

Running head: CONFLICT OF INTEREST

**Auditor Independence, Conflict of Interest,
and the Unconscious Intrusion of Bias**

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The authors gratefully acknowledge the financial support of the American Accounting Association and the generous assistance of an anonymous Big 4 accounting firm for providing participants in the first experiment. Helpful comments were received from Daylian Cain, Paul Healy, and from seminar participants at Harvard University and at the Olin School at Washington University. Thanks to Jeff Crilley, Corey Fallon, Erin Morgan, Wemi Peters, and Sam Swift for help collecting the data. Correspondence should be addressed via electronic mail to: don.moore@alumni.carleton.edu.

Abstract

Information about the financial health of public companies provided by auditors ideally allows investors to make informed decisions and enhances the efficiency of financial markets.

However, under the current system auditors are hired and fired by the companies they audit, which introduces incentives for biases that favor the audited companies. Three experiments demonstrate bias in auditors' judgments, and show that these biases are not easily corrected because auditors are not fully aware of them. The first experiment demonstrates that the judgments of professional auditors tend to be biased in favor of their clients. The second and third experiments explore more closely the psychological processes underlying the bias. The results suggest that the closeness of the relationship between auditor and client may have a particularly strong biasing influence on auditors' private judgments.

Key words: Conflict of interest; Auditor independence; Self-serving bias; Motivated reasoning

Auditor Independence, Conflict of Interest, and the Unconscious Intrusion of Bias

By certifying the public reports that collectively depict a corporation's financial status, the independent auditor assumes a public responsibility transcending any employment relationship with the client. The independent public accountant performing this special function owes ultimate allegiance to the corporation's creditors and stockholders, as well as to the investing public. This "public watchdog" function demands that the accountant maintain total independence from the client at all times and requires complete fidelity to the public trust.

-Chief Justice Warren Burger, writing on behalf of a unanimous United States Supreme Court in the case of United States v. Arthur Young & Co. (1984)

Independence is central to the function served by auditors. Although managers may have an interest in exaggerating, misrepresenting, or falsifying reports of their firm's performance, an independent audit report is supposed to provide a credible, unbiased appraisal of the firm's financial status. The importance of auditor independence is reflected in the Code of Professional Ethics of the American Institute of Certified Public Accountants (AICPA) and has been reinforced by numerous legal decisions, such as that rendered by the U.S. Supreme Court in the opening quote. Recent events, however, have led many to question whether the modern practice of public accounting is independent enough. In the wake of a number of accounting scandals, the U.S. Securities and Exchange Commission (SEC) conducted a series of hearings on auditor independence in 2000. The SEC instituted modest changes to disclosure rules after the 2000 hearings and the issue receded from the public agenda until the failure of the Enron Corporation and the role of its auditor, Arthur Andersen, in that failure brought the issue of auditor independence to the fore.

In analyzing the problem of auditor independence, both the academic accounting literature and the mass media have implicitly adopted what could be considered an "economic" perspective on the problem. Theoretical papers, empirical analyses, and media discussions of the

issue of independence assume, sometimes explicitly and sometimes implicitly, that auditor bias is a matter of deliberate choice (Antle, 1984; DeAngelo, 1981; Simunic, 1984). Auditors are assumed to have the ability to complete high-quality, independent, unbiased audits if they choose to do so. Bias, to the extent that it is thought to exist, is seen as a deliberate response to incentives. This “economic” account of independence and bias is challenged by psychological research which suggests that biased information processing is not only pervasive, but is typically unconscious and unintentional—i.e., seldom a matter of deliberate choice. Applied to auditing, this research suggests that auditors who face conflicts of interest may find it difficult, if not impossible, to avoid bias even if they attempt to do so.

Whether auditor bias is a matter of conscious choice or is unintentional and unconscious has wide-ranging implications for policy, because conscious corruption and unconscious bias respond to different influences. In this paper, we first review findings from empirical research on biased information processing. Then we report results from three experiments. The first experiment documents biased judgment among professional auditors. The second and third experiments delve deeper into the psychological processes at work and examine the causes of biased judgment. Finally, we discuss the implications of our findings for the practice of and rules surrounding auditing.

Motivated Information Processing

Research shows that people evaluate evidence in a selective fashion when they have a stake in reaching a particular conclusion. They tend to focus on evidence that supports the conclusion they would like to reach and evaluate that evidence in an uncritical fashion (Holyoak & Simon, 1999; Koehler, 1991; Lord, Ross, & Lepper, 1979; Russo, Medvec, & Meloy, 1996;

Russo, Meloy, & Medvec, 1998, see Rabin & Schrag, 1999 for a theoretical model). When evidence conflicts with their desired conclusions, people tend to either ignore it or subject it to particularly critical scrutiny (Ditto & Lopez, 1992). This selective information processing effect is so strong that when people on different sides of an issue are exposed to the same information they can all feel that the information supports their position. As a result, they may even hold more strongly disparate opinions after receiving the same information (Lord et al., 1979).

One important influence on how people evaluate information is accountability. When people know that they will be accountable for their decisions, they show more concern for how their decisions will be received. When they do not know the preferences of their audience, this heightened concern leads to more systematic cognitive processing and a more thorough justification of the conclusion (Tetlock, 1983). However, when the preferences of the audience are known, accountability need not lead to more thoughtful processing, but can instead increase the likelihood that the decision-maker's judgment will be consistent with the known preferences of the audience (Tetlock, 1983). In an audit, there can be little doubt regarding the preferences of the management of the client firm: They want to get an unqualified audit report. The effect of accountability cannot be easily explained by simple self-interest, because most of the research on accountability has not included any rewards for agreeing with the individual to whom one is accountable (Tetlock, 1992). But this is not to say that self-interest does not influence judgment.

When a particular interpretation of the evidence will benefit them materially, people gravitate toward that interpretation, even when they hold an explicit goal of being impartial. For example, people tend to think that the allocation of resources that benefits themselves is fair (Messick & Sentis, 1979), and believe that others will share their perspective (Diekmann, 1997; Diekmann, Samuels, Ross, & Bazerman, 1997; Messick & Sentis, 1983). Moreover, they are

typically unaware that they are processing information in a self-serving fashion and, thus, are unaware that they are biased.

Thompson and Loewenstein (1992) found evidence of a self-serving bias in negotiators' reports of fairness. In their experiment, participants played either the role of management or union in a wage negotiation, and both roles were given the same information about the details of the situation. Before they negotiated, both parties were asked what they believed a fair outcome to be from the vantage point of a neutral third party. Their responses were egocentrically biased; individuals representing the union tended to believe that a higher wage was fairer, whereas those representing management tended to report that a lower wage was fairer. The parties then proceeded to trade bids until they came to settlement, and delay was costly to both parties. The magnitude of the egocentric bias—the difference between the two side's perceptions of a fair wage—predicted the length of time it took parties to come to agreement: The more egocentric the parties' *ex ante* perceptions of fairness were, the longer strikes tended to last. Later research demonstrated the same result in real negotiations between union and school board presidents in Pennsylvania (Babcock, Wang, & Loewenstein, 1996).

In the studies cited above, the pre-negotiation fairness judgments had no direct consequence for the negotiators, so it is unlikely that the bias resulted from strategic misrepresentation. However, subjects were not given any incentive to report their judgments accurately, so the studies do not reveal whether people are able to provide impartial judgments when they are motivated to do so. Two studies (Babcock, Loewenstein, Issacharoff, & Camerer, 1995; Loewenstein, Issacharoff, Camerer, & Babcock, 1993), however, offered a clear incentive to participants to be accurate in their private fairness judgments. Participants whose judgments came close to the determinations of an impartial judge were given a cash bonus. This incentive

did not eliminate egocentrism in participants' reports, suggesting that their roles influenced their assessments of fairness in ways they could not disregard even when it was in their interest to do so.

Kunda (1990) argued that this motivated reasoning leads to biased conclusions whenever there is sufficient ambiguity in the evidence to allow for a biased interpretation. Thompson and Loewenstein (1992) explicitly manipulated ambiguity and confirmed Kunda's prediction: Greater ambiguity leads to more bias. In general, as Babcock and Loewenstein (1997: 120) concluded on the basis of the aforementioned studies:

As soon as asymmetries are introduced between the parties—for example, different non-agreement values or costs of non-settlement, or subtle differences in roles—both parties' notions of fairness will tend to gravitate toward settlements that favor themselves. They will not only view these settlements as fair, but believe that their personal conception of fairness is impartial.

