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DEPARTMENT OF ACCOUNTANCY

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James R. Doty, Chairman
Public Company Accounting Oversight Board
1666 K Street, NW
Washington, DC 20006-2803

Chairman Doty,

I have attached an article related to the topic of mandatory auditor rotation that your staff did not identify in their search of academic studies. The purpose of this study was to evaluate whether the auditor-client relationship has any impact on auditor judgments, specifically the judgment to remove a audit qualification/modification. The results suggest that under circumstances where the decision requires significant judgment (going concern decision), the strength of the auditor-client relationship plays a role in that decision. While the study does not suggest that the decisions made by auditors were "bad", just that the decision was impacted by the length of the auditor-client relationship.

I am not convinced that truncating the auditor-client relationship will lead to better judgments on the part of the auditor. To that end I am currently working on several related studies examining the extent that auditor attachment (measured by auditor tenure) impacts an auditor's judgment. These studies will employ an experimental design which should provide insight into actual judgment behaviors, varying the degree of auditor attachment. In addition, I plan to look at firms that voluntarily change auditors and compare those firms to matched firms that have enduring auditor-client relationships to determine if there are identifiable differences between the firms' financial statements, earnings management behavior, audit fees, etc.

I appreciate the interest the PCAOB has taken in academic research and, if interested, I will provide the Board the results of these studies once they are completed.

Regards,

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The impact of auditor-client relationships on the reversal of first-time audit qualifications

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Abstract

Purpose – To examine whether auditor-client relationships have an effect on the decision by an auditor to remove an audit qualification.

Design/methodology/approach – The paper tracks the event history of a sample of firms from the issuance of a first time audit qualification for going concern and non-going concern contingencies (initial qualification issued between 1983 and 1987, all pre Statement of Auditing Standard (SAS) 58) to the issuance of a clean opinion (up through 1995 when SAS 79 was issued). Attachment theory provides a theoretical framework for the variables analyzed and discrete time survival analysis is used as the statistical method in the analysis so as to evaluate each company year from the initial unclean opinion to the year a clean opinion is issued.

Findings – It is found that interpersonal and interorganizational attachment has a significant impact on those opinion decisions that require more auditor judgment (i.e. going concern).

Originality/value – This study examines the linkage between auditor tenure and audit quality in a broader context than has been examined to date. Using attachment theory for the foundation, auditor tenure can be viewed as but one measure of the attachment between auditors and clients. In this study, a number of measures of both interpersonal and interorganizational attachment between auditors and clients are included. Further, auditor opinion judgments are examined as a determinant of auditor quality. Finally, discrete-time survival analysis is employed which allows the tracking of the entire event history from initial qualification to removal of the qualification, something not possible with most standard statistical techniques.

Keywords Auditors, Quality

Paper type Research paper

Introduction

As the profession progresses in its implementation of the Sarbanes-Oxley Act of 2002, the issue of mandatory auditor rotation has resurfaced as a matter of concern to the profession. Both the general accounting office and the securities and exchange commission (SEC) prepared an evaluation of the need to require mandatory auditor rotation, though neither organization supported imposing it upon the auditing profession at this time. Other countries, though, have imposed mandatory audit rotation on their audit firms and it remains a possibility should the tide of evidence indicate that audit quality is compromised with longer auditor tenure.

The linkage between auditor tenure and audit quality is the foundation upon which those for and against mandatory auditor rotation base their arguments. However, the directional relationship between audit tenure and audit quality is not clear-cut. Several studies suggest that audit quality declines with longer association with a client (DeAngelo, 1981; Deix and Giroux, 1992; Copley and Doucet, 1993; O'Keefe et al., 1994)[1]. Most of the more recent empirical studies, however, indicate that audit quality improves with audit tenure. Among these studies, Ghosh and Moon (2005) find a positive association between investors' perceptions of earnings quality and audit tenure, Carcello and Nagy (2004) find a higher incidence of financial statement fraud in the earlier years of audit tenure, Iyer and Rama (2004) results indicate that companies believe that they have more power over the auditor in the earlier years, Mansi et al. (2004) find a decline in the cost of debt with longer auditor tenure, Myers et al. (2003) find that greater constraints were placed on management by auditors with longer auditor tenure, and Geiger and Raghunandan (2002a, b) find significantly more audit reporting failures in the earlier years of audit tenure.

Rather than focus only on auditor tenure, our approach, grounded in organizational attachment theory, is to focus more broadly on the underlying relationships between auditors and clients, of which auditor tenure is but one way of measuring the strength of the relationship. In evaluating the impact of these relationships on audit quality, we believe it is important to focus on judgments made by auditors. In the course of an audit, auditors must make numerous judgments (e.g. scope, materiality, nature, timing and extent of testing, etc.) culminating in determining the appropriate audit opinion to issue. Thus, if auditor/client relationships affect auditor judgments (i.e. the opinion decision), then we could infer that audit quality could be affected by these relationships. However, absent evidence that auditor/client relationships affect auditor judgment, the linkage between audit tenure and audit quality would be weakened – directly contradicting the assertions made by proponents of mandatory auditor rotation. To date there is scant empirical evidence that existing auditor/client relationships affect an auditor's judgment.

Audit opinion decisions, in general, are the only decisions made by auditors that are objectively observable by the public. We focus on the lifting of a qualified audit opinion because this decision – difficult, non-routine and subject to considerable upper level review (Nogler, 1995) – potentially is sensitive to the effects of auditor/client attachment. We examine a sample of 337 company-years stemming from 115 companies who received a first-time "subject-to" audit qualifications during the period 1983-1987. We examine each company-year from the initial qualification through the year in which the company receives an unqualified/unmodified opinion, up to eight years. As such our analysis covers the period from 1983 to 1995[2]. This time period allows us to test the comparative importance of attachment in opinion decisions requiring differing levels of judgment. Such comparisons are impossible post-SAS 79 (effective December 1995) which effectively eliminated all modifications to audit opinions except for going concern reasons. By comparing going concern to non-going concern opinion decisions we not only test the importance of attachment in high auditor judgment decisions (i.e. going concern decisions) but we also test its lack of importance in low level judgment decisions (i.e. non-going concern modifications). Our pre-SAS 79 samples not only allow us to show that attachment affects auditor decisions, but also allow us to show under what circumstances this attachment has a significant effect.

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We use discrete-time survival analysis (DTSA) because this technique, unlike the more commonly-used techniques of regression and analysis of variance, allows us to evaluate the event history of each company from the year of the initial qualification through the year of the removal of the qualification[3].

In this study we provide empirical evidence that relationships between auditors and clients affect the likelihood that a going concern qualified audit opinion will be removed, controlling for other factors that might otherwise explain the removal of the qualification. We find no evidence that auditor/client relationships affect the likelihood that a non-going concern qualification will be removed. These different results can be interpreted to suggest that the strength of auditor/client relationships affects auditors' decisions where more judgment is required. That is, the evaluation of material uncertainty is more a matter of judgment when a going concern issue is present as compared to those situations involving litigation and/or asset valuation where non-judgmental evidence may exist to support an auditor's decision. The removal of non-going concern qualifications often coincides with a verifiable event occurring as opposed to relying on an auditor's judgment to determine when a client no longer represents a going concern risk. We use organizational attachment theory as our theoretical foundation for selecting alternative measures (in addition to auditor tenure) of the strength of the auditor/client relationship.

This paper contributes to the literature in a number of ways. First, it provides evidence that auditor/client relationships affect auditor decisions. This is a necessary condition in the argument for mandatory auditor rotation. Second, additional evidence is provided using a different methodology and a different time period. A third contribution is that a baseline is provided for future studies examining the quality of audit reports and establishes a critical link in an important line of research examining the audit tenure/audit quality relationship.

The remainder of this paper is organized as follows. First, we discuss the theoretical motivation for our hypotheses, followed by a section describing the research method used. The results of our tests are then presented, and the last section offers concluding comments.

Research questions

Attachments are based upon the relationships that develop between organizations and the relations that exist between individuals within these organizations, i.e. personal relationships and organizational relationships. Seabright et al. (1992, pp. 126-7) summarizes the distinction between the two sources as follows:

> [A]ttachments in an exchange relationship may emerge as the result of individual or organizational level ties. Sources of individual attachment include personal skills, knowledge, and interpersonal relationships; specific organizational members constitute the repository of such assets. Sources of organizational attachment include the formalization and standardization of exchange arrangements, such as the establishment of policies and procedures for managing interorganizational transactions. The collectivity, rather than specific individuals, is the repository of these assets.

