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The Mitigation of Hindsight Bias in Judges' Evaluation of Auditor Decisions

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SUMMARY

The public accounting profession may be significantly disadvantaged if hindsight bias is manifest through the U.S. civil liability system. Auditors must make decisions without knowledge of an eventual outcome, but auditor liability is determined from a perspective that includes outcome knowledge. *Ex post*, litigants tend to blame auditors for failing to foresee and anticipate subsequent financial problems of their audit clients.

This study was conducted to test the effectiveness of two methods of mitigating hindsight bias in a legal liability context. An experiment was conducted with 157 state general jurisdiction judges serving as subjects. Results indicate that these judges' evaluations of auditors' performance were subject to hindsight bias. More importantly, we found that under one of the mitigation methods, evaluative judgments were significantly more favorable than were judgments in the unmitigated negative outcome treatment, and essentially the same as evaluative judgments in the no outcome control condition. The primary contribution of this study is that it is the first to provide evidence that judges' hindsight bias can be mitigated in an audit legal liability context. Implications for audit legal liability and future research are also discussed.

Key Words: Hindsight bias, Legal liability, Debiasing.

Data Availability: The data upon which this paper is based may be obtained from the authors on request.

INTRODUCTION

Hindsight bias refers to an individual's overestimation of the extent to which they would have foreseen the apparent "inevitability" of an outcome (Hawkins and Hastie 1990; Schkade and Kilbourne 1991). Individuals project knowledge of an outcome into the past and are unaware of the effect that this knowledge has on their perceptions (Fischhoff 1975). As a result, hindsight bias has been found to influence evaluations of the competence of the decision maker (Baron and Hershey 1988). Individuals evaluating decision makers may assume (in hindsight) that certain events were potentially foreseeable and reflect that the decision maker (in foresight) should have been able to anticipate an outcome that became clear only retrospectively (Baron and Hershey 1988; Fischhoff 1975; Mitchell and

Kalb 1981). The public accounting profession could be significantly and negatively affected by the hindsight bias phenomenon (Berton and Schiff 1990; Kinney 1993, 1994). For instance,

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in a classic case, hindsight bias could have influenced the Securities and Exchange Commission (SEC) when it censured Arthur Andersen & Co. (see SEC (1981), Accounting Series Release No. AS-292) for alleged audit failure in the audits of Mattel. Arthur Andersen & Co. was charged with failure to discover that the amount of adjustment for obsolete inventory was significantly understated. A description of the SEC's determination of audit deficiencies, as stated in ASR 292, was determined with the benefit of hindsight (Buchman 1985).

Auditors make decisions from an *ex ante* position relative to an outcome. However, auditor performance is evaluated *ex post* because individuals have knowledge of an event outcome (e.g., bankruptcy, management fraud, etc.) (Kennedy 1995). Judicial litigants must determine if the auditor exercised "due professional care" in the conduct of an audit. From a hindsight perspective, judges and jurors may be more apt to believe that the auditor breached the standard of care expected of members of the accounting profession and required by professional standards (Kinney 1993). If hindsight bias is found to exist in the legal system *and cannot be mitigated*, it suggests to the public accounting profession that tort reform should be undertaken to overcome this bias and thereby achieve a more objective evaluation of auditor performance. Some measure of tort reform was enacted by the U.S. Congress in 1995.¹ That legislation, however, was complex and unlikely to be wholly adequate given the magnitude of the problem (Boyle and Knopf 1996; Goldwasser 1997).

The purpose of this research is to examine the effectiveness of two debiasing methods that potentially could mitigate hindsight bias with professionally trained judges. An experiment was conducted in which we established the existence of hindsight bias with judges and then attempted to mitigate it with two individual debiasing methods. Our results indicate that the debiasing method that redirected attention away from the plaintiff (to other *stakeholders*) was *completely* effective in mitigating hindsight bias. However, the debiasing method that encouraged judges to consider alternative outcomes was not effective. These findings lead to two main con-

clusions. First, we provide evidence that judges' hindsight bias can be mitigated in an audit legal liability context. While prior research has established that judges are susceptible to hindsight bias, this study is the first to document its mitigation with these experienced judicial subjects. This is important given the influence of hindsight bias on auditor legal liability and the fact that it is not easily mitigated. Second, the effectiveness of debiasing methods may be dependent on judicial subject group (judges vs. jurors). Although the alternative outcomes debiasing method was effective in mitigating hindsight bias with jurors (see Lowe and Reckers 1994), it was ineffective with judges in our study. The effectiveness of these two debiasing methods with different judicial subject groups provides an initial step into understanding the appropriate strategies for auditors to use to mitigate hindsight bias in a court of law.

The next two sections of this paper discuss the literature of hindsight bias in the legal system and develop hypotheses relating to its mitigation. Section four details the methodology and overall experimental design. Sections five and six present and discuss the results of the study. Finally, the limitations and implications are discussed, and suggestions for future research are offered.

HINDSIGHT BIAS AND THE CIVIL LIABILITY SYSTEM

The accounting profession's concern over the fairness and objectivity of the civil liability system has risen sharply in recent years as the

¹ The Private Securities Litigation Reform Act of 1995 (PSLRA) was passed after Congress voted to override President Clinton's veto. The PSLRA was set forth in three provisions (King and Schwartz 1997). The first provision was to replace the rule of joint and several liability with a system of "fair share" proportionate liability for allocating damages. Under this provision, the jury must assign proportionate liability to defendants who did not "knowingly" commit a violation of securities law. The second provision provides damage caps that limit damages that liable parties must pay to the plaintiffs, based on the average market price over the 90 days following the correcting disclosures. The third provision arguably increases the auditor's responsibility for fraud detection and disclosure. Thus, the legislation is lengthy and complex. Given that legal costs are now approaching 14 percent of gross audit revenues, even optimists are doubtful that the PSLRA will provide a complete remedy to the profession's legal woes (Donovan 1996).

number and magnitude of audit liability losses have multiplied. A Big 6 position statement on the liability crisis estimates that litigation pending against the accounting profession exceeds \$30 billion in assessed damages (Arthur Andersen & Co. et al. 1992).

The accounting profession has taken several steps to stem the tide of lawsuits. Audit standards have been enacted to expand auditors' responsibilities in an effort to reduce the number of "audit failures," and the standard form audit opinion has also been modified to constrain users' expectations. In addition, intense legislative lobbying continues at both the federal and state levels to enact limits for professional liability (Friedman and von Brachel 1996; Rayball 1995). However, if the hindsight bias phenomenon contributes to the profession's legal woes (as some studies have suggested), these efforts alone may not solve the problem. Greater attention is needed to design debiasing methods that can be implemented in a legal liability context.