In sum, research on information processing and bargaining suggests both that people process information in a biased, self-interested, fashion, and that this bias is strong, automatic, and unconscious.

Implications of Motivated Information Processing for Auditor Independence

The research on motivated information processing has significant implications for auditor bias. Very few auditors begin their work hoping to find a client has breached accounting standards. Rather, auditors typically start with a desire to reach a positive conclusion about their clients and issue an unqualified audit report. Auditors generally want to be rehired by their clients, and it is often the case that an unfavorable audit report is likely to result in a client firm

changing auditors (Levinthal & Fichman, 1988; Seabright, Levinthal, & Fichman, 1992). Even if the accounting firm is large enough that one account is a trivial percentage of its revenues, individual auditors' jobs and careers may depend on success with specific clients. Perhaps more importantly, accounting firms often treat auditing work as a way to build relationships that will allow them to sell other services including management consulting, information technology assistance, or tax accounting. Although some have argued that the contingent rents available through consulting services should not influence audit quality (Antle, Griffen, Teece, & Williamson, 1997; Dopuch, King, & Schwartz, 2001), other recent evidence suggests that it may (Frankel, Johnson, & Nelson, in press).

An auditor's job is complex, involving the accumulation and synthesis of a great deal of information about a client firm. The information available to auditors often includes the kind of ambiguity that facilitates motivated information processing. Joseph Berardino, Arthur Andersen's former chief executive, in his congressional testimony on the Enron collapse, commented that:

Many people think accounting is a science, where one number, namely earnings per share, is the number, and it's such a precise number, that it couldn't be two pennies higher or two pennies lower. I come from a school that says it's really much more of an art (as quoted in Harris, 2001).

This imprecision allows motivated reasoning to insinuate itself into auditors' judgments.

Historically, those who have defended auditors against charges of bias have emphasized their high ethical standards and professional values. For example, at the SEC hearings on auditor independence, Gary Shamis, Chairman of the Management of an Accounting Practice Committee at the AICPA, stated that:

We take the existing independence rules quite seriously, and consequently abide by all the existing rules. We are professionals that follow our code of ethics and practice by the highest moral standards. We would never be influenced by our own personal financial well being (Shamis, 2000)

While it is likely that most auditors attempt to remain independent, neither ethical codes nor training are likely to be effective remedies against a bias that is unconscious and unintentional. Undoubtedly, the vast majority of auditors do not deliberately author biased reports. Instead, auditors' roles influence their professional assessments so that their private beliefs become consistent with the interests of their clients. Although it is possible that auditors sometimes intentionally misrepresent their findings in public, it is more likely that self-interest operates indirectly, by unconsciously influencing auditors' assessments of a client's financial condition.

The Studies

The three experiments reported here bring together research on motivated reasoning and accountability to study the psychology auditors' judgments. Experiment 1 presents data from professional auditors and tests the hypothesis that their judgments may be biased in favor of client firms (**Hypothesis 1**). The second and third studies examine the causes behind this effect; they examine factors that could moderate the magnitude of bias, and test the extent to which the bias can be consciously undone. Participants were asked to produce two judgments: one public and the other private. For the public judgments, subjects were given an explicit incentive to be biased. For the private judgments, they were given an incentive to be unbiased; they were paid on the basis of how close their judgments came to those provided by an impartial panel of experts. If participants were fully aware of the bias in their public reports, and if properly

motivated to do so, they should have been able to adjust their evaluations to eliminate the bias in their private judgments. If they were not fully aware of the bias, as the research on motivated information processing would suggest, then their private estimates should have been biased as well (**Hypothesis 2**).

Experiment 2 specifically tests the consequences of financial incentives on bias. To the extent that financial incentives affect the strength of the auditor's desire to reach a particular conclusion, one might expect to observe parallel changes in the magnitude of bias. Experiment 2 tests the hypothesis that the greater one's financial interest in a particular outcome, the more biased one will be in the direction of that outcome (**Hypothesis 3**).

The third study examines the effect of the relationship between the auditor and the principal. Material interests are not the only factors that can undermine the impartiality of judgments. Personal relationships and affiliations can have a similar effect. The power of affiliations is evident in sports fans; questionable referee calls often provoke outrage by the fans of the call's loser, but rarely by fans on the winning side. Indeed, one of the first studies that documented the self-serving bias involved sports teams. In their classic study of a particularly rough football game, Hastdorf and Cantril (1954) showed that fans from each side blamed the other team for behaving more aggressively; this result also held for fans who had not seen the game live but only watched a film of the game. These fans obtained no material benefit from their energetic advocacy but nevertheless made judgments that favored their own teams. The self-serving bias does not require the powerful affiliations associated with sports teams.

Thompson (1995) has shown, in a simulated labor dispute, that it takes only a whiff of affiliation with a partisan to create sympathetic leanings. Naturally, this tendency is only strengthened when people feel accountable to the partisan (Lerner & Tetlock, 1999; Tetlock, 1992). Most

auditors are likely to have frequent close contact with a client, creating much stronger affiliations. Indeed, it is the cooperation of the client that makes it possible for auditors to do their jobs. Thus, Experiment 3 tests the hypothesis that the closer one's personal relationship with a particular individual, the more biased one will be in that person's favor (**Hypothesis 4**).

EXPERIMENT 1: Role-Conferred Biases

Method

Participants were 139 professional auditors employed full-time by one of the Big Four accounting firms in the United States. Their ages ranged from 23 to 55, with a mean of 29 years ($SD = 6.2$). Fifty-six percent of the participants were male. They had a mean of five years ($SD = 5.7$) working as an auditor. Nine participants requested, after they had handed in their questionnaires, that their responses be excluded from subsequent data analyses.

Participants were given five different auditing vignettes and asked them to come to a judgment regarding the proper auditing in each case. The problems were intentionally chosen to be somewhat difficult accounting problems for which generally accepted accounting principles (GAAP) did not provide an unambiguous solution. Each of the vignettes depicts a situation in which accounting issues that are not clearly addressed by current rule-based accounting standards. The issues addressed include the recognition of intangible assets on the financial statements (vignette 1), the restructuring of debt with dilutive securities (vignette 2), the recognition vs. deferral of revenues (vignette 3), capitalization vs. expensing of expenditures (vignette 4), and the treatment of research and development costs on the financial statements (vignette 5). Subjects were told that these cases were independent of each other and hypothetical, although are intentionally realistic. It was our goal to design these vignettes such that the issues that are described are more general and do not particularly apply to any one

industry, to ensure that auditors specializing in one industry will not have a specific advantage or disadvantage in answering any of the questions. All participants saw all five vignettes in the same order. The five vignettes are listed in Appendix A.

The experiment had a 2 (role: hired by issuer or by outside investor) X 2 (question order: make accounting valuation first vs. evaluate other's accounting first) between-subjects factorial design. The role manipulation varied whom participants were told they were working for. Half the participants' materials informed them that they had been hired as the external auditor for the firm in question. The other half of participants were told that they were working for an outside investor considering investing money in the firm.

The question order manipulation varied the order of the questions that followed every vignette. Those in the choice-first condition were first presented with (1) the firm's unaudited accounting, and were asked whether they would accept it as complying with GAAP; and (2) what the right accounting would be. Those in the valuation-first condition got these two questions in the reverse order. All participants were also asked how confident they were about their judgments.

Results

Neither age nor years of auditing experience affected the dependent measures reported below. Therefore, we do not report them in any of the subsequent analyses.

We hypothesized that participants would be more likely to come to the conclusion that the accounting behind a firm's financial reports complied with GAAP if they were working for the firm than if they were not (Hypothesis 1). To test this hypothesis, we conducted a 2 (role: hired by issuer or by outside investor) X 2 (question order: make accounting valuation first vs.

evaluate other's accounting first) MANOVA using the five approval decisions as dependent variables. The results show a significant main effect of role. Consistent with Hypothesis 1, those working as external auditor for a firm were significantly more likely to approve its accounting ($\underline{M} = 29\%$, $\underline{SD} = 24\%$) than were those who represented outside investors ($\underline{M} = 22\%$, $\underline{SD} = 21\%$), $\underline{F}(5, 107) = 2.9$, $p < .05$. Neither the main effect of question order nor its interaction with role is significant.