Investments are required by each party in the exchange relationship. Blau (1968, p. 161) notes that:

> ... to protect the investment of one party against loss as the result of the other's withdrawal from the exchange relationship, the other is expected to make a commitment to it also.

Interpersonal and interorganizational attachments are presumed to yield tangible benefits to both trading partners, creating a barrier to change, which barrier ceases to exist once the relationship is terminated (Williamson, 1979; Levinthal and Fichman, 1988; Fichman and Levinthal 1991a, b). These conditions suggest that "past transactions and dealings between exchange partners should increase the likelihood of future exchanges" (Fichman and Levinthal 1991a, p. 125).

Boundary spanners are those individuals who have contacts between organizations and play a significant role in the continuance of the relationship between the organizations beyond just the economic consequences of a set of transactions. These personal relations across the boundaries of organizations exert pressures both collectively at the organizational level and individually for conformity to expectations (Macaulay, 1963). While nominally and analytically separated, relations between organizations cannot easily be divorced from the relations that exist between individuals within these organizations. Organizational relations also tend to reflect the entire history between the organizations. In addition, the strength of interpersonal and interorganizational attachment is expected to grow when relationship specific skills are necessary to adequately perform the tasks required. For example, when specialized knowledge or skill sets are needed which may be specific to a particular organization then significant investment is required at the personal and the organizational level in the relationship.

Our interest is whether the attachments that develop over time affect the conversion process back to a clean opinion. While there have been many studies examining the auditor's decision process in making going concern judgments (Mutchler, 1984, 1985, 1986; Bell and Tabor, 1991), we found only two studies that examined the conversion process back to a clean opinion. Because previous surveys suggested numerous errors in the issuance of going concern opinions (as much as 75 percent of the time), Nogler (1995) examined whether auditors were successful in signaling impending bankruptcies. Instead of a preponderance of errors, he found that two-thirds of the time the going concern opinions were followed by dissolution or bankruptcy filing. In addition, Nogler, while validating the predictive usefulness of going-concern and bankruptcy prediction models in predicting successful going concern resolution, he found using a model that includes measures of default risk to be most accurate in predicting successful going concern resolution. Louwers *et al.* (1999) examined the "self-fulfilling prophecy effect" of the issuance of going concern opinions using DTSA and found that the risk of bankruptcy was highest in the first year after its issuance and that thereafter this risk decreased significantly each year. As previously mentioned, studies examining the effect of audit tenure on audit quality (Carcello and Nagy, 2004; Myers *et al.*, 2003; Geiger and Raghunandan, 2002a, b) have used other measures of audit quality.

Our focus is on the likelihood of conversion from a qualified opinion to an unqualified opinion. Attachment theory suggests that greater personal and organizational attachments will be associated with shorter conversion times to an unqualified opinion. There are two competing interpretations of relationships affecting the opinion decisions – one suggesting greater understanding of the client and the other implying a reduction of audit quality. Mutchler (1984) indicates that intimate knowledge gained from association with a client allows the auditor to make more insightful decisions. Auditors who know their client well are more likely to understand when a material uncertainty no longer poses a threat to the ability of that company to

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continue as a going concern prior to this being evident in the financial statements. However, auditors with strong relationships with their clients may give their clients the benefit of the doubt or may be concerned about the loss of the client, thereby reflecting a degradation of independence and professionalism. Both alternatives are possibilities. Previous audit tenure research has found support for both interpretations, though several recent tenure studies appear to indicate a positive relationship between audit tenure and audit quality (in the USA).

By evaluating a sample of companies who received initial "subject to" qualified opinions (pre-SAS 58) we are able to evaluate two separate types of opinion decisions: those related to going concern and those related to other material uncertainties (e.g. litigation, asset valuation, etc.), where the difference between these opinion decisions is the degree of auditor judgment required. For going concern opinions, the auditor has to make a judgment as to the point when the uncertainty over a company's ability to continue as a going concern has waned sufficiently to remove the issue from the audit report. In comparison, the removal of opinions citing pending litigation or asset valuation issues relies to a much greater extent on readily available facts (i.e. litigation settlement or asset sale). In fact, the rationale behind SAS No. 79 was that disclosure of these non-going concern uncertainties falls under the auspices of SFAS No. 5 (accounting for uncertainties) and should not be disclosed in the opinion, but in the notes to the financial statements subject to the criteria set forth in SFAS No. 5. Conversely, the profession continues to issue guidance to aid auditors in evaluating going concern uncertainties (i.e. SAS 34, 59, 79). Presumably, the auditing standards board felt it necessary to provide the profession additional guidance to help auditors formulate sound judgments when confronted with such a difficult to evaluate form of uncertainty. Our first research question, then, examines the hypothesized differential impact of relationship variables on the two data samples: going concern sample and the non going concern sample. The purpose of this test is to examine the possible vulnerability of auditor decisions that rely on auditor's judgment:

RQ1. Models examining the likelihood of a company having a qualified opinion removed will be significant for the going concern sample and not significant for the non-going concern sample.

Assuming that we are able to support our first research question, we will look at the impact of individual measures of the strength of the auditor/client relationship. These tests will examine only the going concern sample. The models will include a series of control variables that might otherwise explain the removal of the going concern opinion, including the client's financial distress level, type of auditor, growth, management ownership percentage, and change in debt level. Our expectation is that stronger interpersonal and interorganizational attachments will be associated with greater likelihood of conversion to an unqualified opinion. We examine two research questions:

RQ2. After receiving a qualified opinion, the stronger the interpersonal attachments between primary boundary spanners in an auditor-client relationship the greater the likelihood a company will receive an unqualified opinion.

RQ3. After receiving a qualified opinion, the stronger the interorganizational attachments between the auditor firm and client the greater the likelihood a company will receive an unqualified opinion.

Method

Sample selection

We selected companies that received a first-time "subject to" uncertainty qualification between 1983 and 1987 (all pre-SAS Nos. 58 and 59) that also continued in existence and continued to file public statements with the SEC. The final sample of 337 company-years is broken into two separate samples: 190 company-years in the going-concern sample and 147 company-years in the non-going concern sample. These samples reflect the sum of the risk sets for all years examined. The risk set consists of those companies included in the sample that have yet to experience the event of interest (i.e. receive an unqualified audit opinion following the receipt of a first-time audit report uncertainty qualification) as of the beginning of the period being examined.

In addition to maximizing the event history to be analyzed while assuring the first-time qualifications were issued under the same standard (SAS 34), the data time frame appears free from macroeconomic, legislative and other environmental factors that may otherwise affect the likelihood that a company will have its qualification removed. Because there is contradictory evidence regarding the impact of SAS 59 on the likelihood of receiving a going concern opinion (Carcello et al., 1995; Raghunandan and Rama, 1995), we include a control for the post-SAS 59 time period (see discussion on control variables).

At a minimum, to be included in the sample, the company must have information available in the three-year period from the year prior to the first-time qualification (year t_{Q-1}) to the year subsequent to the first-time qualification (year t_{Q+1}). The sample was collected from the 1983 through 1987 files of the National Automated Accounting Research System (NAARS) database[4],[5] The database contains the annual reports of over 4,000 publicly traded companies since 1972. A sequential selection process was used as summarized in Table I. To qualify as a first-time qualification, sample companies had to have received an unqualified opinion for five years prior to receiving the uncertainty qualification. Those companies were excluded who:

- did not receive a "subject to" qualified opinion during the target period;
- received a qualified opinion in the target period but also had received a qualified opinion in the preceding five years;
- were classified as utilities or banks/financial institutions; or
- did not have data available for the minimum time from year t_{Q-1} to year t_{Q+1}, with year t_Q being the year of the first time qualification.

Though these restrictions for inclusion in the sample are severe, a strict standard is useful in identifying those firms receiving first time audit qualifications.

Variable selection

Using archival data to measure behavioral constructs necessitates the use of proxies to measure the underlying behavioral relationships (Seabright et al., 1992). As shown in Table II, we have three categories of variables, i.e. control variables, interpersonal attachment variables, and interorganizational attachment variables.