In our legal system, hindsight judgments are used to evaluate decisions performed in foresight. Judges and juries face a typical hindsight task in that they must mentally recreate the situation that the defendant faced before the outcome of the decision was known (Kinney 1993; Schkade and Kilbourne 1991). Judicial litigants, however, may be unable to ignore outcome knowledge and may reflect that individuals should have been able to anticipate an outcome that only became clear retrospectively.

Casper et al. (1988, 1989) examined the effects of outcome knowledge in a legal context involving search and seizure cases. These studies found that information related to the outcome (i.e., incriminating evidence) influenced subjects' interpretation and evaluation of the reasonableness and legality of the search. That is, they found jurors were less likely to rule searches and seizures by police were unreasonable when told the searches did actually yield evidence relevant to criminal prosecution. Conversely, jurors were much more likely to find police misconduct when the searches did not yield incriminating evidence.

Building upon the work of Casper et al. (1988, 1989), Anderson, Jennings and Reckers (1993) and Anderson, Lowe and Reckers (1993)

examined the effects of outcome knowledge in an auditor liability setting, with professionally trained judges.² These 1993 studies revealed that judges' evaluation of the auditor's decision not to make any adjustments for inventory obsolescence was dependent on the subsequent (negative or positive) outcome. However, the magnitude of observed hindsight bias was difficult to assess because these 1993 studies did not utilize a control group (as a benchmark) in measuring the extent of the bias. Given the exploratory nature of their studies, no debiasing methods were considered or tested.

DEBIASING

Debiasing methods are strategies designed to reduce the magnitude of judgment errors (Arkes 1989). Hindsight bias may have important, practical consequences in the legal arena such that debiasing methods are desirable, particularly with judges. Judges represent an important subject group because of their role in controlling important elements of the trial such as the admissibility of evidence, appropriateness of witnesses, and final instructions to the jury. Moreover, in about 20 percent of the cases involving auditors, the defendant waives rights to a jury trial and the case is litigated before the judge exclusively (Palmrose 1991).

We examine two (cognitive)³ debiasing methods in this study. The first method has had some success in generic applications and has only recently been applied to legal judgments. The second method is specifically designed for judges in an auditor legal liability context.

² The law profession is rightfully concerned that hindsight bias may be affecting judges (as well as jurors), as evidenced by the Law and Psychiatry Section program of the 1989 Annual Conference of the Association of American Law Schools. The view at this conference was clearly that a real and present danger exists that outcome information would induce a nonnormative bias in the courtroom (Wexler and Schopp 1989) (see Arkes 1989; Bursztajn et al. 1984; Poythress et al. 1992 for related discussion).

³ Research has supported a cognitive interpretation of the hindsight bias (see Hawkins and Hastie (1990) and Christensen-Szalanski and Willham (1991) for a review of this research). This finding supports the use of cognitive debiasing methods to mitigate the bias.

Alternative Outcomes Debiasing Method

Arkes (1991), in a comprehensive paper on judgment errors and biases, classifies hindsight bias as an association-based error. An association-based error is an unintended cost of an adaptive association-based semantic memory system. The automatic nature of these semantic associations becomes a cost when judgmentally irrelevant semantic associations influence the decision process (Dellarosa and Bourne 1984). As related to hindsight bias, semantic associations are formed in a backwards processing mode from the given outcome to the antecedent cues. A retrospective judge attempts "to make sense or a coherent whole, out of all that he knows" by adding semantic links signifying causal relations between the reported outcome and the antecedent cues (Fischhoff 1975; Schkade and Kilbourne 1991).

Theoretically, association-based errors can be moderated by providing additional stimuli (i.e., drawing attention to alternative outcomes) and, thereby, altering existing semantic associations. The association of alternative outcomes with antecedent events and judgments may reduce the perceived inevitability of the actual outcome (Arkes 1991; Janoff-Bulman et al. 1985). By encouraging subjects to provide alternate chains of events that could have led to other outcomes, some researchers have found that hindsight bias (related to predictive judgments) can be significantly reduced (i.e., Arkes et al. 1988; Kennedy 1995; Slovic and Fischhoff 1977). However, these prior studies have been conducted almost exclusively with undergraduate students or similar unsophisticated subjects.

Wexler and Schopp (1989) propose that employing a debiasing strategy that encourages individuals to consider alternative outcomes also could be used to overcome hindsight bias in an evaluative legal setting (i.e., in evaluating professional judgment). They suggest that expert testimony from defense counsel or judicial instructions from the presiding judge could focus on alternative outcomes that could have reasonably occurred from the antecedent events of the case. Introducing alternative outcomes should weaken confidence in the causal links between an established outcome and antecedent auditor

judgments. Following Wexler and Schopp's (1989) direction, Lowe and Reckers (1994) experimentally implemented this debiasing method with prospective **jurors**. They found that this method was effective in reducing **jurors'** hindsight bias in evaluating auditor performance, using a bankruptcy case scenario.

The focus of the present study is the effective mitigation of judges' hindsight bias. Although the presence of hindsight bias among judges was shown by Anderson, Jennings and Reckers (1993) and Anderson, Lowe and Reckers (1993), no mitigation strategy was employed in these exploratory studies. To attempt to mitigate the hindsight bias among judges, we first use the alternative outcomes strategy, since it was effective in the Lowe and Reckers (1994) attempt to reduce jurors' hindsight bias in evaluating auditor performance. The first hypothesis is as follows:

H1: Judges who consider how other benign outcomes could follow from antecedent conditions will exhibit significantly less negative hindsight bias.

Alternative Stakeholders' Debiasing Method

Although the alternative outcomes mitigation strategy was effective for **jurors** in Lowe and Reckers (1994), it may be ineffective with **judges**. This is because prior research shows that judges and jurors process information in a different manner (Howe 1991; Kalven and Zeisel 1966; Pennington and Hastie 1990). Judges, with their judicial experience should be better able than jurors to consider and evaluate evidence (Kuhn et al. 1994). Given that judges prescriptively are directed to attend only to facts and interpretations of the law, they may be less likely than jurors to consider alternative outcomes. Likewise, the effective mitigation results reported in other contexts (Arkes et al. 1988; Kennedy 1995; Slovic and Fischhoff 1977) with unsophisticated subjects (e.g. undergraduate students) may not hold for relatively more sophisticated judges.

Rather than appealing to judges to consider alternative **outcomes**, it may be more effective to appeal to them to consider alternative **stakeholders**. In the courtroom, the

focus of attention may be exclusively on individuals alleging damages. The alternative stakeholders' debiasing method redirects judges' attention from one party claiming damages to other parties who might have been damaged if the auditor behaved otherwise. This method is based on *ethical utilitarianism* which has long been recognized as a central judicial philosophy (Becker 1968; Bentham 1825; Hastie 1993, 4; Posner 1985, 1986; Twining 1985).

