of positive and negative mood have been mixed; that is, both positive and negative effects of positive and negative mood have been documented.

A frequently obtained finding is a different effect of positive and negative mood on information processing.² Specifically, negative mood has been found to facilitate systematic, algorithmic, controlled, and analytical information processing (e.g., Forgas 1995a, 2000; Forgas and George 2001; Isen et al. 1982; Schwarz 1990, 2001; Schwarz and Bless 1991); trigger more detailed-oriented, bottom-up, data-driven, and vigilant and effortful processing styles (Bless 2000, 2001; Koestner and Zuckerman 1994; Sujan et al. 1994; Tang and Sarsfield-Baldwin 1991; VandeWalle et al. 2001; Herold and Fedor 1998; Sweeney and Wells 1990; Kernis and Johnson 1990; Fiedler 2000; Forgas 2000; Shapiro et al. 2002); reduce cognitive mistakes in social thinking (Forgas 2000); increase the complete and careful use of a structured decision protocol when making a complex decision (Elsbach and Barr 1999); produce more accurate judgments that are more influenced by central than peripheral cues (Worth and Mackie 1987); and be more discerning of strong and weak arguments (Fiedler 2000), and more immune to a variety of biases (Sinclair 1988; Taylor and Brown 1988; Forgas 1998a, 1998b; Kaufmann and Vosburg 1997; Gasper 2003).

On the other hand, positive mood has been found to produce less systematic and analytical information processing (e.g., Forgas 1995a, 1995b); generate more top-down, schematic, and heuristic processing modes (Bless 2000, 2001; Fiedler 2000; Forgas 2000; Shapiro et al. 2002); increase the influence of peripheral cues (Worth and Mackie 1987) and stereotypes (Bodenhausen 1993; Forgas 2000); decrease the time taken and information used to make decisions (Isen and Means 1983; Isen and Daubman 1984; Forgas 1989; Ashby et al. 1999; Isen 1993, 1999, 2002; Isen et al. 1991); and increase a variety of cognitive biases (Schwarz and Clore 1983; Sinclair 1988; Wyer et al. 1999). Several studies suggest that this less systematic attention to stimulus information and greater reliance on top-down inferences and generic knowledge structures from positive mood often produce a processing style that is more creative and flexible, and less stimulus-bound (Bodenhausen 1993; Fiedler 1988; Hertel and Fiedler 1994; Isen 1987; Mackie and Worth 1991; Sinclair and Mark 1992).

Although the influence of mood on judgment and decision-making is largely ignored in accounting contexts (see Kadous [2001] for an exception), some research addresses the role of evaluative reactions in encoding and retrieval in accounting decision-making (Kida and Smith 1995; Kida et al. 1998; Sawers 2005). This research finds that experienced managers' memory for numerical information and decisions in stock investment and financial difficulty contexts were influenced by their negative or positive evaluative reactions to numerical data. In addition, Kida et al. (2001) find managers tended to reject product investments that elicited negative mood and tended to accept investments that elicited positive mood. Moreover, Chung et al. (2008) show that students in a positive mood make less conservative inventory valuation judgments than students in a negative mood. In addition, although Curtis (2006) found that negative mood was associated with *student* participants' lower intentions to report the unethical actions of others to a superior, the influence of mood on *auditors'* ethical judgments is still unknown.

Various theories have been proposed to explain the effect of mood on decision-making; however, no one theory has provided a coherent and comprehensive explanation of the

² Research has also documented findings that are contrary to the findings described above. Specifically, research has also found that positive (negative) mood can improve (impair) performance in certain circumstances. For example, positive mood facilitates creative problem solving (Isen et al. 1982; Isen et al. 1987) and more cognitive flexibility in categorizing information relative to others (Isen and Daubman 1984), although negative mood leads to a reduction in the available information processed, the neglect of more attributes, and faster selection in a preferential choice task (Lewinsohn and Mano 1993).

mixed findings documented.³ Mood produces multiple, complex effects on decision strategies, and some of these effects are consistent with different theories. One explanation investigated herein is that negative and positive mood may both improve and impair judgment, depending on the nature of the task. Specifically, we suggest that negative (positive) mood will impact performance on a hypothesis generation task positively (negatively), and will impact ethical task performance negatively (positively). In the next sections, hypotheses are developed related to this proposition.

The Effect of Mood on Hypothesis Generation Task Performance

In this paper, we use a hypothesis generation task that asks auditors to generate potential explanations for fluctuations in financial ratios.⁴ The medical diagnosis literature suggests that a correct hypothesis set is critical to successful performance (Elstein et al. 1978; Elstein and Bordage 1988; Patel and Groen 1986; Joseph and Patel 1990). Similarly, auditing research suggests that the initial hypotheses generated affect the effectiveness and efficiency of the audit process by guiding the search for further audit evidence (e.g., Ng et al. 2001; Ismail and Trotman 1995; Heiman-Hoffman et al. 1995; Einhorn 1976; Libby 1985; Church 1990; Bedard and Biggs 1991; Heiman 1990; Bedard et al. 1998; Libby and Frederick 1990; Bierstaker et al. 1999; Asare and Wright 1997, 2003).⁵ In addition, the initial hypotheses generated are important, given the difficulty auditors have in generating new hypotheses once the search has begun, due to functional fixation (Ashton 1976), belief perseverance (Newell and Simon 1972; Koonce 1993), and interference effects (Bedard and Biggs 1991; Hoch 1984; Fischhoff et al. 1978; Mehle et al. 1981; Frederick 1991; Heiman-Hoffman et al. 1995). Although numerous studies have examined auditors' hypothesis-generation behavior (e.g., Bhattacharjee et al. 1999; Mueller and Anderson 2002), no prior research has examined whether mood impacts this behavior.