We also expected, consistent with Hypothesis 1, that in addition to being more willing to endorse the firm's own accounting, participants would be more likely to come to valuation decisions that were favorable to the target firm when they were considering the problem from the perspective of an outside auditor than when they had taken the perspective of a potential investor. To test this prediction, we first generated standardized scores for each item by computing a z-score of the valuation and reverse-scoring items as appropriate so that higher scores indicated valuations more favorable to the target firm. We then computed an average valuation for each participant and submitted these valuations to a 2 (role: hired by issuer or by outside investor) X 2 (question order: make accounting valuation first vs. evaluate other's accounting first) ANOVA. The results show a main effect of role: Those playing the role of outside auditor came to more favorable valuations ($\underline{M} = .08$, $\underline{SD} = .56$) than did those working for a potential investor, ($\underline{M} = -.11$, $\underline{SD} = .50$), $\underline{F}(1, 134) = 4.07$, $p < .05$. Neither the main effect of question order nor its interaction with role is significant.

Discussion

The results of Experiment 1 are broadly consistent with research on accountability that shows that people tend to be proactively responsive to those to whom they expect to be

accountable. When people are accountable to others with known preferences, then their judgments tend to be consistent with the preferences of those to whom they are accountable (Tetlock, 1983). An auditor who feels accountable to the client is more likely to issue a clean, unqualified audit report than one who feels accountable to an audit partner within his or her own firm (Buchman, Tetlock, & Reed, 1996). However, it is worth noting that the accountability manipulation used in Experiment 1 was weak compared with the standard accountability manipulations in which people are led to believe that they will actually be meeting with a real person to whom they will need to justify their decisions. In Experiment 1, no mention was made of such accountability and participants were not required to justify their opinions. Nevertheless, this weak manipulation had an effect. We speculate that one reason for its effectiveness may be that the participants were familiar with the role of auditor, and so were able to easily put themselves in the role of being employed by, and accountable to, the client firm.

One notable feature of the results of Experiment 1 is the low levels of endorsement. Nearly three quarters of the time, participants rejected the accounting proposed in the vignette as not complying with GAAP. This fact stands in contrast to the fact that the vast majority of all audit reports are unqualified. Two facts can explain the low endorsement rates in Experiment 1. First, the proposed accounting we gave participants in each vignette was intentionally designed to be fairly aggressive. Second, participants' general suspiciousness was heightened because: (1) before they responded to the questionnaire, participants had to sign the consent form which, according to the rules of the institutional review board that approved it, had to include the name of the study: "Auditor independence and bias"; and (2) the participants had all been recently hired away from Arthur Andersen, and several expressed the concern that their ex-employers' fate

would be assumed to reflect badly on them. It is, perhaps, striking that the experiment's manipulation worked despite participants' heightened suspiciousness.

Experiment 1 leaves a number of important theoretical questions unanswered. What, exactly, is it in the relationship between auditor and client that leads it to have the power to sway auditors' judgments, given the clear ethical standards of their professions prohibiting such influence? Experiments 2 and 3 test two possible answers to this question: financial incentives and personal relationships. Because these two factors are confounded in actual auditor-client relationships, the experiments are conducted with participants who are not professional auditors. However, due to the fact that these non-auditor participants were unfamiliar with GAAP and so could not judge compliance with it, we created a slightly different experimental paradigm.

EXPERIMENT 2: The Role of Financial Incentives

Method

Participants. One hundred twelve individuals participated for pay. Participants were recruited with advertisements in local newspapers and with flyers posted on the campuses of Carnegie Mellon University and the University of Pittsburgh. Forty-nine percent of the participants were male. They ranged in age from 20 to 41, with an average age of 24 years ($SD = 5.18$ years).

Procedure. Participants were run in groups of four. They were assigned to one of four roles: the buyer, the buyer's auditor, the seller, or the seller's auditor. Principals (the buyer and the seller) were seated next to their auditors. All four participants received the same packet of information about the target firm, named E-Settle (see Appendix B). After reading through these materials, the principals made public reports on the value of the firm. The auditors then

reviewed these reports and offered either an unqualified endorsement of the principal's assessment or offered their own assessments that could include suggestions for revision. In addition, all auditors were asked to specify both the most they thought the buyer should consider paying and the least they thought the seller should consider accepting. Both the principals' and the auditors' public reports were viewed by both principals. Armed with their own estimates and those of their auditors, principals then negotiated the purchase of the firm. The principals were paid based on their negotiated outcomes.

In addition to the auditors' public reports, which went to both principals, the auditors each completed a private report that went only to the experimenter. This private report instructed auditors to report their true belief in the value of the target firm, and told them, "Your goal is for this assessment to be as impartial as you can make it." Participants were told that their estimates of the firm's value would be compared with the opinions of nonpartisan experts. The panel of experts consisted of eight professors of accounting and finance at Carnegie Mellon University's Graduate School of Industrial Administration. The experts had assessed the value of the firm at \$14 million. If a participant's valuation were within \$3 million of the experts', he or she would receive an additional \$3 payment.

Participants were then asked to express how confident they were in the accuracy of their private appraisals. They were given the opportunity to bet on their private appraisals. If they chose to take the bet, they stood to win more money (\$6 instead of \$3, but their appraisals had to be more accurate (within \$1.5 million instead of \$3 million).

Finally, participants answered questions designed to assess the degree to which they believed their own appraisals of the target firm (E-Settle) may have been biased by the roles they played:

- 1) To what extent do you believe your private appraisal of the value of E-Settle was biased by your role? *The response scale ran from 0 (no bias whatsoever) to 10 (powerfully biased).*
- 2) To what extent do you think your role interfered with your ability to give an impartial estimate of E-Settle's value in your private assessment? *The response scale ran from 1 (it did not influence me at all) to 7 (I found it impossible to make an impartial assessment).*
- 3) How do you believe your role influenced your estimate of E-Settle's value in your private appraisal? *The response scale ran from -\$3,000,000 (It led me to make an appraisal that was at least \$3 million below what it would otherwise have been) to +\$3,000,000 (It led me to make an appraisal that was at least \$3 million above what it would otherwise have been).*

Design. The experiment's manipulation of incentive structures included three conditions: Fixed fee, Pay for performance, and Future business. In the fixed fee condition, auditors were paid a fixed \$9 fee regardless of their reports and regardless of the principal's outcomes. In the pay for performance condition, auditors received a \$3 base payment plus the same contingent payments as their principals: \$.50 per \$1 million in sale price either above \$0 (for the seller) or below \$30 million (for the buyer). This manipulation was designed to mirror a practice that the SEC has made illegal in which auditors have a direct financial stake in the success of a client firm. In the future business condition, auditors received a \$3 base payment; after the negotiation was complete, principals could choose to award future business to the auditor, worth anywhere from \$0 to \$10. The decision of how much business to give to the auditor did not influence the

principal's own earnings. This manipulation was designed to mirror the incentives present for auditors who would like to continue offering profitable services to a client who has the choice of hiring them or some other firm.

Results

Public reports. After reading about the target firm, principals provided estimates of its value. A 2 (role: buyer vs. seller) X 3 (pay: fixed, pay for performance, future business) ANOVA revealed a main effect for role. Sellers estimated the value of the firm to be higher ($\underline{M} = \$21.5$ MM, $\underline{SD} = \$8.5$ MM) than did buyers ($\underline{M} = \$12.3$ MM, $\underline{SD} = \$12.3$ MM), $F(1, 49) = 18.94$, $p < .001$. After having seen this report, auditors had the option of either unconditionally endorsing the principal's report or suggesting changes. A logistic regression reveals that neither role nor the extremity of the principal's valuation influenced the frequency of endorsement. However, pay condition was a significant predictor of the tendency to endorse, $\underline{B} = -.75$, $p < .05$. Auditors in the fixed payment and pay for performance conditions were about equally likely to issue unconditional endorsements (50 percent and 47 percent respectively). However, auditors in the future business condition were less likely to issue an unconditional endorsement (17 percent) and instead tended to offer suggestions for revision (see Table 1), $\chi^2(2) = 4.89$, $p < .05$. In professional auditing, issuing a conditional endorsement of a client's financial statements suggests that the auditor believes there are problems. However, participants in the present experiment were not constrained in this way. In their reports, about 12 percent of auditors suggested that their principals had been too extreme in their valuation of the company, and advised moderation (lower prices recommended to sellers and higher prices to buyers). The majority of reports by auditors, however, suggested to their principals that they had not been

extreme enough. Sixty-nine percent of auditors in the pay for performance and future business conditions who recommended revision suggested more extreme valuations to their principals (higher prices recommended to sellers and lower prices recommended to buyers).