Table II provides descriptive statistics measured in year t_Q (the year of the initial qualification) between the 63 (54.8 percent) companies that received going concern qualifications to the 52 (45.2 percent) companies that received non-going concern

Sample selection steps	Total	Year of first-time qualification				
		1983	1984	1985	1986	1987
Companies in NAARS database files	20,840	4,000	4,218	4,220	4,201	4,201
Less: companies without subject-to opinions	(19,358)	(3,723)	(3,925)	(3,909)	(3,879)	(3,922)
Less: non-first-time qualifications[a]	(947)	(184)	(180)	(186)	(201)	(196)
Less: companies with SIC codes in the 4,000 and 6,000 series[b]	(144)	(29)	(29)	(31)	(31)	(24)
Less: companies for whom data was not available for all periods examined	(276)	(45)	(59)	(65)	(63)	(44)
Companies in final sample	115	19	25	29	27	15
Going concern companies	63	8	15	18	15	7
Non-going concern companies	52	11	10	11	12	8
	115	19	25	29	27	15

Notes: The purpose of the sample selection process was to identify firms that had received a first-time; uncertainty qualification (all are pre-SAS 58) and where, at least, all variables could be measured; in the three-year period from the year prior to receiving the qualification to the year subsequent to receiving the qualification. [a]For a company to qualify as a "first-time" qualification, the company must have received unqualified opinions for the previous five years; [b]Similar to most studies, this sample does not include utilities (4,000 series) and banks/financial institutions (6,000 series) because the reporting requirements of these highly regulated companies is different from other industrial companies

Table I.
Sample selection process

Table II.
Descriptive statistics

	Total receiving going concern	Total receiving non-going concern	t-test[a] (p-value)
Number of companies	63	52	
Size (total assets in thousands)	$329,511	$1,015,145	0.3533
Control variables[b]			
BASE_CH (change in financial distress from t_{-1})	1.2382	0.7397	0.3004
TYPE_AUD (percent with big eight/six auditors)	82.53 percent	86.54 percent	0.5610
GROWTH (percent growth of total assets)	−11.76 percent	8.42 percent	0.0046
MGT_OWN (percent of management ownership)	23.94 percent	20.49 percent	0.3367
DEBT_DIFF (Change in Debt Level from t_{-1})	$ − 4,595	$166,187	0.3778
Interpersonal attachment variables			
RELATION (years)	4.44	4.57	0.8881
LONG RELATION (percent with RELATION ≥ five years)	36.51 percent	34.62 percent	0.8348
SHORT RELATION (percent with RELATION ≤ three years)	55.56 percent	61.54 percent	0.5215
CEO _CHANGE (percent with recent CEO change)	46.03 percent	40.38 percent	0.5473
CFO_CHANGE (percent with recent CFO change)	26.98 percent	25.00 percent	0.8114
Interorganizational attachment variables			
LONG_TENURE (percent with auditor tenure ≥ five years)[c]	66.67 percent	65.38 percent	0.8863
SHORT_ TENURE (percent with auditor tenure ≤ three years)[c]	22.22 percent	26.92 percent	0.5628
NUM_SUB (number of subsidiaries)	7.73	7.06	0.7823
FORN_SUB (percent with foreign subsidiaries)	26.98 percent	36.54 percent	0.8519

Notes: All amounts were calculated in the year of the initial qualification, t_Q; [a]the t-test compares variable amounts for all companies that received going concern qualifications (63) to those that received a "subject to" opinion for reasons other than going concern (i.e. pending litigation, asset valuation, etc.) (52); [b]in year t_Q, BASE_CH (change in financial distress in the current year to the base year) and CURR_CH (change in financial distress from the current year to the previous year) are the same value; that is, the difference between the Zmijewski financial distress measure in t_Q and t_{Q-1}. We include in our analysis a control variable SAS58 which indicates the change in audit opinion due to SAS 58. Because the sample was selected pre_SAS 58, this variable would be the same for the entire sample in year t_Q; [c]the average auditor tenure for going concern companies was 9.06-10.19 years for non-going concern companies, p-value of difference is 0.5756

qualifications. Among the control variables, the only significant difference found was rate of growth. No significant differences in the descriptive mean rates were found for the attachment variables. In addition, a non-significant difference was found when size of the firms in the sample was compared.

Interpersonal attachment
One of the primary boundary spanners within an auditor-client relationship is the client's chief executive officer (CEO). The CEO position was selected because of its use in prior literature and its importance in evaluating a client's integrity, its importance in evaluating strategic plans, and its overall impact on the client-auditor relationship. Consistent with Seabright *et al.* (1992), this study measures individual attachment by the number of years where the CEO and the audit firm have worked together in that capacity (RELATION). Because we believe the impact of this variable may be non-linear, we run additional models transforming the number of years in two ways[6]. We create a dichotomous variable (SHORT RELATION) measuring a short relationship (three years or less = 1) versus a non-short relationship (greater than three years = 0). The assumption is that in a short relationship, the auditor is less likely to know the client and may be cautious in being willing to remove the going concern language from the opinion (i.e. negative relationship). We also create a second dichotomous (LONG RELATION) variable measuring a long relationship (greater than five years = 1) versus a non-long relationship (less than or equal to five years = 0). The assumption is that the longer the personal relationship between the CEO and the audit firm, the more knowledge and insight of the CEO the audit firm has, and as a result the greater the likelihood of issuing an unqualified opinion (i.e. positive relationship). Separate models were run with each of these variable transformations. Finally, we examine CEO tenure separate from auditor tenure. Because we believe the impact of CEO tenure to be non-linear, we transform the CEO tenure to indictate whether a recent change has occurred; that is, using a dichotomous variable with 1 indicating a recent change in CEO, 0 otherwise (CEO_CHANGE). We expect if a recent change in CEO has occurred, the attachment is weaker, decreasing the likelihood of the auditor removing the qualified opinion (i.e. negative relationship).

In addition, to the CEO position, we also examine whether changes in the chief financial officer (CFO) impact the removal of the qualification. The CFO is often one of the primary boundary spanners communicating with the auditors; consequently, Seabright *et al.* (1992) and Fichman and Levinthal (1991b) employ CFO tenure in their analyses. Although we did not have information available to accurately determine the CFO tenure for the entire sample, we were able to determine if there was a recent change in CFO (CFO_CHANGE). Our expectation is that a recent change in CFO will have a negative impact on the likelihood of subsequently issuing an unqualified opinion.

Auditor tenure – relationship based interorganizational attachment. Seabright *et al.* (1992, p. 136) measure organizational relationships in an auditor client relationship as "the number of consecutive years that an incumbent auditor had provided an independent assessment of a client's financial statements". Contrary to the Seabright *et al.* (1992) study, we believe that auditor tenure, however measured, does not exclusively proxy interorganizational attachment. Interpersonal attachment does not exist outside of an ongoing interorganizational relationship. If the relationship

dissolves, so does all existing attachment, be it interpersonal or interorganizational. However, to be consistent with the literature, we classify auditor tenure as a measure of interorganizational attachment. Consistent with Carcello and Nagy (2004) we believe that the impact of auditor tenure is non-linear. As such we create two transformations of the auditor tenure variable: short auditor tenure versus non-short auditor tenure and long auditor tenure versus non-long auditor tenure.

The short auditor tenure transformation (SHORT_TENURE) evaluates the impact of a fairly recent change (within three years) in auditor by the client on the likelihood with which the auditor converts a first-time audit report qualification to an unqualified report. The assumption is that a recent change in auditor by clients will negatively affect the likelihood of converting a first-time qualified reports to a clean opinions. While financially stressed firms may switch auditors (Menon and Schwartz, 1987), studies have not found that companies switching auditors have gained an advantage in conversion to a clean opinion (Krishnan, 1994; Krishnan and Stephens, 1995; Geiger et al., 1998).

The long auditor tenure transformation (LONG_TENURE) is based on the assumption that longer auditor tenure (five years or greater) leads to stronger relationships between a client and an auditor; the stronger the relationship the greater the knowledge and insight of the client gained by the auditor, which increases the likelihood that the auditor will give an unqualified opinion sooner than would otherwise be the case.

Both measures examine the effects of auditor tenure on the likelihood of conversion to a clean opinion, but uses a different perspective with a resulting difference in the expected sign of the relationship. While LONG_TENURE is expected to increase the likelihood of conversion to an unqualified opinion, SHORT_TENURE is expected to negatively affect the likelihood of conversion.