Based on the aforementioned research, we contend that the effort and systematic processing induced by negative mood will enhance auditors' hypotheses generation performance. Prior research suggests that generating hypotheses is an unstructured audit task in which professionals are required to use *effort* to recall possible causes for fluctuations (Abdolmohammadi and Wright 1987; Libby 1985; Libby and Frederick 1990). In addition, psychology research indicates that recall is a more effortful task than recognition (e.g., Gruneberg and Herrmann 1998; Herrmann et al. 2006; Horton and Pavlick 1993; Horton et al. 1993). Based on this research, we expect that auditors who are in a negative mood state will outperform auditors in a positive mood state on a hypothesis generation task. Specifically, we expect that auditors in a negative (compared with positive) mood state will generate more correct explanations for fluctuations in financial ratios, because they expend

³ Three competing theories are the mood as information theory (e.g., Schwarz 1990), the mood maintenance/repair theory (Isen et al. 1982; Isen and Simmonds 1978; Sinclair and Mark 1992), and the cognitive capacity theory (Isen et al. 1982; Isen 1987; Mackie and Worth 1991; Stroessner and Mackie 1992; Mackie et al. 1992; Ellis and Ashbrook 1988).

⁴ Our paper focuses on the second of the four diagnostic, sequential, and iterative processes in the analytical review process: (1) mental representation, (2) hypothesis generation, (3) information search, and (4) hypothesis evaluation (Blocher and Cooper 1988; Koonce 1993).

⁵ There is some evidence, however, to suggest that an initial hypothesis set containing the correct cause is neither a necessary nor a sufficient condition for selecting the correct cause (Asare et al. 1998; Bedard et al. 1998; Asare and Wright 2003).

more effort and use systematic, analytical, and detailed-oriented processing on this task.⁶ Hypothesis 1 tests for this association.

H1: Auditors in a negative mood state will generate more correct explanations for fluctuations in financial ratios than auditors in a positive mood state.

The Impact of Mood on Ethical Task Performance

Gaudine and Thorne (2001) developed a “cognitive-affective model of ethical decision-making” to explain the relationship between mood and ethical behavior. In their model, they proposed that positive mood will lead to more ethical decisions such that it will increase the likelihood that individuals will recognize ethical dilemmas, interpret them in an appropriately complex ways, and generate viable alternative courses of action.⁷ This is consistent with the George and Jones (2001) values, attitudes, and moods (VAM) model, which suggests that positive mood will facilitate behaviors such as helping coworkers, protecting the organization, making constructive suggestions, engaging in self-development activities, and spreading goodwill.

For negative mood, Gaudine and Thorne’s (2001) predictions are not as clearly delineated. Recognizing the complexity of negative mood effects on ethical decision-making, they do not make specific predictions and instead suggest that the type of negative mood is likely to determine the ethical effects of negative mood. For example, anger may improve ethical decisions by focusing attention outward, thereby alerting one to changes in the environment that may indicate an ethical dilemma; depression, on the other hand, may impair ethical decisions by focusing attention inward (Gaudine and Thorne 2001).⁸

To our knowledge, there is no direct empirical evidence documenting the relation between mood and ethical behavior other than Curtis (2006), who finds that negative mood is associated with student participants’ lower intentions to report unethical actions of others to a superior. Also, to our knowledge, no empirical studies specifically test Gaudine and Thorne’s (2001) theoretical model. However, research on affect’s influence on helpfulness may shed some light. A well-established social psychological finding is that positive affect promotes helpfulness relative to negative or neutral affect (e.g., Isen and Baron 1991; Carlson et al. 1988).⁹ In addition to helping behaviors, positive affect can lead to altruism

⁶ Although increasing the number of plausible hypotheses considered is likely to increase the likelihood of the correct hypothesis being considered (Johnson et al. 1991; Libby and Frederick 1990), the generation of too many or implausible hypotheses can lead to reduced audit efficiency and effectiveness. In fact, research has found that generating and testing three hypotheses promote audit efficiency and effectiveness (e.g., Bhattacharjee et al. 1999; Bhattacharjee and Machuga 2004).

⁷ Gaudine and Thorne (2001) support their proposition and interpret prior research documenting positive effects of positive (compared with negative) mood—i.e., more flexible categorization schemes (Isen and Daubman 1984; Isen et al. 1985; Isen et al. 1987) and an increase in the efficiency of decision-making (Isen and Means 1983; Staw and Barsade 1993)—as being consistent with a larger portion of information in memory being associated with positive mood, thereby allowing people to access that information more readily (Bower 1981; Isen 1993).

⁸ Other research suggests that mood can impact individuals’ perceptions of an ethics-oriented issue through mood-congruent judgments (i.e., negative or positive mood will pervade the decision situation) (Fiedler 2001). However, predictions based on mood-congruent judgments do not clearly indicate in what direction the “mood congruence” moves the perceptions of unethical acts. That is, negative mood may make an unethical act appear more serious if it makes things look worse, or it may make an unethical act appear less serious if it makes all events appear serious.

⁹ Some of the types of positive mood experiences that do so include succeeding on an experimental task (e.g., Isen 1970; Weyant 1978), unexpectedly finding a dime in the return slot of a public phone (Cunningham et al. 1980; Isen and Levin 1972), listening to soothing music (Fried and Berkowitz 1979), being on the winning team when participating in a football game (Berg 1978), being given a free packet of stationery (Isen et al. 1976), imagining oneself to be enjoying a marvelous vacation in Hawaii (Rosenhan et al. 1981), and being labeled a charitable person (Kraut 1973).

and customer service (George 1991) and to such behaviors as protecting the organization, making constructive suggestions, developing oneself, and spreading goodwill (George and Brief 1992).