Auditors were asked to specify the most they thought the buyer should consider paying and the least they thought the seller should consider accepting. In a 2 X 3 ANOVA with repeated measures on valuation (most and least), the main effect of auditor's role is significant, $F(1, 50) = 11.3, p < .01$. See Table 2. Given that these were public reports to their principals, it may not be surprising that the role made such a big difference. Neither the main effect of pay nor its interaction with role was significant.

Private reports. More interesting than the difference in public reports is the fact that the role manipulation had a significant effect on auditors' private appraisals. Private appraisals were subject to a 2 X 3 between-subjects ANOVA. The results show a main effect of role, as illustrated in Figure 1. Consistent with Hypothesis 2, we found bias in private appraisals. Auditors working for the seller reported the company to be more valuable ($M = \$17.6 \text{ MM}$, $SD = \$7.4 \text{ MM}$) than did auditors working for the buyer ($M = \$9.8 \text{ MM}$, $SD = \$5.1 \text{ MM}$), $F(1, 9) = 20.21, p < .001$. Auditors' private judgments were significantly correlated with auditors' public judgments ($r = .63, p < .001$). However, the main effect of role remains significant even when principals' public valuations are included as covariates in the ANOVA, indicating that the effect of role on auditors' private judgments is not completely accounted for by this apparent anchoring effect.

The main effect of pay condition was not significant, $F(2, 49) = 1.7, ns$. Contrary to Hypothesis 3, the interaction of pay and role was not significant either, $F(2, 49) < 1$. The lack of a significant interaction effect reflects the fact that auditors' pecuniary incentives did not

significantly influence the private judgments of the participants in this experiment.

Accountability to a partisan more than any monetary reward appeared to influence auditors' private beliefs.

After they had made their private valuations, auditors were given the opportunity to bet on the accuracy of their appraisals. In a logistic regression predicting the likelihood of betting, neither role nor pay was a reliable predictor of auditors' expressed confidence in their own appraisals. More interestingly, the actual proximity of their appraisals to that of the experts did not predict the willingness to bet. Auditors did not seem to have much sense of when their appraisals were accurate and when they were not.

Participants were aware that their roles had influenced their appraisals. In answer to the question, "To what extent do you believe your private appraisal of the value of E-Settle was biased by your role?" the average auditor responded with a 4.6 ($SD = 2.6$) on an 11-point scale where 0 indicated no bias whatsoever and 10 indicated powerful bias, which is significantly greater than zero, $p < .001$. Likewise, in answer to the question, "To what extent do you think your role interfered with your ability to give an impartial estimate of E-Settle's value in your private assessment?" the average participant responded with a 3.4 on a 7-point scale, greater than 1, $p < .001$. However, when asked directly how much they had been biased, auditors working for the seller reported that their role had led them to make appraisals that were, on average, only \$.89 million ($SD = \1.29 MM) higher than they would otherwise have been. In fact, their appraisals averaged \$2.9 million above the experts'. Buyers' auditors, on the other hand, reported that their appraisals were \$.13 million less ($SD = \1.25 MM) than they would otherwise have been. In fact, their appraisals averaged \$4.2 million below the experts'. Although auditors were aware of

the biasing influence of role at some level, they underestimated its power and were unable to correct for it appropriately, despite clear incentives to do so.

Discussion

The evidence from Experiment 2 suggests that financial incentives had a stronger influence on public reports than on private beliefs. However, auditors' relationships with their principals acted as a more powerful influence on their private judgments. Auditors in the fixed payment condition had no financial incentive to come to conclusions that favored their principals; indeed, they had an incentive to provide an unbiased estimate of the company's value. Nevertheless, their estimates were biased. Auditors working for the seller reported that they believed the target firm was worth more than did auditors working for the buyer.

These findings are consistent with prior research but build on it in important ways. First, we have shown that it takes very little to produce biased judgments. Self-serving judgments are usually explained as having been biased by one's own self-interest. It is hard to say that auditors in the fixed payment condition were biased in a self-serving manner, because they gained nothing by serving their principals' interests. Instead, it was accountability to the partisan, whose preferences were clear, that biased judgment. When they provided valuations that were biased in the directions of their principals' interests, they were acting as faithful agents of the buyer and the seller. When acting at the behest of someone else, people are more willing to engage in actions that they would otherwise find ethically problematic (Diekmann et al., 1997; Milgram, 1974).

Second, although people may be aware of their vulnerability to bias, they tend to underestimate it, and do not adequately correct for it when called on to do so. Although auditors indicated that they believed their valuations of the target firm were influenced by their roles, they

underestimated the size of that bias and their private valuations remained biased despite financial incentives to correct that bias. In addition, participants did not have a good sense of the quality of their judgments. They were no more likely to bet when the accuracy of their answer meant that they would win the bet.

EXPERIMENT 3: The Role of Personal Relationships

Given that the accountability relationship, rather than financial incentives, proved the stronger influence on judgments in Experiment 2, we designed Experiment 3 to directly test the impact of the strength of the relationship. Experiment 3's basic paradigm is similar to that of Experiment 2. However, instead of manipulating incentives, in Experiment 3 the relationship between the auditor and client was manipulated. Payments for all auditors in Experiment 3 were fixed at \$9.

Method

Participants. One hundred and twelve individuals participated for pay. Participants were recruited with advertisements in local newspapers and with flyers posted on the campuses of Carnegie Mellon University and the University of Pittsburgh. Forty-nine percent of the participants were male. They ranged in age from 18 to 49, with an average age of 22 years.

Procedure. The experimental procedure was the same as in Experiment 1, except that principals in Experiment 2 were also asked to make private assessments of the value of the target firm.

Design. Experiment 2 included three relationship conditions: Anonymous, Impersonal, and Personal. In the anonymous condition, auditors never met their principals. Auditors

received their instructions from, and submitted their reports to, the experimenter. In the impersonal condition, auditors and principals sat next to one another, but auditors' interaction with their principals was limited to the exchange of paperwork. In the personal condition, auditors spent a few minutes getting to know their principals before they started working together. They exchanged personal information (such as home town, marital status, hobbies, and interests). Auditors in the impersonal and personal conditions handed their reports directly to their principals, with the exception of the auditors' private reports, which were submitted to the experimenter.

Results

Public reports. Principals' public valuations again, not surprisingly, differ by role. A 2 (role) X 3 (relationship) ANOVA reveals a significant main effect of role, $F(1, 50) = 4.88$, $p < .05$. Participants in the role of the seller valued the company more highly ($M = \$18.18$ MM, $SD = \$7.33$ MM) than did participants in the role of the buyer ($M = \$12.58$ MM, $SD = \$13.54$ MM). Neither the main effect of relationship nor its interaction with role had a significant influence on principals' public judgments.

Nineteen of the 56 auditors (34 percent) offered unqualified endorsements of their principals' valuations. The remaining 37 auditors offered some suggestions to their principals. Twenty (53 percent) of these suggested to the principal that he or she be more demanding (by recommending a higher price to the seller or a lower price to the buyer). Neither the tendency to offer unqualified endorsement or the recommendation of a more extreme price varied significantly by relationship.

As in Experiment 2, auditors' recommendations to principals on the price of the target firm were significantly influenced by their roles. In a 2 X 3 ANOVA with repeated measures on valuation (most the buyer should pay vs. least the seller should accept), the main effect of auditors' role is significant, $F(1, 46) = 17.7, p < .001$. See Table 3. However, neither the main effect of relationship nor its interaction with role is significant. Auditors' reports did not differ significantly by relationship with the principal.