Non-relationship based interorganizational attachment. Interorganizational attachments reflect the ties between organizations apart from interpersonal relationships and create relationship inertia. Often, this inertia stems from either or both members of an organizational relationship acquiring relationship specific knowledge. The value of this knowledge can lead to efficiencies in the work being performed, cost savings, and to continuity of the relationship (Williamson, 1979; Cook, 1977). Within the context of an audit, Seabright, *et al.* (1992) and Fichman and Levinthal (1991b) suggest the more difficult the audit, the greater likelihood of relationship specific knowledge being exchanged. Interorganizational attachment is expected to increase the greater the exchange of relationship specific knowledge. We use two measures of audit difficulty that have been used in the literature: number of subsidiaries and existence of foreign subsidiaries[7]. Audit difficulty is presumed to increase with the number of subsidiaries and with the presence of foreign subsidiaries, increasing interorganizational attachments between the client and the auditor and thereby improving the likelihood of conversion to an unqualified opinion.

Alternatively, interpreting these variables from an auditors' prespective yields a competing hypothesis. From an auditor's perspective, more complex audits are viewed as more risky. Therefore, if the audit firms' risk assessment is higher, the likelihood of removing a going concern opinion would decrease; and we would expect a negative relationship between these variables and the likelihood of the going concern opinion being removed. Because of these competing hypotheses, we do not make any a priori expectation on the sign of these variables. We include these variables in each of the models.

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Control variables. The auditor switching literature indicates a number of variables that could affect the auditor/client relationship. We included these variables in the analysis as control variables in that they provide alternative explanations to the variables of interest (interpersonal and interorganizational attachments) of the change in the dependent variable, i.e. the likelihood of conversion from a qualified opinion to an unqualified opinion. The control variables we included are: type of CPA firm, growth rate, management ownership, change in debt level and two measures of financial distress. In addition, we included a variable for SAS Nos. 58 and 59 (AICPA, 1988a, b) to check whether the change in the format of the audit report and guidance on the testing for going concern problems had an effect on the findings.

Type of CPA firm. The size of the audit firm (big 8/6 versus non-big 8/6) has been used as a measure of audit quality. It is assumed that larger accounting firms are less susceptible to management pressure because a smaller percentage of total fees are represented by a single client (DeAngelo, 1981). Mutchler (1986, p. 163) found "non-Big Eight firms tend to not qualify smaller companies given similar levels of financial distress." Thus, the size of the audit firm (TYPE_AUD) could indicate how the audit firm relates to their clients in opinion decisions.

Growth rate. Many studies have used the growth of a company's assets to aid in the explanation of auditor changes (Francis and Wilson, 1988; Williams, 1988; and Haskins and Williams, 1990). The theory suggests that growing companies are more likely to require a larger auditor as they mature and, therefore, are more likely to change auditors. Seabright *et al.* (1992) suggest that growth measures the degree that resource requirements between exchange partners might be changing, which would lead to a dissolution of the relationship. Growth (GROWTH) may affect the decision to qualify directly (as a company grows so does its financial stability) and indirectly (as the auditor-client relationship changes so may the timing and form of the opinion issued).

Management ownership. In cases where management owns a greater percentage of common stock, the costs of qualified opinions may weigh heavier on management given that they usually have some power to influence the board of directors to change auditors (Pincus *et al.*, 1989). Therefore, one could infer that the auditor/client relationship is likely different depending on the percentage of stock owned by management (MGT_OWN).

Change in debt level. Nogler (1995) includes in his model examining the resolution of going concern opinions variables examining the default risk of a company, using a variable from Chen and Church (1992) indicating whether a company's debt was in default and another variable indicating significant debt restructurings. We attempt to capture the default risk by examining the changing level of debt held by each company relative to the level it held prior to receiving a first-time qualified opinion. To measure this we compare the current level of debt to that level in year t_{Q-1}. We use year t_{Q-1}, the year prior to the first-time qualification, as a baseline level of debt for each company. As the level of debt increases (decreases) from the baseline, so to does the default risk increase (decrease). As such, we expect this variable to have a negative relationship; the higher (lower) the default risk, the lower (higher) the likelihood the auditor will remove the qualification/modification from the opinion.

Financial distress measures. We calculate the yearly financial distress levels of firms included in the sample. Several previous studies have developed audit qualification prediction models (Bell and Tabor, 1991; Menon and Schwartz, 1987;

Koh and Killough, 1990; Koh, 1991; McKeown *et al.*, 1991; Dopuch *et al.*, 1987) using financial ratios and changes in financial ratios as the primary determinant of the likelihood of receiving an audit qualification[8]. Because financial variables have frequently been used as predictors of qualified audit reports and could potentially fully explain the likelihood of conversion to a clean opinion, we use them as control variables. The likelihood of conversion is expected to increase as the financial distress level of the firms goes down.

Similar to Haskins and Williams (1990) and Geiger *et al.* (1996), in this study we utilize the Zmijewski (1984) financial distress model as an indicator of the financial condition of sample companies in each period. However, unlike those studies, we use two separate measures of changing financial condition in the analysis: annual changes in financial distress and the distance from a baseline financial distress threshold (where a separate threshold is determined for each company). Opinion decisions are firm specific and we incorporate this fact into our financial distress measures. Simply using the level of financial distress would necessarily assume the distress measures are comparable across companies and that audit firms incorporate generic thresholds and not client specific thresholds in evaluating a client's financial condition. As such, our financial distress measures compare the level of financial distress in the current year, to the level of distress:

- the last time the company received an unqualified opinion (year t_{Q-1}) (BASE_CH); and
- in the previous year (CURR_CH).

The higher the Zmijewski financial distress measure, the higher the financial distress. Thus, if the level of financial distress increases, the change in financial distress will be positive. We therefore expect a negative relationship between the two measures of financial distress and the likelihood of the qualification/modification being removed. That is, as a company's level of financial distress increases (decreases), the less (more) likely an auditor will remove the qualification/modification.

SAS 58 and 59. Also, we include an additional variable due to changes in the audit report. Two SASs, i.e. Nos. 58 and 59, both of which were issued in April 1988, resulted in a change in the type and form of audit report. Prior to these SASs, "subject-to" qualified audit opinions were issued for "going-concern" and for other types of uncertainties. After their issuance, the criteria for issuing audit opinions as well as their form and content concerning uncertainties changed. The "subject to" qualification for uncertainties was eliminated, and for "going-concern" clients an explanatory paragraph following the opinion paragraph was added discussing the reasons for the "going-concern" modification of a clean opinion.

Since, our sample was taken from 1983 to 1987, or pre-SAS Nos. 58 and 59, the change in audit report form and type does not affect the rendering of the qualified opinion, but may affect the reversal to an unqualified opinion of some of the companies, whose reversal period may extend from one to eight years after the rendering of a qualified opinion. Including the reversal period, the entire study period covers from 1983 to 1995. To make the audit reports equivalent before and after these SASs, we treated both pre-SAS Nos. 58 and 59 "subject to" qualified opinions and post-SAS Nos. 58 and #59 "going-concern" modification to the audit report as qualifications of the financial statements. From a real world perspective this approach makes sense

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since a significant qualifier has been added to a technically unqualified audit report. The technical change in the form of the audit report was made in order to assist the client in meeting the SEC's requirement of receiving an unqualified opinion, and also because of ambiguity by users in interpreting "subject-to" opinions, which brought about lawsuits. As a result, the auditing standards board changed the form of expressing these uncertainties, though their substance remains very significant for the client, the auditor, and the market. Studies have found that the public views any failure to issue a going concern modification before bankruptcy of the client as an audit failure despite the change in report format (Chen and Church, 1992; Casterella *et al.*, 1999). To check to see if changing the form of the audit report affected the dependent variable, we include a variable indicating those opinions issued under pre-SAS Nos. 58 and 59 and post SAS Nos. 58 and 59 guidance (SAS58).

Method of estimation
To test the research questions, the study employs DTSA, a form of event history analysis[9]. For a detailed discussion of DTSA, see Louwers *et al.* (1999). The models run to test the hypotheses in their logit form is as follows:

$$\log\left[\frac{h_{it}}{1 - h_{it}}\right] = \alpha_t + S'\mathbf{C}_{it} + B'\mathbf{T}_{it}$$

where: h_{it} = hazard rate for company i having its qualification removed in time t, α_τ = set of time dummy variables, S' = vector of estimate coefficients on control variables, B' = vector of estimate coefficients on test variables, $\mathbf{C}$ = vector of control variables, $\mathbf{T}$ = vector of test variables.

Results
Going concern vs non going concern
The *RQ1* tests whether there is a significant difference in the likelihood of conversion to a clean opinion between the going concern and the non-going concern samples. Because of differences in the level of professional judgment involved, our expectation is that significant improvement over the baseline model should occur for the going concern sample but not for the non-going concern sample. Table III provides the results of this test.