Ethical philosophy defines those methods that individuals use to guide behavior and evaluate others. Ethical philosophy may be studied from a normative or a descriptive perspective. It is in the *descriptive* sense that we refer to utilitarianism here. Ethical utilitarianism requires the individual to consider not only alternative actions and their likely outcomes but also alternative stakeholders and how these stakeholders will be variously advantaged or disadvantaged by these actions and outcomes. The morality of an action is then a function of the benefits obtained and costs incurred by society as a whole, the objective being to maximize welfare for the greatest number while minimizing costs. Ethical utilitarianism has been observed to be used by many, correctly or incorrectly, in guiding their behaviors and judging others' behaviors. This theory is commonly used in judicial review (Twining 1985). Thus, the alternative stakeholders' mitigation method is based on central judicial philosophy that is commonly used by judges.

With the guidance of ethical utilitarianism, judges may expect auditors to consider the consequences of their decisions for all affected parties (Fletcher 1966; Gaa 1992; May 1982). The consideration of alternative stakeholders is consistent with auditors' professional responsibilities. Mautz and Sharaf (1961, 236) descriptively observe that it is customary to "discuss the responsibilities of a professional man under three headings: (1) responsibility to client, (2) responsibility to (members of) society and (3) responsibility to other members of his profession." Ethical utilitarianism is also one of two theories proposed by the Professionalism and Ethics Seminar Committee of the American Accounting Association for use in the classroom (May 1982).

In the case used in this study (see appendix B), the party claiming damages is an acquiring corporation that purchased stock after the issuance of an unqualified opinion but before subsequent inventory loss disclosures. The alternative stakeholders who might have been damaged if the auditor had issued a qualified audit opinion (where there were no subsequent inventory losses) included preexisting stockholders, creditors and employees. Thus, the inappropriate issuance of a qualified audit opinion can be *self-fulfilling* to these stakeholders (Mutchler 1984; Williams 1988).

Redefining (clarifying) the auditors' responsibility as one that includes a responsibility to a variety of stakeholders, and by doing so, *re-directing* the attention of judges to other stakeholders (e.g., preexisting stockholders, creditors and employees), may assist judges in understanding the auditors' decision-making process. The auditor is ethically and professionally bound by the professional code of conduct to consider the potentially deleterious effects of an inappropriately issued qualified opinion on other stakeholders (e.g., Balachandran 1993; Shaver 1985). Judges making *ex post* evaluations, thus, might come to better understand the *ex ante* situation confronted by the auditor. This leads to our second hypothesis.

H2: Judges who consider alternative audit decision stakeholders (other than the litigant) and the potential negative consequences to those stakeholders of an inappropriately issued qualified opinion will exhibit significantly less negative hindsight bias.

METHOD

In this section, the research design, subjects, task, experimental treatments, dependent measures and experimental conditions are discussed. The hypotheses were tested through one-way analysis of variance (ANOVA) with *a priori* contrasts. The between-subjects design placed subjects in one of five experimental treatments: (1) provided with no outcome information (hereafter NO-NEWS treatment), (2) provided with positive outcome information (hereafter GOOD-NEWS treatment), (3) provided with negative outcome information (hereafter BAD-NEWS

treatment), (4) provided with negative outcome information and the alternative outcomes mitigation treatment (hereafter ALTERNATIVE OUTCOMES treatment), and (5) provided with negative outcome information and the alternative stakeholders' mitigation treatment (hereafter the ALTERNATIVE STAKEHOLDERS treatment).

Subjects

Our subjects consisted of 193 state judges. Judges had an average age of 46 years. Twelve percent of the judges were women. Judges reported, on average, as having been admitted to the bar 20 years ago, with the last four years having served in the capacity as a judge. The selection of judges as subjects was prompted by the fact that judges, (1) are principal participants in trial court litigation involving auditors, (2) set legal precedents that influence plaintiff and defendant decisions regarding out of court settlements, and (3) decide cases on appeal hearings, regardless of whether there was a jury trial.

This research was conducted as part of an ongoing continuing education program conducted by the National Judicial College in cooperation with the American Bar Association. Our subjects were judges of general jurisdiction, meaning that negligence cases (such as the one in this study) involving audit litigation would be directed to them. The case in the present study was one involving negligence (not strict liability). This is the standard that auditors would be held (under common law) in cases involving alleged audit failure (Metzger et al. 1992).⁴

All of the judges at the continuing education program (193) participated in the study. One of the researchers was present to administer the case instruments. Subjects were randomly assigned to the experimental treatment groups and simultaneously completed the experimental materials. Each subject answered the same questionnaire for the dependent measure, subject profile and general attitudes.

Task

Subjects were presented with a case containing background information about an audit client engaged in preliminary merger negotiations. A brief summary of selected financial items was also given. The focal point of the case was the

potential obsolescence of one of the company's largest selling products.⁵ Six detailed pieces of audit evidence were presented which both supported and discounted the existence of inventory obsolescence (see appendix B). As the proposed merger was conditioned upon continued strong financial performance, the decision regarding inventory obsolescence was crucial.

After reviewing the case information, and mitigation materials (where appropriate), subjects were asked to evaluate the audit engagement partner's decision not to book losses due to possible inventory obsolescence. Subsequently, subjects were asked to provide demographic information as well as to respond to several questions regarding their attitudes toward the accounting profession.

Five Experimental Treatments

Group 1: NO NEWS

In the NO NEWS treatment, information regarding eventual outcomes was withheld.

⁴ Throughout this century, auditor liability has been evaluated under the tort of negligent misrepresentation. The courts have extended redress to third parties on the basis of standards of foreseeability of reliance (Section 552 of Restatement (second) of Torts). Three judicial standards of foreseeability exist: (1) traditional contractual privity (per *Ultramares Corp. v. Touche, Niven & Co.*), (2) the "intended" or "actually foreseeable" standard (adopted by the Restatement of Torts), and (3) the "reasonable foreseeability" standard adopted recently in selected states (e.g., *Rosenblum, Inc. v. Adler* 1983; and *Citizens State Bank v. Timm, Schmidt & Co.* 1983). Only a few recent cases have expanded liability to "reasonably foreseeable" parties. In no instances has auditor liability been interpreted under strict liability rules. The courts have been clear and consistent in ruling that a bad outcome in itself does not prove negligence (*Staloch v. Holm* 1907; *Teig v. St. John's Hospital* 1963). In a debriefing question, subjects were asked, "In professional liability suits what standard of liability should be applied? Only one subject responded with strict liability. Three subjects marked the gross negligence option; all others noted adherence to the above discussed negligence judicial standard.

