An Examination of Auditor Changes Following Events Adversely Affecting External Auditor Credibility.

Thomas E. Wilson Jr
Louisiana State University and Agricultural & Mechanical College

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An examination of auditor changes following events adversely affecting external auditor credibility

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The Louisiana State University and Agricultural and Mechanical Col., 1991
AN EXAMINATION OF AUDITOR CHANGES FOLLOWING EVENTS ADVERSELY AFFECTING EXTERNAL AUDITOR CREDIBILITY

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

The Department of Accounting

by

Thomas E. Wilson, Jr.
B.A., Rice University, 1980
M.B.A., University of Houston, 1984
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ABSTRACT

This study examines auditor changes following events adversely affecting auditor credibility. Disciplinary actions against auditors by the Securities and Exchange Commission (SEC) are posited to be events damaging to auditor credibility. Agency theory and prior research are used to generate hypotheses about differences between client firms that switch auditors and client firms that do not switch auditors after an SEC action under Rule 2(e) against their auditor.

A series of univariate and multivariate statistical tests are conducted on the sample firms. The sample is divided into a Switch group and a Non-Switch group. The sample as a whole is examined, as well as subgroups of clients of Big Eight auditors and clients of smaller auditors.

The results indicate that smaller firms are more likely to switch auditors after an SEC Rule 2(e) action than larger firms. Among clients of Big Eight auditors, firms with a faster rate of sales growth are more likely to switch auditors. Contrary to expectations derived from prior research, firms with audit committees are less
likely to switch auditors than firms without audit committees. Among clients of smaller auditors, firms with management bonus plans tied to audited accounting data are less likely to switch auditors than firms without such compensation plans, a result opposite that predicted by agency theory.

Other than the differences noted between clients of Big Eight auditors and clients of smaller auditors, the most striking result of the study is the apparent failure of agency theory to predict the response of client firms to a decline in auditor credibility.
CHAPTER 1
OVERVIEW OF THE STUDY

An audit of a firm's financial statements by an external auditor provides users of the financial statements with some degree of assurance about their accuracy and reliability. Descriptions of the market for audit services suggest that this level of assurance is tied to the credibility of the external auditor, and that credibility varies across auditors. The demand for auditor credibility also varies across the firms purchasing audit services (Dopuch and Simunic 1982; DeAngelo 1981). The level of auditor credibility demanded by a firm will be a factor in the firm's choice of an external auditor.

Largely unexplored in the accounting literature are the consequences of changes in auditor credibility. For example, the factors that affect the reaction of client firms when the credibility of their external auditor changes are unknown. This research seeks to examine the reaction of client firms to a change in the credibility of their external auditor, and to identify the firm characteristics that affect that reaction.
Demand for Credibility

Agency theory postulates that the self-interest of corporate managers can diverge from the self-interest of the owners of the firm. The financial statements of the firm provide owners with a means of monitoring the performance of managers. Wallace (1980) points out that skeptical owners will make management bear the cost of any perceived risk of loss due to misleading or fraudulent financial statements. Thus, managers have an incentive to provide some assurance to owners that the financial statements are free of material fraud or error. The audit of the financial statements by an external auditor provides that assurance. As Dopuch and Simunic (1982, 407) note:

Stockholders will rationally expect that attestation by a credible auditor reduces the probability that management is able to successfully conceal 'self serving behavior.'

If a credible audit increases owners' confidence that no self-serving behavior by management is being concealed, then it should also increase their confidence that management's activities are more aligned with the owners' interests, and more likely to increase the firm's expected future cash flows. Attestation of the firm's financial statements by a credible auditor should thus increase the value of the firm. Dopuch and Simunic (1982) note that management's wealth will increase to the extent that compensation is tied to the value of the firm.
In determining what level of auditor credibility to "purchase," firm management must balance the benefits of a credible audit discussed against its costs. The chief cost to management of a credible audit will be the utility of self-serving behavior foregone. The point where the marginal benefit of a credible audit equals the marginal cost will vary across firms. DeAngelo (1981, 185) states:

Differential agency costs across firms and over time for a given firm imply a heterogeneous demand for audit services, i.e., differing 'levels' of auditing are demanded.

Also, Francis and Wilson (1988, 663) note that "it follows that when agency costs are greater there is increased demand for higher-level audit quality."

Assessment of Credibility

Unlike consumers of most other goods, users of audited financial statements have no means of directly assessing the quality of the product. Financial statement users do not directly observe audit procedures and have little information about the contractual arrangements, and resulting incentives, that may exist between the auditor and the client firm (DeAngelo 1981). Unable to directly assess audit quality, users develop observable proxies that are associated with audit quality. DeAngelo (1981) proposed auditor size as a surrogate for audit quality. Another potential proxy is the reputation of the audit firm. Dopuch and Simunic (1982, 408) argue:
Since in the United States the only audit characteristic disclosed to users today is an auditor's identity, credibility must be associated solely with an auditor's name.

If the only observable indicator of audit quality is the auditor's name, then it follows that events adversely affecting the reputation of an audit firm diminish the perceived quality of audits performed by the firm. Dopuch and Simunic (1982, 411) note that "changes in credibility will . . . derive from public information about auditors." Wilson and Grimlund (1990) examined actions against public accounting firms by the Securities and Exchange Commission (SEC), and found that these actions appeared to adversely affect auditor credibility. The nature of these actions by the SEC is discussed in more detail below.

The SEC and Auditor Credibility

Rule 2(e) of the SEC's Rules of Practice allows the SEC to impose penalties against auditors who have engaged in improper or unethical professional conduct, or who have willfully violated or aided in the violation of federal securities laws. Rule 2(e) allows the SEC to prohibit individuals or firms from practicing before the SEC, mandate a review of audit procedures by other audit firms, or prohibit an audit firm from accepting new, publicly held clients for a specified period of time. Enforcement activities resulting from Rule 2(e) are published by the
SEC as part of their Accounting and Auditing Enforcement Releases (AAERs). Poloway (1987, 516) notes:

... [the Rule's] mere existence induces considerable compliance, particularly in the practice of accounting, where there is always the danger of irreparable damage to a professional reputation.

The prohibition against practicing before the SEC and/or against accepting new clients is an especially powerful weapon. Stevens (1981, 211) quotes the general counsel of an accounting firm as saying "Rule 2(e) is the atomic bomb and the SEC has it."

Actions against audit firms by the SEC under Rule 2(e) are uncommon. Business Week (1984, 132) noted that "private litigation over audits is commonplace, but the SEC will step in only if the mistakes are glaring and frequent." Descriptive evidence of the consequences of SEC actions to an auditor's reputation can be found in the business press. A case in point is the 1983 action by the SEC against the audit firm Fox & Co. An article in the business press emphasized the effect of the action on Fox & Co.'s reputation:

U.S. Minerals Exploration Co., ..., recently dismissed Fox and went with Price Waterhouse. "We were very pleased with Fox's service and fees. But Fox's problems became our problems," says ... U.S. Minerals' president. "Because of the SEC problem," he explains, "we started to get some flak from investment bankers." (Business Week 1984, 133)

Wilson and Grimlund (1990) examined client reaction to SEC actions under Rule 2(e). Their results indicated
that an auditor affected by an SEC action tended to lose market share to its competitors. Additionally, auditors involved in SEC actions had more difficulty retaining clients and attracting new clients than did other auditors. The results were consistent with the view that SEC actions under Rule 2(e) are events that adversely affect the credibility of audit firms.

Wilson and Grimlund (1990) examined client reaction subsequent to an SEC action against an auditor. Their hypotheses focused on the effects of the SEC action itself, as opposed to the original audit failure that led to the SEC action. Their results, as well as the descriptive evidence discussed above, support the conclusion that actions by the SEC under Rule 2(e) are public events that can adversely affect the credibility of an audit firm. However, the issue of changes in auditor credibility has not been given much attention in the accounting literature. Most research to date has treated auditor credibility as a constant over time.

**Research Objectives**

This research has two main objectives. The first is to identify the factors affecting client firm reaction to a decline in external auditor credibility. Second, this research will attempt to provide some initial insight into whether the determinants of client reaction to a decline
in auditor credibility differ between clients of Big Eight auditors and clients of non-Big Eight auditors.

Wilson and Grimlund (1990) found that SEC actions under Rule 2(e) appeared to lower auditor credibility.¹ The use of such actions as events damaging auditor credibility allows these objectives to be articulated in the form of the following research questions:

1. On what dimensions do firms that switch auditors after an SEC Rule 2(e) action against their external auditor differ from firms that do not switch auditors after such an action?

2. Are the differences between firms that switch auditors and firms that do not switch auditors after an SEC Rule 2(e) action against their external auditor similar for clients of Big Eight auditors and clients of smaller auditors?

Hypotheses derived from agency theory and prior research will test these research questions. The data to test the hypotheses will be drawn from the financial statements and proxy statements of sample firms.

Research Method

Actions by the SEC against auditors under Rule 2(e) of the SEC's Rules of Practice will be used as events that adversely affected the credibility of an auditor. A sample of Rule 2(e) actions will be drawn from prior research and the SEC's Accounting and Auditing Enforcement

¹ Although other events may damage auditor credibility, the study is limited to an examination of SEC actions under Rule 2(e).
Releases (AAERs). The clients of auditors cited by the SEC will be divided into two groups. One group will consist of firms that switched auditors within the two years following the SEC action. The other group will consist of firms that did not switch auditors within the two year period. Client firms that declared bankruptcy or were acquired by other firms within the two year period will not be included in the sample.

Both univariate and multivariate tests will be used to investigate differences between the two groups of sample firms. First, the t-statistic will be calculated and tested for significant differences in the continuous independent variables. Because of a lack of prior knowledge about the distributional characteristics of the independent variables, the nonparametric Mann-Whitney test will also be conducted to provide additional assurance.

A limitation of this approach is that it does not include clients that anticipate an SEC action and switch auditors prior to the announcement of the action. However, the results of Wilson and Grimplund (1990) indicate a significant client reaction after the announcement of the SEC action.

Some client firms may have entered into multi-year engagement contracts with their auditor, and thus are unable to switch auditors within the two year period. Since information as to the nature of individual engagement contracts is not publicly available, the inability of client firms to switch auditors due to contractual obligations represents a potential confounding factor in the study. Healy and Lys (1986) also employed a two year period in their examination of auditor changes following audit firm mergers.
about the results of the t-tests. Differences in
dichotomous independent variables will be examined by
means of a Chi-square test for independence of
classification.

The multivariate tests will provide additional
assurance about the univariate test results. A logistic
regression (logit) model will be employed to determine the
impact of the independent variables on the decision of a
firm to switch auditors following an SEC action against
the firm's auditor. A statistically significant
coefficient for an independent variable will be
interpreted as evidence that the variable affects the
probability that a firm will switch auditors following an
SEC action against its external auditor.

Expected Contribution

This research will provide additional insight into
the nature of the demand for auditor credibility. Dopuch
and Simunic (1982, 443) note:

The theory of auditor credibility and differences in
credibility across firms implies that the means
through which auditors acquire and lose credibility is
an important area of study. At this time, we know
very little about these processes.

Results of this research will be of benefit to auditors.
Knowledge of the factors influencing a client's decision
to switch auditors following events that adversely affect
external auditor credibility will allow auditors to more
accurately assess the consequences of such events. With a better understanding of the costs of a decline in credibility, auditors will be better equipped to determine the optimal level of resources allocated to maintaining audit quality and minimizing the chances of a credibility reducing event.