Based on theoretical accounting research suggesting a positive relation between positive mood and ethical behavior and on prior experimental research documenting a positive relation between positive affect and helping behavior, we hypothesize that positive mood will lead to more ethical judgments.

H2: Auditors in a positive mood state will make more ethical judgments than auditors in a negative mood state.

METHOD

Experimental Design

This experiment uses a 3×1 design in which mood is manipulated between subjects at three levels (positive, negative, and neutral). The experimental materials described below consist of mood induction statements (Velten 1968), three experimental tasks, and some background questions.

Participants

An Internet questionnaire was mailed to approximately 400 auditors from an American Institute of Certified Public Accountants (AICPA) mailing list and from a listing of accounting graduates of a southeastern university. A total of 54 auditors participated in the experiment, resulting in a 13.5 percent response rate.¹⁰ The mean (standard deviation) public accounting experience of participants was 4.71 (2.76) years.¹¹ Table 1 presents the means, standard deviations, and cell sizes for the background information on the auditors who participated in this study.¹² Most auditors were from local or regional firms and held the rank of staff or senior auditor.

To further assess their relevant experience, participants were asked to indicate their experience with explaining fluctuations in various financial ratios such as number of days' sales in receivables and inventory turnover ratio, from 1 (Not at all experienced) to 10 (Extremely experienced). The mean (standard deviation) for this question was 6.11 (1.32). Participants were also asked to indicate their experience with evaluating potentially obsolete inventory, from 1 (Not at all experienced) to 10 (Extremely experienced). The mean (standard deviation) for this question was 6.19 (2.53). As indicated in Table 1, there were 25 senior auditors and 16 staff auditors. These auditors are the appropriate level of experience for a mood task, since they are the ones most likely to be influenced (Bhattacharjee and Moreno 2002). Overall, these results suggest participants had sufficient experience to perform the tasks.

¹⁰ Our response rate is slightly lower than response rates obtained in prior studies that used the AICPA mailing list; however, unlike our study, prior studies typically sent a second request for participation. (See Fogarty et al. [2000] for a discussion of response rates in surveys that use membership lists.) However, our response rate is slightly higher than that in other more recent survey research (e.g., Beasley et al. 2005; Shafer et al. 2001).

¹¹ ANOVA testing that included background variables (i.e., experience, specific experience with hypothesis generation, specific experience with inventory obsolescence decisions, number of certifications, education level, rank, and firm) as covariates did not affect the statistical significance of our hypotheses tests.

¹² We tested the background information variables across the experimental conditions. The results indicated no significant differences across conditions for general experience, specific hypothesis generation experience, or specific experience related to inventory obsolescence decisions.

TABLE 1
Descriptive Statistics for Background Information on Participating Auditors

Panel A: Years of Experience

<u>Background Information</u>	<u>Mean</u>	<u>SD</u>	<u>n</u>
Years of Experience ^a	4.71	2.76	51
Experience with Fluctuations in Number of Days' Sales in Receivables and Inventory Turnover Ratio ^b	6.11	1.32	46
Experience with Evaluating Possibly Obsolete Inventory ^c	6.19	2.53	54
Number of Certifications ^d	.77	.43	26

Panel B: Rank

<u>Background Information</u>	<u>Partner</u>	<u>Manager</u>	<u>Senior</u>	<u>Staff</u>	<u>Other</u>	<u>Non-Response</u>
Rank of Auditor ^e	0	6	25	16	0	7

Panel C: Education

<u>Background Information</u>	<u>Undergraduate</u>	<u>Masters</u>	<u>PhD</u>	<u>Non-Response</u>
Level of Education ^f	24	17	0	13

Panel D: Firm Size

<u>Background Information</u>	<u>Local</u>	<u>Regional</u>	<u>National</u>	<u>Non-Response</u>
Firm Size ^g	26	22	6	0

^a Participants responded to the background question: How many years have you been an external auditor (i.e., public accountant)?

^b Participants responded to the background question: Please indicate your amount of experience with explaining fluctuations in various financial ratios such as number of days' sales in receivables and inventory turnover ratio. Please indicate your response on a scale of 1 (Not At All Experienced) to 10 (Extremely Experienced).

^c Participants responded to the background question: Please indicate your amount of experience with evaluating potentially obsolete inventory. Please indicate your response on a scale of 1 (Not At All Experienced) to 10 (Extremely Experienced).

^d Participants responded to the background question: Please indicate the certifications (i.e., CPA, CIA, CMA, etc.) you currently possess.

^e Participants responded to the request: Please indicate your rank by checking the appropriate item: Partner, Manager, Senior Auditor, Staff Auditor, and Other.

^f Participants responded to the background question: Please indicate your current level of education.

^g Participants responded to the background question: Please indicate your firm size: local, regional, national, Big 4, other.

Experimental Materials

Based on Velten (1968), participants were told to read a series of statements to themselves and then out loud.¹³ Participants were asked to go over each statement again and again in their heads with the determination and willingness to really believe it and to experience each idea. Participants were told to concentrate their full attention on it and exclude other ideas, which are unrelated to the mood. Each statement was on the screen

¹³ Numerous researchers have adopted the Velten statements for use in mood induction studies (see Kenealy 1986 for a review of these studies). In fact, according to the Social Sciences Citation Index, Velten (1968) has been cited 589 times since 1980. Furthermore, in an examination of the validity of the Velten procedure, Jennings et al. (2000) found a high level of internal reliability in the three statement groups (positive, negative, and neutral).

for three seconds. Participants were not able to proceed through the experiment until the three seconds lapsed.