⁵ An inventory obsolescence scenario was chosen for the following reasons. First, inventory assessment is a very subjective area requiring auditor judgment. The latitude provided auditors in making this judgment may (potentially) allow our manipulations to have an impact on the dependent measure. Second, the inventory obsolescence issue represents an auditor judgment that would have a *substantial* effect on the company's reported income and the pending merger. Third, inventory assessment is a required auditing task. Finally, inventory issues have been documented as being one of the top litigation risk areas (Pratt and Stice 1994).

Subjects, essentially, formed their judgments from an *ex ante* perspective.

Group 2: GOOD NEWS

In the GOOD NEWS treatment, subjects were given the positive outcome that:

Subsequently, the competition's new-technology product encountered significant application problems when introduced in the field. As a result, the competition experienced significant "bad press" and quickly withdrew the product for further testing. By the time the competition had reentered the market, the client had already successfully sold all of their old-technology inventory (through domestic and foreign sales) and established their new-technology product as the market favorite. The debacle of the competition's premature market introduction of their new-technology actually worked to the advantage of the client as the competition's credibility and brand name suffered significantly. The merger was successfully consummated in 1990. THE CLIENT CONTINUED TO MAINTAIN PROFIT GROWTH TRENDS IN 1990 AND 1991, TO EVERYONE'S SATISFACTION.

Group 3: BAD NEWS

In the BAD NEWS treatment, subjects were given the negative outcome that:

Subsequently, the client was NOT able to dispose of all inventory profitably through domestic and foreign sales. Rather, significant losses ensued as the competition's product entered the market early, in large numbers and at a low price. Further, few problems were encountered in early applications of the new-technology which appears to have been well pretested. The client was forced to cease production of the old product early in the following year as domestic sales fell. Further, to sell the inventory on foreign markets, the sales price had to be cut sharply. With the increased costs of foreign shipment, losses per item were sufficiently large that the client decided to simply scrap much of the remaining inventory. The client was NOT able to develop a competitive replacement product in a timely fashion and continued to experience a signifi-

cant loss of market share. Profits dropped sharply in 1990 and again in the first quarter of 1991. While the merger was successfully consummated in 1990, subsequent inventory loss disclosures lead the acquiring corporation to file suit in 1991 against the auditing firm for issuing an unqualified (favorable, "clean") opinion on 1989 financial statements, which were allegedly significantly misstated.

Group 3 received no subsequent mitigation treatment.

Group 4: ALTERNATIVE OUTCOMES

In the ALTERNATIVE OUTCOMES treatment, after receiving the same negative outcome as the BAD NEWS treatment, subjects received the mitigation emphasizing alternative *positive* outcomes. Subjects received two illustrations of an alternative outcome (flowing from the *ex ante* client condition). To enhance subjects' elaboration process, we asked subjects to (1) assess the likelihood that each alternative outcome could have occurred (Arkes et al. 1988)⁶ and then to (2) generate their own alternative outcome (Arkes 1989, 1991) (see appendix B).

Group 5: ALTERNATIVE STAKEHOLDERS

In the ALTERNATIVE STAKEHOLDERS treatment, after receiving the same negative outcome as the BAD NEWS treatment, subjects received the mitigation emphasizing alternative potential stakeholders. In this treatment, defense counsel pointed out that the auditor must weigh his/her responsibility to other stakeholders (i.e., stockholders, creditors and employees) and the potential damage to these third parties as a result of other possible actions the auditor might have pursued. Judges were asked specifically to describe how the inappropriate issuance of a qualified audit opinion might harm preexisting stockholders, creditors and employees (and thus be self-fulfilling). Both mitigation treatments were put at the end of the case (see appendix B). This is consistent with the natural order in a litigation case, as the defense is the last party to speak in the final closing.

⁶ Subjects' likelihood judgments were assessed on a scale from 1-100. The mean assessments for the two alternative outcomes were 29.8 and 54.6, respectively.

Dependent Measure

After reviewing the case information and mitigation materials (where appropriate), subjects were asked to evaluate the audit engagement partner's decision as follows:

research has provided subjects with such brief, background information that the observed hindsight bias may be due to experimental demand effects (Baron and Hershey 1988; Helleloid 1985; Slovic and Fischhoff 1977).

Answer the following question based on information available at the time of the audit (before learning of the actual outcome).

Evaluate the audit partner's decisions not to require recognition of losses due to inventory obsolescence for the 1989 financial statements nor to require financial statement disclosures respecting the evolving market environment and/or client condition. Evaluate the decision by marking the following scale:

Very
Inappropriate -5.....-4.....-3.....-2.....-1.....0.....1.....2.....3.....4.....5 Appropriate
Very

In an actual case involving alleged audit failure, the appropriateness of the auditor's decision would need to be considered. Based upon the appropriateness of the auditor's decision, the court would decide whether the auditor was guilty, and if found guilty, what damages should be awarded to the plaintiff. In the case instrument, it was possible to ask all subjects to judge the appropriateness of the auditor's decision. However, it was not possible to ask all subjects to make a decision about whether the auditor was guilty as charged, nor what the amount of damages awarded should be, because the NO-NEWS and GOOD-NEWS subjects did not receive a negative outcome involving a lawsuit.

A second guideline is that subjects should be explicitly informed that they have all of the information that was available to the decision maker. Assuming that the decision maker had the same information *ex ante* that the judge has *ex post* (except for the additional knowledge of the outcome), outcome information is uninformative to the decision evaluation process.

A third guideline is to explicitly direct subjects to evaluate the decision maker as if they did not know the outcome. By including this specific instruction, a hindsight bias related task should not reduce to an outcome feedback task.

Experimental Guidelines

Hershey and Baron (1992, 1995) provide guidance on how to demonstrate the nonnormative use of outcome information. Key to this demonstration is evidence that subjects used outcome information when they should not have. These guidelines are based on a series of experiments that they and others conducted (see Baron and Hershey 1988). The present study was designed to be consistent with these guidelines as outlined by Hershey and Baron (1992, 1995). First, subjects should be provided with adequate information so that they will not become outcome information dependent. Without reference to adequate supporting information, subjects may be more apt to rely on the outcome in making their decisions. In fact, some

We utilized all three guidelines described above in designing the present experiment (see appendix B for the complete case). First, we designed the background information of the case to be an adequate length to allow an analysis for evaluation, so as not to create a condition of outcome information dependence. We developed a relatively involved case utilizing a considerable amount of detailed information with several information cues. The three-page, single-spaced scenario used in this study goes far beyond what is most frequently provided in hindsight bias studies (see Baron and Hershey 1988). The objective of the case design is to provide enough information to depict a realistic case, but not so much information that the experiment is impaired through information overload (Casper et al. 1989; Chewning and Harrell 1990). The case was specifically designed to offer reasons both pro and con for forecasting material inventory losses or

significant reductions in future profitability due to changing technology (see appendix B). The nature of the case information is consistent with that typically found on an audit, with claims being made by both the competition and by the client, with limited information available to substantiate those claims. In essence, it is not possible to know with certainty the extent that the claims on either side are true. The case was intentionally written to give credibility to both a potentially positive and negative outcome, while emphasizing that subjects had the same information available to them that was available to the decision maker.

