

Client-Firm Market Reaction to Regulatory Action Against a Major Accounting Firm

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Abstract

This study assesses the audit client firm share price reactions to a disclosure that the California State Board of Accountancy considered revoking Ernst & Young's (E&Y) license to practice in California due to alleged gross negligence in the Lincoln Savings and Loan fraud scandal. The insurance hypothesis and/or the audit quality explanation justify the expectation of significant client-firm share price reactions. We find limited empirical support that the disclosure of the revocation event is associated with negative market responses for E&Y's clients. Results also indicate that auditor-supplied insurance and audit quality are more important for client firms experiencing financial distress, higher growth rates, and higher return variability. (*JEL*: G14)

Introduction

The recent demise of Arthur Andersen LLP has significant implications for its clients. However, less dramatic events affecting an auditor may influence the client and its management. For instance, evidence supports the assertion that certain events impacting a CPA firm are reflected in their publicly traded clients' security prices. For example, Firth (1990) finds that auditor criticisms by the British Department of Trade resulted in statistically significant negative returns for audit firm clients traded on British exchanges. Moreland (1995) documents that Security and Exchange Commission enforcement actions directed toward a CPA firm resulted in a reduction in clients' earnings response coefficients (ERCs). Baber, Kumar, and Verghese (1995) (henceforth BKV) and Menon and Williams (1994) (henceforth M&W) report a statistically significant risk-adjusted negative security price reaction for a sample of Laventhol and Horwath clients upon disclosure of filing by that firm under Chapter 11 of the U.S. bankruptcy code.

Although evidence supports the contention that audit clients' share price reactions appear related to the disclosure of certain negative information about a CPA firm, it is not clear whether those effects extend to Big 4 accounting firms (previously Big 8, Big 6, or Big 5). Evidence exists to suggest that Big 4 accounting firms are viewed differently as to audit quality and to their ability to provide "deep pockets." DeAngelo (1981) asserts that larger audit firms supply a higher level of

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audit quality because such firms have more extensive investments in brand name reputations. Davidson and Neu (1993) document that larger auditing firms are associated with higher quality audits. In a study of 164 not-for-profit entities, Krishnan and Schauer (2000) find a positive association between audit firm size and audit quality.

Larger CPA firms are also viewed differently with regard to the amount of resources available for potential claimants (Schwartz and Menon 1985). The perceived difference in the ability of the larger CPA firms to withstand financial claims was noted by a Shearson Lehman accounting analyst the day after Laventhol and Horwath's bankruptcy filing. He remarked that the "medium-sized accounting firms such as Laventhol are most financially vulnerable to lawsuits, while the Big 6 do not appear to be in financial trouble" (Cooney 1990). Differences in perception of audit quality or resources available may result in differences in observed client firm market reactions to adverse events impacting a Big 4 firm. Thus, one purpose of this research is to determine if investor reactions relating to the insurance and audit quality hypotheses extend, in general, to the Big 4.

Second, the BKV and M&W studies consider bankruptcy as the event of interest. We target another event type—the threat of state regulatory action against an accounting firm that allegedly failed to detect and report on fraudulent financial statements. Such a focus is particularly relevant given the recent high-profile posturing of regulators aimed at accounting firms of clients in bankruptcy or other financial distress because of alleged fraud activities. The relation between state regulatory action and an auditing firm's failure to detect and report fraud is important to the accounting profession because, according to SAS 99 (previously SAS 82)—*Consideration of Fraud in a Financial Statement Audit*, auditors have a responsibility to identify situations that present significant fraud risks (Sinason and Pacini 2000). Finally, an exploratory attempt is made to differentiate the insurance hypothesis from the audit quality hypothesis as they relate to a Big 4 firm.

The event we analyze is a call by the California State Board of Accountancy to suspend or revoke E&Y's license to do business in that state (the "ban event") pursuant to its involvement in the Lincoln Savings and Loan fraud scandal (see Appendix). This regulatory event is analyzed to assess its impact on E&Y's clients' share prices. Moreover, the setting is used to provide additional insight into the insurance and audit quality hypotheses as explanations related to any market effects.

In performing the event study analysis, we consider a sample of more than 660 E&Y client firms (versus 75 for BKV and 100 for M&W). Unlike previous studies, the sample here includes a considerable number of commercial banks and savings and loan firms (more than 70). It is important to include these types of firms in the sample since failed financial institutions were the genesis of California's regulatory action as well as the impetus for many of the legal problems relating to CPA firms in the late 1980s and early 1990s. Additionally, banks and savings and loans constitute a vital component of the population of audit clients in general.

Event of Interest

An article appeared on December 5, 1990, in *The Wall Street Journal* (see Appendix) indicating that the California State Board of Accountancy sought to suspend or revoke E&Y's license to do business in that state. State action was taken relative to E&Y's alleged gross negligence (or reckless disregard of the facts) in failing to detect and report fraud committed by Lincoln S&L management. The December 5 article notes that it is the first public mention of the Board of Accountancy action. The accusation filed with the board contends that E&Y allowed recognition of \$62 million in profits on eight real estate deals when accounting principles required that they not recognize any profits (Schmitt 1990).

Until this action, the California State Board of Accountancy had never taken such strong action against a major accounting firm (Schmitt 1990). *The New York Times* indicated that the action could result in severe penalties for E&Y at a time when the firm is already under financial pressure because of a soft economy, an expensive merger, and several costly lawsuits (Cowan 1990). Such strong action could result not only in severe penalties but eliminate E&Y's revenue stream from the nation's largest state. Others indicated that the regulatory move may further tarnish E&Y's reputation but probably would not inflict harm on long-run firm operations (Granelli 1990). In the short run, however, the publicity from an actual license suspension or revocation could lower investor perception of the quality of E&Y audits. Hence, the disclosure of the state board's action may have had an incremental impact on the market prices of the shares of E&Y's clients.