This research will also benefit auditors who have experienced a decline in credibility. By identifying which clients are most sensitive to auditor credibility the auditor will be able to maximize the effectiveness of its efforts to retain existing clients and attract new ones. The audit firm will have the means to better target its marketing strategy as it seeks to recover from the effects of a loss of credibility.

Results of this research will also have public policy implications. The SEC will have information to enable it to more fully assess the punitive impact of its actions against auditors under Rule 2(e). A more thorough understanding of the consequences of a Rule 2(e) action can allow the SEC to better determine when a Rule 2(e) action is an appropriate regulatory response in dealing with an audit firm's violation of existing rules.

**Summary**

This chapter has presented an overview of the study. The demand for and assessment of auditor
credibility was discussed, as well as the impact of SEC Rule 2(e) actions on auditor credibility. The research objectives of the study were described, and the research method to be employed was presented. The expected contribution of the study was also discussed. The next chapter will present a review of the relevant literature. A detailed description of the research method used will be presented in the third chapter. The fourth chapter will discuss the results of the study, and the fifth chapter will provide a discussion of the implications and limitations of the study, as well as suggestions for future research.
CHAPTER 2
REVIEW OF THE LITERATURE

The accounting research in the area of auditor credibility can be divided into two general types. One stream of research has attempted to measure capital market perceptions of auditor credibility. The other has attempted to assess the demand for audit quality by analyzing the auditor choices of client firms. These two approaches to the examination of auditor credibility, as well as other research in the area, are reviewed in subsequent sections of this chapter.

Market Based Research

Nichols and Smith (1985) investigated the market reaction to clients switching between Big Eight auditors and smaller auditors. If there is a positive correlation between auditor size and audit quality, as postulated by DeAngelo (1981), then firms switching from a Big Eight auditor to a smaller auditor should experience a negative market reaction. A positive market reaction would be expected for a client switching to a Big Eight auditor from a smaller auditor. Although Nichols and Smith (1985) did observe market reactions in the directions predicted,
the magnitudes involved were not statistically significant.

Ettredge, Shane, and Smith (1988, 32) related the quality of an audit to the extent that accounting income is correlated with future dividends:

Higher quality audits should be associated with earnings reports that are more reflective of the underlying events useful for predicting future dividend flows.

From this perspective, the higher the quality of the audit, the more likely it is that unexpected earnings accurately reflect changes in future dividend flows. Faced with a change in expected future dividends, the market will adjust security returns accordingly. If a firm's financial statements are audited by a lower quality auditor, investors may perceive that some portion of unexpected earnings are due to errors and manipulation by management, rather than events signaling a change in future dividends. The market would thus be less likely to respond to unexpected earnings. If Big Eight auditors provide higher quality audits than smaller auditors, then the correlation of unexpected earnings and abnormal security returns should be higher for clients of Big Eight auditors than for clients of smaller auditors. After controlling for client size and the sign of unexpected earnings, the results were consistent with the hypothesis that Big Eight auditors do provide higher quality audits.
Beatty (1989) examined the relationship between auditor reputation and market returns for initial public offerings in the capital market. He found evidence consistent with the hypothesis that clients employing a more reputable auditor will receive a higher price for its stock. Investors appear willing to pay a higher price, and thus accept a lower return, for the stock of a firm associated with a more credible auditor.

Eichenseher, Hagigi, and Shields (1989) investigated market reaction to changes in auditors by firms whose securities are traded over-the-counter (OTC). They found a generally negative reaction to auditor changes, perhaps indicating stockholder skepticism about management's motives for the change. The extent of the security price response to an auditor switch was affected by the level of management ownership in the firm. The greater the share of management ownership in the firm, the more negative the market reaction to the switch in auditors. The results also indicated that the market responds more favorably to changes to a Big Eight auditor than changes from a Big Eight auditor. This finding supports the hypothesis that firms use the auditor selection decision as a signaling mechanism to the market. A change to a Big Eight auditor can be interpreted as a positive signal about the firm's future prospects.
Johnson and Lys (1990) were unable to document any market reaction to a firm's announcement of a change from a smaller auditor to a larger auditor. An examination of profitability for the three years prior to announcement of the change in auditors revealed that firms switching to larger auditors tended to outperform firms switching to smaller auditors. However, firms that did not switch auditors were, on average, more profitable than firms that did switch auditors, regardless of the direction of the switch.

Client Choice Research

Carpenter and Strawser (1971) examined corporations planning initial stock offerings. They found that these companies often replace their local or regional CPA firms with a national auditor. They (1971, 58) concluded:

... substantial emphasis appears to be placed on a national firm's reputation as a known stamp of financial statement reliability. . . .

Palmrose (1984) investigated the association between agency cost variables and auditor selection. She hypothesized that the higher a firm's agency costs, the more likely the firm would engage a higher-quality auditor. An auditor was considered a high quality auditor if it was one of the Big Eight or was a specialist in the same industry as the client firm. Results were
inconclusive, with only firm size significantly related to the choice of a higher-quality auditor.

Healy and Lys (1986) examined clients of smaller auditors that had merged with Big Eight auditors. They postulated that a client would remain with the acquiring Big Eight auditor if it benefitted from the larger auditor's specialized services and/or reputation. The clients who would not benefit from these advantages were more likely to switch to a non-Big Eight auditor after the merger. Healy and Lys (1986) predicted that a client's demand for the increased reputation of a Big Eight auditor was related to the client's size, rate of growth, and plans to issue debt or equity in the near future. Their results indicated that clients remaining with the acquiring Big Eight auditor tended to be larger and have higher growth rates than those clients returning to a smaller auditor. No strong evidence was found to indicate that clients planning to issue debt or equity in the near future were more likely to remain with the Big Eight auditor.

DeFond (1987) hypothesized that changes in management ownership, firm leverage, and short-term accruals are related to the firm's demand for audit quality. Decreases in the level of management ownership of the firm and increases in firm leverage were expected to lead to an increased demand for a quality audit.
DeFond (1987) notes that a firm's management has a large amount of discretion in determining the firm's short-term accruals. The larger the level of accruals, the greater the potential for management manipulation of accruals. Thus, DeFond (1987) posits a link between increases in accruals and the demand for a higher-quality audit to monitor management activities.

DeFond (1987) identified four surrogates for audit quality. These surrogates were auditor size, brand-name reputation (Big Eight versus non-Big Eight), industry expertise, and independence. The independence of an auditor with respect to any single client was measured as the level of the client's revenues relative to the revenues of all clients audited by the auditor. A linear combination of the four surrogates was developed to generate a comprehensive proxy for audit quality. Results indicated that changes in management ownership and leverage were significantly associated with the selection of a high-quality auditor. Changes in short-term accruals were not significant.

Francis and Wilson (1988) tested the association between a firm's agency costs and its demand for a quality audit. They (1988, 667) theorize the following:

... a higher quality audit can be considered as part of the complex control system that mitigates the relative inability of diffused ownership to directly monitor and control management action.
Audit quality was defined first as a dichotomous variable (Big Eight auditors vs. all other auditors), and as a continuous variable based on total client sales audited by the auditor. Francis and Wilson (1988) found an association between agency cost proxies and auditor choice when the first measure of audit quality was used. No consistent results were found for the continuous measure of audit quality.

Williams (1988) investigated firms that switched from one Big Eight auditor to another. He found that in selecting an auditor, clients appear to value industry expertise and longevity. Firms were less likely to switch auditors if their current auditor was a specialist in their industry. Firms that had an established, long-term relationship with their auditors were also less likely to switch auditors. Williams (1988) also found that firms receiving negative media publicity were more likely to switch auditors than other firms. Williams (1988, 259) notes:

The client's reputation also tends to influence auditor changes. Clients that received a tarnished reputation appear to seek new auditors in an attempt to renew the managers' faith in the monitoring of financial statements.

Williams (1988) concluded that the results do not support the common assertion that opinion shopping is a primary motivation for auditor switching.
Another test of the association between auditor choice and agency cost variables was provided by Eichenseher and Shields (1989). Consistent with Francis and Wilson (1988), they postulate a positive relationship between a firm's agency costs and its demand for a higher-quality audit. However, in some cases, the transactions costs of switching auditors outweigh the agency cost savings achieved by aligning with a higher-quality auditor. The relative size of the transactions costs and agency cost savings will determine if the firm switches to a higher-quality auditor. From this perspective, the switch to a higher-quality auditor can result in changes in either incremental agency costs or incremental transactions costs. If the firm has reached the decision to terminate its current auditor for reasons unrelated to agency costs, such as a decline in the auditor-client working relationship, then the marginal transactions cost of switching to a higher-quality auditor is zero. Increases in a firm's external financing, or changes in management's share of firm ownership can alter the savings in agency costs realized by switching auditors.

Whether the auditor switch was brought about by declines in incremental transactions costs or by increases in agency cost savings, a firm switching auditors will select a new auditor that offers a level of audit quality that best fits the firm's needs. Therefore, the
relationship between agency costs and auditor selection should be stronger for firms that have recently switched auditors than for firms that have remained with their current auditor for several years. Eichenseher and Shields (1989) found that agency cost variables explained auditor selection for firms that had recently changed auditors, while no significant association was found for firms that had not switched auditors. For firms that did switch auditors, the association between agency cost variables and auditor selection was greater two years after the switch than at the time of the switch. This result indicates that firm may switch auditors in anticipation of changes in agency costs. Overall, the results of Eichenseher and Shields (1989) support the argument that the decision to switch auditors is affected by both transactions costs and agency costs.

Wilson and Grimlund (1990) examined client reaction to SEC actions under Rule 2(e). Their results indicated that an auditor affected by an SEC action tended to lose market share to its competitors. Also, auditors involved in SEC actions had more difficulty retaining clients and attracting new clients than other auditors. The results were consistent with the view that SEC actions under Rule 2(e) are events that adversely affect the credibility of audit firms.
Other Research

Schroeder, Solomon, and Vickrey (1986) surveyed audit committee chairs of Fortune 500 companies in an attempt to determine the factors they perceived as affecting audit quality. The results indicated that the committee chairs rated audit-team specific factors as more important in determining audit quality than firm-wide factors. For example, items such as the level of partner/manager attention given to the audit and communications between the audit team and management ranked higher than litigation involving the CPA firm and the recency and outcome of the auditor's peer review.

Palmrose (1988) attempted to use litigation as a means for making audit quality distinctions among auditors. She posited an inverse relationship between audit quality and litigation rates. Within her framework, litigation arises when an audit failure occurs in conjunction with losses to either the client or the users of the client's financial statements. Since audit failures are less likely when high quality audits are performed, higher quality auditors should be the target of less litigation than their lower quality counterparts. Palmrose's results indicate that non-Big Eight auditors as a group had higher litigation
occurrence rates than the Big Eight. This outcome is consistent with Big Eight auditors providing higher quality audits than their smaller competitors.

Knapp (1988) surveyed commercial loan officers to determine the effects of auditor switches on the credibility of a switching firm's financial statements. The results indicated that a financially healthy firm that switched from a non-Big Eight auditor to a Big Eight auditor did not significantly increase the credibility of its financial statements. However, financially troubled firms did increase the credibility of their financial statements by switching from a non-Big Eight auditor to a Big Eight auditor.