Auditors' private valuations. To test the effect of role and relationship on auditors' private beliefs, we conducted a 2 X 3 ANOVA on their private valuations. There is a strong main effect of role, such that auditors representing the seller gave significantly higher private valuations ($M = \$16.49$ MM, $SD = \$6.47$ MM) than those representing the buyer ($M = \$11.27$ MM, $SD = \$2.85$ MM), $F(1, 50) = 16.7, p < .001$. The pattern in auditors' private valuations is illustrated in Figure 2. Contrast tests were used to test the differences between the roles for each of the three conditions. These tests reveal that auditors' private valuations were not significantly influenced by role in the anonymous condition, $t(50) = 1.35, ns$, but they differed for the two roles in both the impersonal, $t(50) = 2.71, p < .05$, and personal conditions, $t(50) = 2.86, p < .05$. This result is consistent with Hypothesis 4's prediction that the personal relationship would influence the strength of the bias in judgment.

We performed one additional test to assess the degree to which auditor anonymity influenced auditors' bias towards the interests of their principals. First, we created an index of partisan bias by measuring the degree to which auditors' private valuations deviated from the experts' \$14 MM judgment in the direction consistent with the interests of their principals. The results suggest that auditors in the anonymous condition made private valuations that were less biased toward the interests of their principals ($M = \$1.39$ MM, $SD = \$4.46$ MM) than were the

valuations of other auditors (\underline{M} = \$3.52 MM, \underline{SD} = \$5.18 MM), but this difference is only marginally significant, $t(54) = 1.62$, $p = .11$.

The data suggest that auditors were unable to forget about their roles and make unbiased appraisals even when they were given incentives for accuracy. Were participants aware of these biases? Their responses to the post-experimental questionnaire suggest that they were. In response to the question, “To what extent do think your role interfered with your ability to give an impartial estimate of E-Settle’s value in your private appraisal?,” the average participant responded with a 3.3 (\underline{SD} =1.72) on a 7-point scale. This is significantly different from the endpoint of 1, which would have indicated that “it did not influence me at all.”

A more intriguing result comes from answers to the question, “How do you believe your role influenced your estimate of E-Settle’s value in your private appraisal?” As in Experiment 2, participants showed only limited understanding of how their roles had influenced their judgments. The correlation between participants’ responses to this question and their actual valuations is only marginally significant, $r = .25$, $p = .07$. The average response was not significantly different from zero (\underline{M} = \$.28 MM, \underline{SD} = \$1.45 MM), but a 2 X 3 ANOVA reveals a significant difference between auditors representing buyers and auditors representing sellers. On average, buyers’ auditors reported that their appraisals were biased \$.61 MM lower (\underline{SD} = \$1.29 MM). Sellers’ auditors reported that their appraisals were biased \$1.14 MM higher (\underline{SD} = \$1.02). Two points are noteworthy; the first is that auditors underestimated their biases, since buyers’ auditors’ appraisals averaged \$2.6 MM below the experts’ and sellers’ auditors’ appraisals averaged \$2.4 MM above the experts. Second, auditors insufficiently accounted for the effect of their relationships with their principals. The trend suggests that auditors’ with closer

ties to their principals actually tended to believe themselves to be less biased (see Figure 3), but this trend is not statistically significant.

Auditors' insensitivity to their own accuracy is reflected in their tendencies to bet. Fifty-seven percent of all auditors bet that their private valuations were within \$1.5 MM of the experts' valuations. In fact, only 25 percent of auditors' valuations were within \$1.5 MM of the experts. There are no effects of the experimental manipulations on the tendency to bet. Only 57 percent of auditors bet optimally, betting when they would win and not betting when they would lose. The remaining 43 percent bet when they would have lost or didn't bet when they would have won. This is not significantly different from the null hypothesis of random betting, $\chi^2(1) = 3.5$, ns.

Principals' private valuations. Principals were also asked to forget their roles for a moment and specify a private valuation that would not be shared with anyone. They were told that they would be paid for their accuracy. As with auditors, principals were unable to disregard their roles when they had incentives to do so. A 2 X 3 ANOVA reveals a main effect of role in which buyers estimated E-Settle to be worth less ($M = \$11.01$ MM) than did sellers ($M = \$18.39$ MM), $F(1, 49) = 19.04$, $p < .001$.

Discussion

Experiment 3 demonstrated that the strength of partisan affiliations has an important moderating influence on the degree to which people's private beliefs are swayed in the direction of a partner's interests. No auditors in Experiment 3 received any financial benefit for assisting their principals. Nevertheless, the data show that their private beliefs, as reflected in their private reports, were swayed in the direction of their principals. This finding suggests, first, an

important boundary condition on the limits of social ties to bias judgment. Weak or arm's length relationships are less likely to produce the biases that result from tighter partisan affiliations. Second, this finding suggests that the social ties between auditors and their clients may be more of a problem than their financial incentives *per se*. This finding is noteworthy because it is inconsistent with the assumptions of the "economic" perspective on which much of the debate about auditor independence has been predicated.

One possible mediating mechanism by which affiliation could have its effect has to do with perspective-taking. Prior research has established that partisan perspectives produce partisan, biased judgments (Thompson, 1995). The judgments of affiliated agents may be influenced by the fact that agents take the principal's perspective and consider the world from a partisan point of view. Once encoded from a partisan perspective, it can be difficult if not impossible to undo that encoding or to retrieve unbiased information from memory (Babcock et al., 1995). Critical to this perspective-taking process is the vividness and completeness of the other's perspective.

General Discussion

The three experiments demonstrate the potential for partisan affiliation to bias judgment. In the experiments, participants assigned to the role of auditor came to very different personal judgments depending on whom they thought they were working for. Experiment 2 manipulated the auditor's financial stake in the sale of the target firm and found that, although it did influence public statements, the manipulation had surprisingly little effect on participants' private beliefs. Experiment 3 manipulated the closeness of auditors' relationships with their principals and found that although the manipulation had little effect on public statements, auditors more closely affiliated with their principals were more likely to have their private beliefs influenced in the

direction of their principals' interests. This result cannot be attributed to more communication or more persuasive communication by principals with their agents in the personal relationship condition, since their communications occurred before they had any information about the case.

These experiments demonstrate the power of accountability to influence motivated reasoning. When they felt accountable to a partisan audience, participants came to conclusions consistent with the interests of their audience. Another contribution of these experiments is the demonstration of participants' limited understanding of their susceptibility to bias. Participants in both experiments showed relatively poor understanding of their vulnerability to partisan influence and a parallel inability to correct for that influence, even when they were motivated to do so. The apparent failure of self-understanding in this domain suggests a limitation on the ability to correct biases by intentionally trying harder to be independent.

Limitations and Alternative Explanations

These experiments attempt to elucidate the issue of conflict of interest in the auditor-client relationship, but Experiments 2 and 3 come from laboratory studies in which people were playing roles of auditor and client, and many of the conventions and regulations governing the auditor-client relationship were not present in our experiment. Of the threats to external validity in our studies perhaps the most serious is the fact that our participants did not face the threat of lawsuits. Some have argued that the threat of outside accountability in general and lawsuits in particular should provide sufficient countervailing incentives to mitigate the incentives for providing audits that are favorable to clients (Antle et al., 1997; King, 2002). In contrast to this belief, professional auditors report themselves remarkably unwilling to issue conditional audit reports or to report a breach of accounting standards (Shafer, Morris, & Kethand, 1999).

Furthermore, the legal risks and liabilities have declined significantly in recent years for at least four reasons (Coffee, 2000).

First, the passage of the Private Securities Litigation Reform Act of 1995 has made it more difficult for shareholders in the United States to sue auditors, especially as a class action. Second, there has been a substitution of proportionate liability for “joint and several” liability, greatly limiting the magnitude of potential damages from accounting fraud cases and commensurately reducing the incentives for bringing such cases. Third, litigation against accountants has shifted from federal courts to state courts, which also tends to reduce awards. Finally, the U.S. Supreme Court, in a 1994 case, eliminated the idea of aiding and abetting liability, which was one of the tools used to sue accountants. The threat of lawsuits, therefore, has declined precipitously just as a variety of other factors, such as the expansion of consulting services, have raised the benefits of providing audits that are favorable to clients. To the extent that the threat of lawsuits persists, it provides incentives for accuracy, much as paying people for accurate appraisals did. Yet, incentives for accuracy may be inadequate to eliminate bias if people underestimate the strength of their biases in the first place.