Participants in the positive mood condition read 60 Velten Statements for Elation (e.g., I feel industrious as heck ... I want something to do!). Participants in the negative mood condition read 60 Velten Statements for Agitation (e.g., This is one of those days when I *cannot* grind out work *no matter how much effort*). Participants in the neutral mood condition read 60 Velten Statements for a Neutral mood state (e.g., Oklahoma City is the largest city in the world in area, with 631.166 square miles.).

After participants read the 60 statements to which they were randomly assigned, they filled out a brief mood questionnaire. Participants read 20 feelings and emotions, rating on a five-point scale (1 = Not at all, 5 = Extremely) the extent to which they felt that way for each item.

Next, participants performed three auditing tasks. The first task told them to assume that they were performing analytical procedures as part of their audit work on the Hailey Company, a medium-sized client of their firm. They discovered that there had been a significant change in a ratio when compared with the preceding year's ratio. They were asked to list as many possible reasons as they could for the significant changes in the following ratios: (1) The rate of inventory turnover (ratio of cost of sales and average inventory) has decreased from the preceding year's rate, and (2) The number of days' sales in receivables (ratio of average daily accounts receivable and sales) has increased over the prior year. Based on prior research (Libby 1985; Libby and Frederick 1990), the main measure of performance used in this study is the number of plausible hypotheses generated.

The second audit task told them to assume that they had been assigned to the year-end audit of Lake Corporation, which is a publicly traded corporation and a major client of their office. Their firm wants to keep this client and hopes that they will help solidify good relations with this client. They were also told that a recent firm memo contained a directive indicating that an auditor's ability to get along with the client, how well one's work conforms to GAAS, and how thorough one is in evaluating clients' financial assertions are critical elements of one's performance evaluation.

The case indicated that the year-end audit of Lake Corporation is almost complete except for one item related to the valuation of inventory. The item relates to the potential obsolescence of some specialized inventory items. Lake Corporation's management believes that inventory should not be written down, because there is a market in Asia that would absorb any excess inventory that has not been sold at the end of the year. In the past, inventory problems were immaterial, but there are some concerns that the amount may be material this year. Currently, EPS based on unaudited financial information is \$1.14, and analysts' forecasts of EPS for Lake Corporation is \$1.14. If the potentially obsolete inventory is written off, EPS will be reduced by \$.04, to \$1.10. The evidence does not clearly support writing off the potentially obsolete inventory or keeping it on the books. Participants were asked to indicate their assessment of the likelihood that they would recommend to the client that the inventory should be written off, from 1 (*Not at all likely*) to 10 (*Extremely likely*).

We view this second audit task as an "ethical" task in that auditors' alliance to public service, professional skepticism, and the professional code of ethics (AICPA *Code of Ethics* Rules 101 and 102) requires them to resist client pressures (for example, to not write off inventory, as is the case in this second audit task) to comply with client-preferred accounting methods. This ethical task involves the personal consequences that such a decision may have on client relations, as well as public consequences since investors use EPS to make

investment decisions. In this way, this task is consistent with the ethical conflict that auditors are presented with as a result of their accountability to multiple stakeholders who hold potentially conflicting views (i.e., audit profession, client, and public) (Emby and Gibbins 1988; Messier and Quilliam 1992). Moreover, Thorne (2000) suggests that the auditor must balance “ethical factors” (such as potential losses to shareholders, upholding of professional integrity, independence, and public interest) against other factors (such as retention of the client and loss of audit fees), and Massey and Thorne (2006) view auditors’ considering the public interest as “more ethical.”

The third audit task told participants to assume that they had been assigned to the year-end audit of VMC Corporation, a publicly traded corporation. During the VMC audit, they were doing work in the property area, vouching additions for the year. The audit program indicated that a sample of all items over \$100,000 should be selected, plus a judgmental sample of smaller items. When they went to take the sample, they were the only audit member at the client’s office that Friday. There was no one around to answer their questions about the appropriate size of the judgmental sample. Based on their own judgment, 30 smaller items were selected, based on the idea that there were about 200 such items, so 30 (i.e., 15 percent) seemed like a reasonably good proportion of these small additions.

The results were as follows. The items over \$100,000 contained no misstatements, and the first 10 small additions contained no misstatements. However, the 20 remaining small additions contained several misstatements. Nevertheless, they were not sure if these misstatements were material and whether they used the correct sample size.

On the following workday (i.e., Monday), they received an urgent email from Gary Johnson, the supervising senior auditor, which read as follows: “I hope you are done with vouching the additions. As I am sure you know, the sample for the small additions should not exceed 5. This is consistent with our firm’s sample selection procedures described in our audit manual. Specifically, a sample size of 5 is appropriate based on materiality considerations, the stratified sample approach which identifies all individually material items, and the strength of internal controls over the acquisition and payment cycles. We need to be careful with how much time we spend in the property area as this does not represent a critical area.”

Based on these facts, they were asked to assess the likelihood that they would report the 25 extra small additions sampled and the findings from this extra 25-item sample to Gary Johnson, on a scale from 1 (*Not at all likely that I would report to Gary Johnson*) to 10 (*Highly likely that I would report to Gary Johnson*). After that, they were asked some general background questions and some questions on their work experience. The entire questionnaire took about 30 minutes to complete. Our view of this self-focused task as “ethical” is consistent with prior research that suggests that underreporting is an ethical decision (e.g., Ponemon 1992; Dirsmith and Covaeski 1985).