Second, subjects were told the following on the second page of the case:

Beyond the background information summarized on the previous page (regarding past and current operations and environment, up to and including 1989), ONLY the additional information provided below was available as a basis for the audit partner's decision. PLEASE REMEMBER THAT THIS BACKGROUND AND ADDITIONAL INFORMATION WAS ALL THE PERTINENT INFORMATION THE AUDIT PARTNER HAD AVAILABLE IN EARLY 1990. (emphasis was present in the case)

Third, before answering the question on evaluating the audit partner's decision (i.e., the dependent measure used in the present experiment), subjects were instructed to:

Answer the following questions based on information available at the time of the audit (before learning of the actual outcome).

Accordingly, subjects were explicitly instructed to make their judgments based upon *ex ante* information, before learning of the actual outcome. This instruction is also externally valid; it is consistent with Prosser and Keeton (1985) who observe that in negligence cases such as that used for the present experiment, evaluations of defendant behavior should be based on the conditions existing at the time of the decision, not on hindsight reflection of the consequences. In fact, the courts have been clear and consistent in ruling that a bad outcome in itself does not prove negligence (Bursztajn et al. 1984; *Staloch v. Holm* 1907; *Teig v. St. John's Hospital* 1963).

To further ensure that any observed use of outcome information was nonnormative, subjects were asked if they thought they should have taken outcome into account when evaluating the decision maker (i.e., when answering the question used as the dependent measure in the study). Following the same approach as Baron and Hershey (1988, 576), the only subjects included in our analysis were those that thought they **should not** have taken outcome into account.⁷ Thus, finding that our subjects did take outcome into account would be consistent with an unintended and a nonnormative use of outcome information, evidencing a hindsight bias.

RESULTS

Subjects were asked to evaluate the audit engagement partner's decision not to require current recognition of losses due to inventory obsolescence. For ease of presentation of results, the response scale with endpoints of -5 (very inappropriate) to +5 (very appropriate) was converted to a scale with endpoints of 1 (very inappropriate) to 11 (very appropriate). The hypotheses were tested through one-way analysis of variance (ANOVA) with *a priori* contrasts.⁸

As shown in table 1, the ANOVA results indicate a significant treatment effect ($F = 5.25$, $p = 0.001$). Judges' evaluations of the audit engagement partner's decision varied significantly across the five treatment levels. Evaluative judgments made in the BAD-NEWS treatment (3.21) were significantly lower ($p = .024$) than those made in the NO-NEWS control (4.98). However, the difference between evaluative judgments made in the NO-NEWS control (4.98) and the GOOD NEWS treatment (6.29) was not

⁷ Although subsequent analyses includes only responses of a sub-sample of the subjects, the responses of (1) the entire subject sample and (2) the reduced sample do not vary substantively. Each sample produced a significant, negative hindsight bias and the ALTERNATIVE STAKEHOLDERS treatment was found to be effective in mitigating the bias. These results are consistent with prior research (see Baron and Hershey 1988; Fischhoff 1975); outcome information is used even by individuals who believe that doing so is inappropriate.

⁸ Statistical assumptions underlying the ANOVA were satisfied. Levene's Test of Equality of Error Variances shows no significant difference ($F = 1.099$, $p = .359$). Normal probability plots of the standardized residuals were examined and found to be satisfactory.

TABLE 1
ANOVA Findings for Evaluation of Auditor Performance

Panel A: ANOVA Table

<u>Source of Variation</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Squares</u>	<u>F-Value</u>	<u>p-Value</u>
Outcome	178.55	4	44.64	5.25	0.001
Error	1291.48	152	8.50		
Total	1470.03	156			

Panel B: Treatment Means

<u>Outcome</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>N</u>
Good News	6.29	2.33	28
No News	4.98	1.95	44
Bad News	3.21	1.91	29
Alternative Outcomes	3.44	1.69	27
Alternative Stakeholders	4.97	1.76	29

Panel C: Mean Contrasts

<u>Contrast</u>	<u>Significance Level*</u>
Good News vs. No News	.116
Bad News vs. No News	.024
Bad News vs. Alternative Outcomes	NS
Bad News vs. Alternative Stakeholders	.046

*NS = Not Significant.

significant ($p = .116$). These results confirm the existence of strong (negative) hindsight bias upon which to test our hypotheses.

Having substantiated the existence of sizable hindsight effects, the next step was to determine the effectiveness of two mitigation methods. The first method asked judges to consider alternative outcomes that may have occurred under the antecedent conditions. Results indicated that evaluative judgments provided in the ALTERNATIVE OUTCOMES treatment (3.44) were not significantly different than judgments provided in the BAD-NEWS treatment (3.21). This result does not support H1.

The second method required judges to consider alternative stakeholders (other than the plaintiff) that might have been affected by the auditor decision. The evaluative judgments provided in the ALTERNATIVE STAKEHOLDERS treatment (4.97) were significantly higher

($p = .046$) than those in the BAD-NEWS treatment (3.21), supporting H2. The mean response for the ALTERNATIVE STAKEHOLDERS treatment (4.97) evidences no hindsight bias; the mean response was essentially identical to the NO-NEWS control (4.98). Thus, the ALTERNATIVE STAKEHOLDERS treatment was successful in avoiding negative hindsight bias while the ALTERNATIVE OUTCOMES treatment was ineffective.

The influence of subjects' attitudes regarding auditors was also examined, as reported in appendix A. Subjects' attitudes had no significant effect on the results of the study, nor did subjects' knowledge of accounting.⁹

⁹ As a partitioned variable, entered in an ANOVA analysis, knowledge is neither significant as a main effect ($F = 0.04$, $p = .85$) nor interactively ($F = 0.37$, $p = .82$). In addition, knowledge, without partitioning, does not significantly correlate with the dependent variable.