Another potential concern is that participants in the second and third experiments were not professional auditors. Certainly, professional auditors would have had much more experience in valuing firms, so their valuations of E-settle's value would have likely displayed greater consistency. Nevertheless, professional auditors in Experiment 1 displayed role-conferred biases and such biases have proven remarkably robust in field contexts (Babcock et al., 1996). The self-serving bias in assessments of fairness, for example, has been observed not only in students, but also in practicing lawyers and judges (Eisenberg, 1994). The motivated biases

behind the effects documented here are the result of psychological processes shared by students and auditors alike.

While it is plausible that professional expertise could counter some of these influences, other evidence suggests that practicing accountants' public reports also tend to be biased toward the interests of their clients. Ponemon (1995) asked professional accountants to compute the value of physical inventory destroyed in a fire. Those told they had been hired by the owner of the warehouse came to higher estimates than did those told they had been hired by the insurance company. Hackenbrack and Nelson (1996) found that when they believed they could get away with it, professional auditors recommended aggressive accounting techniques to a hypothetical client; however, auditors' willingness to bend the rules in their clients' favor is reduced when auditors are less accountable to their clients because their opinions are issued anonymously (Lord, 1992). Auditors' experience does not appear to moderate the willingness to favor the client's interests (Buchman et al., 1996; Farmer, Rittenberg, & Trompeter, 1987). These previous studies documented bias among practicing accountants, responding to hypothetical scenarios, despite a lack of financial incentives or a relationship with a client. This contrasts with the findings from Experiment 3, in which auditors on the two sides did not show significant bias when they had arms' length relationships with their clients. This difference suggests the possibility that professionals may actually be more biased than the participants in the experiments reported here. Indeed, it could be argued that any bias observed in laboratory studies is, if anything, likely to be even stronger in the real world, in which the financial incentives are more substantial, one's familiarity with one's clients is greater, and the complexity and ambiguity of the task is greater.

An alternative explanation for the present results of Experiments 2 and 3 is that our manipulations had no real effect on private beliefs, but that participants felt compelled to be consistent with their public statements and that is why their private beliefs differ by role. Although it is possible that self-presentational concerns were prominent for the participants, this would be likely to be an even larger concern for actual auditors. Furthermore, a large literature on cognitive dissonance and its resolution demonstrates that people routinely bring their private beliefs into alignment with their public behavior (Festinger, 1957; Festinger & Carlsmith, 1959). Indeed, if people use their own behavior to make inferences about their beliefs as evidence suggests they do (Bem, 1972), then public statements are likely to represent a powerful influence on private beliefs.

Conclusion

Auditors rarely set out to commit fraud. However, it is difficult for auditors to be truly independent in a system where auditors' livelihoods depend on building relationships with clients to solicit business and in which an auditor who issues a critical public audit report dramatically increases the probability that the client will switch auditors (Bazerman & Loewenstein, 2001; Bazerman, Loewenstein, & Moore, 2002; Bazerman, Morgan, & Loewenstein, 1997). The spate of recent high-profile cases of auditing fraud highlights the importance of this problem. The list of firms embroiled in accounting scandals in recent years is long, and includes Cendant, Waste Management, Phar-Mor, Sunbeam, Global Crossing, WorldCom, and of course Enron. The relationship between Enron and its auditor, Arthur Andersen, particularly close. Indeed, before Enron's collapse, Andersen had been preparing publicity for its system of "integrated audits" with Enron as its prime example (Dugan, Berman, & Barrioneuvo, 2002). According to one

Enron executive featured in this publicity, "Arthur Andersen's penetration or involvement in the company is probably different than anything I've experienced....They are kind of everywhere and in everything" (Dugan et al., 2002). While the conviction of Arthur Andersen of criminal fraud in the Enron case and the subsequent passage of the Sarbanes-Oxley accounting reform act of 2002 has introduced some modest symbolic reforms, the system and the accountability relationships in which auditors work remain basically unchanged.

In his definition of auditor independence, Antle (1984) proposed that, at the very least, it should be assumed that auditors will only engage in actions that serve their rational self interest. The evidence presented here suggests the distressing possibility and even this weak assumption regarding auditor behavior may not hold, and that auditors may not be free to choose to perform independent audits even when they are motivated to do so, if they are accountable to principals with whom they have close relationships. Investors, lenders, suppliers, customers, and the financial markets rely on independently audited financial statements. Our results suggest that problems of conflict of interest are more profound than is commonly assumed. It is not enough to be conscientious and consciously counteract potentially biasing influences on judgment, because people may simply not be able to adequately correct for biasing partisan influence. Eliminating partisan allegiances may be the only way to eliminate conflict of interest.

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Table 1. Auditors' reports to their principals (Experiment 2).

	Fixed payment	Pay for performance	Future business
Unconditional endorsement	50%	52%	17%
Auditor suggests revision	50%	48%	83%
Percentage of revisions that recommend:			
a more extreme valuation	56%	70%	67%
a more moderate valuation	22%	10%	27%

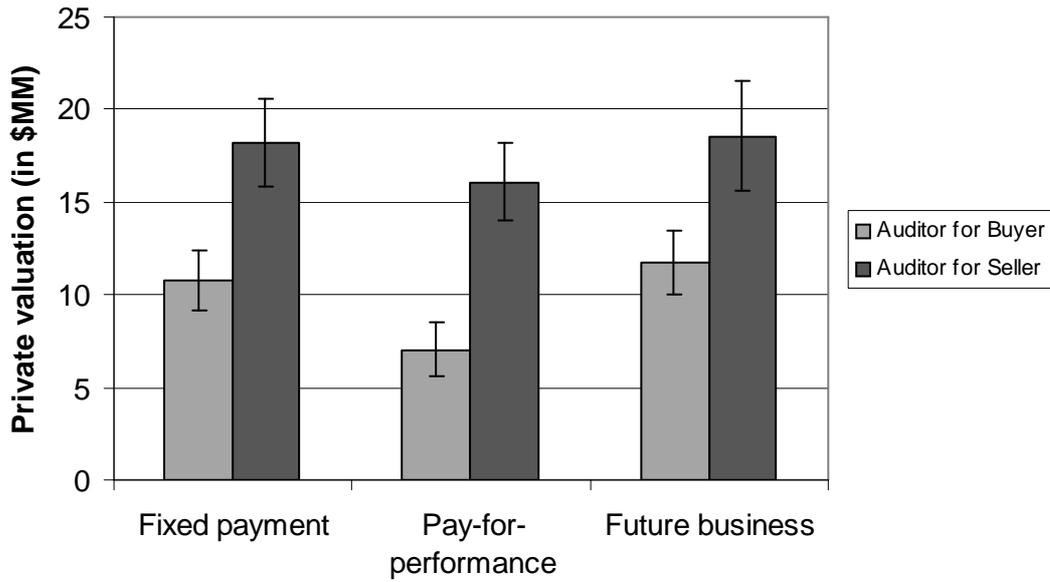
Table 2. Valuations of the target firm, in millions (Experiment 2). Standard deviations in parentheses.

	Principal	Auditor		
	Public valuation	Most buyer should consider	Least seller should consider	Private valuation
Buyer	\$12.3 (\$6.44)	\$12.6 (\$7.9)	\$9.4 (\$6.4)	\$9.84 (\$5.1)
Seller	\$21.4 (\$8.5)	\$20.0 (\$9.2)	\$16.2 (\$7.9)	\$17.6 (\$7.4)

Table 3. Valuations of the target firm, in millions (Experiment 3). Standard deviations in parentheses.