Panel A of Table III shows that both baseline models are significant at the 0.01 level. However, panel B of Table III indicates that none of the non going concern sample models that include an additional relationship variable yield an improvement over the baseline model at the 0.05 level. In contrast, five of the seven models in the going concern sample yield significant improvement over the baseline model at the 0.05 level. As such, we conclude that for the going concern sample (i.e. higher auditor judgment), the strength of the auditor/client relationship provides additional explanatory value in the opinion qualification/modification removal decision.

Interpersonal attachment
We use five different measures of interpersonal attachment: RELATION, LONG RELATION, SHORT RELATION, CEO_CHANGE, and CFO_CHANGE. These results are summarized in Tables IV and V.

Measure of relationship[a]	Going concern sample χ^{2b}	p-value	Non going concern sample χ^{2b}	p-value
Panel A: significance of baseline model				
Baseline model	115.8835	<0.0001	35.2935	0.0013
Panel B: significance of models with additional relationship variable				
RELATION	4.890	0.0270	0.627	0.4285
LONG RELATION	3.839	0.0500	0.001	0.9748
SHORT RELATION	12.355	0.0004	0.003	0.9563
LONG TENURE	14.356	0.0002	0.474	0.4912
SHORT TENURE	3.794	0.0514	3.589	0.0582
CEO_CHANGE	11.444	0.0007	2.176	0.1402
CFO_CHANGE	2.370	0.1237	0.664	0.4152

Notes: [a]models run: AUDIT_OPINION $= \alpha_t + C_{it} + T_{it}$, where α_t: set of time dummy variables; C_{it}: set of control variables; T_{it}: includes the test variable in the table. AUDIT_OPINION is 1 if unqualified, 0 otherwise (i.e. remains qualified); [b]the significance of the baseline model is from a global χ^2. The baseline model is: AUDIT_OPINION $= \alpha_t + C_{it}$. For the models with additional relationship variables, the χ^2 test compares the -2 Log Likelihood ($-2LL$) of the full model to a base model. The resulting change in $-2LL$ is distributed as a χ^2 with degrees of freedom equal to the difference in variables between the models. In this case, the degrees of freedom is equal to one. The set of control variables (C_{it}) consists of the following: BASE_CH: change in financial distress from year t_{Q-1}; CURR_CH: change in financial distress from previous year; SAS58: Pre/Post SAS 58; TYPE_AUD: type of auditor (big 6/4 vs non big 6/4); GROWTH: growth of total assets; MGT_OWN: percentage of management ownership; DEBT_DIFF: difference in debt from year t_{Q-1}, the set of test variables (T_{it}) consist of the following: RELATION: time period both auditor and CEO have worked in that capacity; LONG RELATION: 1 if relation is greater/equal to five years, 0 otherwise; SHORT RELATION: 1 if relation is shorter/equal to three years, 0 otherwise; LONG TENURE: 1 if auditor tenure is greater/equal to five years, 0 otherwise; SHORT TENURE: 1 if auditor tenure is shorter/equal to three years, 0 otherwise; CEO_CHANGE: 1 if recent change in CEO, 0 otherwise; CFO_CHANGE: 1 if recent change in CFO, 0 otherwise

Table III.
Model significance between going concern sample and non going concern sample

RELATION measures the number of years where the CEO and the audit firm had worked together in that capacity. It is expected that as RELATION increases (i.e. attachment gets stronger), the likelihood that an auditor will remove the going concern qualification/modification from the audit opinion will increase. In Table IV, it shows that RELATION has a positive relationship (parameter estimate 0.1573) and is significant with a p-value of 0.0222.

Because of the concern that the impact of RELATION might not be linear, we created two transformations of this variable: LONG RELATION and SHORT RELATION. For LONG RELATION, the variable is equal to 1 if RELATION is greater than or equal to five years, 0 otherwise. We would expect that longer relationships would increase the likelihood that the going concern qualification/modification would be removed. In Table IV, it shows that LONG RELATION has a positive relationship (parameter estimate 0.9169) and is significant with a p-value of 0.0422.

For SHORT RELATION, the variable is equal to 1 if RELATION is less than or equal to three years, 0 otherwise. We would expect that shorter relationships would decrease the likelihood that the going concern qualification/modification would be removed (i.e. negative relationship). In Table IV, it shows that SHORT RELATION has a negative relationship (parameter estimate -1.6902) and is significant with a p-value of 0.0008.

Variables	Auditor/CEO relationship Parameter estimate	Wald χ^2 p-value	Long auditor/CEO relationship [a] Parameter estimate	Wald χ^2 p-value
Expected sign				
Year dummy variables				

Expected sign	Variables	Auditor/CEO relationship		Long auditor/CEO relationship [a]	
		Parameter estimate	Wald χ^2 p-value	Parameter estimate	Wald χ^2 p-value
Year dummy variables					
None	Year Q + 1	− 1.8269	0.0126	− 1.6254	0.0230
None	Year Q + 2	− 3.1811	0.0005	− 2.9227	0.0010
None	Year Q + 3	− 2.4166	0.0094	− 2.1790	0.0155
None	Year Q + 4	− 2.0813	0.0413	− 1.8751	0.0580
None	Year Q + 5	− 1.9337	0.0737	− 1.7749	0.0935
None	Year Q + 6	− 4.1267	0.0126	− 3.9202	0.0174
None	Year Q + 7	2.1816	0.1974	2.4340	0.1412
Control variables					
−	BASE_CH	− 0.5721	0.0001	− 0.5530	0.0001
−	CURR_CH	− 0.0662	0.2204	− 0.0607	0.2359
None	SAS58	− 0.7839	0.2108	− 0.8000	0.1978
+	TYPE_AUD	1.5184	0.0126	1.5861	0.0098
None	GROWTH	0.1426	0.7778	0.1849	0.7135
None	MGT_OWN	0.0029	0.8169	0.0044	0.7226
−	DEBT_DIFF	− 0.1291	0.0035	− 0.1256	0.0040
Non-relationship based interorganizational variables					
None	NUM_SUB	− 0.0426	0.0714	− 0.0406	0.0782
None	FORN_SUB	0.4997	0.4120	0.6315	0.2831
Interpersonal relationship variables					
+	RELATION	0.1573	0.0222		
+	LONG RELATION			0.9169	0.0422
Change in − 2LL (χ^2)[b]			9.009		7.95
Degrees of freedom			3		3
p-value			0.0292		0.0471
		Short auditor/CEO relationship [c]			
Year dummy variables					
None	Year Q + 1	− 0.1775	0.8244		
None	Year Q + 2	− 1.6787	0.0711		
None	Year Q + 3	− 1.0047	0.2913		
None	Year Q + 4	− 0.5949	0.5743		
None	Year Q + 5	− 0.4265	0.6998		

(continued)

Table IV.
Models using
auditor/CEO relationship
duration as measure of
auditor/client
relationship strength

Table IV.

Expected sign	Variables	Short auditor/CEO relationship [c]	
Year dummy variables			
None	Year Q + 6	− 2.4839	0.1415
None	Year Q + 7	4.1284	0.0547
Control variables			
−	BASE_CH	− 0.6300	0.0001
−	CURR_CH	− 0.0634	0.2264
None	SAS58	− 0.8884	0.1777
+	TYPE_AUD	1.6636	0.0081
None	GROWTH	0.2572	0.6183
None	MGT_OWN	0.0003	0.9817
−	DEBT_DIFF	− 0.1428	0.0018
Non-relationship based interorganizational variables			
None	NUM_SUB	− 0.0441	0.0720
None	FORN_SUB	0.4833	0.4359
Interpersonal relationship variables			
−	SHORT RELATION	− 1.6902	0.0008
Change in − 2LL (χ^2)[d]			16.364
Degrees of freedom			3
p-value			0.0010