DISCUSSION

The objective of the present research was to examine the effectiveness of two mitigation methods that potentially can be utilized in a court of law. As found in previous research (Anderson, Jennings and Reckers 1993; Anderson, Lowe and Reckers 1993), our findings indicate that judges' evaluations of auditors' performance are dependent upon outcome information. Subjects provided lower evaluations in the presence of unfavorable outcome information, compared to those subjects receiving no outcome information. With respect to the two mitigation efforts examined, the mitigation method that redirected attention away from the plaintiff (to other stakeholders) was effective in mitigating hindsight bias. This method focused on interpretations of the role of the auditor in society and the multiple "publics" that the auditor is commissioned to serve (e.g., current and prospective creditors, vendors, customers, client employees and past employee pensioners). A focus on multiple relevant stakeholder groups is consistent with judges' use of the ethical utilitarian approach common to jurisprudence. Conversely, the mitigation method that introduced alternative benign outcomes was not effective in mitigating the bias. This method, however, also has had mixed success elsewhere (Davies 1987; Janoff-Bulman et al. 1985).

The effectiveness of debiasing methods may be dependent on the recipient subject group (e.g., judges vs. jurors). Prior research (see Howe 1991; Kalven and Zeisel 1966; Pennington and Hastie 1990) has shown that judges and jurors integrate and assess information in different ways. The manner in which subjects process alternative outcome information and assess their likelihood influences the extent that debiasing occurs (Hoch 1985). Judges are used to assessing outcomes *ex post* and prescriptively are to attend only to facts and interpretations of the law. Thus, they may be less apt to consider or give substantial weight to *ex ante*, hypothetical alternative outcomes. This reasoning may explain why the alternative outcomes debiasing method was effective in mitigating hindsight bias with judicially inexperienced jurors (see

Lowe and Reckers 1994), but was ineffective in mitigation efforts with judges.

An explanation of our findings may also be found in studies that have consistently shown that negative events are given greater weight than positive events (e.g., Anderson and Maletta 1994; Ashton and Ashton, 1988; Fiske 1980; Mizerski 1982). This asymmetric effect may account for the ineffectiveness of the mitigation method of introducing alternative positive outcomes. The influence of the benign alternative outcomes may not be strong enough to offset the influence of an already considered negative outcome. This may also explain the asymmetric hindsight bias observed in our study in which negative but not positive outcome conditions were significantly different than the no outcome condition (see also Casper et al. (1988, 1989) and Schkade and Kilbourne (1991) for similar results).¹⁰

LIMITATIONS

A primary limitation of this study may be the inherent constraint of having subjects work on an experimental case rather than being in an actual courtroom setting. Regardless, subjects could have been given substantial judicial instructions and plaintiff and defense counsels' opposing viewpoints (Casper et al. 1989). Further, many relevant circumstances and conditions were written as factual to the court when in reality they may be ambiguous and the source of contention in a court of law. Each of these alternatives has its own problems and bears its own costs. While greater realism has definite advantages in terms of external validity, experimental artifacts and mundane realism may also be evident. If we had chosen to increase experimental realism (i.e., providing extensive courtroom instructions) we may have inadvertently obscured our independent measures (Casper et al. 1989; Ponemon 1995).

This experiment is subject to other inherent limitations; therefore, results must be interpreted

¹⁰ Schkade and Kilbourne (1991) postulate that some subjects not given outcome information may assume a positive outcome since they do not receive any contrary information.

with care as to their generalizability. This study involves a single sample of judges, deciding a single hypothetical case. The design does not model judges' actual decision process nor were actual damage award judgments elicited. Replications are clearly needed.

IMPLICATIONS AND FUTURE RESEARCH

The primary implication of this study relates to auditor legal liability. To reduce auditor legal liability, the profession has focused its efforts on (1) educating the public, (2) expanding auditor responsibilities, and (3) lobbying at both the federal and state levels. Although these efforts may lessen auditor legal liability, their aggregate contribution may be limited.

Our findings suggest that the hindsight bias phenomenon deserves attention as it may undermine objectivity in our legal system in its relationship to the accounting profession. The legal profession has expressed concern that hindsight bias may be affecting judicial litigants (Poythress et al. 1992; Wexler and Schopp 1989). Tort reform measures could focus on the improper use of outcome knowledge in deciding court cases. Alternatively, it may be more effective to focus on methods that reduce nonnormative bias in legal settings. Our study suggests that a method that redirects attention from a single stakeholder (plaintiff) to include other additional stakeholders (who might have been damaged if the auditor behaved otherwise) can mitigate judges' hindsight bias in court cases involving auditors. The consideration of additional stakeholders may have the effect of providing insight into the auditor's decision process (dilemma) and, thus, may lessen the inappropriate emphasis on outcome information.

Given the limited research in this area and its practical significance, further research that

considers the effectiveness of debiasing methods in an audit legal liability context is warranted. Future research should examine the extent that the effectiveness of debiasing methods are conditional on the group (e.g., judges vs. jurors) engaged or the subjects' experience in making *ex post* judgments. This is critical as auditors' courtroom strategy and choice of debiasing methods could be dependent on the judicial group hearing the case. Within-group (individual) differences may also be important. Greater understanding of the role of individual differences (i.e., tolerance of ambiguity and locus of control) in the magnitude of hindsight bias may provide significant insight into its moderation, which could prove useful in the design of debiasing methods (Christensen-Szalanski and Willham 1991; Hoch 1985).

Judicial instructions to jurors may also be a fruitful area of research. Specific instructions to subjects not to use outcome information or to succumb to hindsight bias has proven relatively ineffective (e.g., Fischhoff 1977; Sharpe and Adair 1993; Wood 1978). However, such instructions may not have exhibited the force of a legitimate or authoritative power that would be present if a *presiding judge* were to instruct a jury. This additional potential means to mitigate hindsight bias could be explored among judges and jurors.

Finally, further research might explore the association between the extent of hindsight bias and its successful mitigation and (1) the degree that the negative outcome was unlikely and unpredictable (i.e., a surprise) or (2) the severity of the outcome (e.g., extent of financial damage). If the underlying phenomenon is insensitive to the relative predictability of the outcome but sensitive to the severity of the outcome, it might suggest a judicial endorsement of strict liability philosophy.

APPENDIX A Judicial Attitudes

Individual subject differences that might influence responses include attitudes regarding the role of the auditor and standards of practice in the profession. A substantial body of research outside of accounting has focused on the association between psychological variables and judge's decisions. Although it is not feasible here to do full justice to this large, sometimes contradictory literature, it is fair to say that available evidence casts serious doubt on the objectivity of judicial decision making. There are significant differences among judges in how they react to cases before them (Gibson 1983; Tetlock 1985). There also are moderate correlations between measures of psychological constructs (e.g., attitudes, values) and individual differences in judicial decisions (Champagne et al. 1981; Danelski 1966; Hogarth 1971). Within accounting, Jennings et al. (1991a, 1991b, 1993) and Anderson et al. (1995) report that judges' attitudes respecting the public accounting profession significantly influenced their judgments. We asked subjects to respond to seven attitude questions (see below.)