Summary

With the exception of Carpenter and Strawser (1971), most accounting research in the area of auditor credibility is of relatively recent origin. The literature has tended to treat auditor credibility as an intertemporal constant, with only Healy and Lys (1986) and Wilson and Grimlund (1990) investigating the reaction of client firms to changes in auditor credibility. Healy and Lys (1986) examined an event wherein the reputation of a client's auditor was increased through merger with a Big Eight auditor. Wilson and Grimlund (1990) examined an
event where the reputation of a client's auditor was adversely affected.

Another characteristic of the research to date is the absence of an accepted measure of auditor credibility. Most studies have treated auditor credibility as a categorical variable—Big Eight auditors vs. all other auditors. Attempts to create a finer measure have met with mixed results. Beatty (1989) examined the cash compensation paid to auditors by firms involved in initial public offerings of stock. He found a positive correlation between auditor compensation and the price paid for the stock by the market. The results are consistent with investors paying a higher price (and thus accepting a lower return) for the stock of firms associated with a higher quality auditor.

Francis and Wilson (1988) tested the association between a firm's agency costs and its demand for a credible audit. When a simple Big Eight vs. non-Big Eight auditor choice variable was used, the results indicated that a firm's agency costs were positively related to its demand for an audit by a Big Eight firm. When a continuous auditor choice variable (based on client sales audited) was employed, no consistent association between agency costs and auditor choice was found.

DeFond (1987) combined auditor size, industry expertise, and independence into a single measure of
auditor credibility. Using this measure, an association between a client firm's agency costs and its choice of auditor was documented. Johnson and Lys (1990) used the relative size of a firm's new auditor to its previous auditor as a measure of audit quality. They found a positive correlation between firm growth and movement to a larger auditor.

The measures of auditor credibility used in the literature have, for the most part, not incorporated differences in credibility among Big Eight auditors, or among smaller audit firms. The use of a categorical measure of credibility implicitly assumes that all Big Eight auditors offer an equal level of credibility. Similarly, all smaller audit firms are assumed to offer a single level of credibility. Although the research to date has provided insight into some factors affecting a firm's decision to employ a Big Eight vs. non-Big Eight auditor, less is known about the factors affecting a firm's decision to switch from one Big Eight auditor to another, or from one smaller auditor to another.
CHAPTER 3
RESEARCH METHOD

The purpose of this chapter is to describe the research method used in the study. The first section presents the objectives and research questions. Subsequent sections review agency theory and prior research used to generate research hypotheses. Measurement of variables and sample selection are then discussed. The final part of the chapter details the statistical techniques employed to analyze the data.

Research Objectives

This research has two main objectives. The first is to identify the factors affecting client firm reaction to a decline in external auditor credibility. Second, this research will attempt to provide some initial insight into whether the determinants of client reaction to a decline in auditor credibility differ between clients of Big Eight auditors and clients of smaller auditors.

Wilson and Grimlund (1990) found that SEC actions under Rule 2(e) appeared to reduce auditor credibility. The use of such actions as events damaging auditor
credibility allows these objectives to be articulated in the form of the following research questions:

1. On what dimensions do firms that switch auditors after an SEC Rule 2(e) action against their external auditor differ from firms that do not switch auditors after such an action?

2. Are the differences between firms that switch auditors and firms that do not switch auditors after an SEC Rule 2(e) action against their external auditor similar for clients of Big Eight auditors and clients of smaller auditors?

Switching auditors is a costly activity for client firms. A firm retaining a new auditor will incur start-up costs in the form of audit fees and demands on management time as the auditor evaluates the firm's accounting system (Healy and Lys 1986). In making the decision to switch auditors after an SEC Rule 2(e) action, a firm must weigh the costs of switching against its demand for credible auditing. The following sections draw upon agency theory and prior research to identify some factors affecting firm demand for auditor credibility.

Agency Theory

Agency theory posits a divergence between the self-interest of the manager of a firm and the interests of the owners and creditors of the firm. Jensen and Meckling (1976) argue that the degree of divergence is tied to the extent of management ownership in the firm. A manager with an ownership stake in the firm will have less
incentive to shirk and more incentive to take actions maximizing firm cash flows. Extending this line of reasoning, Francis and Wilson (1988, 666) argue:

It follows from this argument that firms with higher levels of manager ownership would have less need for higher-quality audits than would firms with lower levels of manager ownership assuming a "convergence of interests" as manager ownership increases.

If firms with a high degree of manager ownership have less need for a credible audit, then one would expect the degree of manager ownership to be a factor affecting a firm's decision to switch auditors following a decline in external auditor credibility. This leads to the first hypothesis (stated in the alternative form):

\[ H_1: \text{Ceteris paribus, the smaller the manager's ownership in the firm, the higher the probability that the firm will switch auditors following an SEC Rule 2(e) action against the firm's external auditor.} \]

Research investigating the relationship between manager ownership and auditor choice has yielded mixed results. Francis and Wilson (1988) tested the degree of management ownership as a factor affecting the probability that a firm switching auditors would select a Big Eight auditor. No significant result was found. Eichenseher and Shields (1989) found that management ownership was positively associated with the switch to a Big Eight auditor.

Palmrose (1984) notes that one method owners use to limit the divergence of interests between managers and owners is a management compensation plan tied to reported
financial performance. Since compensation plans of this nature rely on accounting-based financial information, a firm using such a plan will incur additional monitoring costs. The increased need for monitoring can lead to a demand for a higher credibility audit by the firm (Francis and Wilson 1988). Thus, the second hypothesis (alternative form) to be tested is:

H2: Ceteris paribus, a firm with an accounting-based management compensation plan is more likely to switch auditors following an SEC Rule 2(e) action against the firm's external auditor than a firm without an accounting-based management compensation plan.

Palmrose (1984) found no significant association between the existence of an accounting-based management compensation plan and the probability that a firm would select a Big Eight auditor. Francis and Wilson (1988) also reported a lack of significance. However, Francis and Wilson (1988) did find that the implementation or termination of a management bonus plan over a three-year period was significantly associated with firm choice of a Big Eight vs. smaller auditor.

Another aspect of agency theory is the conflict of interest between the owner/managers of a firm and the firm's debtholders. Watts and Zimmerman (1986) discuss the incentives of the owner/manager to transfer wealth from the debtholders. Palmrose (1984, 233) argues:

... the greater the proportion of debt in a company's capital structure, the greater the potential
for wealth transfers (that is, agency costs) from bondholders to shareholders.

The greater the potential for wealth transfers, the more likely creditors will be to include accounting-based covenants in loan agreements. These covenants are designed to limit the ability of managers to effect these transfers. Credible audits provide debtholders with a means of monitoring the debt covenants. The demand for credible auditing should therefore be positively associated with the amount of debt in a firm's capital structure (Palmrose 1984; Eichenseher and Shields 1989).

Francis and Wilson (1988) posit a negative association between debt and the demand for credibility. They (1988, 667) state:

If a firm switches to a lower-quality auditor, the value of existing debt claims is expected to drop, thus, increasing the value of stockholders' residual claims. Based on this reasoning, it is hypothesized that firms with higher debt levels are more likely to switch to a lower-quality auditor.

Francis and Wilson (1988) found the expected negative association between firm leverage and choice of Big Eight auditor. Eichenseher and Shields (1989) found a positive relationship between a firm's debt level and its tendency to choose a Big Eight auditor. Palmrose (1984) found a negative, although statistically insignificant, relationship between firm leverage and selection of a Big Eight auditor. Given the disagreement in the literature about the relationship between existing debt and the
demand for credibility, no directional hypothesis can be formulated about the effect of leverage on a firm's decision to switch auditors following an SEC Rule 2(e) action against the firm's external auditor. Therefore, the third hypothesis, stated in the alternative, is:

H3: Ceteris paribus, a firm switching auditors following an SEC Rule 2(e) action against the firm's external auditor will have a significantly different degree of leverage, on average, than will a firm not switching auditors after an SEC action.

The relationship between a firm's future financing plans and its demand for credibility seems clearer than is the case with existing debt. As discussed earlier, Carpenter and Strawser (1971) found that firms issuing stock for the first time tended to switch to a national auditor. Healy and Lys (1986, 254) note:

Big Eight reputations are likely to be particularly valuable to clients that anticipate raising debt or equity in national or international financial markets, since the Big Eight reputation lowers the information costs of potential investors. Conversely, Big Eight brand names will be less valuable for clients that finance investments internally and do not anticipate raising outside capital.

Thus, a positive association between a firm's future financing plans and its demand for auditor credibility is expected. This leads to the hypothesis (alternative form):

H4: Ceteris paribus, a firm issuing debt or equity will be more likely to switch auditors following an SEC Rule 2(e) action against the firm's external auditor than will a firm with no plans to raise funds.
Empirical results to date have been mixed. Healy and Lys (1986) found that the issuance of debt or equity did not appear to affect a firm's choice of auditor. Francis and Wilson (1988) found a positive relationship between a firm's issuance of equity or debt and its decision to retain a Big Eight auditor.

Two other characteristics that may affect firm response to changes in auditor credibility are the size of the firm and the growth of the firm. Palmrose (1984) notes that as the size of the firm increases, so do its agency costs. A larger, more rapidly growing firm is likely to enter into more agency relationships, and the scale of firm operations makes observation of management by owners more difficult. Larger, growing firms must rely more upon audits as a means of monitoring. A positive association is therefore expected between firm size and growth, and firm demand for credibility. From the perspective of agency theory, larger and more rapidly growing firms should be more likely to react by changing auditors when an event adversely affects the credibility of their external auditor.

A different view of the relationship between firm size and the demand for credibility can be gained when the amount of information available about different sizes of firms is considered. Wilson and Grimlund (1990) note that for large firms, financial statements comprise only a
small part of the information set upon which estimates of future cash flows are based. These alternative sources of information allow the market to anticipate most of the information contained in the firm's financial statements. Wilson and Grimlund (1990, 48) conclude:

Events affecting the credibility of the financial statements themselves (such as an SEC action against an audit firm) may have comparatively little effect on estimates of expected cash flows.

The financial statements of smaller firms make up a large part of the information set upon which estimates of future cash flows are based (Grant 1980; Atiase 1985). Events affecting the credibility of a smaller firm's financial statements may have a larger impact on its stock price than similar events for a larger firm. Wilson and Grimlund (1990, 48) suggest:

Management of a smaller firm may have greater incentive to retain a credible auditor, or to switch to a more credible public accounting firm if their current auditor suffers a perceived loss of reputation.

Based on the above discussion, no directional hypothesis can be formulated about the influence of firm size and growth on a firm's decision to switch auditors following an SEC Rule 2(e) action against the firm's external auditor. The hypotheses (stated in the alternative) to be tested are:

H5: Ceteris paribus, a firm switching auditors following an SEC Rule 2(e) action against the firm's external auditor will, on average, differ
significantly in size from a firm that does not switch auditors after an SEC action.

\[ H6: \text{Ceteris paribus, a firm switching auditors following an SEC Rule 2(e) action against the firm's external auditor will, on average, have a rate of growth significantly different from a firm that does not switch auditors after an SEC action.} \]

Several studies have attempted to test whether firm size and firm growth are related to auditor choice. Palmrose (1984) found a positive relationship between firm size and selection of a Big Eight auditor. Healy and Lys (1986) found that large, rapidly growing firms were more likely to retain a Big Eight auditor. Eichenseher and Shields (1989) found mixed support for a positive association between size and choice of a Big Eight auditor. Wilson and Grimlund (1990) found that auditors involved in an SEC action were more likely to lose market share among the small client market segment than for the market as a whole.