Notes: [a]Models run: AUDIT_OPINION = $\alpha_t + C_{it} + T_{it}$, where α_t: set of time dummy variables; C_{it}: set of control variables; T_{it}: includes the test variables in the table. AUDIT_OPINION is 1 if unqualified, 0 otherwise (i.e. remains qualified). The set of control variables (C_{it}) consists of the following: BASE_CH: change in financial distress from year t_{Q-1}; CURR_CH: year; SAS58: pre/post SAS 58; TYPE_AUD: type of auditor (big 6/4 vs non big 6/4); GROWTH: growth of total assets; MGT_OWN: percentage of management ownership; DEBT_DIFF: difference in debt from year t_{Q-1}; NUM_SUB: number of subsidiaries; FORN_SUB: existence of foreign subsidiaries. The test variables (T_{it}) consist of the following: NUM_SUB: number of subsidiaries; FORN_SUB: 1 if company had a foreign subsidiary, 0 otherwise; RELATION: time period both auditor and CEO have worked in that capacity; LONG RELATION: 1 if relation is greater/equal to five years, 0 otherwise. [b]the χ^2 test compares the − 2 Log Likelihood (− 2LL) of the full model to a base model. The resulting change in − 2LL is distributed as a χ^2 with degrees of freedom equal to the difference in variables between the models; [c]models run: AUDIT_OPINION = $\alpha_t + C_{it} + T_{it}$, where α_t: set of time dummy variables; C_{it}: set of control variables; T_{it}: includes the test variables in the table. AUDIT_OPINION is 1 if unqualified, 0 otherwise (i.e. remains qualified). The set of control variables (C_{it}) consists of the following: BASE_CH: Change in Financial Distress from Year t_{Q-1}; CURR_CH: Change in Financial Distress from Previous Year; SAS58: Pre/Post SAS 58; TYPE_AUD: type of auditor (Big 6/4 vs non Big 6/4); GROWTH: growth of total assets; MGT_OWN: percentage of management ownership; DEBT_DIFF: difference in debt from year t_{Q-1}; NUM_SUB: number of subsidiaries; FORN_SUB: existence of foreign subsidiaries. The test variables (T_{it}) consist of the following: NUM_SUB: number of subsidiaries; FORN_SUB: 1 if company had a foreign subsidiary, 0 otherwise; SHORT RELATION: 1 if relation is shorter/equal to three years, 0 otherwise; [d]the χ^2 test compares the − 2 Log Likelihood (− 2LL) of the full model to a base model. The resulting change in − 2LL is distributed as a χ^2 with degrees of freedom equal to the difference in variables between the models

Expected sign	Variables	Recent change in CEO		Recent change in CFO	
		Parameter estimate	Wald χ^2 *p*-value	Parameter estimate	Wald χ^2 *p*-value
Year dummy variables					
None	Year Q + 1	− 0.4982	0.5264	− 1.4406	0.0457

Expected sign	Variables	Recent change in CEO		Recent change in CFO	
		Parameter estimate	Wald χ^2 p-value	Parameter estimate	Wald χ^2 p-value
Year dummy variables					
None	Year Q + 1	−0.4982	0.5264	−1.4406	0.0457
None	Year Q + 2	−2.1390	0.0177	−2.9242	0.0012
None	Year Q + 3	−1.5834	0.0838	−2.1182	0.0196
None	Year Q + 4	−1.2768	0.2117	−1.6178	0.0973
None	Year Q + 5	−0.8345	0.4439	−1.5399	0.1505
None	Year Q + 6	−3.2011	0.0572	−3.8163	0.0264
None	Year Q + 7	3.2022	0.0710	2.3526	0.1435
Control variables					
−	BASE_CH	−0.6430	0.0001	−0.5566	0.0001
−	CURR_CH	−0.0730	0.1952	−0.0765	0.1940
None	SAS58	−0.8421	0.1878	−0.8000	0.1921
+	TYPE_AUD	1.7545	0.0062	1.7897	0.0056
None	GROWTH	0.3344	0.5060	0.2643	0.5893
None	MGT_OWN	0.0009	0.9432	0.0085	0.5003
−	DEBT_DIFF	−0.1677	0.0010	−0.1185	0.0053
Non-relationship based interorganizational variables					
None	NUM_SUB	−0.0416	0.0880	−0.0423	0.0569
None	FORN_SUB	0.5025	0.4023	0.9110	0.1079
Interpersonal relationship variables					
−	CEO_CHANGE	−1.6762	0.0018		
−	CFO_CHANGE			−0.9068	0.0496
Change in −2LL (χ^2)[a]			14.964		7.851
Degrees of Freedom			3		3
p-value			0.0018		0.0492

Notes: Model run: AUDIT_OPINION $= \alpha_t + C_{it} + T_{it}$, where α_t: set of time dummy variables; C_{it}: set of control variables; T_{it}: includes the test variables in the table. AUDIT_OPINION is 1 if unqualified, 0 otherwise (i.e. remains qualified). The set of control variables (C_{it}) consists of the following: BASE_CH: change in financial distress from year t_{Q-1}; CURR_CH: change in financial distress from previous year; SAS58: pre/post SAS 58; TYPE_AUD: type of auditor (big 6/4 vs non big 6/4); GROWTH: growth of total assets; MGT_OWN: percentage of management ownership; DEBT_DIFF: difference in debt from year t_{Q-1}; NUM_SUB: number of subsidiaries; FORN_SUB: existence of foreign subsidiaries. The test variables (T_{it}) consist of the following: NUM_SUB: number of subsidiaries; FORN_SUB: 1 if company had a foreign subsidiary, 0 otherwise; CEO_CHANGE: 1 if recent change in CEO, 0 otherwise; and CFO_CHANGE: 1 if recent change in CFO, 0 otherwise; [a]the χ^2 test compares the -2 Log Likelihood (-2LL) of the full model to a base model. The resulting change in -2LL is distributed as a χ^2 with degrees of freedom equal to the difference in variables between the models

Table V.
Models using change in CEO and change in CFO as measure of auditor/client relationship strength

CEO_CHANGE is a dichotomous variable indicating whether the sample company year had experienced a recent change in its CEO. In this context, a change was considered recent if it occurred in a three year window. We would expect that since the auditors would have less of a history of working with this particular CEO, they would be less likely to be willing to remove a going concern qualification/modification as compared to a CEO with which they had a long working relationship. In Table V, it shows that CEO_CHANGE has a negative relationship (parameter estimate -1.6762) and is significant with a p-value of 0.0018.

CFO_CHANGE is a dichotomous variable indicating whether the sample company has experienced a recent change in its CFO. In this context, a change was considered recent if it occurred in a two year window. Similar to CEO_CHANGE, we expect that since the auditors have less of a working history with a particular CFO, they would be less likely to be willing to remove a going concern qualification/modification as compared to a CFO with which they had a long working relationship. In Table V, it shows that CFO_CHANGE has a negative relationship (parameter estimate -0.9068) and is significant with a p-value of 0.0496.

These results indicate that individual attachments can have an effect upon auditor's judgments in the decision by an auditor to remove a going concern qualification/modification from the audit opinion. Each of the five variables measuring the impact of interpersonal attachments is significant at least at the 0.05 level, two of the five at the 0.01 level.

Relationship based interorganizational attachment

Much of the existing literature focuses solely on auditor tenure as a measure of the strength of the auditor/client relationship. Within the context of attachment theory, auditor tenure has been used as a measure of the interorganizational relationship (Seabright *et al.*, 1992). Further, recently Carcello and Neal (2003) and Carcello and Nagy (2004) suggest that the impact of auditor tenure may be non-linear. As such, we transform the auditor tenure measure in two ways: LONG_TENURE and SHORT_TENURE. Table VI shows the results of our models using each of these variables.

LONG_TENURE is a dichotomous variable indicating whether the auditor tenure has reached a minimum number of years. Specifically, it is equal to 1 if the auditor tenure is equal to or greater than five years, 0 otherwise. We would expect that longer auditor tenure would increase the likelihood that the going concern qualification/modification would be removed. In Table VI, it shows that LONG_TENURE has a positive relationship (parameter estimate 1.8185) and is significant with a p-value of 0.0005.

SHORT_TENURE is a dichotomous variable indicating the auditor/client relationship is rather new. Specifically, it is equal to 1 if the auditor tenure is equal to or less than three years, 0 otherwise. We would expect that it takes some time for auditors to learn about their new clients suggesting that the auditor would be less likely to remove the going concern qualification/modification, ceteris paribus. In Table VI, it shows that SHORT_TENURE has a negative relationship (parameter estimate -1.2755) and is significant with a p-value of 0.0177.