Factor analysis was conducted using a principal components analysis (varimax rotation). The analysis resulted in three distinct factors. The first factor relates to the perceived professionalism and independence; it consists of attitude questions four and seven (factor loadings = .562 and .466). The second factor relates to normative depth of audit scope, i.e., the need to search for fraud and insure accuracy versus reliance on tests and samples. Attitude questions two, three and five loaded onto this second factor (factor loadings = .476, .463 and .454, respectively). The third factor focused on the auditor's role as society's watchdog over management's reporting behavior, and consisted of attitude questions one and six (factor loadings = .508 and .601).

Only factor 1 was significantly related to the dependent variable. In ancillary analyses, factor 1 was found to be a significant covariate ($F = 5.42, p = .021$) in the ANCOVA model. Otherwise the ANCOVA analysis yielded results similar to those reported in table 1.

Because the experimental case focused on an alleged audit reporting failure, rather than a failure to discover an error or omission, it is perhaps not surprising that factor 2 is not significant. The reason why factor 3 also was insignificant may likewise relate to its lack of specific relevance in the experimental case.

EXHIBIT 1 Analysis of Judicial Attitudes

Question	Mean Response	Standard Deviation
1. The financial statements contained in the annual report to stockholders are primarily the responsibility of corporate management, and not of the external auditor.	4.5	3.2
2. External auditors cannot look at every client transaction. They must rely on samples and tests of relationships in conducting the audit.	6.9	2.4
3. One role of an auditor is to be an insurer against large stockholder losses.	3.5	2.9
4. The current standards of audit practice are very high.	5.8	2.3
5. In the performance of the audit, it is the external auditor's responsibility to actively search for fraud.	6.8	2.8
6. The role of the external auditor is to be a public watchdog.	6.4	2.8
7. The big corporations and their big auditors (CPAs) work hand-in-glove and only tell the public what they want to tell them.	5.0	2.5

(Continued on next page)

EXHIBIT 1 (continued)**Response Scale**

Strongly
Disagree 0.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10 Agree
Strongly

Varimax Factors:

Factor #1. (Item #7 × .466) – (Item #4 × .562)

Factor #2. (Item #3 × .463) + (Item #5 × .454) – (Item #2 × .476)

Factor #3. (Item #6 × .601) + (Item #1 × .508)

APPENDIX B**Associated Industries Case**

This case relates to the **AUDIT OF THE 1989 FINANCIAL STATEMENTS** of Associated Industries, a publicly traded (Pacific Stock Exchange) corporation founded in 1956. The firm manufactures a variety of industrial products; its president is George Cole. Cole, aged 43, joined the firm in 1986, his background being in marketing.

Selected 1989 unaudited financial data is provided below. During 1986–1988, Associated Industries' net income grew at a 12 percent annual rate. Preliminary negotiations began in 1989 relating to a friendly takeover by a large conglomerate. It was understood that if the proposed merger was completed, Cole would receive a **significant** bonus. Cole, naturally, aggressively supported the merger. **The merger was conditioned, however, upon continued strong financial performance.** Based on unaudited figures, 1989's income was up 13 percent over 1988.

SUMMARIZED, NON-AUDITED FINANCIAL INFORMATION FOR 1989:

Net Sales	\$52,497,000	Accounts Receivable	\$10,116,625
Cost of Sales	39,397,000	Inventory	9,509,375
Net Income	5,370,000	Plant & Equipment	32,125,000

BAD NEWS VERSION:

While the merger was consummated in 1990, **SUBSEQUENT INVENTORY LOSS DISCLOSURES LEAD THE ACQUIRING CORPORATION TO FILE SUIT IN 1991** against the auditing firm for issuing an unqualified (favorable, "clean") opinion on the 1989 financial statements, which were allegedly significantly misstated.

GOOD NEWS VERSION:

The merger was successfully consummated in 1990. **THE CLIENT CONTINUED TO MAINTAIN PROFIT GROWTH TRENDS IN 1990 AND 1991**, to everyone's satisfaction.

DURING THE AUDIT OF THE 1989 FINANCIAL STATEMENTS (prior to the statements' publication in Spring 1990), a focus of attention was the potential obsolescence of one of the company's historically largest selling products. The item was an electronic switching circuit, which allowed for automatic control of switching operations when connected to older, manual electrical switches.

In the prior year's audit, an audit staff memo noted that research possibly leading to a fully integrated electronic switching unit was being conducted at that time (late 1988) by several competitors. The competitors' efforts were only at the early research and development stage, however. No financial statement disclosures were deemed appropriate for 1988.

During 1989 and early 1990 updated information became available. Review of updated information always is appropriate in the audit of material inventory holdings.

IN EARLY 1990, THE AUDIT ENGAGEMENT PARTNER'S TASK WAS TO DECIDE WHETHER THERE WAS SIGNIFICANT INVENTORY OBSOLESCENCE AND WHETHER FINANCIAL STATEMENT ADJUSTMENTS WERE NECESSARY.

Beyond the background information summarized on the previous page (regarding past and current operations and environment, up to and including 1989), **ONLY** the additional information provided below was available as a basis for the audit partner's decision. **PLEASE REMEMBER THAT THIS BACKGROUND AND ADDITIONAL INFORMATION WAS ALL THE PERTINENT INFORMATION THE AUDIT PARTNER HAD AVAILABLE IN EARLY 1990.**

- A. The client had **60,000 switching units in year-end stock**, carried at full absorption cost of **\$30 each**. This was equivalent to six months sales, at **10,000 units per month**. Production of the unit was continuing.
- B. Over the last 3 years **the average selling price was \$50**; and **delivery costs about \$12.50**.
- C. **TECHNOLOGICAL OBSOLESCENCE**. In discussions with the **client's electronic controls manager** it was confirmed that **the competition had designed a technologically superior product**. The manager had investigated the designs at a trade fair and found the new designs made the client's product technologically obsolete. However, the **client also had been developing a replacement product**. Production of the old design continued, to serve old customers' needs until the commercial success and cost competitiveness of the new technology might be established. The **client product manager** noted "There is little else we can do, right now; we don't have a replacement available now, **but we plan to have a competitive replacement available by the end of 1990.**"
- D. **MARKET OBSOLESCENCE**. According to **competitors' press releases**, new circuits might be **expected to sell for approximately \$40**, a figure below the price at which the client historically offered their product (that being \$50). One firm had accepted limited orders, for later delivery at \$37; client staff felt this was a **temporary marketing strategy**. Thus, early information suggested the new device would be price competitive when available. It was believed significant pricing changes might be necessary for the client to sell existing inventory and continuing production. Profitability was a question.
- E. **PRODUCT AVAILABILITY**. The **head of the client's marketing** division characterized as **premature** any significant loss projections on the switching inventory. Although the competition was accepting orders, he estimated that it would take **at least 8-10 months** for the competition to gear up to full production (because of retooling and production delays). The marketing head stressed "Many customers **either can't or won't wait** that long for an item **not proven under production conditions.**" Furthermore, the client's product manager was skeptical about the adequacy of the competition's testing of the new technological device, believing that the competition might be attempting to **prematurely market** the device.
- F. **INTERNATIONAL MARKETS**. The client had an international marketing team that aggressively marketed its older technology products in developing nations around the world. Past experience indicated that there was a healthy third-world market for electronic components, such as the old switching device. **Preliminary analyses** by the **client's international team** indicated **5,000 units per month could be expected, conservatively, to sell** in these foreign markets, at a price which would **yield positive profit margins**. Existing market channels and personnel would be used.