Theory

Audit Quality and Auditor-Provided Insurance

Two interrelated theories impact the expectations of client share price reactions when detrimental information about a CPA firm's survival or reputation becomes available to investors. These are the insurance hypothesis and the audit quality hypothesis.

In addressing the insurance hypothesis, the accounting literature posits that auditors provide a type of implicit insurance to users and investors (Hill, Metzger, and Schatzberg 1993). The auditor is considered a potential indemnifier if an investment or credit loss is experienced. The auditor is deemed to be a "deep pocket" because the CPA firm often carries malpractice insurance or, in many cases, is the only solvent defendant in a lawsuit. M&W (1994) assert that the legal right to seek indemnification from an auditor for losses is assigned a value by investors. This value is hypothesized to be a component of the stock price of publicly traded clients. The insurance hypothesis thus predicts that negative share price reactions for client firms should be observed around the announcement of any event (for example, loss of revenue related to a license revocation) that diminishes a CPA firm's ability to pay claims against it.

Alternatively, it is hypothesized that the quality of the assurances provided by the auditor has value relevance to the market. Investors would be expected to utilize, to a lesser extent, client financial information with a lower perceived level of reliability. A reduction in audit quality would be expected to have a negative impact on the share prices of an auditor's clients. Moreland (1995) and Firth (1990) both conclude that disclosed criticism of a CPA firm diminishes audit quality assessments and the perceived quality of clients' accounting information, resulting in less confidence in (or reliability placed on) reported earnings.

Audit quality can be defined as the probability that audited financial statements contain no material misstatements or omissions (Palmrose 1991). The monitoring value of a CPA firm is implicitly tied to the quality of the audit and reporting process. Although audit quality itself is not directly observable, users develop observable proxies, such as audit firm reputation, that are associated with audit quality (Wilson and Grimlund 1990; Palmrose 1991). Auditors who intentionally fail to detect and report fraud may be perceived as more likely to compromise their independence to retain clients. This compromised independence results in a lower level of audit quality being provided on financial statements (BKV 1995).

Dopuch and Simunic (1982) point out that financial statement users will change assessments of auditor quality based on new publicly available information about an auditing firm. New information, such as state regulatory action to revoke or suspend a license to practice, may lower the perceived financial statement reliability and thus the perceived quality of audit services provided (Palmrose 1988). Any loss of credibility in the financial statements and/or loss of

confidence in the audit firm may be manifested as a reduction in client-firm share price (Firth 1990; Franz, Crawford, and Johnson 1998).

In summary, BKV (1995) posit that investors react to detrimental audit quality signals (the audit quality hypothesis) or the perceived loss of auditor-provided insurance (the insurance hypothesis). Either the insurance hypothesis or the audit quality hypothesis can account for observed negative client firm security price reactions upon the disclosure of state regulatory action against an auditor. The two explanations, however, are not mutually exclusive. Thus, although discussion and analysis are presented concerning which explanation may be supported, no clear separation between the two explanations can be expected.

Hypotheses

Both the insurance and audit quality hypotheses predict that a client firm's stock price will decline when an auditor's ability to pay or overall reputation is damaged. State regulatory action against an accounting firm in failing to detect and report fraud due to an alleged grossly negligent audit may be associated with such a decline (Sinason and Pacini 2000). It is obvious that financial statement fraud directly harms the shareholders and creditors of the issuer of fraudulent financial statements since they stand to lose their investments or loans if such fraud results in bankruptcy or near failure (Raab 1987). What is not clear is whether the fraud and related impact on a Big 4 audit firm is related to the returns of its clients. Hence, to further explore the relation between the E&Y ban event and client firm share price reaction, the following hypothesis, stated in the null, is tested:

H1: The disclosure of the potential revocation of E&Y's license to conduct business in California is not associated with a share price reaction of the firm's publicly traded clients.

Peltzman (1976) argues that regulatory action may have different effects on publicly traded firms if those firms differ significantly (e.g., large versus small firms). Asymmetrical effects may be found by separating firms on the basis of various firm-specific characteristics such as size and ownership dispersion. To examine any asymmetrical effects of threatened state regulatory action against E&Y on the accounting firm's clients, we test the following hypothesis stated in the null:

H2: The disclosure of the potential revocation of E&Y's license to conduct business in California had no differential effect on the abnormal returns of E&Y's publicly traded clients.

Sample Selection

The list of the publicly traded clients of E&Y was obtained primarily from Compustat, the National Automated Accounting Research System (NAARS), and *Who Audits America*. Because auditors of commercial banks and savings and loans are not listed on Compustat, those E&Y clients were obtained from cross-referencing *Who Audits America* and NAARS. Sample filters were employed to reduce the likelihood that significant abnormal return reactions were associated with confounding events. Following Bhagat, Brickley, and Coles (1994), client firms with a value-relevant disclosure in the *Lexis-Nexis* database within five days of the ban event were eliminated from the sample. Earnings announcements, mergers, acquisitions, tender offers, proxies, bankruptcy filings, and major income tax-related events were treated as value-relevant disclosures or confounding events (Thompson, Olsen, and Dietrich 1987). Table 1 reveals that 156 client firms were dropped due to value-relevant disclosures.