Non relationship based interorganizational relationships

Attachment theory suggests that audit difficulty proxies for the degree of relationship specific knowledge that is shared between the auditor and the client. The greater the

Expected sign	Variables	Long audit tenure		Short audit tenure	
		Parameter estimate	Wald χ^2 p-value	Parameter estimate	Wald χ^2 p-value
	Year Q + 1	-2.6521	0.0015	-1.3109	0.0743
	Year ...	-2.9071	0.0001	-2.4350	0.0076
Year dummy variables					
None					

Expected sign	Variables	Long audit tenure Parameter estimate	Wald χ^2 p-value	Short audit tenure Parameter estimate	Wald χ^2 p-value
Year dummy variables					
None	Year Q + 1	− 2.6521	0.0015	− 1.3109	0.0743
None	Year Q + 2	− 3.8971	0.0001	− 2.4350	0.0076
None	Year Q + 3	− 3.0930	0.0030	− 1.6601	0.0736
None	Year Q + 4	− 2.4418	0.0246	− 1.1344	0.2693
None	Year Q + 5	− 2.3877	0.0366	− 1.0788	0.3263
None	Year Q + 6	− 4.7708	0.0132	− 3.7137	0.0286
None	Year Q + 7	2.4595	0.2220	2.4364	0.1323
Control variables					
−	BASE_CH	− 0.6538	0.0001	− 0.5295	0.0001
−	CURR_CH	− 0.0222	0.4046	− 0.0686	0.4454
None	SAS58	− 0.9312	0.1557	− 1.1083	0.0795
+	TYPE_AUD	1.6648	0.0093	1.6152	0.0100
None	GROWTH	0.1080	0.8397	0.2594	0.6125
None	MGT_OWN	0.0077	0.5572	0.0104	0.4137
−	DEBT_DIFF	− 0.1099	0.0049	− 0.1214	0.0035
Non-relationship based interorganizational variables					
None	NUM_SUB	− 0.0363	0.0982	− 0.0352	0.1042
None	FORN_SUB	0.5348	0.3735	0.8033	0.1596
Relationship based interorganizational variables					
+	LONG_TENURE	1.8185	0.0005		
−	SHORT_TENURE			− 1.2755	0.0177
Change in − 2LL (χ^2)[a]			18.119		9.932
Degrees of freedom			3		3
p-value			0.0004		0.0192

Notes: Models run: AUDIT_OPINION = $\alpha_t + C_{it} + T_{it}$, where α_t: set of time dummy variables; C_{it}: set of control variables; T_{it}: includes the test variables in the table. AUDIT_OPINION is 1 if unqualified, 0 otherwise (i.e. remains qualified). The set of control variables (C_{it}) consists of the following: BASE_CH: change in financial distress from year t_{Q-1}; CURR_CH: change in financial distress from previous year; SAS58: pre/post SAS 58; TYPE_AUD: type of auditor (big 6/4 vs non big 6/4); GROWTH: growth of total assets; MGT_OWN: percentage of management ownership; DEBT_DIFF: difference in debt from year t_{Q-1}; NUM_SUB: number of subsidiaries; FORN_SUB: existence of foreign subsidiaries. The test variables (T_{it}) consist of the following: NUM_SUB: number of subsidiaries; FORN_SUB: 1 if company had a foreign subsidiary, 0 otherwise; LONG TENURE: 1 if auditor tenure is greater/equal to five years, 0 otherwise; and SHORT TENURE: 1 if auditor tenure is shorter/equal to three years, 0 otherwise; [a]the χ^2 test compares the − 2 Log Likelihood (− 2LL) of the full model to a base model. The resulting change in − 2LL is distributed as a χ^2 with degrees of freedom equal to the difference in variables between the models

Table VI.
Models using audit
tenure as measure of
auditor/client
relationship strength

shared knowledge, the stronger the interorganizational relationship, the greater is the likelihood of removing a qualified opinion. Our proxies for audit difficulty are NUM_SUB (number of subsidiaries) and FORN_SUB (existence of foreign subsidiaries), both of which were used for this purpose in Seabright *et al.* (1992). We acknowledge that there is an alternative hypotheses on how these variables might impact the likelihood of removing a going concern qualification/modification in the audit opinion. This alternative suggests that these variables indicate the degree of audit risk, and ceteris paribus, the higher the degree of audit risk, the less likely the going concern qualification/modification will be removed.

We included NUMSUB and FORNSUB in all seven models run in Tables IV, V, and VI. NUMSUB is significant at the 0.10 level in six of the seven models with parameter estimates indicating a negative relationship. That is, as the number of subsidiaries increased, the likelihood of the auditor removing the going concern qualification/modification decreased. This result suggests that the number of subsidiaries is a stronger measure of audit risk as opposed to a measure of audit difficulty, as suggested by attachment theory. FORNSUB is not significant in any of the seven models, which could be indicative of offsetting forces (attachment versus audit risk).

Best model
In Table VII, we present a model which includes both a measure of interpersonal attachment (CEO_CHANGE) and a measure of interorganizational attachment (LONG_TENURE). The results of including both of these variables was to create the most significant model. Note that both CEO_CHANGE and LONG_TENURE are significant at the 0.01 level.

Control variables
Among the seven control variables used in all of the models, only three are consistently significant at the 0.02 level: BASE_CH (change in level of financial distress from base year), TYPEAUD (type of auditor), and DEBTDIFF (change in level of debt from base year). In fact, all of these variables are significant at the 0.01 level in all seven models except for TYPEAUD in Table IV (auditor/CEO relationship model) which is significant with a p-value of 0.0126.

We also examined the effect of the change in the form and content of the audit report between pre- and post-SAS Nos. 58 and 59 for the going concern companies to see if it affected the likelihood of conversion to a clean opinion[10]. In only one model was this variable significant at the 0.10 level (Table VI, short audit tenure model) with a p-value of 0.0795 and a parameter estimate indicating a negative relationship (post SAS 58 opinions decreased the likelihood of removal of the going concern opinion). The overall lack of significance of SAS 58 indicates that while there was a change of form of the audit report it did not affect the likelihood of conversion to a clean opinion, i.e. while the format of the audit report changed, the substance of the qualification remained and was dealt with on a similar basis by the auditors both pre- and post-SAS Nos. 58 and 59 (consistent with the findings of Carcello *et al.*, 1995).

Conclusions
While previous studies have examined the audit quality and auditor tenure relationship using several audit quality variables (Ghosh and Moon, 2005; Carcello and Nagy, 2004;

Expected sign

Year dummy var
None
None
None
None
None
None
None
Control variables

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+
None
None
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Non-relationship
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None
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Expected sign	Variables	Parameter estimate	Wald χ^2 p-value
Year dummy variables			
None	Year Q + 1	− 1.6058	0.0723
None	Year Q + 2	− 3.2882	0.0017
None	Year Q + 3	− 2.6479	0.0113
None	Year Q + 4	− 2.0780	0.0631
None	Year Q + 5	− 1.7466	0.1377
None	Year Q + 6	− 4.2543	0.0277
None	Year Q + 7	3.5727	0.0975
Control variables			
−	BASE_CH	− 0.7692	0.0001
−	CURR_CH	− 0.0335	0.3530
None	SAS58	− 0.9237	0.1750
+	TYPE_AUD	1.8462	0.0061
None	GROWTH	0.2757	0.6100
None	MGT_OWN	0.0023	0.8666
−	DEBT_DIFF	− 0.1530	0.0019
Non-relationship based interorganizational variables			
None	NUM_SUB	− 0.0355	0.1528
None	FORN_SUB	0.1613	0.8024
Relationship variables			
+	LONG_TENURE	1.6751	0.0012
−	CEO_CHANGE	− 1.5626	0.0054
Change in − 2LL $(\chi^2)^a$			25.639
Degrees of freedom			4
p-value			< 0.0001

Notes: Model run: AUDIT_OPINION $= \alpha_t + C_{it} + T_{it}$, where α_t: set of time dummy variables; C_{it}: set of control variables; T_{it}: includes the test variables in the table. AUDIT_OPINION is 1 if unqualified, 0 otherwise (i.e. remains qualified). The set of control variables (C_{it}) consists of the following: BASE_CH: change in financial distress from year t_{Q-1}; CURR_CH: change in financial distress from previous year; SAS58: pre/post SAS 58; TYPE_AUD: type of auditor (big 6/4 vs non big 6/4); GROWTH: growth of total assets; MGT_OWN: percentage of management ownership; DEBT_DIFF: difference in debt from year t_{Q-1}; NUM_SUB: number of subsidiaries; FORN_SUB: existence of foreign subsidiaries. The test variables (T_{it}) consist of the following: NUM_SUB: number of subsidiaries; FORN_SUB: 1 if company had a foreign subsidiary, 0 otherwise; LONG TENURE: 1 if auditor tenure is greater/equal to five years, 0 otherwise; and CEO_CHANGE: 1 if recent change in CEO, 0 otherwise; [a]the χ^2 test compares the − 2 Log Likelihood (− 2LL) of the full model to a base model. The resulting change in − 2LL is distributed as a χ^2 with degrees of freedom equal to the difference in variables between the models

Table VII.
Best model using
LONG_TENURE and
CEO_CHANGE as
measure of auditor/client
relationship strength

Myers *et al.*, 2003; Geiger and Raghunandan, 2002a, b), in this study we use attachment theory to contextualize auditor tenure and utilize the audit opinion judgment as an opportunity to evaluate audit quality. That is, we examine whether the opinion decision (removal of a qualification/modification) is impacted by the strength of the auditor-client attachment. We expect to see a greater impact of attachment where the opinion decision made by the auditor is mostly reliant upon judgment, i.e. for going concern opinion uncertainties as opposed to litigation/asset valuation uncertainties. Unlike any other study, our study encompasses and our models incorporate the entire event history of the opinion decision that started at the receipt of a first-time qualified opinion and ended at the receipt of an unqualified opinion.