Independent Variables and Dependent Variables

There was one independent variable manipulated at three levels: positive, negative, and neutral mood based on the condition to which participants were assigned. The manipulation check for this variable is described below. Participants’ years of auditing experience were also included as a covariate.

There were three dependent variables: (1) the number of correct causes of fluctuations in financial statement ratios, (2) the likelihood of recommending to the client that inventory be written off, and (3) the likelihood of reporting to the audit supervisor that 25 extra items were sampled and the results.

Manipulation Checks

The effectiveness of the mood manipulation was assessed via participants' responses to Positive Affect Negative Affect Scale (PANAS) (Watson and Tellegen 1988). A mood score is the degree of mood, as indicated by the responses to the PANAS instrument. A negative mood score was computed by summing the scores for the 10 negative mood adjectives: distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid. A positive mood score was computed by summing the scores for the 10 positive mood adjectives: interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active. Table 2 presents the means, standard deviations, and cell sizes for the positive and negative mood scores across the mood conditions.

As shown in Table 2, participants' negative mood scores had a mean (standard deviation) of 32.26 (5.62) in the negative mood condition, compared with 27.65 (4.44) for the neutral mood condition and 20.72 (5.88) for the positive mood condition. These differences in means are statistically significant ($F = 21.54$; $p < 0.001$; $df = 2, 53$). t-test results indicate significant differences between the negative mood scores of participants in the negative and positive mood conditions ($t = 6.11$; $p < 0.001$, one-tailed; $df = 35$), in the negative and neutral conditions ($t = 2.71$; $p < 0.01$, one-tailed; $df = 34$), and in the neutral and positive conditions ($t = 3.91$; $p < 0.001$, one-tailed; $df = 33$). Similarly, participants' positive mood scores had a mean (standard deviation) positive mood score of 29.41 (3.41) in the neutral mood condition, compared with 24.11 (4.41) for the negative mood condition and 38.44 (5.33) for the positive mood condition. These differences in means are statistically significant ($F = 48.40$; $p < 0.001$; $df = 2, 53$). t-test results indicate significant differences between the positive mood scores of participants in the negative and positive mood conditions ($t = 8.94$; $p < 0.001$, one-tailed; $df = 35$), in the negative and neutral conditions ($t = 4.0$; $p < 0.001$, one-tailed; $df = 34$), and in the neutral and positive conditions ($t = 5.93$; $p < 0.001$, one-tailed; $df = 33$).

RESULTS

Descriptive Statistics

In the experimental questionnaire, participants were asked to indicate the extent to which they agreed with a series of statements on a scale from 1 (Strongly disagree) to 10 (Strongly agree). As shown in Table 3, participants tended to agree (mean) [standard deviation] with the following statements: (1) deciding to report the 25 extra sample items and the related findings from this sample to a superior is the more ethical decision (7.48) [1.38], and (2) deciding to recommend to the client that the potentially obsolete inventory be written off is the more ethical decision (6.57) [1.56].¹⁴ Therefore, participants acknowledged that reporting the 25 extra sample items and recommending inventory obsolescence were the more ethical decisions ($t(t > 5 \text{ [the midpoint]}) = 13.18$, $p < 0.001$, $df = 53$ for the sample task; $t(t > 5) = 7.41$, $p < 0.001$, $df = 53$ for the inventory task). In addition, participants did not appear to believe that reporting the extra sample items (4.07) [2.29] and recommending the inventory write-off (5.06) [2.44] involved a great deal of risk.

¹⁴ ANOVA analysis indicates that participants' ability to identify an ethical issue (as indicated by their responses to [1] and [2] above) did not differ across experimental conditions (i.e., negative, positive, or neutral mood states). This result is inconsistent with Gaudine and Thorne's (2001) proposition that the positive effects of positive (compared with negative) mood are due to a larger portion of information in memory being associated with positive mood, thereby allowing people to access that information more readily.

TABLE 2
Descriptive Statistics (Mean, SD, n) for Manipulation Checks and Dependent Variables by Mood Condition

<u>Dependent Variable</u>	<u>Positive Mood</u>	<u>Negative Mood</u>	<u>Neutral Mood</u>
Negative Mood ^a	20.72 (5.88) (18)	32.26 (5.62) (19)	27.65 (4.44) (17)
Positive Mood ^b	38.44 (5.33) (18)	24.11 (4.41) (19)	29.41 (3.41) (17)
Hypothesis Generation Task (Correct) ^c	3.28 (1.07) (18)	4.21 (1.18) (19)	3.71 (1.05) (17)
Hypothesis Generation Task (Incorrect)	.28 (.46) (18)	.53 (.70) (19)	.41 (.62) (17)
Hypothesis Generation Task (Percentage Correct compared to Total Responses)	92% (14.84) (18)	88% (17.86) (19)	92% (11.76) (17)
Ethical Task #1 (Inventory) ^d	7.72 (1.13) (18)	6.84 (1.12) (19)	7.47 (1.33) (17)
Ethical Task #2 (Sample Size) ^e	7.28 (1.02) (18)	6.26 (.87) (19)	6.59 (1.23) (17)

^a Participants indicated the extent to which they felt a certain way right now. Participants indicated their response on the following scale: 1 (Not At All), 2 (A Little), 3 (Moderately), 4 (Quite a bit), and 5 (Extremely). The adjectives used to measure negative mood were: distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid.

^b Participants indicated the extent to which they felt a certain way right now. Participants indicated their response on the following scale: 1 (Not At All), 2 (A Little), 3 (Moderately), 4 (Quite a bit), and 5 (Extremely). The adjectives used to measure positive mood were: interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active.