Variables Drawn From Prior Research

Some findings from previous research suggest additional factors affecting firm response to changes in external auditor credibility. Lynn (1985) surveyed firms with and without audit committees about the relative importance of auditor selection criteria. She found that the national prestige of an auditor was more important to firms with audit committees than to firms without audit committees. Since auditor prestige is more important to
firms with audit committees, these firms are expected to be more likely to respond to a loss of auditor prestige by changing auditors. This leads to the hypothesis
(alternative form):

\[ H7: \text{Ceteris paribus, a firm with a corporate audit committee is more likely to switch auditors following an SEC Rule 2(e) action against the firm's external auditor than a firm without a corporate audit committee.} \]

Schwartz and Menon (1985) postulate that a firm purchasing an audit is acquiring a package of attributes, including the reputation of the auditor, its industry expertise, and its responsiveness to client needs. The firm's weighting of the importance of each of these attributes governs its selection of an auditor. However, the firm's attribute weighting may not remain stable over time. As Schwartz and Menon (1985, 252) note:

A company will optimize the package of services it receives by making trade-offs among the various dimensions of the audit product subject to the constraint of audit cost. A deterioration in financial condition can result in the purchasers of the audit services changing the importance attached to different dimensions of the audit product as well as to the cost of the audit itself.

Schwartz and Menon (1985) found that firms nearing bankruptcy were more likely to switch to a different class of auditor, from a Big Eight auditor to a smaller auditor, or from a smaller auditor to a Big Eight auditor. The results indicate that financial distress may cause firms to reorder their priorities, including the importance of
auditor reputation, in selecting an auditor. Thus, firm response to an event adversely affecting the credibility of an external auditor is expected to be associated with the financial health of the firm. The limited research to date on this issue provides no evidence about the direction of this relationship. Stated in the alternative, the hypothesis to be tested is:

H8: Ceteris paribus, a firm switching auditors following an SEC Rule 2(e) action against the firm's external auditor will, on average, have a level of financial health different from a firm that does not switch auditors following an SEC action.

Another factor that may affect a firm's decision to switch auditors following an SEC Rule 2(e) action against its external auditor is the industry to which the firm belongs. Shockley and Holt (1983) surveyed chief financial officers of banks and found a close relationship between the perceived banking industry expertise of an auditor and the auditor's share of the banking market. The findings of Shockley and Holt (1983) suggest that there may be an industry specific component to auditor credibility. If so, firms may be reluctant to terminate relationships with auditors perceived as specialists in their industry. The following hypothesis (alternative form) can be formulated:

H9: Ceteris paribus, a firm will be less likely to switch auditors following an SEC Rule 2(e) action against the firm's external auditor if the auditor is a specialist in that firm's industry.
In addition to an industry specific component to auditor credibility, prior research has suggested that a geographic component to credibility exists. Wilson and Grimlund (1990) found that the negative consequences of an SEC action were more severe in the state where the audit failure that had triggered the action occurred than for the nation as a whole. An auditor was less able to retain existing clients and attract new clients in the state focused on by the SEC action. This result leads to the following hypothesis (alternative form):

H10: Ceteris paribus, a firm will be more likely to switch auditors following an SEC Rule 2(e) action against the firm's external auditor if the SEC action deals with an audit failure in the firm's state.

One research objective of this study is to provide some insight into whether the factors affecting a firm's decision to switch auditors following an event adversely affecting the credibility of the firm's external auditor differed between clients of Big Eight auditors and clients of smaller auditors. Since theory and prior research provide no expectations about the direction or magnitude of differences between clients of Big Eight auditors and clients of smaller auditors, no directional hypothesis can be formulated about these differences. The hypothesis (alternative form) to be tested is:
H11: Ceteris paribus, any differences between firms that do and do not switch auditors following an SEC Rule 2(e) action will not be the same for clients of Big Eight auditors as for clients of smaller auditors.

**Measurement of Variables**

The degree of management ownership (MOWN) was measured by dividing the number of shares of common stock owned by management by the total number of shares of stock outstanding. Information about the degree of management ownership was available in a firm's annual proxy statement or Form 10-K. Also revealed in a firm's proxy statement is the existence of a management bonus plan (MBONUS). A dichotomous variable was used to represent the disclosure, or lack of disclosure, of such a plan.

Firm leverage (DEBT) was measured as the ratio of a firm's total debt to its total assets. A similar measure was employed by Eichenseher and Shields (1989). The information necessary to calculate leverage was available in a firm's audited financial statements. As discussed earlier, there is disagreement in the literature about the association between firm leverage and the demand for credibility.

Firm financial statements contained information about new issues of debt or equity by a firm. The variable NISSUE was defined as the total dollar amount of such issues in the three years following an SEC action
against the firm's auditor scaled by the firm's total assets at the time of the SEC action. A similar approach was taken by Healy and Lys (1986).

Two measures were employed as proxies for firm size (SIZE) and rate of growth (GROWTH). The first approach was to use the total assets of a firm as a proxy for firm size (SIZE), while the percentage change in assets over the three year period before the SEC action was used as a measure of firm growth (GROWTH). Similar measures of size and growth were used by Francis and Wilson (1988) and Healy and Lys (1986). The second proxies for these variables employed a firm's annual sales as the measures of SIZE and GROWTH. Consistent with prior research, the natural logarithms of assets and sales were used in the analyses. As discussed above, no clear expectations can be drawn about the relationship of these variables to the probability that a firm will switch auditors after an event adversely affecting the credibility of its external auditor.

Firm proxy statements and annual reports were examined for the presence of a corporate audit committee (AUDCOM). A dichotomous zero/one variable measured the absence/existence of an audit committee.

A measure of firm financial distress (FDIST) was generated with a discriminant analysis model proposed by Altman (1983). First discussed in Altman (1968), the
model uses a linear combination of financial ratios to assign a measure of financial health to each sample firm. As is noted by Jones (1987, 143), "the multivariate approach has appeal because it reduces many financial dimensions to a single score." Although bankruptcy prediction techniques have evolved in recent years, the Altman (1983) model possesses a combination of classification accuracy and availability of input data that makes it suitable for exploratory research such as this study.

A dichotomous variable (SPEC) was used to indicate if a firm's auditor is a specialist in the industry. Consistent with Palmrose (1984), an auditor was considered an industry specialist if its share of the industry ranked either first or second among auditors serving the industry. Information about auditor market shares by industry was obtained from the COMPUSTAT data base for the years in question.

The state in which a firm is based is revealed in its 10-K, as well as reference material such as Who Audits America. A dichotomous variable (STATE) was used to indicate whether the audit failure that triggered the SEC action against the firm's external auditor took place in the firm's home state. Information about the operationalization of the variable STATE, and the other variables discussed above, is provided in Table 1.
<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Variable Name</th>
<th>Expected Sign</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1:</td>
<td>MOWN</td>
<td>-</td>
<td>Percentage of common stock owned by management.</td>
</tr>
<tr>
<td>H2:</td>
<td>MBONUS</td>
<td>+</td>
<td>Dichotomous variable indicating the existence of an accounting-based compensation plan (1=existence, 0=absence).</td>
</tr>
<tr>
<td>H3:</td>
<td>DEBT</td>
<td>?</td>
<td>Ratio of a firm's total debt to its total assets.</td>
</tr>
<tr>
<td>H4:</td>
<td>NISSUE</td>
<td>+</td>
<td>Dollar amount of new issues of debt and equity in the year years following an SEC action, divided by assets at time of the action.</td>
</tr>
<tr>
<td>H5:</td>
<td>SIZE</td>
<td>?</td>
<td>Total assets (total sales) of firm.</td>
</tr>
<tr>
<td>H6:</td>
<td>GROWTH</td>
<td>?</td>
<td>% change in assets (sales) in three years prior to SEC action.</td>
</tr>
</tbody>
</table>
### TABLE 1-Continued

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Variable Name</th>
<th>Expected Sign</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H9: SPEC&lt;sup&gt;d&lt;/sup&gt;</td>
<td>-</td>
<td>Dichotomous variable indicating whether firm's auditor is a specialist in that firm's industry (1=specialist, 0=not specialist).</td>
<td></td>
</tr>
<tr>
<td>H10: STATE&lt;sup&gt;c&lt;/sup&gt;</td>
<td>+</td>
<td>Dichotomous variable indicating whether sample firm is located in the state where the audit failure that triggered the SEC action occurred.</td>
<td></td>
</tr>
</tbody>
</table>

* Expected sign is relationship between variable and likelihood of firm switching auditors following SEC action.

<sup>b</sup> Data available in firm proxy statements.

<sup>c</sup> Data available in firm financial statements.

<sup>d</sup> Data obtained from COMPUSTAT data base.

### Sample Selection

Actions by the SEC against auditors under Rule 2(e) of the SEC's Rules of Practice were used as events that adversely affect the credibility of an auditor. The SEC publishes its Rule 2(e) actions in the form of Accounting and Auditing Enforcement Releases (formerly Accounting Series Releases). The actions identified by Wilson and Grimald (1990) were employed, along with a review of recent Accounting and Auditing Enforcement Releases (AAERs), to identify any SEC actions subsequent to that
research. Consistent with Wilson and Grimald (1990), only actions against national auditors were used. Table 2 provides a summary of SEC Rule 2(e) actions against audit firms through 1986.4

TABLE 2

SUMMARY OF SEC RULE 2(e) ACTIONS AGAINST NATIONAL AUDIT FIRMS

<table>
<thead>
<tr>
<th>Year</th>
<th>SEC Reference</th>
<th>Firm Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>ASR #196, #196A</td>
<td>Seidman &amp; Seidman</td>
</tr>
<tr>
<td>1978</td>
<td>ASR #241</td>
<td>Deloitte, Haskins &amp; Sells</td>
</tr>
<tr>
<td>1978</td>
<td>ASR #248</td>
<td>Ernst &amp; Whinney</td>
</tr>
<tr>
<td>1979</td>
<td>ASR #153A</td>
<td>Touche Ross</td>
</tr>
<tr>
<td>1981</td>
<td>ASR #288</td>
<td>Kenneth Leventhal</td>
</tr>
<tr>
<td>1981</td>
<td>ASR #292</td>
<td>Arthur Andersen</td>
</tr>
<tr>
<td>1983</td>
<td>AAER #13, #16</td>
<td>Touche Ross</td>
</tr>
<tr>
<td>1984</td>
<td>AAER #45</td>
<td>Coopers &amp; Lybrand</td>
</tr>
<tr>
<td>1985</td>
<td>AAER #57, #68</td>
<td>Grant Thornton</td>
</tr>
<tr>
<td>1985</td>
<td>AAER #78</td>
<td>Seidman &amp; Seidman</td>
</tr>
</tbody>
</table>

Legend: ASR—Accounting Series Release
AAER—Accounting and Auditing Enforcement Release

For each event, Who Audits America (WAA) and the COMPUSTAT data base were used to generate a sample of clients that had switched auditors within two years after an SEC action against their auditor. Firms that switched to an auditor that had also been the target of an SEC

4 Table 2 does not include SEC Rule 2(e) actions against auditors where the cited auditor merged with another auditor within two years of the SEC action. Also, Table 2 is restricted to actions against audit firms, rather than actions against individual members of an audit firm.
action within the previous two years were not included in the sample. Consistent with prior research (Healy and Lys 1986), financial service and real estate firms are excluded from the sample because of their markedly different financial characteristics. Subsidiary firms and firms controlled by other companies were also excluded. To provide a basis for comparison, for each event a random sample of clients that did not switch auditors within the two year period was selected. The use of a two year period is consistent with the approach of Healy and Lys (1986) in their examination of auditor changes following CPA firm mergers. The two groups of sample firms were labeled the Switch and Non-Switch groups.