Our expectation was that auditor-client attachments would significantly affect the conversion process to a clean opinion because of the investment and commitment required and the benefits received by both parties to an exchange relationship, creating barriers to change. The results in Table III provide evidence that auditor-client attachments play an important role in the conversion process to a clean opinion for going concern qualifications, are much less important for non-going concern qualifications, and that not all auditor-client attachments are equal. Some types of attachments were found to be significant while others were not found to be significant. For the going concern qualifications, the attachments that were found to be significant in the study were: the number of years the CEO and the audit firm had worked together (RELATION, LONG RELATION, SHORT RELATION), auditor tenure (LONG TENURE, SHORT TENURE), and the existence of a recent change in CEO (CEO_CH). In Tables IV–VI, we present more complete models that include the non-relationship based interorganizational variables (NUMSUB and FORNSUB) and show that all seven of the models, including the recent change in CFO model to be significant.

The non-significant results for non-going concern companies also have important implications. None of the attachment variables in Table III were found to significantly affect the conversion process to a clean opinion for non-going concern qualifications. The implications are that interpersonal and interorganizational attachment variables are much less important when the decision being made by the auditor can be supported by factual evidence (settlement of litigation, realization of assets). The difference in results may be related to the uncertainty and level of judgment required in the different situations. The resolution of non-going concern qualifications dealing with litigation and asset valuations often coincides with verifiable events, and may be dealt with by the auditor in a more routine manner such that the auditor's knowledge and experience with the client does not make a significant difference. For going concern opinions, though, the auditor may need to rely upon their judgment to a greater extent in determining when clients no longer represent going concern risks. In difficult and less routine circumstances with higher levels of risk and uncertainty, auditor-client attachments did make a difference in the conversion process to a clean opinion.

Given the sheer number of judgmental decisions necessary in the course of an audit, and assuming that the impact of attachment shown in this study has a similar impact on all judgmental decisions, one can understand the concerns of proponents of mandatory auditor rotation. The only way to assure attachment does not have a material impact on a decision is to limit the ability for attachment to exist. Alternatively, we could have accounting standards which reduce the degree of judgment necessary to interpret and apply, but that is unlikely in the foreseeable future. We are not necessarily proponents of mandatory auditor rotation because we believe that attachment yields greater understanding of clients and their particular financial circumstances, beyond what can be gleamed from testing the financial transactions. Knowledge of the client's integrity cannot be readily assessed in a short period of time. Arbitrarily truncating the auditor-client relationship would destroy important relationship specific knowledge about the client that is imperative to making sound decisions where an auditor must rely on his/her judgment.

Subsequent to our sample time frame, two significant external environmental factors have been shown to impact the likelihood that a company will receive a going concern

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opinion: the Private Securities Litigation Reform Act (PSLRA) of 1995 (Geiger *et al.*, 2006, Geiger and Raghunandan, 2002a, b) and the Enron/Arthur Andersen/ Sarbanes-Oxley series of events (Geiger *et al.*, 2005; Geiger, 2006). While we focused on the removal of going concern opinions (as opposed to the issuance of them) in this study, it would be worthwhile for researchers to determine the extent that attachments have on the initial issuance of going concern opinions especially in the presence of these environmental factors. Additionally, the research does not specifically address whether the PSLRA and Enron/Arthur Andersen/Sarbanes-Oxley represent a "shock" to the normal auditor decision process (where the effect diminishes over time) or do they represent a structural shift in the decision heuristic. In either case, we believe researchers should incorporate the existing interorganizational attachments into their models because these attachments remain in spite of the effect external forces might have on the opinion decision process.

Notes

1. A difficulty with earlier studies examining auditor tenure is that many of them (Deix and Giroux, 1992; Copley and Doucet, 1993; O'Keefe *et al.*, 1994) dealt with governmental audits which are mostly performed by smaller CPA firms. While the studies may recognize the narrowness of their conclusions (Deix and Giroux, 1992), their results are still frequently generalized across the public accounting firm population (Catanach and Walker, 1999).

2. Statement of Auditing Standards No. 79 essentially put an end to auditors disclosing uncertainties other than going-concern uncertainties in the auditors' opinion This statement was issued in December 1995.

3. DTSA was first introduced in medical research to model life expectancy (Cox, 1972; Cox and Oakes, 1984), and since has been used in numerous other decision-making contexts, e.g. accounting (Hunton and Wier, 1996), auditing (Louwers *et al.*, 1999), business (Somers, 1996), engineering (Lawless, 1982), and sociology (Tuma and Hannan, 1984). LeClere (2000) provides a literature review of the use of survival analysis in accounting research dealing with financial distress, e.g. Chen and Lee (1993), George *et al.*, 1996.

4. For those firms which were not on the NAARS database for the five years prior to receiving an uncertainty qualification, other sources (*Moody's Industrial Manuals* and annual reports reviewed at the SEC public access library in Washington, DC) were used to determine whether the company had, in fact, received a first-time uncertainty qualification between 1983 and 1987.

5. Compustat has no tenure data for non-big 8/6 firms before 1988.

6. Carcello and Nagy (2004, p. 58) suggest that there is a difference between short auditor tenure and long auditor tenure, based on competing theories of the impact of auditor tenure on audit quality. We use this same logic in examining the RELATION variable.

7. We also tested accounts receivable to total assets and inventory to total assets (measures used by Seabright *et al.*, 1992). Neither was significant and have been excluded from the analysis.

8. However, several studies also included market-based variables (Dopuch *et al.*, 1987; Koh and Killough, 1990; Koh, 1991), though all studies yielded approximately similar degrees of predictability.

9. Event history analysis describes a class of statistical methods for studying the occurrence and timing of events (Yamaguchi, 1991; Allison, 1995). The technique allows the researcher to "describe patterns of occurrence, compare these patterns among groups, and build statistical models of the risk of occurrence over time" (Richard and Allaway, 1993, p. 1). One of the major impediments to using standard analytic techniques on event histories (i.e., longitudinal data on the occurrence of an event) revolves around problems of censoring

and time-varying explanatory variables (Allison, 1982). Event history analysis provides a methodology for incorporating time-varying explanatory variables into models and allows for the inclusion of data which either never experience the event of interest or it is unknown whether it experiences the event of interest. By furnishing an estimate of the timing of the event as well as a probability estimate, DTSA provides an ideal framework for asking descriptive questions about the timing of events (Louwers et al., 1999; Willett and Singer, 1993, 1997). In addition, as compared to continuous-time survival analysis, DTSA possesses several advantages (Willett and Singer, 1997). First, it is more appropriate for event history data since data are usually only recorded in intervals. Second, it is intuitively more comprehensible than its continuous-time cousin. Third, it facilitates inclusion of both time-invariant and time-varying predictors, whereas inclusion of the latter can be difficult under the continuous-time approach. Fourth, it fosters examination of how the pattern of risk changes over time. Fifth, under the discrete-time approach the proportionality assumption is easily checked and fitted if needed. Lastly, in DTSA all estimations can be preformed using standards statistical software packages that fit logistic regression models and does not have to rely upon dedicated software needed for continuous-time analysis.

10. SAS Nos. 58 and 59 eliminated uncertainty qualifications and relegated going concern modification to the addition of an explanatory paragraph after an unqualified opinion paragraph that is to include the words "substantial doubt" and "going concern." The content of future opinions was examined to determine if the modifying language was used in the explanatory paragraph, and these modifications after SAS Nos. 58 and 59 were treated in the study the same as a qualified opinion under the previous auditing standards. Thus, companies had to have a completely clean opinion in order to be classified as receiving an unqualified opinion.

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