^c Participants responded to the following: While performing analytical review procedures as part of your audit planning for the VMC audit, you discover that there have been significant changes in the following ratios when compared with the preceding year's. List as many possible reasons as you can for the significant changes in the following ratios: (a) The rate of inventory turnover (ratio of cost of sales and average inventory) has decreased from the preceding year's rate; and (b) The number of days' sales in receivables (ratio of average daily accounts receivable and sales) has increased over the prior year. Correct represents the number of correct responses listed by participants.

^d Participants responded to the request: Please indicate your assessment of the likelihood that you would recommend to the client that the inventory be written off. Please indicate your response on a scale from 1 (Not At All Likely) to 10 (Extremely Likely).

^e Participants responded to the request: Based on these facts, what is the likelihood that you would report the 25 extra small additions you sampled and the findings from this extra 25-item sample to Gary Johnson? Please indicate your response on a scale from 1 (Not At All Likely that I would report to Gary Johnson) to 10 (Highly Likely that I would report to Gary Johnson).

Test of Hypotheses

Hypothesis 1

The first hypothesis predicts that decision makers in a negative mood will generate more correct explanations than decision makers in a positive mood. As shown in Table 2, auditors in the positive mood condition had a mean (standard deviation) of 3.28 (1.07)

TABLE 3
Descriptive Statistics for Background Information on Theoretical Propositions

Questions Asked	Mean	SD	n
In this questionnaire, I think that deciding to report the 25 extra sample items and the related findings from this sample to a superior is the more ethical decision than deciding not to report the 25 extra sample items and related findings from this sample to a superior.	7.48	1.38	54
In this questionnaire, I think that deciding to recommend to the client that the potentially obsolete inventory be written-off is the more ethical decision than deciding to not recommend to the client that the potentially obsolete inventory by written-off.	6.57	1.56	54
In this questionnaire, I think that the decision to report 25 extra sample items and the related findings from this sample to a superior involves a great deal of risk.	4.07	2.29	54
In this questionnaire, I think that the decision to recommend to the client that the potentially obsolete inventory be written-off involves a great deal of risk.	5.06	2.44	54
If I am in a positive mood, it is very important for me to maintain my mood.	6.33	2.41	54
If I am in a negative mood, it is very important for me to repair my mood.	6.56	2.61	54
A positive mood disrupts my ability to think and process information.	5.67	2.56	54
A negative mood disrupts my ability to think and process information.	6.20	2.32	54

Participants responded to the background question indicated using a scale of 1 (Strongly Disagree) to 10 (Strongly Agree).

correct explanations for the fluctuations in financial ratios, compared with 4.21 (1.18) for auditors in the negative condition and 3.71 (1.05) for auditors in the neutral condition.¹⁵ These differences across conditions are significant ($F = 3.30$; $p < 0.05$; $df = 2, 53$).¹⁶ t -tests indicate that auditors in the negative mood condition outperformed auditors in the positive mood condition ($t = 2.51$; $p < 0.01$, one-tailed; $df = 35$). These findings support H1.¹⁷ In addition, t -tests also indicate that auditors in the negative mood condition performed marginally better than those in the neutral condition ($t = 1.35$; $p < 0.10$, one-tailed; $df = 34$). However, auditors in the positive and neutral conditions did not perform significantly differently.

¹⁵ Auditors' incorrect explanations were also examined. No significant differences were found across conditions.

¹⁶ In the auditing context, prior research (e.g., Ismail and Trotman 1995) has suggested that it is realistic to expect such a "ceiling effect"—a maximum number of hypotheses above which even groups cannot generate additional hypotheses without getting more information or evidence—and has found that auditors produced a limited number of hypotheses. Specifically, in Ismail and Trotman (1995), audit seniors generated 5.4 plausible hypotheses, while in Libby and Frederick (1990) auditors generated 4.1 plausible hypotheses on the same task. These results are consistent with the conclusions in other fields of research. For example, the size of the hypothesis set explored at any point in time is usually around four or five hypotheses, with an upper bound of six or seven (Elstein et al. 1978). In psychological studies (e.g., Mehle 1982), on average, subjects produced 3.4 plausible hypotheses. Hence, this finding that individuals produced limited sets of hypotheses is consistent with the general conclusion in the psychological and medical literature (Elstein et al. 1978; Mehle et al. 1981; Wason and Johnson-Laird 1972).

¹⁷ General audit experience, experience with financial ratios, and their interaction with mood were not significant at conventional levels ($p > 0.10$).

Hypothesis 2

The second hypothesis predicts that individuals in a positive mood will make more ethical judgments than auditors in a negative mood. For the inventory ethical task, participants rated the likelihood that they would recommend to the client that the inventory should be written off on a scale from 1 (*Not at all likely*) to 10 (*Extremely likely*). As shown in Table 2, auditors in the positive mood condition had a mean likelihood (standard deviation) of 7.72 (1.13), compared with 7.47 (1.33) for auditors in the neutral condition and 6.84 (1.12) for auditors in the negative condition. These differences across conditions are marginally significant ($F = 2.69$; $p < 0.10$; $df = 2, 53$). t-tests indicate that auditors in the positive mood condition were more likely to recommend an inventory write-off than auditors in the negative mood condition ($t = 2.38$; $p < 0.05$, one-tailed; $df = 35$). These findings support H2. In addition, t-tests indicate that auditors in the negative mood condition made marginally less ethical judgments than those in the neutral condition ($t = 1.54$; $p < 0.10$, one-tailed; $df = 34$). However, auditors in the positive and neutral conditions did not make significantly different ethical judgments.