**Statistical Tests**

Both univariate and multivariate statistical techniques were used to analyze the data. The univariate tests consisted of t-tests and the Chi-square test for independence of classification. The nonparametric Mann-Whitney test was employed to provide additional evidence about the results of the t-tests. The multivariate tests were conducted using a logit model. The following sections detail the statistical procedures performed in this study. A further analysis of the data is then described.
Univariate Tests

Univariate tests were first employed to analyze the sample data. The t-test was used to test for significant differences in the continuous independent variables between the Switch and Non-Switch groups. Two underlying assumptions of the t-test are that the populations to be compared have normal distributions and that they have identical variances (Hays 1981, 286). As a practical matter, however, the conclusions reached through use of a t-test may not be affected by any violations of these assumptions for samples of moderate to large size (Hays 1981, 287).

To provide additional evidence about the t-test results, the nonparametric Mann-Whitney test was also conducted for the continuous independent variables. The Mann-Whitney test provides a nonparametric alternative to the t-test for the equality of means between two populations (Hays 1981, 587). For large samples, the Mann-Whitney test statistic is approximately normally distributed (Hays 1981, 589). The Mann-Whitney test was used by Chow (1982) to examine differences between two groups of sample firms for a series of financial variables.

The variables MBONUS, AUDCOM, SPEC, and STATE are dichotomous. The relationship between each dichotomous variable and the Switch and Non-Switch groups was examined
by means of a Chi-square test for independence of classification. Prior studies that have used the Chi-square test to examine differences between groups of firms for a dichotomous variable include Schwartz and Menon (1985) and Chow (1982).

Multivariate Tests

In addition to the univariate tests described above, multivariate tests were used to analyze the sample data. Results from the multivariate tests serve as a check on the univariate results (Chow 1982). A logit model was used. The dependent variable in the model was coded "1" if the firm switched auditors after an SEC action against its external auditor. If the firm remains with the auditor, the dependent variable is coded "0". Ordinary Least Squares (OLS) regression is inappropriate when the dependent variable is dichotomous. As is discussed by Aldrich and Nelson (1984), if the dependent variable is dichotomous, OLS estimates will lead to incorrect estimates of sampling variances and invalid hypothesis tests. Stone and Rasp (1991) note that for very small sample sizes (less than 100 sample items), logit model coefficients may be biased and OLS model coefficients may be slightly more efficient. The sample size in this study is larger than the 100 unit level discussed by Stone and Rasp.
The variables described in Table 1 are the independent variables in the logit model. The model takes the general form:

\[ Y = f(MOWN, MBONUS, DEBT, NISSUE, SIZE, GROWTH, AUDCOM, FDIST, SPEC, STATE), \]

where \( Y = 0 \) if the firm does not switch auditors within two years of an SEC action against its auditor, and \( Y = 1 \) if the firm does switch auditors within two years of an SEC action against its auditor.

A statistically significant coefficient for an independent variable is interpreted as evidence that the variable affects the probability that a firm will switch auditors following an SEC action against its external auditor.

The logit model has been widely used in prior research. Healy and Lys (1986) employed the model to analyze auditor changes following Big Eight mergers with non-Big Eight auditors. Palmrose (1984) also employed a logit model in her investigation of auditor changes by client firms. Williams (1988) used a logit model in an attempt to discover some potential determinants of auditor choice. The use of a logit model in the present context is consistent with the approach employed in previous studies.
Further Analysis

To provide some insight into differences between clients of Big Eight auditors and clients of smaller auditors, the sample was broken into two subsets. One subset consists of client firms of Big Eight auditors. The other is composed of client firms of non-Big Eight auditors. The univariate tests and logit model are then be applied to each subset. Results from each subset of sample firms are then compared for evidence of any differences between the two groups.

Summary

This chapter has presented the method used in the study. The research questions were presented and hypotheses developed from agency theory and prior research. Sample selection and measurement of variables were discussed, as were the statistical techniques employed.
CHAPTER 4
RESULTS

The purpose of this chapter is to present the results of the statistical tests described in the preceding chapter. A description of the sample selection is presented first, followed by a review of the univariate test results. The results of the multivariate tests are then discussed. The chapter concludes with a further analysis of both univariate and multivariate results.

Sample Selection

Annual reports, proxy statements, and Form 10-K's on file at the University of Texas, the University of Chicago, Louisiana State University, and the University of Southwestern Louisiana were examined for information about the sample firms. Other financial information was obtained from Moody's Industrial Manual, Moody's Over the Counter Manual, and the COMPUSTAT data base. Information on all variables was not available for all sample firms. Table 3 shows the total sample size for each of the independent variables, as well as the number of firms for which all data was available. Refer to Table 1 (page 40) for definitions of the variables. Lower sample sizes for
the variables MOWN, AUDCOM, and MBONUS were chiefly due to missing firm proxy statements.

TABLE 3

SAMPLE SIZE SUMMARY

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOWN</td>
<td>346</td>
</tr>
<tr>
<td>MBONUS</td>
<td>349</td>
</tr>
<tr>
<td>DEBT</td>
<td>483</td>
</tr>
<tr>
<td>NISSUE</td>
<td>423</td>
</tr>
<tr>
<td>SIZE - Assets</td>
<td>483</td>
</tr>
<tr>
<td>SIZE - Sales</td>
<td>479</td>
</tr>
<tr>
<td>GROWTH - Assets</td>
<td>420</td>
</tr>
<tr>
<td>GROWTH - Sales</td>
<td>415</td>
</tr>
<tr>
<td>AUDCOM</td>
<td>351</td>
</tr>
<tr>
<td>FDIST</td>
<td>472</td>
</tr>
<tr>
<td>SPEC</td>
<td>483</td>
</tr>
<tr>
<td>STATE</td>
<td>483</td>
</tr>
<tr>
<td>All Variables</td>
<td>259</td>
</tr>
</tbody>
</table>

The primary cause of missing sample data was the unavailability of proxy statements for some firms. Many of the smaller firms in the sample filed proxy statements with the SEC irregularly during the time period examined. The variables most affected by missing proxy statements were MOWN, AUDCOM, and MBONUS. Data for all independent variables were available for 259 sample firms.
Univariate Results

Univariate tests were first employed to analyze the data and test for significant differences between the Switch and Non-Switch groups for the continuous independent variables. Results of these tests are presented in Table 4. Variable means and standard deviations are given for both groups of client firms. The Switch group contains clients that changed auditors within two years of an SEC action against their auditor. The Non-Switch group consists of client firms that did not change auditors for the two years following an SEC action against their auditor. Both t-test results and Mann-Whitney statistics for differences between the groups are presented.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Switch Group</th>
<th>Non-Switch Group</th>
<th>t-value</th>
<th>z-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOWN -- mean</td>
<td>0.329 (0.217)</td>
<td>0.259 (0.198)</td>
<td>3.11***</td>
<td>32.32***</td>
</tr>
<tr>
<td>(std. dev.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>0.574 (0.433)</td>
<td>0.523 (0.281)</td>
<td>1.52</td>
<td>41.72***</td>
</tr>
<tr>
<td>NISSUE</td>
<td>0.271 (1.595)</td>
<td>0.136 (0.599)</td>
<td>1.09*</td>
<td>52.61***</td>
</tr>
<tr>
<td>SIZE -- Assets</td>
<td>9.604 (1.764)</td>
<td>10.888 (2.077)</td>
<td>-7.34***</td>
<td>49.77***</td>
</tr>
<tr>
<td>GROWTH -- Assets</td>
<td>0.276 (0.807)</td>
<td>0.189 (0.336)</td>
<td>1.37</td>
<td>54.03***</td>
</tr>
<tr>
<td>SIZE -- Sales</td>
<td>9.719 (2.130)</td>
<td>10.971 (2.377)</td>
<td>-6.07***</td>
<td>49.49***</td>
</tr>
<tr>
<td>GROWTH -- Sales</td>
<td>0.336 (1.067)</td>
<td>0.182 (0.443)</td>
<td>1.83*</td>
<td>54.59***</td>
</tr>
<tr>
<td>FDIST</td>
<td>5.479 (17.727)</td>
<td>6.431 (18.411)</td>
<td>-0.57</td>
<td>46.09***</td>
</tr>
</tbody>
</table>

* p-value < 0.10  
** p-value < 0.05  
*** p-value < 0.01  
* one tail test

The t-test results show significant differences between the two groups for two of the eight variables examined. Contrary to expectations, clients that switched auditors had a higher degree of managerial ownership than clients in the Non-Switch group. MOWN was significant at the 0.01 level. Although firms that switched auditors were more highly leveraged than their non-switching counterparts, the DEBT variable was not significant at the 0.05 level. Neither a client's future financing plans, as
measured by NISSUE, nor its level of financial distress (FDIST) differed significantly between the two groups.

Both measures of SIZE were significant at the 0.01 level. Clients that switched auditors were significantly smaller, both in assets and sales, than the clients in the Non-Switch group. The different measures of GROWTH yielded differing results, however. Clients that switched auditors tended to have faster asset and sales growth rates than clients that did not switch auditors. When GROWTH is measured in terms of total assets, the difference between the two groups is not statistically significant. The use of annual sales as a measure of GROWTH revealed a difference between the two groups that is significant at the 0.10 level.

As discussed in the preceding chapter, an underlying assumption of the t-test is that the populations being compared have normal distributions. Lack of prior knowledge about the normality of the distributions of the continuous variables led to the use of the nonparametric Mann-Whitney test to provide additional evidence about the validity of the t-test results. Results of the Mann-Whitney test for differences between the two groups are presented in Table 4.

The nonparametric test provides a strikingly different picture than the t-test results. All variables were different at the 0.01 level in the Mann-Whitney test
results. An examination of the distribution of the continuous independent variables revealed a large degree of skewness and kurtosis for all variables, indicating a violation of the normality assumption. The t-test results may not be reliable as a result.

A factor potentially confounding the results presented in Table 4 is the inclusion of clients in the Switch group that would have changed auditors within the two year period irrespective of an SEC action against their auditor. There may be clients whose evolving demands for auditor credibility would lead them to switch from a smaller auditor to a Big Eight auditor, or vice versa. Inclusion of clients that have switched auditors because of a change in their demand for credibility in the same group as clients who have changed auditors as a result of a decline in their auditor's credibility could affect the results.

To partially control for this possibility, clients switching from a Big Eight auditor to a smaller auditor, or vice versa, were excluded from the Switch group. The clients remaining in the Switch group changed from one Big Eight auditor to another, or from one non-Big Eight auditor to another, strengthening the inference that differences between the Switch and Non-Switch groups are due to changes in auditor credibility, and not to changes in client demand for credibility. Differences between the
revised Switch group and the Non-Switch group were then tested for significance. The results are presented in Table 5.