TABLE 1. E&Y CLIENT-FIRM SAMPLE ANALYSIS

<i>Panel A. Filters</i>			
			No. of Firms
Publicly traded clients (per Compustat, NAARS and <i>Who Audits America</i>)			1,282
Less: Firms not listed on Compustat			(177)
Less: Firms reporting confounding events (e.g., earnings announcements, etc.)			(156)
Less: Firms with excess missing returns and/or excessive zero returns			<u>(283)</u>
Final Sample			666
<i>Panel B. Exchanges</i>			
NYSE	AMEX	NASDAQ	
216	67	383	
<i>Panel C. Market Value of Equity (in \$000 as of 12/5/90)</i>			
Mean		Median	
\$563,547		\$50,108	
<i>Panel D. Industry Concentration</i>			
SIC Code	Industry	No. of Firms	Percent
1311	Crude petroleum and natural gas	11	1.7
2010-99	Food and kindred products	13	1.9
2210-99	Textile products	10	1.5
2830-36	Pharmaceuticals	22	3.3
3310-99	Primary metals	14	2.1
3410-99	Fabricated metals	16	2.4
3500-99	Ind. and comm. mach. incl. Comp. equip.	57	8.6
3600-99	Elec. equip. except computers	58	8.7
3700-99	Transportation equip.	16	2.4
3800-99	Measuring instruments	49	7.4
3900-99	Misc. manufacturing industries	10	1.5
4810-13	Telephone communications	12	1.8
5010-99	Durable goods wholesalers	16	2.4
5812	Eating places	11	1.7
6021-22	Commercial banks	54	8.1
6035-36	Savings and loans	20	3.0
6798	REITS	17	2.6
7372	Prepackaged software	16	2.4
—	All others	<u>244</u>	<u>36.7</u>
Total Sample		666	100

Each E&Y client firm required daily returns on the CRSP tapes for at least 100 days for the period from 220 days prior to until five days after the ban event. Also, those client firms with five or more days of missing returns during event days -20 to +5 were eliminated from consideration.

Finally, client firms with fewer than 40 nonzero returns were removed from the sample. Such firms were eliminated because they tend to be thinly traded and increase the likelihood that event study t-tests will be misspecified (Cowan and Seargeant 1996). Table 1 reconciles the resulting sample of 666 firms.

Table 1 also reveals that about 57 percent of E&Y's clients were NASDAQ-listed companies. The sample appears diversified with 237 four-digit SIC code industries represented. Those industries with the largest number of client firms are as follows: electrical equipment (58, 8.7%), industrial and commercial machinery (57, 8.6%), commercial banks (54, 8.1%), and measuring instruments (49, 7.4%).

Research Methodology

Hypothesis One: Methods

Standard event study methodology was used to analyze client-firm equity reaction to the E&Y ban event. Each client firm's reaction to each day considered in the ban event window was obtained by predicting a normal return for each client firm on each event day and then subtracting the predicted return from the actual return. Normal returns are produced by estimation of (1) using OLS regression on a client-firm specific basis.

$$R_{it} = a_i + b_i R_{mt} + e_{it} \quad (1)$$

- where R_{it} = return for the firm during the t th day;
 R_{mt} = return on the daily CRSP equally weighted index;¹
 a_i = intercept for the firm;
 b_i = a proxy for the systematic risk of the firm;
 e_{it} = error term for the firm on the t th day.

Abnormal return distributions for an equally weighted portfolio of all sample-client firms were calculated from the individual returns. These distributions form the basis for the evaluation of market reaction to the event of interest. However, several compelling reasons exist to avoid the use of parametric t-tests in event studies such as this one. These reasons typically relate to an unacceptably high risk of excessive rejection of the null of no abnormal performance. The first reason is that the parametric t-test assumes the normal distribution, which may not apply (Brown and Warner 1985; Campbell and Wasley 1993). The abnormal returns for days -20 to +5 were highly leptokurtic and positively skewed.² The second reason is that all sample client firms share a common event date. Event clustering is a primary cause of cross-sectional dependence (Bernard 1987). This can cause test results to be misinterpreted. Third, some stocks listed on the NYSE, AMEX, or NASDAQ tend to be thinly traded, and thin trading may cause t-tests to be

¹ The equally weighted index is more likely to detect abnormal stock returns due to the higher degree of correlation between the index and security returns (Peterson 1989). Moreover, research demonstrates that use of the value-weighted index for NASDAQ stocks can lead to either rejection of the null hypothesis too often in the absence of abnormal performance or lower rejection rates in the presence of abnormal performance (Campbell and Wasley 1993).

² The skewness and kurtosis coefficients and the Shapiro-Wilk statistic were calculated for 26 days surrounding the ban event. A perfectly symmetrical normal distribution has a kurtosis coefficient of 3. The mean and median kurtosis coefficients across all days are 25.8 and 22.2, respectively. This indicates highly leptokurtic distributions. The abnormal returns are also moderately positively skewed (mean and median skewness of 1.76 and 1.67, respectively). The Shapiro-Wilk statistic can assume a value between 0 and 1. The statistic must be extremely close to 1 (e.g., .99) for a distribution to be considered normal. The abnormal return distributions here have mean and median Shapiro-Wilk statistics of .789 and .794, respectively.

misspecified (Cowan and Sergeant 1996). NASDAQ stocks are the most susceptible to this problem, and they constitute well over one-half of this study's sample. Parametric t-tests on abnormal or standardized abnormal returns in event studies are also vulnerable to misspecification caused by an increase in the variance of the event period returns distribution (Corrado 1989; Boehmer, Musumeci, and Poulsen 1991; Savickas 2003). In sum, we conclude that the assumptions required for the use of traditional parametric tests are sufficiently violated to rely primarily on their use (parametric t-tests are provided for comparison purposes only).

The nonparametric rank statistic, introduced in Corrado (1989), however, is robust to non-normal distributions, cross-sectional dependence, increases in the variance of abnormal returns during the event period, and thinly traded stocks (Campbell and Wasley 1993; Chatterjee, Pacini, and Sambamurthy 2002; Savickas 2003).³ For purposes of Corrado's rank statistic, market model parameters were estimated based on the 226-day sample period (day -220 to +5).⁴ Campbell and Wasley (1993) demonstrate that Corrado's rank statistic explicitly accounts for cross-sectional dependence in abnormal returns. Campbell and Wasley (1993) also find that Corrado's rank statistic is robust to situations with multi-day event periods, combined samples of NYSE, AMEX, and NASDAQ securities, increases in the variance of abnormal returns on the event date, and alternative ways of estimating beta and applies regardless of how serial dependence in abnormal returns is considered. Corrado's rank statistic has the power and specification of the Wilcoxon two-sample rank test (Corrado 1989).