For the sample-size ethical task, participants rated the likelihood that they would report the 25 extra items they sampled and their findings to their superior from 1 (*Not at all likely*) to 10 (*Highly likely*). As shown in Table 2, auditors in the positive mood condition had a mean likelihood (standard deviation) of 7.28 (1.02), compared with 6.59 (1.23) for auditors in the neutral condition and 6.26 (0.87) for auditors in the negative condition. These differences across conditions are significant ($F = 4.53$; $p < 0.05$; $df = 2, 53$). t-tests indicate that auditors in the positive mood condition were more likely to report their findings than auditors in the negative mood condition ($t = 3.26$; $p < 0.01$, one-tailed; $df = 35$) and neutral condition ($t = 1.81$; $p < 0.05$, one-tailed; $df = 33$). These findings also support H2. However, auditors in the negative and neutral mood conditions did not rate the likelihood of reporting to their supervisor differently.

CONCLUSIONS

Theoretical and Practical Implications

This study has three main findings. First, auditors in a negative mood state outperformed auditors in a positive mood state on a hypothesis generation task such that they generated more correct explanations for fluctuations in financial ratios. Second, auditors in a positive (compared with negative) mood state performed better on a sample-size ethical task by indicating that they were more likely to report sampling 25 additional items to their superior. Third, auditors in a positive (compared with negative) mood state performed better in an inventory ethical task by indicating that they were more likely to recommend a write-off of obsolete inventory.

These results have implications for both academic research and practice. From an academic standpoint, our findings build upon prior empirical research on the mood/performance relation (e.g., Forgas 1995a; Bless 2000) and theoretical work on the mood/ethical performance relation (Gaudine and Thorne 2001) by suggesting that the nature of the task (hypothesis generation, ethical) is a critical factor in determining the effect of mood. Although various theories have been proposed to explain the influence of mood on decision-making (for review, see Finucane et al. 2003; Willner 1984; Forgas 2002; Isen 1993), no one theory has provided a coherent and comprehensive explanation of the mixed findings documented. In addition, even though prior research that has found that negative mood can improve decision-making in some tasks (Stone and Kadous 1997) and impair it in others (e.g., Stone and Kadous 1997; Isen et al. 1987; Murray et al. 1990), no theory has proposed

the nature of the task as a key determinant of the effect of mood. The results presented here suggest that consideration of the effects of positive and negative mood independent of the nature of the tasks is likely incomplete and potentially misleading.

In addition, our results contribute to the growing body of research in accounting on mood. One recent study, in particular, by Chung et al. (2008), examined the relation between mood (positive, negative, and neutral) and auditors' professional skepticism. Their results show that positive-mood participants signed off on inventory values that were *less* conservative compared with neutral-mood participants, while negative-mood participants made the most conservative valuation of inventory. In the current study, however, we find that auditors in a positive mood were more likely to recommend an inventory write-off (i.e., were *more* conservative) than auditors in a negative mood. A potential explanation for these different results may be that the task context of the Chung et al. (2008) study involved a disagreement between the auditor and management. Based on this adversarial context, a negative mood may have caused participants to choose inventory values that were further from management's estimate than a positive or neutral mood did. Therefore, while our study suggests that the *nature of the task* is an important factor to consider when determining the impact of mood, the comparison of our study with that of Chung et al. (2008) suggests that the *context of the same or similar task* may matter also. This is an issue for future research. In addition, the current study used auditors as subjects, and Chung et al. (2008) used auditors and students. Since Bhattacharjee and Moreno (2002) find that inexperienced auditors react more strongly to affective information than more experienced auditors, it is possible that students may have an even greater and/or different reaction to affective information than auditors.

From a practical standpoint, conclusions from the current study may be useful in predicting differences in auditors' ethical and professional judgments. The results of this study will be helpful to business organizations that are examining their ethics policies and procedures and are developing ongoing training programs in response to the Sarbanes-Oxley Act (SOX) (Myers 2003). For example, in ethical awareness seminars and workshops, specific case studies could be developed to focus on different types of ethical tasks varying in moral intensity (Jones 1991) and the effect of mood on such tasks. In addition, the influence of mood on hypothesis generation may be of particular concern considering the importance of analytical procedures, including hypothesis generation, to the audit process. Such importance is evidenced by its endorsement by auditing standards (ISA 315, International Auditing and Assurance Standards Board [IAuASB] 2003a; ISA 520, IAuASB 2003b; SAS No. 56, American Institute of Certified Public Accountants [AICPA] 1988; SAS No. 99, AICPA 2002) and the recent recommendation by the U.S. Public Oversight Board for further guidance on investigating and evaluating the results of such procedures (Public Oversight Board [POB] 2000).

Consistent with prior research documenting auditors' use of dysfunctional auditor behaviors (Donnelly et al. 2003; Malone and Roberts 1996; Coram et al. 2004; Sweeney and Pierce 2004), our findings suggest that auditors in a negative mood are more likely to succumb to client pressures, even in situations where they know that their decisions will have public consequences (i.e., reduced EPS). To the extent that objective auditor judgment is desirable, negative mood may hinder audit effectiveness by leading auditors to make less conservative judgments than they do when in a positive mood. Here, less conservative behavior was in the form of a lower likelihood of recommending that inventory should be written off. However, less conservative behavior may also be associated with, for instance, under (over) weighting the relevance of control weaknesses (strengths). Although such

behavior may increase audit efficiency, audit quality and effectiveness may suffer from underauditing. We assert that any dysfunctional effects of mood should be recognized because it represents a point of vulnerability in a litigious environment for auditors, audit firms, and the profession. Such findings may be particularly of concern given criticism of the auditing profession in the wake of corporate collapses involving well-known companies such as Enron and WorldCom and the increased workloads and intense scrutiny of the auditing profession in the post-SOX environment.