Table 5

<table>
<thead>
<tr>
<th>Variable</th>
<th>Switch Group</th>
<th>Non-Switch Group</th>
<th>( t )-value</th>
<th>Mann-Whitney z-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOWN—mean</td>
<td>0.315</td>
<td>0.259</td>
<td>2.22*</td>
<td>45.73*</td>
</tr>
<tr>
<td>(std. dev.)</td>
<td>(0.208)</td>
<td>(0.198)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>0.576</td>
<td>0.523</td>
<td>1.74*</td>
<td>56.75*</td>
</tr>
<tr>
<td></td>
<td>(0.305)</td>
<td>(0.281)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NISSUE</td>
<td>0.177</td>
<td>0.136</td>
<td>0.59*</td>
<td>35.37*</td>
</tr>
<tr>
<td></td>
<td>(0.605)</td>
<td>(0.599)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE—Assets</td>
<td>9.915</td>
<td>10.888</td>
<td>-4.98***</td>
<td>63.33***</td>
</tr>
<tr>
<td></td>
<td>(1.731)</td>
<td>(2.077)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROWTH—Assets</td>
<td>0.315</td>
<td>0.189</td>
<td>1.41</td>
<td>36.68***</td>
</tr>
<tr>
<td></td>
<td>(0.954)</td>
<td>(0.336)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE—Sales</td>
<td>10.114</td>
<td>10.971</td>
<td>-3.77***</td>
<td>63.53***</td>
</tr>
<tr>
<td></td>
<td>(2.018)</td>
<td>(2.377)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROWTH—Sales</td>
<td>0.336</td>
<td>0.182</td>
<td>1.65*</td>
<td>36.66***</td>
</tr>
<tr>
<td></td>
<td>(1.177)</td>
<td>(0.443)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FDIST</td>
<td>3.580</td>
<td>6.431</td>
<td>-2.37*</td>
<td>62.90***</td>
</tr>
<tr>
<td></td>
<td>(3.897)</td>
<td>(18.411)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p-value < 0.10
** p-value < 0.05
*** p-value < 0.01

The results in Table 5 generally confirm the results for the full sample presented in Table 4. T-test results were similar for all variables except MOWN, DEBT, and FDIST. The full sample results in Table 4 indicate
that the differences between the Switch group and the Non-Switch group for MOWN are significant at the 0.01 level. The revised Switch group results are not as strong, with the differences for MOWN significant at the 0.05 level. DEBT, insignificant in the full sample, was significant at the 0.10 level in Table 5.

The full sample t-test results in Table 4 showed no significant difference between the two groups' level of financial distress, as measured by FDIST. When the revised Switch group is compared to the Non-Switch group, the t-test results are significant at the 0.05 level. As in Table 4, the nonparametric Mann-Whitney test results are significant at the 0.01 level for all variables, indicating that the t-test results are affected by the lack of normality.

Dichotomous independent variables were tested using the Chi-square test for independence of classification. The results of this test are presented in Table 6. As indicated in Table 6, MBONUS and STATE had no significant influence on the tendency of a sample firm to switch auditors following an SEC action. As expected, clients of auditors who were specialists in their industry (SPEC) were significantly less likely to switch auditors. Surprisingly, firms with a corporate audit committee (AUDCOM) were less likely to switch auditors than firms without an audit committee. As with the continuous
variables, the tests were conducted again using a revised Switch group that excluded client firms which had changed their level of auditor following an SEC action. No difference in the results was found.

**TABLE 6**

**CHI-SQUARE TEST OF DICHOTOMOUS VARIABLES**

<table>
<thead>
<tr>
<th>STATE</th>
<th>In-State</th>
<th>Out of State</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>37</td>
<td>185</td>
<td>222</td>
</tr>
<tr>
<td>Non-Switch</td>
<td>35</td>
<td>226</td>
<td>261</td>
</tr>
<tr>
<td>Totals</td>
<td>72</td>
<td>411</td>
<td>483</td>
</tr>
</tbody>
</table>

Chi-Square (1 d.f.) = 1.003

p-value = 0.316

<table>
<thead>
<tr>
<th>SPEC</th>
<th>Specialist</th>
<th>Non-Specialist</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>42</td>
<td>180</td>
<td>222</td>
</tr>
<tr>
<td>Non-Switch</td>
<td>80</td>
<td>181</td>
<td>261</td>
</tr>
<tr>
<td>Totals</td>
<td>122</td>
<td>361</td>
<td>483</td>
</tr>
</tbody>
</table>

Chi-Square (1 d.f.) = 8.746

p-value = 0.003
To provide additional insight into these results, simple Pearson correlations among the independent variables were calculated. The correlations are presented in Table 7. The results reveal several significant correlations among the independent variables. For example SIZE was highly correlated with SPEC, AUDCOM, MBONUS, MOWN, NISSUE, and FDIST. A large number of significant correlations were also observed when client sales was used as the measure of SIZE and GROWTH. Similar results were obtained when clients changing their level of external auditor were deleted from the Switch group.
### TABLE 7
SIMPLE PEARSON CORRELATION COEFFICIENTS

<table>
<thead>
<tr>
<th></th>
<th>STATE</th>
<th>SPEC</th>
<th>AUDCOM</th>
<th>MBONUS</th>
<th>SIZEa</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATE</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPEC</td>
<td>-0.056</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUDCOM</td>
<td>-0.032</td>
<td>0.065</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBONUS</td>
<td>-0.027</td>
<td>-0.043</td>
<td>0.126</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>SIZEa</td>
<td>-0.053</td>
<td>0.247</td>
<td>0.498</td>
<td>0.239</td>
<td>1.000</td>
</tr>
<tr>
<td>GROWTH1</td>
<td>-0.010</td>
<td>-0.082</td>
<td>-0.026</td>
<td>-0.042</td>
<td>-0.060</td>
</tr>
<tr>
<td>MOWN</td>
<td>0.085</td>
<td>-0.063</td>
<td>-0.346</td>
<td>-0.125</td>
<td>-0.439</td>
</tr>
<tr>
<td>NISSUE</td>
<td>-0.037</td>
<td>-0.023</td>
<td>-0.095</td>
<td>-0.024</td>
<td>-0.154</td>
</tr>
<tr>
<td>DEBT</td>
<td>0.001</td>
<td>-0.050</td>
<td>-0.077</td>
<td>0.061</td>
<td>-0.043</td>
</tr>
<tr>
<td>FDIST</td>
<td>-0.037</td>
<td>0.009</td>
<td>-0.099</td>
<td>-0.085</td>
<td>-0.140</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>GROWTH</th>
<th>MOWN</th>
<th>NISSUE</th>
<th>DEBT</th>
<th>FDIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROWTH</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOWN</td>
<td>0.105</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NISSUE</td>
<td>0.027</td>
<td>0.068</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>-0.058</td>
<td>0.019</td>
<td>0.562</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>FDIST</td>
<td>0.159</td>
<td>0.055</td>
<td>0.221</td>
<td>-0.110</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*p - value < 0.10
**p - value < 0.05
***p - value < 0.01
* as measured in assets
The large number of highly correlated independent variables calls into question the overall significance of the univariate test results. Observed differences in independent variables may be due to differences in reaction to an SEC action, or simply due to correlation with another variable for which such differences exist. The significance at or below the 0.10 level of 16 of the 45 correlations in Table 7 indicates the need for further analysis of the data using a multivariate approach. This approach is presented in the following section.

**Multivariate Results**

A logit model was formulated to further investigate the univariate results. The model employed total assets as a measure of firm size (SIZE) and rate of growth (GROWTH). Results of the logit model are presented in Table 8. The model results were unchanged by use of annual sales as a measure of SIZE and GROWTH. As a consequence, those results are not shown.
As seen in Table 8, the coefficients for most of the independent variables are not significant. Firm size is the only variable with a significant coefficient \((p\text{-value} < 0.01)\). Removal of clients changing the level of their auditor from the Switch group did not affect the results.

Despite the lack of significance of most of the coefficients, the model as a whole was statistically significant \((p\text{-value} < 0.01)\). In view of the overall significance of the logit model, the lack of significance of the individual coefficients suggests that the correlations among the independent variables are strong enough to distort the results. If the independent variables are highly correlated, Berenson, Levine, and Goldstein (1983, 414) note:
...it is difficult if not impossible to assess the unique effects individual explanatory variables have upon the response variable.

Given the unreliability of the logit model's coefficients due to the presence of multicollinearity, a stepwise logit procedure was employed to provide a clearer picture of the contribution of individual independent variables to the model. Under this procedure, also adopted by Williams (1988), individual variables were added to the model and retained only if they were significant at the 0.05 level. The results of the stepwise logit procedure were identical to the full model results. The only significant independent variable was SIZE, as measured in either sales or assets.

The results of the multivariate logit analysis suggest that most observed differences in the univariate test results were attributable to high levels of correlation among the independent variables. The only variable for which a significant result was consistently found was SIZE. The results indicate that smaller firms are more likely to switch auditors following an SEC action against their external auditor than are larger firms.

Further Analysis

One of the objectives of the study is to examine differences between clients of Big Eight auditors and clients of smaller audit firms. To that end, the
univariate and multivariate procedures described above are applied to each type of client. The clients of Big Eight auditors are discussed first.

As before, both t-tests and the Mann-Whitney test were used to examine the continuous independent variables for differences between the Switch and Non-Switch groups. The results of this univariate analysis are presented in Table 9.
As was the case with the full sample of clients (Table 4), the Mann-Whitney test results indicate significant differences between the two groups for all variables. The t-test results for Big Eight clients are also similar to those of the full sample, with the exception of DEBT. Not significant for the sample as a whole, the t-statistic for DEBT is significant at the 0.05 level for Big Eight clients.
The sample of Big Eight clients discussed in Table 9, includes clients that switched from a Big Eight auditor to a smaller audit firm. Consistent with the earlier analysis, these clients were deleted from the sample to partially control for auditor switches due to a change in a client's demand for credible auditing. The results (not presented) confirm those reported in Table 9, with the exception of FDIST. As reported in Table 9, the t-statistic for FDIST was not significant. When the Switch group is restricted to clients that switched from one Big Eight auditor to another, the t-statistic for FDIST increases to 2.10 (p-value = 0.03).

Differences between the groups for the dichotomous independent variables were tested using the Chi-Square test. Results for clients of Big Eight auditors are presented in Table 10. The results are similar to those for the sample as a whole. The clients of an industry specialist were less likely to leave their auditor than other clients. Client firms with audit committees were less likely to switch auditors than firms without such committees. The results were unchanged when the Switch group was restricted to clients that switched from one Big Eight auditor to another.
TABLE 10
CHI-SQUARE TEST OF DICHOTOMOUS VARIABLES
Clients of Big Eight Auditors

<table>
<thead>
<tr>
<th>STATE</th>
<th>In-State</th>
<th>Out of State</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>25</td>
<td>145</td>
<td>170</td>
</tr>
<tr>
<td>Non-Switch</td>
<td>25</td>
<td>177</td>
<td>202</td>
</tr>
<tr>
<td>Totals</td>
<td>50</td>
<td>322</td>
<td>372</td>
</tr>
</tbody>
</table>

Chi-Square (1 d.f.) = 0.430
p-value = 0.511

<table>
<thead>
<tr>
<th>SPEC</th>
<th>Specialist</th>
<th>Non-Specialist</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>42</td>
<td>128</td>
<td>170</td>
</tr>
<tr>
<td>Non-Switch</td>
<td>80</td>
<td>122</td>
<td>202</td>
</tr>
<tr>
<td>Totals</td>
<td>122</td>
<td>250</td>
<td>372</td>
</tr>
</tbody>
</table>

Chi-Square (1 d.f.) = 9.296
p-value = 0.002

<table>
<thead>
<tr>
<th>AUDCOM</th>
<th>Committee</th>
<th>No Committee</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>69</td>
<td>50</td>
<td>119</td>
</tr>
<tr>
<td>Non-Switch</td>
<td>124</td>
<td>25</td>
<td>149</td>
</tr>
<tr>
<td>Totals</td>
<td>193</td>
<td>75</td>
<td>268</td>
</tr>
</tbody>
</table>

Chi-Square (1 d.f.) = 20.910
p-value < 0.001
TABLE 10-Continued

<table>
<thead>
<tr>
<th>MBONUS</th>
<th>Bonus Plan</th>
<th>No Bonus Plan</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>58</td>
<td>58</td>
<td>116</td>
</tr>
<tr>
<td>Non-Switch</td>
<td>75</td>
<td>68</td>
<td>143</td>
</tr>
<tr>
<td>Totals</td>
<td>133</td>
<td>126</td>
<td>259</td>
</tr>
</tbody>
</table>

Chi-Square (1 d.f.) = 0.153
p-value = 0.695

The univariate results for clients of Big Eight auditors only were similar to those for the sample as a whole. To provide further insight into the results, a logit model was estimated for the clients of Big Eight auditors only. Results are presented in Table 11.