³ The signed rank and sign tests, both nonparametric techniques, require symmetrical return distributions for correct test specification (Corrado 1989). These two tests can be misspecified in the presence of positive skewness, such as here (Brown and Warner 1985).

⁴ The first step involved transforming each firm's series of abnormal returns into ranks:

$$K_{it} = \text{rank}(AR_{it}),$$

$$t = 220 \dots +5,$$

where $226 \geq K_{it} \geq 1$.

The ranking procedure transformed each abnormal return distribution into a uniform distribution across possible rank values regardless of asymmetry in the original distribution (Corrado 1989). Ranks were then standardized by dividing each abnormal return rank by one plus the number of nonmissing returns in each firm's abnormal return series (Corrado and Zivney 1992): $U_{it} = K_{it}/(1 + M_{it})$, where U_{it} = standardized abnormal return rank of firm i on day t during the sample period ($t = -220 \dots +5$). U_{it} can assume any value between 0 and 1; K_{it} = the rank of firm's abnormal return on day t during the sample period; and M_{it} = the number of nonmissing returns for security i . This yields order statistics for the uniform distribution with an expected value of $1/2$.

The standardization serves two purposes: (1) it prevents the rank statistic from becoming misspecified in the presence of missing returns; and (2) it serves as a cross-sectional variance adjustment to improve specification in tests for abnormal performance (Corrado and Zivney 1992).

The rank test statistic is the ratio of the mean deviation of the securities' event day ranks to the estimated standard deviation of the portfolio mean abnormal return rank. The rank test statistic, T , substitutes $(U_{it} - 1/2)$ for the abnormal return, AR_{it} (for a given event day):

$$T = \frac{1}{\sqrt{N}} \sum_{i=1}^N \frac{(U_{it} - 1/2)}{s(U)}$$

where N = number of firms, and $s(U)$ = standard deviation of the portfolio mean abnormal return rank for the sample period.

The denominator of T , $s(U)$ is computed as follows:

$$\sqrt{\frac{1}{226} \sum_{t=-220}^{+5} \left(\frac{1}{\sqrt{N_t}} \sum_{i=1}^{N_t} (U_{it} - 1/2)^2 \right)}$$

where N_t = number of nonmissing returns in the cross-section of N -firms on day t in the sample period (Corrado and Zivney 1992).

Hypothesis Two: Methods

Following Chatterjee, Pacini, and Sambamurthy (2002), we use a generalized least squares (GLS) rank-regression model to test variables aimed at providing a better understanding of the two potential explanations for a three-day event window centered on the ban event. We use a three-day window because its use is consistent with prior research and is a conservative approach for rejection of the null hypothesis. The sample size for the cross-sectional analysis is 627 rather than 666 due to missing data items for 39 firms. GLS is used to compensate for any cross-sectional correlation in the cumulative abnormal return ranks (CARRs) (dependent variable) recognizing that all client firms share a common event date (Bernard 1987; Bhushan 1993). Moreover, ranks rather than actual data values are used because ranks generalize the functional form of the model and minimize heteroskedasticity that can result from using a linear function to represent a nonlinear relationship (Cheng, Hopwood, and McKeown 1992). Using ranks is a distribution-free procedure that does not require normality to be well specified (Conover and Iman 1981). In this study, CARRs for the ban event were standardized by the number of observations plus 1 so that the ranked variable has a maximum value of $N/(N+1)$ and a minimum value of $1/(N+1)$, with N equaling the number of data values. The standardization yields coefficients that are independent of the number of observations (Cheng, Hopwood, and McKeown 1992).

The cross-sectional rank regression model contains both control and experimental variables. The control variables are those for which we expect an association with stock prices whether driven by the insurance hypothesis or audit quality hypothesis. Control variables do not allow for a distinction between the two hypotheses. The experimental variables are those for which a positive or negative sign can be argued to signify that any significant association with stock prices is explained primarily by the insurance hypothesis or audit quality hypothesis, but not both.

The GLS rank regression of (2) was tested.

$$\text{CARR}_i = b_0 + b_1\text{FIN}_i + b_2\text{GROW}_i + b_3\text{BANK}_i + b_4\text{VAR}_i + b_5\text{OWNDIS}_i + b_6\text{SIZE}_i + b_7\text{IPO}_i + b_8\text{CAL}_i + b_9\text{ANFO}_i + e_i \quad (2)$$

where

CARR_i = cumulative abnormal return rank of firm i for days -1, 0, and +1;
 b_0 = intercept for model;

Control Variables

- FIN_i = a dummy variable representing the financial condition of firm i (1 if the firm suffered a net loss for the last fiscal year ended prior to November, 1990 or a dividend reduction or omission in 1990; 0 otherwise) (following Menon and Schwartz 1987 and Jones 1996);
- GROW_i = the standardized rank of the ratio of market value of equity to book value for firm i ;
- BANK_i = a dummy variable coded 1 for firm i if it is a commercial bank or savings and loan; 0 otherwise;
- VAR_i = the standardized rank of the variance of abnormal returns for firm i for the sample period;
- OWNDIS_i = the standardized rank of the ratio of common shares outstanding divided by the number of common shareholders for firm i (following Bamber, Bamber, and Schoderbek 1993);

Experimental Variables

- $SIZE_i$ = a variable that is the standardized rank of firm i 's market value as of 11/30/90;
 IPO_i = a dummy variable coded 1 if firm i had a public offering in either of the two years prior to November, 1990; 0 otherwise;
 CAL_i = a dummy variable coded 1 when the E&Y client is headquartered in California as indicated in 1990; 0 otherwise; and
 $ANFO_i$ = the number of analysts who follow firm i as reported by Nelson's Directory of Investment Research, 1990.