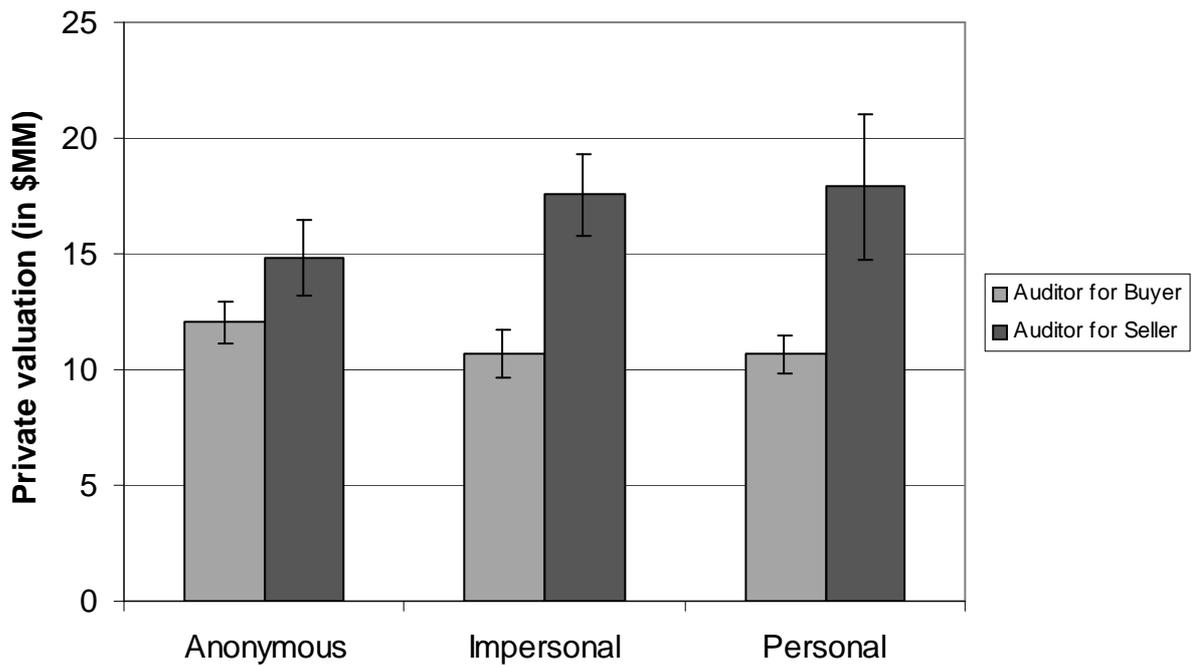
	Principal	Auditor		
	Public valuation	Most buyer should consider	Least seller should consider	Private valuation
Buyer	\$11.0 (\$3.63)	\$12.20 (\$3.92)	\$9.24 (\$3.33)	\$11.27 (\$2.85)
Seller	\$18.39 (\$8.09)	\$21.36 (\$10.32)	\$14.86 (\$6.51)	\$16.49 (\$6.48)

Figure 1. Auditors private valuations in the six experimental conditions (Experiment 2).



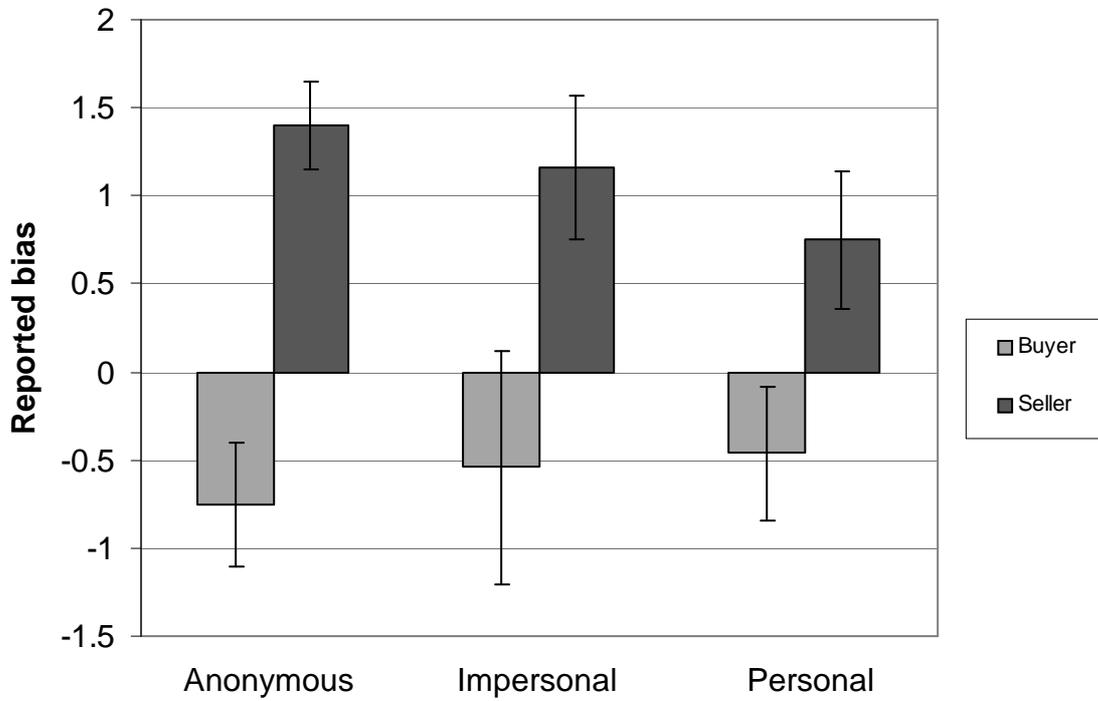
Note: Error bars denote standard errors.

Figure 2. Auditors' private valuations in the six experimental conditions (Experiment 3).



Note: Error bars denote standard errors.

Figure 3. Auditors' beliefs about their own tendencies to be biased (Experiment 3).



Note: Error bars denote standard errors.

Appendix A: Experiment 1's Auditing Vignettes (in the Auditor/Valuation first condition)

Vignette 1

You have been hired as the external auditor for Rogers Communications (Ticker: RG), currently part-owners of the Toronto Blue Jays baseball. Rogers has decided to diversify its holdings and purchase a majority share in the Carolina Panthers National Football League (NFL) team for \$200 million in the beginning of the current fiscal year. The franchise's assets and liabilities, restated at their fair values, amounted to \$10 million and \$22 million, respectively.

Some board members noted that the franchise is one of the most poorly-performing team in the NFL, has registered operating losses of an average of \$5 million per year, and will probably not be generating any future income.

As the firm's external auditor, what is your assessment of the appropriate expenses relating to the purchase that should be reported for this year?

Vignette 2

You have been hired to review the books of Pillowtex (Ticker: PTEX). The balance sheet of Pillowtex reflects, in millions of dollars, total assets of \$1,000, total liabilities of \$1,400, and total stockholders' equity value of negative \$400.

Pillowtex has had considerable trouble in meeting its debt payments over the last year, and has renegotiated and restructured the terms of \$800 of its liabilities with the associated creditors. The \$800 million in long-term debt represents bank loans with interest rates between 8% and 12%. To replace the \$800 million debt, Pillowtex will issue convertible bonds amounting to \$750 million, and a million shares of \$100 par, 7% Pillowtex preferred stock. The bonds will carry an interest rate of 11% and are payable over the next 10 years. The convertibility feature of the bonds is valued at \$70 million and allows the bondholders to convert each \$1,000 bond into 150 shares of Pillowtex common stock 3 years after issuance date.

As the company's external auditor, your task is to determine the values for assets, liabilities, and stockholders' equity that should be reported after the debt restructuring.

Vignette 3

Big 5 Sporting Goods (Ticker: BGFV) is a large sporting goods. This year, Big 5 has rehired you as their external auditor to review the accounting of its newly-launched Premiere Sports Enthusiast (PSE) membership program, which provides benefits to members for a fixed fee. The benefits include a 10% discount on select store merchandise, a 5% discount on select sporting apparel, discounted tickets to sporting events, members-only activities such as mountain hikes and fitness training (additional fees will apply), and quarterly email newsletters. Three membership plans are available: a one-year renewable membership, which costs \$25; a three-year renewable membership, which costs \$40; and a lifetime membership, which costs \$70. The following data summarizes the number of members and cash amounts received this year. (Memberships were received evenly throughout the year.)

One-year memberships:	8,000	x	\$25	=	200,000
Three-year memberships:	6,000	x	\$40	=	240,000
Lifetime memberships:	12,000	x	\$70	=	840,000

As the company's external auditor, what is your assessment of the appropriate revenue from memberships to recognize for this year?