TABLE 11

LOGIT MODEL RESULTS
Clients of Big Eight Auditors

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Variable</th>
<th>Coefficient</th>
<th>Chi-Square</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>MOWN</td>
<td>-0.007</td>
<td>0.01</td>
<td>0.93</td>
</tr>
<tr>
<td>H2</td>
<td>MBONUS</td>
<td>0.253</td>
<td>0.55</td>
<td>0.45</td>
</tr>
<tr>
<td>H3</td>
<td>DEBT</td>
<td>0.437</td>
<td>0.36</td>
<td>0.55</td>
</tr>
<tr>
<td>H4</td>
<td>NISSUE</td>
<td>0.381</td>
<td>0.43</td>
<td>0.51</td>
</tr>
<tr>
<td>H5</td>
<td>SIZE*</td>
<td>-0.531</td>
<td>20.16</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>H6</td>
<td>GROWTH*</td>
<td>0.266</td>
<td>0.72</td>
<td>0.39</td>
</tr>
<tr>
<td>H7</td>
<td>AUDCOM</td>
<td>-0.748</td>
<td>3.48</td>
<td>0.06</td>
</tr>
<tr>
<td>H8</td>
<td>FDIST</td>
<td>-0.002</td>
<td>0.54</td>
<td>0.46</td>
</tr>
<tr>
<td>H9</td>
<td>SPEC</td>
<td>-0.446</td>
<td>1.47</td>
<td>0.22</td>
</tr>
<tr>
<td>H10</td>
<td>STATE</td>
<td>0.387</td>
<td>0.70</td>
<td>0.40</td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>5.582</td>
<td>16.32</td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>

Model Chi-Square 53.56 < 0.01
* as measured in assets
As was the case for the full sample (Table 8), the only independent variable significant at the 0.05 level is SIZE. The most striking difference noted in Table 11 is the increase in significance of the variable AUDCOM. The coefficient of AUDCOM for the sample as a whole had a p-value of 0.24. The results in Table 12 show a p-value for AUDCOM of 0.06. The results reported in Table 11 employ the asset-based measures of SIZE and GROWTH. No significant differences were noted when the sales-based measures were used.\(^5\)

Concerns about multicollinearity call into question the reliability of individual coefficients in the logit model. To gain more insight into the contribution of each independent variable, a stepwise logit procedure was employed. Variables were added to the logit model individually and retained if their coefficients were significant at the 0.05 level. Stepwise logit results are presented in Table 12.

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\(^5\) As a further analysis, the Switch group was restricted to clients that changed from one Big Eight auditor to another. Logit model results using the asset-based measures of SIZE and GROWTH were not noticeably different from the results reported in Table 11. When the sales-based measures of SIZE and GROWTH were used for this reduced Switch group, the variable AUDCOM had a coefficient with a p-value of 0.11.
TABLE 12

STEPWISE LOGIT RESULTS--CLIENTS OF BIG EIGHT AUDITORS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Chi-Square</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset-Based Measures of SIZE and GROWTH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.581</td>
<td>30.98</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Intercept</td>
<td>5.813</td>
<td>27.38</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Model Chi-Square</td>
<td></td>
<td>42.60</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Sales-Based Measures of SIZE and GROWTH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.420</td>
<td>18.20</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.730</td>
<td>2.88</td>
<td>0.08</td>
</tr>
<tr>
<td>AUDCOM</td>
<td>-0.753</td>
<td>4.26</td>
<td>0.03</td>
</tr>
<tr>
<td>Model Chi-Square</td>
<td></td>
<td>43.78</td>
<td>&lt; 0.02</td>
</tr>
</tbody>
</table>

The first section of Table 12 presents the results of the stepwise logit model when total assets are used as a measure of SIZE. The results are consistent with the prior logit models reported. The only independent variable with a significant coefficient is SIZE. The results are quite different when annual sales is used as a measure of SIZE and GROWTH. As is reported in the second section of Table 12, both GROWTH and AUDCOM met the 0.05 significance level necessary to be retained in the model. Faster growing firms were more likely to switch auditors after an SEC action against their auditor. Firms with

---

6 Variables had to be significant at the 0.05 significance level to be retained in the model. Once included in the model, the level of their coefficients is affected by the degree of correlation with other variables in the model.
audit committees were less likely to switch than firms without committees.\textsuperscript{7}

The analysis in Table 12 was repeated with the Switch group restricted to clients that had switched from one Big Eight auditor to another. No differences were noted for the asset-based model. When annual sales was used as a measure of SIZE and GROWTH, the variables SIZE and GROWTH were significant for the reduced Switch group. AUDCOM, however, was not significant. When the model was estimated with a 0.10 level of significance required for a variable to be retained in the model, AUDCOM had a significant coefficient, as did SIZE and GROWTH.

The multivariate analysis indicates differences between clients of Big Eight auditors and the sample as a whole. In particular, the variables AUDCOM and GROWTH (as measured by sales) are considerably more significant for Big Eight clients than for all clients. An examination of clients of smaller auditors follows.

For this phase of the analysis, the Switch group was restricted to clients of non-Big Eight auditors. The continuous independent variables were examined for differences between the Switch and Non-Switch groups.

\textsuperscript{7} When the stepwise logit model employing the asset-based measures of SIZE and GROWTH was run using a 0.10 significance level required for a variable to remain in the model, AUDCOM was significant (p-value 0.06) and was retained in the model. GROWTH in assets was not significant.
Univariate test results for the continuous independent variables are presented in Table 13.

### TABLE 13

**UNIVARIATE RESULTS - CONTINUOUS VARIABLES**

**Clients of Non-Big Eight Auditors**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Switch Group</th>
<th>Non-Switch Group</th>
<th>t-value</th>
<th>Mann-Whitney z-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOWN—mean (std. dev.)</td>
<td>0.351 (0.214)</td>
<td>0.355 (0.219)</td>
<td>-0.07*</td>
<td>0.07</td>
</tr>
<tr>
<td>DEBT</td>
<td>0.528 (0.322)</td>
<td>0.581 (0.457)</td>
<td>-0.70</td>
<td>0.62</td>
</tr>
<tr>
<td>NISSUE</td>
<td>0.112 (0.288)</td>
<td>0.132 (0.425)</td>
<td>-0.25*</td>
<td>0.77</td>
</tr>
<tr>
<td>SIZE—Assets</td>
<td>8.923 (1.875)</td>
<td>9.388 (1.969)</td>
<td>-1.36</td>
<td>1.75</td>
</tr>
<tr>
<td>GROWTH—Assets</td>
<td>0.308 (0.548)</td>
<td>0.218 (0.470)</td>
<td>-0.80</td>
<td>0.68</td>
</tr>
<tr>
<td>SIZE—Sales</td>
<td>8.736 (2.183)</td>
<td>9.240 (2.338)</td>
<td>1.16</td>
<td>1.36</td>
</tr>
<tr>
<td>GROWTH—Sales</td>
<td>0.329 (1.068)</td>
<td>0.318 (0.871)</td>
<td>0.04</td>
<td>0.47</td>
</tr>
<tr>
<td>FDIST</td>
<td>4.918 (9.053)</td>
<td>6.670 (16.514)</td>
<td>-0.69</td>
<td>0.43</td>
</tr>
</tbody>
</table>

* p-value < 0.10  
* one tail test

The results in Table 13 are characterized by a lack of significant differences for almost all variables. Only the asset-based measure of firm size is marginally significant (p-value = 0.08) using the Mann-Whitney test statistic. The weak results for SIZE are especially surprising given the consistency with which significant results have been found in the earlier analyses. To further investigate the results in Table 13, the Switch sample was restricted to clients that had changed from one
non-Big Eight auditor to another. As noted earlier, this procedure serves as a partial control for firms changing auditors in response to their own evolving needs for credibility, rather than in response to a change in the credibility of their current auditors. The results of this procedure are presented in Table 14.

### TABLE 14

**UNIVARIATE TEST RESULTS - CONTINUOUS VARIABLES**

**Clients of Non-Big Eight Auditors**

**Reduced Sample**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Switch Group</th>
<th>Non-Switch Group</th>
<th>t-value</th>
<th>Mann-Whitney z-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOWN—mean</td>
<td>0.391</td>
<td>0.355</td>
<td>0.49*</td>
<td>0.53</td>
</tr>
<tr>
<td>(std. dev.)</td>
<td>(0.218)</td>
<td>(0.219)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>0.531</td>
<td>0.581</td>
<td>-0.41</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td>(0.393)</td>
<td>(0.457)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NISSUE</td>
<td>0.000</td>
<td>0.132</td>
<td>-1.36*</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.430)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE—Assets</td>
<td>7.861</td>
<td>9.388</td>
<td>-4.37***</td>
<td>3.59***</td>
</tr>
<tr>
<td></td>
<td>(1.095)</td>
<td>(1.969)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROWTH—Assets</td>
<td>0.489</td>
<td>0.218</td>
<td>1.09</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>(0.835)</td>
<td>(0.470)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE—Sales</td>
<td>7.566</td>
<td>9.240</td>
<td>-3.59***</td>
<td>3.10***</td>
</tr>
<tr>
<td></td>
<td>(1.374)</td>
<td>(2.338)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROWTH—Sales</td>
<td>0.489</td>
<td>0.318</td>
<td>0.29</td>
<td>1.05</td>
</tr>
<tr>
<td></td>
<td>(1.711)</td>
<td>(0.871)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FDIST</td>
<td>4.632</td>
<td>6.670</td>
<td>-0.75</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>(7.507)</td>
<td>(16.514)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p-value < 0.10
* p-value < 0.05
* p-value < 0.01

* one tail test

When clients that switched from a smaller auditor to a Big Eight auditor are excluded from the Switch group,
the SIZE variable is significant for both measures of the variable. As was the case with the full sample of clients of smaller auditors, no other significant differences were noted.