Table 2 summarizes control and experimental variables, their justification, and expected signs. Below we discuss variables included in the cross-sectional model.

Financial Distress (FIN)

The insurance value of the audit is expected to be greater for financially distressed clients than for financially healthy ones. In the context of the insurance hypothesis, client financial distress often leads to investor losses that trigger attempts to recover those losses through auditor lawsuits. The assurance value or quality of the audit is also expected to be more important for client firms in financial distress. Managers of firms in financial distress are more likely to use "window dressing" to disguise a firm's true financial condition (Kinney and McDaniel 1989). Users will place more value on the credibility provided by the auditor in the case of distressed firms. Additionally, firms with liquidity and/or profitability problems have significantly more financial statement errors than other companies (Kreutzfeldt and Wallace 1986). BKV (1995) document a negative relation between the presence of firm financial distress and negative client-firm share-price reactions upon disclosure of the L&H bankruptcy filing. Hence, we predict a negative relation between the cumulative abnormal return ranks (CARRs) and financial distress.

Following Menon and Schwartz (1987) and Jones (1996), we define financial distress for our model as a sample firm that suffered a net loss or announced a dividend reduction or omission for the last fiscal year ended prior to November 1990, the event date month.

Firm Growth (GROW)

One major audit objective is the detection of material errors and fraud affecting a client's financial statements. Failure to achieve this objective results in the issuance of materially misstated financial statements (or audit failure) and increases the likelihood of investor losses, auditor litigation, and damage payments by auditors. Rapid client firm growth is one factor that may contribute to audit failure (Pratt and Stice 1994). Rapid firm growth can lead to unanticipated changes in the revenue and expenditure transaction cycles, which, in turn, can overburden the client's internal controls (Pratt and Stice 1994). Overburdened internal controls increase the likelihood of material misstatements, especially from the occurrence of management fraud (Beasley 1996). In fact, SAS No. 99—*Consideration of Fraud in a Financial Statement Audit* lists unusually rapid growth as a fraud risk factor. In sum, we anticipate that a higher rate of firm growth means weaker internal controls and greater risk of material misstatement with an associated increase in the sensitivity to audit quality, an increased likelihood of auditor litigation, and greater damage payments by auditors (or higher insurance value of the audit). We expect a negative relation between growth and CARRs. Firm growth is proxied by the market-to-book value ratio for each sample firm (Chatterjee, Pacini, and Sambamurthy 2002).

TABLE 2. VARIABLES AND EXPECTED RELATIONS

<i>Panel A. H2 Control Variables and Expected Relations—Abnormal Return = f(Factors)</i>				
Variable Name and Factor	Proxy Measure	Theoretical Issue(s)	Expected Coefficient Sign	
1. FIN - Financial Distress	Net loss or dividend reduction or omission in prior period	Likelihood of a loss to support litigation (insurance hypothesis)	-	
		Probability that firm will window dress statements (audit quality hypothesis)	-	
2. GROW - Firm Growth	Client market to book value ratio	Risk that financial statements are misstated (both hypotheses)	-	
3. BANK - Industry Membership	High risk industries (banks and savings and loans)	Specific industries at risk for litigation and uncertainties of asset realization (both hypotheses)	-	
4. VAR - Stock Return Variability	Variance of abnormal returns	Likelihood of a significant loss required to support litigation (both hypotheses)	-	
5. OWNDIS - Ownership Dispersion	Average number of shares per shareholder	Likelihood of a lawsuit (both hypotheses)	+	
<i>Panel B. H2 Experimental Variables and Expected Relations—Abnormal Return = f(Factors)</i>				
Variable Name and Factor	Proxy Measure	Theoretical Issue(s)	Predicted Coefficient Sign Insurance Hypothesis	Predicted Coefficient Sign Audit Quality Hypothesis
6. SIZE - Client-Firm Size	Market value of firm	Potential amount of lawsuit damages	-	
		Need for information by shareholders		+
7. IPO - Initial Public Offerings	New securities issue	Insurance value of audit is more substantial for IPOs.	-	N/A
8. CAL - Action of Regulatory Board	Audit clients headquartered in California	Actions by the California State Board impinge on perceptions of audits conducted in California.	N/A	-
9. ANFO - Analysts Following	Number of analysts following client firm	The greater the number of analysts following firm, the less important the quality of financial statements	N/A	+

Industry Membership (BANK)

Stice (1991) notes that industry membership may influence the significance of factors associated with auditor litigation. Palmrose (1988) and St. Pierre and Anderson (1984) both find that firms in certain industries, particularly financial services, account for 35 to 40 percent of auditor lawsuits. These high-risk industries typically possess significant financial statement line items subject to management estimates, difficulty in determining asset values and income realization, and greater opportunity for financial statement manipulation (St. Pierre and Anderson 1984). Given the higher incidence of auditor litigation for financial service firms and the nature of the reason cited for the potential E&Y ban, the insurance value of the audit may be more important for banks and S&Ls. Additionally, the assurance value of the audit may be more important for banks and S&Ls given the uncertainties associated with asset realization. We expect a negative relation between CARRs and financial institutions based on expectations from both the insurance hypothesis and the audit quality hypothesis. We operationalize this variable by using a dummy variable to represent banks and S&Ls.