Vignette 4

Harte-Hanks, Inc. (Ticker: HHS) presents the following data for this current fiscal year. Note that all figures that follow are expressed in millions of dollars.

As a direct marketing company, Harte-Hanks has regularly purchased customer lists from third parties. Customer lists are reported as an intangible asset on the balance sheet, and are amortized over 10 years, or at a rate of 10% per year. At the beginning of this fiscal year, the value of this asset on Harte-Hanks' balance sheet amounted to \$4,000, and no new customer lists were purchased this fiscal year. Harte-Hanks identified customer lists with a total remaining book value of \$540 (which is part of the \$4,000 balance sheet figure) purchased from Asia four years ago, that were generating revenues significantly below the target revenue numbers expected from the customers on those lists.

As the company's external auditor, what is your assessment of the appropriate expenses for customer lists that should be reported for this year?

Vignette 5

At the beginning of this year, Bone Care International (Ticker: BCII) entered into a limited research partnership with Antigenics (Ticker: AGEN) for a three-year project to develop a pain-relieving drug. The partnership called for Antigenics to raise capital by issuing its own stock with attached warrants for Bone Care stock. Bone Care itself also invested \$15 million in Antigenics stock. Bone Care in turn performed the research and development of the drug over three years, during which time Antigenics will pay Bone Care a development fee amounting to \$30 million (or \$10 million per year, which covers the exact amount that Bone Care spends on R&D for this particular project). The drug that Bone Care develops will be produced and marketed exclusively by Antigenics. The partnership agreement also stipulated that Bone Care could opt to purchase the patents to the drug from Antigenics at a value of \$65 million after the three-year period.

Since the two companies have entered into a limited partnership, Bone Care did not own a controlling interest in Antigenics, and vice versa. Thus, no consolidation was necessary on the books of either party.

As the external auditor, you are asked to determine the appropriate expenses from this R&D partnership that should be reported for this year for Antigenics.

Appendix B: The E-Settle Case

This case deals with the potential acquisition of E-Settle by Crilley, two firms in the field of alternative dispute resolution. E-settle is a pioneer in a new set of Web-based mechanisms for helping people and firms resolve disputes efficiently and at low cost. Crilley is a leader in the more mature industry of face-to-face alternative dispute resolution. E-Settle and Crilley agree that synergy can be created by Crilley's acquisition of E-Settle. However, they have not agreed on a price. Consistent with the creative problem-solving processes that both firms advocate, they hired a mutually agreed-upon consultant to prepare a two-page background report relevant to the valuation of E-Settle. The report below is the result of this decision. Both parties have been given this report in advance of the negotiation, and both understand that each firm has a right to negotiate the transaction price as they see appropriate.

CONSULTANT'S REPORT

For a variety of societal reasons, the United States has developed as a very litigious society. Americans rely on the court system far more than citizens in other economies, creating costly delays and high legal costs for firms and individuals. In the last two decades, a new industry, alternative dispute resolution (ADR), has developed to help parties resolve disputes more efficiently and at lower costs. Alternative dispute resolution includes mediation, facilitation, arbitration, mini trials, and a variety of other procedures. Typically, a third party is hired to help the disputants reach agreement. While alternative dispute resolution has proven to be an excellent alternative to the courts, its costs have increased as attorneys have become more and more involved in all phases of the process, bringing high legal fees back into the equation.

Crilley is known for providing the highest quality service in the alternative dispute resolution field. The key to its success has been to hire the very best third-party experts available. As a result, Crilley is not the low-cost provider of dispute resolution services. As firms have become more cost-focused, Crilley's positioning is made even more problematic by the emergence of electronic dispute resolution services. These services provide low-cost dispute resolution by offering highly mechanical solutions to disputes. Electronic services allow for the possibility of dispute resolution without relying on the experts that firms like Crilley provide. More and more often, clients desire a lower cost service for some of their disputes (e.g., auto claims under \$10,000). With the goal of offering a broader range of services, several alternative dispute resolution firms have acquired electronic alternative dispute resolution firms. The success of such acquisitions was a key factor in motivating E-Settle and Crilley to consider a merger of their own.

E-Settle is one of the new dot-com entries in the dispute resolution field. A number of firms have emerged that allow two disputants to efficiently reach resolution at far lower costs than traditional alternative resolution procedures. The key to this success has been to limit the amount of evidence presented by each side using the Web to facilitate resolutions, thereby reducing costs such as travel. Most of the dot-coms are very efficient, replacing human judgment with a very simplistic decision rule. E-Settle was based on the idea that, while disputants want efficiency, they also want human expertise and the right to have their evidence heard.

E-Settle deals with disputes in ten categories, including auto accident claims, disputes between health insurers (usually Health Maintenance Organizations) and their patients, and property-boundary disputes between neighbors. E-Settle offers disputants who cannot reach agreement on their own the opportunity for both parties to submit a settlement offer and no more than 1000 words of evidence to an E-Settle expert (experienced attorneys and former judges with expertise in the specific dispute area). The disputants do not see the material submitted to the expert, nor is this information available as part of a future court case. Within 48 hours, the expert assesses the information and proposes a single non-binding settlement. Each party receives the expert's non-binding settlement proposal and responds with an "accept" or "decline." If both parties accept, they have a legally binding deal. If one or both decline, there is no deal, the interaction with E-Settle is over, and the parties maintain the same legal options they had prior to the E-Settle process. If the offer is not accepted by both parties, neither learns of the offer submitted by the other party. Forty-two percent of all disputes that use E-Settle reach agreement – a fantastic rate given the cost efficiency.

E-Settle, founded in 1997 with just \$200,000 in start-up funds, was one of the first dot-coms in the dispute resolution field. Earnings for E-Settle were \$150,000 in 1997, \$400,000 in 1998, \$1,100,000 in 1999, and 2,000,000 in 2000. However, sales appear to be leveling off or declining in 2001. The electronic dispute resolution industry has become very competitive, and E-Settle uses mediators who are, on average, more costly than those used by its competitors. While this distinction gives E-Settle a positioning advantage, it puts the firm at a disadvantage in terms of price competition. In addition, E-Settle's lead competitors have been acquired by larger corporations that have extensive funds available for marketing.

E-Settle is privately held by a small group of founders, early-stage venture capitalists, and so-called "angel investors" who bought into the firm in late 1999. Because it is privately held, E-Settle has no clear value set by the marketplace. Instead, private companies such as E-Settle must be valued using less objective standards.

In prior years, dot-com acquisitions had often been valued using measures such as price-to-revenues (the ratio of a firm's price to its annual revenues). The past year's stock market experience, however, has demonstrated the usefulness of measures such as price-to-earnings (the ratio of a firm's price to its annual earnings or profits), which focus on profitability. At the same time, the most important determinant of a firm's value should be not past results, but future prospects. Average price-to-revenues and price-to-earnings have fluctuated dramatically over the years in acquisitions of professional dot-com firms, and the average ratios for other firms are only of limited value in establishing a value for E-Settle. Some analysts believe that prices for firms in the professional dot-com service sector have hit rock bottom and should be going up, others argue that prices remain artificially high. In the end, however, the value of E-Settle depends fundamentally on its long-term business potential.

The table below provides information on E-Settle's revenues (the total value of all sales), earnings (profits), and market share (E-Settle's percentage of the market). The table also includes the mean price-to-earnings ratios for professional service dot-com firms purchased by other firms in 1997-2000 and in the first part of 2001. Note that the fall of dot-coms has had a dramatic effect on these ratios.

Year	E-Settle's revenues	E-Settle's earnings	E-Settle's market share	Price-to-earnings ratio for all acquisitions of professional service dot-coms
1997	\$854,000	\$150,000	44%	6:1
1998	\$2,324,000	\$400,000	31%	10:1
1999	\$6,216,000	\$1,100,000	26%	14:1
2000	\$11,597,000	\$2,000,000	24%	7:1
2001	?	?	?	4:1

The consultant also found data on three electronic settlement acquisitions:

<u>Date</u>	<u>Name</u>	<u>Annual Earnings</u>	<u>Sales Price</u>
February, 1999	Esolution	\$600,000	\$8,000,000
July, 1999	FAIR	\$1,200,000	\$11,000,000
April, 2001	ADRquick	\$1,100,000	\$8,800,000