The implication of our finding that aggressive reporting may be exacerbated by the induction of negative mood or may be constrained through the induction of positive mood is particularly relevant to the public accounting environment, where institutional characteristics such as the performance evaluation process, time pressure, interactions among client management and audit team members, and accountability relations may induce mood states on auditors, thereby leading to potential quality-threatening effects. In addition, since mood-inducing events cannot be eliminated in audit practice (e.g., Imhoff 2003; Moore et al. 2006; Bazerman et al. 2002), strategies are needed to mitigate the effects of mood. Such strategies might include internal peer review, additional training, and appropriate debriefing to minimize the deleterious effects of negative mood on ethical judgments and of positive mood on hypothesis generation. Audit firms should be aware of potentially mood-inducing influences in the work environment (e.g., time pressure, accountability, review process) and the moods that auditors bring to the job that may influence the quality of their work.

Our findings suggest that positive mood shows promise as a means of encouraging auditors to be more ethical. These results are especially promising considering that prior research has found that short-term interventions rarely result in an improvement in individuals' ethical reasoning (e.g., see Schlaefli et al. [1985] for a review of the ethics intervention literature and Jones et al. [2003] for a review of the audit ethics literature). Similarly to prior research suggesting that task information feedback¹⁸ is an effective method of promoting higher ethical reasoning (Massey and Thorne 2006), the current study suggests that inducing the appropriate mood state may be another method to improve ethical performance.

Future Research and Limitations

These findings suggest several avenues for future research. First, while the current study provides evidence that mood differentially influences auditors' judgments depending on the nature of the task (hypothesis generation, ethical), future research could examine mood effects on tasks differing in other characteristics, including creativity and complexity, and the underlying cause of the differences identified in the current study. For example, Jones (1991) presents an ethical decision-making model, which identifies six characteristics of an ethical task that influence ethical behavior, and prior research has identified different mood effects depending on the complexity of the task (e.g., Clore et al. 1994; Isen et al. 1985; Forgas and Bower 1987) and the creativity involved in the task (e.g., Isen et al. 1987; Murray et al. 1990). Future research could examine whether tasks varying in these characteristics or in the complexity and creativity required may moderate whether being in a positive or negative mood state influences decision-making.

Second, future research should examine how auditors' mood and their ability to manage their emotions may change throughout their career. Prior research indicates that past experiences with mood and mood-inducing stimuli influence how individuals respond to mood

¹⁸ Task information feedback is a type of cognitive feedback that provides subjects with guidance about the desired decision-making process (Balzer et al. 1989).

(LeDoux 1996). This research has implications for the audit setting. For example, as an auditor's career progresses and her reputation is more firmly established, her vulnerability to the deleterious effects of mood may diminish. Bhattacharjee and Moreno (2002) provide some support for this suggestion. Specifically, they find that less experienced auditors' inventory obsolescence risk assessments were influenced by negative and irrelevant affective information, but the risk assessments of more experienced auditors were not. Future research should examine whether years of audit experience decrease auditors' propensity to be influenced by mood and contribute to the development of effective coping strategies to mitigate mood's deleterious effects.

Third, since mood influences auditors' hypothesis generation and ethical decision-making, future research is needed to explore whether training auditors to manage their emotions and to employ appropriate debriefing methods reduces or eliminates affective bias in their judgments. Taking this one step further, auditing firms may be able to reduce underreporting and aggressive reporting by altering the mood setting. For instance, auditors could read a neutral scenario after a mood-generating event to "cleanse" them of any influence of mood—that is, to minimize the deleterious effect of a negative mood state on ethical judgments (without eliminating the positive effects on hypothesis generation tasks). In addition, although debiasing techniques are not always successful (Fischhoff 1982), some research suggests that simply making people more aware of their own judgment processes or of the effect of mood on their judgments can minimize the impact that emotions have on judgments and decisions (Gross 1998; Keltner 1996; Schwarz and Clore 1983; Lerner and Keltner 2000).

Fourth, while our study provides information on the impact of mood on hypothesis generation, it is not known whether the reported results here persist through the sequential and iterative process comprising the other stages of analytical procedures, or are affected by other unique aspects of the audit environment (such as time pressure, the use of audit teams, and the review process). For instance, Green (2004) provides evidence that through completion of the entire analytical procedures process, auditors are able to overcome biases introduced at the initial hypothesis generation stage. Finally, future research could explore the impact of decision aids on this process. For instance, Sawers (2005) finds that although executives in a negative mood state had a greater desire to postpone making decisions, a decision aid designed to aid in focusing cognitive effort mitigated this effect.

An important limitation of our study is that we did not counterbalance tasks, and so we cannot rule out the possibility that the effects we observed were due to task order or an interaction of task type and task order, rather than task type alone. A second limitation is that we did not collect process data (verbal protocols, search monitor), and so we are unable to provide insight into the mechanisms underlying our results. Finally, the inventory obsolescence task may have been difficult for our participants. However, sensitivity analysis indicates that the rank and experience of our subjects were not significant covariates, and so we believe this an unlikely explanation for our results.

Further analyses of the antecedents and consequences of mood states are needed to identify conditions in which they may influence auditors' judgments and the nature of their interactive effects. Other factors (such as evaluations, excessive workload, and audit teams) and their influence on mood should be examined to obtain a more complete understanding of the determinants of audit decision performance. This, in turn, will help to illuminate underlying causes of auditors' deficient judgments, contribute to a more complete understanding of expert judgment, and potentially facilitate judgment improvement by leading to the design and development of more efficient audit procedures, decision aids (e.g., checklists), and training programs.

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