Stock Return Variability (VAR)

Audit client firms with higher variability of returns increase the probability that stockholders will incur a significant loss (Stice 1991). Greater losses provide prospective plaintiffs with a stronger incentive to seek a legal recovery from auditors regardless of whether an audit failure has occurred. In many cases, frivolous lawsuits (particularly class action securities litigation) have been filed against accountants (i.e., the absence of an audit failure) (Sullivan 1992; Alexander 1991). Sullivan (1992) reports that the number of complaints filed against Big 5 auditing firms arising from the audit of public companies is three times the number of audit failures. In such lawsuits, the plaintiffs' primary objective is to gain access to the auditor's "deep pockets." In the context of the insurance hypothesis, this suggests that auditor-supplied insurance is more important to shareholders of client firms with greater return variability.

Moreover, shareholders of client firms with higher variability of returns may be more concerned about audit quality than shareholders of firms with lower return variability. Lower visibility firms (those firms about which less information is available) experience higher return variability and more pronounced securities price reactions to unanticipated information (Nathan 1997; Chen, Lin, and Sauer 1997). Shareholders of lower visibility firms face higher monitoring costs and more uncertainty regarding firm value, as there may be managers and insiders who exploit shareholders (Beard and Silas 1997). Thus, the quality of information (e.g., audited financial statements) is more important to a shareholder of a firm with greater return variability (or less visibility).

Given that auditor-supplied insurance and audit quality are more important to shareholders of firms with greater return variability, we predict a negative relation between CARRs and stock return variability. We operationalize this measure by using the standardized rank of the variance of abnormal returns (Reed, Trombley, and Dhaliwal 2000).

Ownership Dispersion (OWNDIS)

Ownership dispersion is an important determinant of auditor litigation risk (Simunic and Stein 1996). The more widely held the client's shares, the greater the number of individual investors that rely on the client's financial statements. Reliance by a larger number of investors on the client's financial statements increases both the client's and the auditor's exposure to liability (Bamber, Bamber, and Schoderbeck 1993; Brumfield, Elliott, and Jacobson 1983). Increased liability exposure for both the auditor and client firm translates into more value or significance attached to the insurance aspect of the audit.

Also, shareholders in widely held firms may attach more importance to audit quality than shareholders in less widely held firms. Concentrated ownership, especially institutional holdings, facilitates coordinated shareholder action to demand information from managers for monitoring purposes (Malette and Fowler 1992). Audited financial statements are a less important component of the monitoring and bonding constraints on managerial actions for firms with less ownership dispersion.

The dispersion of an audit client's ownership is measured as the number of common shares outstanding divided by the number of common shareholders (Bamber, Bamber, and Schoderbeck 1993). This number is smaller for greater dispersion and vice versa. For both the insurance hypothesis and audit quality explanation, the expected sign on the variable is positive.

In addition to control variables, the cross-sectional model contains several experimental variables. The purpose of these variables is to attempt to distinguish between the insurance hypothesis and the audit quality explanation.

Client Firm Size (SIZE)

Potential recovery of damages from an accounting firm is a function of the amount of damages (or auditor-supplied insurance) that plaintiffs expect to receive. The amount of any potential award (or insurance payment) is also related to the amount of damages incurred by plaintiffs. Kellogg (1984) found that plaintiff damages are positively related to client-firm size. Larger firms, even bankrupt ones, are more likely to have resources (including officers and directors insurance) to pay plaintiffs and provide adequate fees to plaintiffs' attorneys (even after paying defense costs), thereby making it worthwhile for plaintiffs to sue (Carcello and Palmrose 1994). For purposes of the insurance hypothesis, auditor-provided insurance is more important to the shareholders of larger client firms (BKV 1995). Stice (1991) and Carcello and Palmrose (1994) document a positive relation between client size and the probability of auditor litigation. The insurance hypothesis predicts a negative relation between client-firm size and CARRs.

Audit quality, on the other hand, may be more important to the shareholders of smaller client firms. The differential information hypothesis indicates that the information content of financial statements is more significant for small firm shareholders. Security price reactions to disclosures of unanticipated financial statement information are usually more substantial for smaller firms (Atiase 1985). Any disclosure of new information that leads investors to reassess audit quality may lead to a more pronounced share price reaction for smaller firms. Hence, the audit quality hypothesis suggests a positive relation between client firm size and CARRs. Given the opposite predictions suggested by the insurance hypothesis and the audit quality explanation, we are unable to predict which of the two hypotheses, if either, will predominate. We use the standardized rank of each sample firm's market value as of the event date, 12/5/90, as the measure in our model.

Initial Public Offerings (IPO)

Accounting firms are quite susceptible to class action lawsuits for new securities issues under section 11 of the 1933 Securities Act. Auditors are subject to civil liability if the financial statements they prepare for inclusion in a registration statement contain any untruths or omit any material facts. Such liability extends to anyone who purchases the security without knowledge of the truth or omission. Proof of reliance upon the financial statements is not required under section 11. Thus, the insurance value of the audit is more substantial for new securities offerings (BKV 1995). We expect a negative relation between IPO and CARRs.

California Clients (CAL)

The action by the California State Board of Accountancy is expected to send a signal about the quality of audits conducted in California. The alleged reason for the ban was the "gross negligence" associated with the audit work in the annual audits of Lincoln S&L. Thus, it is

expected that users of financial statements for those firms based in California with audits conducted by personnel primarily in California would be most affected. We expect a negative return for California-based clients for the ban event.

Analysts Following (ANFO)

The number of analysts following and reporting on a particular company provides a measure of the information, independent of the financial statements, available to the investor. Bhushan (1989) argues that the quantity of private information available about a firm is directly related to the number of analysts following that firm. He concludes that a larger number of analysts following a firm result in less informative earnings announcements. It is expected that users would place less importance on the quality aspect of the audit for those firms with a greater number of analysts following and reporting. Thus, we would expect a positive relation between the number of analysts following a firm and CARRs. And, although it might be suggested that the number of analysts following is a proxy for firm size, Bhushan (1989) reports that the number is related to several factors including the amount of holdings by institutions. The number of analysts following each firm was determined from Nelson's Directory of Investment Research (1990).