AUDIT ENGAGEMENT PARTNER'S DECISION

In early 1990, the audit partner decided there was a lack of **sufficiently reliable information** to forecast (1) **material** inventory losses or (2) **significant** reductions in future profitability due to changing technology. Accordingly, no write-down of inventory value (with its accompanying reduction of income) was taken for the 1989 financial statements and no disclosures were made respecting the evolving market environment and its potential impact on future performance.

DETAILED ACTUAL OUTCOME OF THE CASE

BAD NEWS VERSION:

Subsequently, the client was **NOT** able to dispose of all inventory profitably through domestic and foreign sales. Rather, **significant** losses ensued as the competition's product entered the market **early, in large numbers** and **at a low price**. Further, few problems were encountered in early applications of the new-technology which appears to have been **well pre-tested**. The **client was forced to cease production** of the old product

early in the following year as domestic sales fell. Further, to sell the inventory on foreign markets, the sales price had to be cut sharply. With the increased costs of foreign shipment, losses per item were sufficiently large that the client decided to simply **scrap much of the remaining inventory**. The client was **NOT** able to develop a competitive replacement product in a timely fashion and continued to experience a **significant loss of market share**. Profits dropped **sharply in 1990** and again **in the first quarter of 1991**. While the merger was successfully consummated in 1990, subsequent inventory loss disclosures lead the acquiring corporation to file suit in 1991 against the auditing firm for issuing an unqualified (favorable, "clean") opinion on 1989 financial statements, which were allegedly significantly misstated.

GOOD NEWS VERSION:

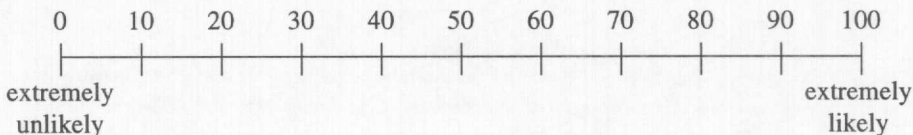
Subsequently, **the competition's new-technology product encountered significant application problems** when introduced in the field. As a result, the competition experienced significant "bad press" and quickly withdrew the product for further testing. **By the time the competition had reentered the market, the client had already successfully sold all of their old-technology inventory (through domestic and foreign sales) and established their new-technology product as the market favorite.** The debacle of the competition's premature market introduction of their new-technology actually worked to the advantage of the client as the competition's credibility and brand name suffered significantly.

The merger was successfully consummated in 1990. **THE CLIENT CONTINUED TO MAINTAIN PROFIT GROWTH TRENDS IN 1990 AND 1991**, to everyone's satisfaction.

MITIGATION TREATMENTS

ALTERNATIVE OUTCOMES MITIGATION VERSION:

While significant inventory losses due to obsolescence did eventually occur, this eventuality was only one of several potential outcomes that the audit partner in early 1990 had to consider. Listed below are two other feasible outcomes. Please examine each and indicate in the space provided the extent to which you believe the engagement partner might have responsibly expected the outcomes to develop. We understand that your likelihood assessments will be subjective and imprecise estimates. Indicate your likelihood assessment of EACH outcome by assigning a number between 0 and 100 in the left column, according to the following scale:



NOW PLEASE ENTER YOUR LIKELIHOOD ASSESSMENTS IN THE LEFT COLUMN

- ___ **FAILED COMPETITION:** The competition's new-technology product **encountered significant application problems** when introduced in the field. As a result, the competition experienced significant "bad press" and quickly withdrew the product for further testing. By the time the competition had reentered the market, the client had already **successfully sold all of their old-technology inventory** and established their new-technology product as the **market favorite**. The debacle of the competition's premature product market introduction actually worked to the advantage of the client as the competition's credibility and brand name suffered significantly.
- ___ **TIMELY DOMESTIC INVENTORY PLACEMENT:** The competition's new technology was well received by the market. However, **introductory prices at or near \$40 per unit were VERY temporary**, as the client had anticipated. The prices quickly rose to a figure closer to \$50. In addition, **only limited quantities of the new-technology devices were available** in 1990 due to retooling in the industry and predictable production delays in the manufacture of a new product. By the time significant quantities of the competition's new product hit the market, the client had sold all of their inventory **profitably** and had begun **successful introduction** of their own new-technology replacement part.

NOW PLEASE DESCRIBE BELOW AN ADDITIONAL ALTERNATIVE OUTCOME IN WHICH MATERIAL INVENTORY LOSSES WOULD NOT HAVE OCCURRED.

For example, you might explain an alternative relating to international sales, etc. You may refer back to all prior pages.

ALTERNATIVE STAKEHOLDERS MITIGATION VERSION:

For each audit, the independent auditor must weigh his/her responsibility to both *future* stockholders, creditors, etc. and his/her responsibility to *existing* stockholders, creditors and employees. An auditor can issue an unqualified (clean) audit opinion; alternatively, an auditor can issue a qualified audit opinion, taking exception to elements of management's financial statements. **The inappropriate issuance of a qualified audit opinion is not without cost**; it has severe ramifications and **can be self-fulfilling**. That is, commentators on the public accounting profession have compared a qualified audit opinion to a quarantine notice nailed to one's front door. Ability to obtain credit in a timely fashion and at a good rate may be impaired; suppliers may extend less favorable terms; new stock offerings may become impossible. As a result, strategic business opportunities may be foregone and severe financial losses may accrue, not only to management, but also to existing investors and employees. The auditor must carefully weight the strength of his/her evidence.

NOW PLEASE DESCRIBE HOW THE INAPPROPRIATE ISSUANCE OF A QUALIFIED AUDIT OPINION MIGHT HARM THE FIRM AND ITS INVESTORS AND EMPLOYEES.

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