Empirical Results

Hypothesis One: Results

Table 3, Panel A, displays Corrado's rank statistic, T , for the ban event (days -1, 0, +1). The T s of -1.374 and -1.421 for days 0 and +1 are only marginally significant at p-values of .0847 and .0777, respectively. Parametric results parallel those for Corrado's rank statistic. These two dates coincide with the two days on which major newspapers disclosed the move by the California State Board of Accountancy to revoke or suspend E&Y's California license to do business. The failure to find a negative reaction on day -1 is congruent with the assertion that there was little or no leakage of information to the market prior to the news release.

The CARRs for combined days 0, +1 is significant ($T = -1.976$) at a p-value of .0242. Although the results are not strong, it appears that investor reactions are consistent with the interpretation that the unexpected move by the State of California to revoke E&Y's license is associated with negative returns of E&Y's audit clients. Based on prior research, we conclude that this is likely a result of investor reaction to alleged diminished quality of E&Y's audits and/or threats to the firm's ability to pay damages (or provide insurance to investors and creditors).

Hypothesis Two: Results

We analyze the cross-sectional variation of the stock price impact of the ban event by estimating GLS rank regression equation (2). CARRs were regressed on control variables (client-firm financial distress, client-firm growth, financial services industry membership, variance of abnormal returns, and ownership dispersion) and experimental variables (client-firm size, corporate location, analysts following, and initial public offering). An overall F test ($F = 9.43$) was significant at a p-value $< .01$. The model yielded an R^2 of .12.⁵

⁵ For evaluation purposes, additional tests of the general model were performed. OLS regression revealed that the coefficients on the independent variables were similar to those from the GLS model. The OLS regression model was tested for multicollinearity using partial correlation coefficients, variance inflation factors (VIFs), and condition indices. Each independent variable had a VIF < 4 and a condition index < 13 . Panel B of Table 4 reveals that no pair of independent variables had a partial correlation coefficient greater than .461 or less than -.578. Multicollinearity is considered a problem

TABLE 3. CORRADO'S RANK STATISTICS AND PARAMETRIC STATISTICS FOR "BAN" EVENT

<i>Panel A. Rank and Parametric Statistics</i>				
Event Day	Rank Statistic (T)	p-value ^a	Parametric Statistic	p-value ^a
-1	1.299	.0968	1.335	.0910
0	-1.374	.0847	-1.392	.0820
+1	-1.421	.0777	-1.439	.0750
<i>Event Window (CARRs)</i>				
-1, 0, +1	-.864	.1938	-.864	.1938
0, +1	-1.976	.0242	-2.002	.0228
<i>Panel B. Abnormal Returns and Return Ranks</i>				
Event Day	Return Ranks ^b		Abnormal Returns	
	Mean	Median	Mean	Median
-1	.532	.493	.00427	-.00036
0	.466	.361	-.00101	-.00447
1	.465	.401	-.00104	-.00248

Notes: ^ap-values are one-tailed values. ^bFor any given event day or event window, a standardized abnormal return rank can assume a value between 0 and 1. The expected value is .5.

Results in Panel A, Table 4 demonstrate that the control variable financial condition (FIN) is significant in the direction predicted by both the audit quality and the insurance hypothesis ($t = -1.76$, $p = .039$). Although the results are consistent with those of BKV (1995), it is not apparent whether the insurance or audit quality hypothesis is dominant.

Panel A, Table 4 also indicates that the firm growth control variable is negatively significant ($t = -4.49$, $p < .01$). Again, these findings are consistent with the predictions of both the insurance and audit quality explanations. Investors apparently perceive that rapid firm growth can overburden a client's internal control system, thereby increasing the probability of material misstatements (Pratt and Stice 1994). A higher likelihood of material misstatements may create a perception of lower audit quality, an increased likelihood of auditor litigation, and greater damage payments by auditors (or higher insurance value of the audit).

Table 4, Panel A, reveals that the industry membership variable is not significant. Apparently shareholders for banks and S&Ls audited by E&Y did not perceive the insurance value or audit quality differentially than for shareholders in other industries.

The results in Panel A, Table 4, suggest that auditor-supplied insurance is more important to shareholders of client firms with greater return variability (VAR) ($t = -4.29$, $p < .01$). Moreover, audit quality is more significant to shareholders of client firms with higher return variability. Although the results for VAR are in the expected direction, it is not possible to differentiate between the insurance and audit quality explanations.

when a VIF exceeds 10, a condition index exceeds 30 (Kennedy 1992), or a partial correlation coefficient is greater than .70 or less than -.70 (Mason and Lind 1996).

TABLE 4. RESULTS

<i>Panel A. Ban Event Cross-Sectional Results</i>					
Variable	Predicted Coefficient Sign Insurance Hypothesis	Predicted Coefficient Sign Audit Quality Hypothesis	Estimated Coefficient	t-Statistic	p-Value ^a
Intercept	N/A	N/A	.821	11.84	.027
1. FIN	-	-	-.050	-1.76	.039
2. GROW	-	-	-.194	-4.49	<.001
3. BANK	-	-	.045	.87	.194
4. VAR	-	-	-.226	-4.29	<.01
5. OWNDIS	+	+	.016	.37	.354
6. SIZE	-	+	-.135	-2.04	.021
7. IPO	-	N/A	-.088	-2.49	<.01
8. CAL	N/A	-	-.018	.54	.294
9. ANFO	N/A	+	.001	.45	.326

Panel B. Correlation Matrix

	GROW	BANK	VAR	OWNDIS	SIZE	IPO	CAL	ANFO
FIN	-.018	.073	-.322	.031	.123	-.081	-.001	-.099
GROW		.190	.001	-.198	-.249	.415	-.160	.120
BANK			-.021	.180	-.091	.022	.018	-.063
VAR				-.167	.461	-.155	-.125	-.001
OWNDIS					-.270	-.090	-.091	.079
SIZE						-.402	-.001	-.578
IPO							.058	.343
CAL								-.046

Notes: Definitions of variables in Table 2. Information for the cross-sectional analyses was obtained from Compustat, Moody's, Standard and Poor's, Lexis-Nexis, the Wall Street Journal Index, Form 10Ks, and Nelson's Directory of Investment Research. The dependent variable in the cross-sectional rank regression model is the cumulative abnormal return ranks for the three-day event window (-1, 0, +1). For evaluation purposes, additional tests of the general model were performed. An overall F-test ($F = 9.43$) was significant at a p-value of $<.01$. The model resulted in an R^2 of .12. The general model was tested for multicollinearity using variance inflation factors and conditional indices in addition to partial correlation coefficients. No significant multicollinearity was detected. ^a p-values are one-tailed values.

The results for ownership dispersion (OWNDIS) are insignificant. Shareholders in more widely held client firms did not attach any more value or significance to the insurance or assurance aspect of the audit than shareholders of firms with more concentrated ownership.

Next, we consider the experimental variables that are designed to help differentiate between the insurance hypothesis and the audit quality explanation. Panel A, Table 4 also reveals that client-firm size (SIZE) is significantly negative ($t = -2.04$, p-value = .021).

The results suggest that auditor-supplied insurance is more important to shareholders of larger client firms. This finding is consistent with prior research on the relation between the probability of auditor litigation, plaintiff damages, and client-firm size (Kellogg 1984; Stice 1991; Carcello

and Palmrose 1994). Moreover, the significant negative relation between CARRs and firm size appears to provide more empirical support for the insurance hypothesis than for the audit quality explanation.

Table 4, Panel A does indicate a statistically significant negative reaction for the IPO variable ($t = -2.49, p < .01$). Such a reaction suggests that the insurance value of the audit is more important for the purchase of new securities than seasoned securities. The results for this variable provide more support for the insurance hypothesis than the audit quality explanation.

The results for corporate location (CAL) and number of analysts following (ANFO) are insignificant. The evaluation of these two variables does not permit us to draw any inferences to distinguish the insurance hypothesis and the audit quality explanation.

In summary, the statistical results for FIN, GROW, and VAR are consistent with expectations from both the insurance hypothesis and audit quality explanation. The results for both SIZE and IPO are more consistent with expectations based on the insurance hypothesis than the audit quality explanation.

Conclusions and Limitations

Our findings suggest that a move by a state board of accountancy to suspend E&Y's license possesses information content for the auditor's publicly traded clients. These results are consistent with the hypothesis that investors do react to information that adversely affects the reputation of a Big 4 firm. Although this finding is important in its own right, it is significant in order to generalize certain findings from prior research. Arguments presented that suggest the Big 4 are viewed differently from other CPA firms may still be valid. However, along the dimensions considered by our analysis, it appears that shareholders do consider certain elements of audit quality and the insurance value of the audit as a component of share price for clients of Big 4 firms.

The finding that investors appear to react to client size and new securities offerings based on insurance expectations validates the notion that some market participants place value on a Big 4 auditor as an insurer of investor and creditor losses. In this sense, we believe that this study makes progress toward distinguishing between the audit quality and insurance hypotheses.

Several limitations are apparent in this study. First, those limitations common to event studies, in general, are present. Those include the assumptions related to the efficient market hypothesis and the ability of the models used to isolate investors' reactions to the event of interest. Related to this is the risk that any identified results are driven by omitted variables.

Another limitation relates to the external validity of the findings. We analyze only one Big 4 CPA firm with one event. Whether the results may be generalized to other Big 4 CPA firms and events is unknown. Additional studies using different firms and other types of events would help to confirm or deny the generalizability of our findings.

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Appendix

Ernst & Young News Story—Call for Ban (Based on LEXIS/NEXIS Search)

December 5, 1990 - Wednesday

The Wall Street Journal

Headline: "California Asks Board to Punish Ernst & Young"

By Richard B. Schmitt

"California sought to revoke or suspend the accounting license of Ernst & Young, citing its Arthur Young & Co. predecessor's audit work for the failed Lincoln Savings & Loan Association. The action was contained in a complaint that authorities filed last month with the state board of accountancy but hadn't been previously disclosed."

Los Angeles Times

Headline: "State May Revoke License of Former Lincoln Auditors"

By James S. Granelli

"The state Board of Accountancy is seeking to revoke or suspend the California license of Ernst & Young, one of the Nation's largest accounting firms, for alleged 'gross negligence' in audits of Lincoln Savings & Loan in Irvine and its parent company."

December 6, 1990 - Thursday

The New York Times

Headline: "California Might Void Ernst License"

By Alison Leigh Cowan

“The State of California’s licensing board is seeking to revoke Ernst & Young’s license to practice accounting because its two predecessor firms had audited the failed Lincoln Savings and Loan Association.”

“The Nov. 16 action, first reported in the *Los Angeles Times* yesterday...”

San Francisco Chronicle

Headline: “New Twist to Lincoln S&L Case; State Asks Board to Revoke License of Accounting Firm”

By Jerry Roberts

“California officials have moved to suspend or revoke the state license of the world’s largest accounting firm...”

December 7, 1990 - Friday

Chicago Tribune

Headline: “Ernst & Young Faces Ban in California”

“Ernst & Young could be banned from doing audits in California because of its work for Charles H. Keating Jr.’s failed Lincoln Savings and Loan.”

The Washington Post

Headline: “Accounting License in Jeopardy; Ernst & Young Cited in California S&L Case”

By Albert B. Crenshaw

“...California authorities have begun proceedings that could revoke the state license of the nation’s largest accounting firm for alleged ‘gross negligence’ in the auditing of a failed thrift.”