The dichotomous independent variables were analyzed using the Chi-Square test for independence of classification. The industry specialization variable (SPEC) was not included in the analysis because non-Big Eight firms were not large enough to specialize. Table 15 presents the results of the Chi-Square tests.

| TABLE 15 |
| CHI-SQUARE TEST OF DICHOTOMOUS VARIABLES |
| Clients of Non-Big Eight Auditors |

<table>
<thead>
<tr>
<th>STATE</th>
<th>In-State</th>
<th>Out of State</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>12</td>
<td>40</td>
<td>52</td>
</tr>
<tr>
<td>Non-Switch</td>
<td>10</td>
<td>49</td>
<td>59</td>
</tr>
<tr>
<td>Totals</td>
<td>22</td>
<td>89</td>
<td>111</td>
</tr>
</tbody>
</table>

Chi-Square (1 d.f.) = 0.653

p-value = 0.419

<table>
<thead>
<tr>
<th>AUDCOM</th>
<th>Committee</th>
<th>No Committee</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>17</td>
<td>23</td>
<td>40</td>
</tr>
<tr>
<td>Non-Switch</td>
<td>21</td>
<td>22</td>
<td>43</td>
</tr>
<tr>
<td>Totals</td>
<td>38</td>
<td>45</td>
<td>83</td>
</tr>
</tbody>
</table>

Chi-Square (1 d.f.) = 0.335

p-value = 0.562
TABLE 15—Continued

<table>
<thead>
<tr>
<th>MBONUS</th>
<th>Bonus Plan</th>
<th>No Bonus Plan</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>13</td>
<td>30</td>
<td>43</td>
</tr>
<tr>
<td>Non-Switch</td>
<td>20</td>
<td>27</td>
<td>47</td>
</tr>
<tr>
<td>Totals</td>
<td>33</td>
<td>57</td>
<td>90</td>
</tr>
</tbody>
</table>

Chi-Square (1 d.f.) = 1.467
p-value = 0.225

As for the sample as a whole, and for the sample of clients of Big Eight firms, STATE was not a significant variable influencing the change in auditors. The existence of an audit committee, which was highly significant for the full sample was not a significant factor in Table 15. Consistent with prior results, MBONUS was not significant. When clients that switched from a smaller auditor to a Big Eight auditor were deleted from the Switch group, the results were unchanged for MBONUS and STATE. The reduced Switch group did affect the significance of the variable AUDCOM, however. The results for this variable are presented in Table 16.
TABLE 16

CHI-SQUARE TEST OF DICHTOMOUS VARIABLES
Clients of Non-Big Eight Auditors
Reduced Sample

<table>
<thead>
<tr>
<th>AUDCOM</th>
<th>Committee</th>
<th>No Committee</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>1</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Non-Switch</td>
<td>20</td>
<td>22</td>
<td>42</td>
</tr>
<tr>
<td>Totals</td>
<td>21</td>
<td>35</td>
<td>56</td>
</tr>
</tbody>
</table>

Chi-Square (1 d.f.) = 7.339
p-value = 0.006

As is shown in Table 16, firms with audit committees were significantly less likely to switch auditors than firms without such committees. The significance of AUDCOM is consistent with the Chi-Square results observed for the sample as a whole, and for clients of Big Eight firms.

A logit model was estimated for the clients of smaller auditors. The absence of industry specialists among non-Big Eight auditors necessitated the deletion of the variable SPEC from the model. Results are presented in Table 17 for the model using the asset-based measures of SIZE and GROWTH.
The logit results for clients of smaller auditors are quite different from the results of the previous models. The coefficient of SIZE, as measured by assets, is not significant. The coefficient of MBONUS is significant (p-value = 0.03) and negatively related to the probability of a firm switching auditors after an SEC action. The variables STATE and FDIST, while not significant at traditional levels of significance, have much lower p-values than in previous models. When the sales-based measures of SIZE and GROWTH are used in the logit model, the differences from prior results is even more striking. Table 18 presents the results for this formulation of the logit model.
TABLE 18
LOGIT MODEL RESULTS—CLIENTS OF NON-BIG EIGHT
AUDITORS
Sales-based Measures of SIZE and GROWTH

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Variable</th>
<th>Coefficient</th>
<th>Chi-Square</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>MOWN</td>
<td>-0.872</td>
<td>0.18</td>
<td>0.67</td>
</tr>
<tr>
<td>H2</td>
<td>MBONUS</td>
<td>-2.040</td>
<td>5.36</td>
<td>0.02</td>
</tr>
<tr>
<td>H3</td>
<td>DEBT</td>
<td>-5.446</td>
<td>3.85</td>
<td>0.04</td>
</tr>
<tr>
<td>H4</td>
<td>NISSUE</td>
<td>-0.271</td>
<td>0.09</td>
<td>0.76</td>
</tr>
<tr>
<td>H5</td>
<td>SIZE*</td>
<td>-0.029</td>
<td>0.02</td>
<td>0.88</td>
</tr>
<tr>
<td>H6</td>
<td>GROWTH*</td>
<td>1.466</td>
<td>3.99</td>
<td>0.04</td>
</tr>
<tr>
<td>H7</td>
<td>AUDCOM</td>
<td>0.492</td>
<td>0.35</td>
<td>0.55</td>
</tr>
<tr>
<td>H8</td>
<td>FDIST</td>
<td>-0.543</td>
<td>5.03</td>
<td>0.02</td>
</tr>
<tr>
<td>H10</td>
<td>STATE</td>
<td>1.181</td>
<td>1.02</td>
<td>0.31</td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>4.382</td>
<td>2.54</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Model Chi-Square 14.36 0.11

* as measured in sales

The sales-based measure of GROWTH is significant (p-value = 0.04), while the asset-based measure of GROWTH has a p-value of 0.38. Use of a different measure of SIZE and GROWTH also affected the significance of the coefficients of FDIST and DEBT. Neither was significant in the asset-based model reported in Table 17. Both were significant in the sales-based model reported in Table 18. MBONUS had a significant coefficient in both models.

Because of the difficulties in interpreting the individual coefficients of the variables created by correlations among the independent variables, a stepwise logit model was employed. As before, individual variables were added to the model and retained if a significance
level of 0.05 was met. The results of the stepwise procedure are reported in Table 19.

**TABLE 19**

**STEPWISE LOGIT RESULTS—CLIENTS OF NON-BIG EIGHT AUDITORS**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Chi-Square</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asset-Based Measures of SIZE and GROWTH</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBONUS</td>
<td>-1.303</td>
<td>3.76</td>
<td>0.05</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.125</td>
<td>0.12</td>
<td>0.72</td>
</tr>
<tr>
<td>Model Chi-Square</td>
<td>4.14</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td><strong>Sales-Based Measures of SIZE and GROWTH</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBONUS</td>
<td>-1.317</td>
<td>3.85</td>
<td>0.04</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.064</td>
<td>0.03</td>
<td>0.85</td>
</tr>
<tr>
<td>Model Chi-Square</td>
<td>4.25</td>
<td>0.03</td>
<td></td>
</tr>
</tbody>
</table>

The results for the asset-based stepwise logit model reported in Panel A of Table 19 are similar to those of the model as a whole as reported in Table 17. The results for the sales-based stepwise logit model are quite different from those reported for the full model in Table 18. The variables FDIST, GROWTH, and DEBT, all significant in the full model did not meet the 0.05 significance level required for a variable to be retained in the model. When the Switch group is restricted to clients that did not change to a Big Eight auditor, AUDCOM is significant at the 0.05 level (results not presented).
Results of Hypothesis Tests

The results of the univariate and multivariate tests, taken together, allow conclusions to be drawn about the research hypotheses. The results were characterized by a divergence between t-test results and results of the nonparametric Mann-Whitney test. The high degrees of skewness and kurtosis in the variables' distributions provide an explanation for this difference. The independent variables are highly correlated, suggesting that the individual coefficients of the logit models are unreliable indicators of a variable's significance. The correlations also provide an explanation for the divergence between the univariate and multivariate results.

The first hypothesis was that the smaller management's ownership of the firm (MOWN), the higher the probability that the firm would switch auditors following an SEC action against the firm's auditor. For the sample as a whole the univariate test results revealed a significant difference in the level of management ownership between the Switch and Non-Switch groups. Surprisingly, clients switching auditors had higher levels of management ownership than clients that did not switch. However, the logit model results indicated that MOWN was not a significant variable, suggesting that the observed differences in MOWN were due to that variable's high
degree of correlation with other factors, such as SIZE, rather than to the influence of MOWN itself. The same pattern was found when the sample was restricted to clients of Big Eight auditors. When clients of Big Eight auditors were examined separately, MOWN was not significant in either the univariate or multivariate tests. Taken as a whole, the results do not support the first hypothesis.

The second hypothesis was that firms with accounting-based management compensation plans (MBONUS) were more likely to switch auditors than firms without such plans. Chi-square and logit results were consistently not significant for the full sample and clients of Big Eight auditors. When the sample of clients of non-Big Eight auditors was examined, MBONUS had a significant coefficient in the full logit model. The sign of the coefficient was opposite the predicted sign, however. This result was supported by a stepwise logit procedure, in which MBONUS met the significance level required for it to be retained in the model. The results indicate that, for clients of smaller auditors, the existence of an accounting-based bonus plan does affect the likelihood of a firm switching auditors after an SEC action against their external auditor. Because of the sign of the observed relationship, however, the second hypothesis is not supported by the evidence.
A firm's debt position was addressed by the third hypothesis, which held that firms switching auditors would have a significantly different degree of leverage (DEBT) than firms that did not switch auditors. Nonparametric test results showed that firms in the Switch group were significantly more highly leveraged than firms in the Non-Switch group. Results of logit analysis, however, indicated that DEBT did not significantly affect the probability of a firm switching auditors. As was noted with MOWN, the correlation of DEBT and SIZE may explain the divergence between the univariate and multivariate results. For the sample as a whole, and for clients of Big Eight auditors, the results do not support the third hypothesis. When the clients of smaller auditors were examined separately, the univariate test results showed no differences in leverage between the Switch and Non-Switch groups. The logit model using the sales-based measure of SIZE and GROWTH contained a significant coefficient for DEBT, but the results were not supported by the stepwise logit procedure. Given the unreliability of individual coefficients due to correlation among the independent variables, the significance of DEBT in one model does not constitute strong evidence in support of the third hypothesis.

The fourth hypothesis holds that a firm planning to raise debt or equity in the capital markets (NISSUE) would
be more likely to change auditors than a firm without such financing plans. As with all the continuous variables, the Mann-Whitney test indicated a significant difference between the Switch and Non-Switch groups. This result was not supported by the multivariate analysis, however. Taken together, the results do not support the fourth hypothesis.

The fifth and sixth hypotheses held that the Switch and Non-Switch groups would differ in firm size and rate of growth. Two measures of size were employed—total assets and annual sales. Three year growth rates were calculated using both measures. For the sample as a whole and for the clients of Big Eight auditors, the results consistently showed that clients in the Switch group were significantly smaller than clients in the Non-Switch group. However, clients of smaller auditors did not significantly differ in SIZE between the two groups. With that exception, the evidence supports the fifth hypothesis.

The significance of the variable GROWTH depended on the measure used to calculate a firm's rate of growth. The full model Mann-Whitney test statistics indicated that firms switching auditors were growing at a faster rate than firms in the Non-Switch group. Results of the logit model did not support this conclusion. When the clients of Big Eight auditors were examined separately, the
stepwise logit procedure revealed that the coefficient of \textit{GROWTH} as measured by sales was significant, while the asset-based measure of \textit{GROWTH} was not. The univariate test results for clients of smaller auditors revealed no differences in growth rates between the Switch and non-Switch groups. The logit model indicated a significant coefficient for the sales-based measure of \textit{GROWTH}, but not for the asset-based measure. Stepwise logit results for the clients of non-Big Eight auditors failed to show a significant result for either measure of \textit{GROWTH}. The evidence fails to strongly support the sixth hypothesis.

Prior research had suggested that firms with corporate audit committees (\textit{AUDCOM}) were more likely to change auditors than firms without such committees. Chi-square results indicated that the reverse relationship existed. Logit results for the clients of Big Eight auditors also indicated that \textit{AUDCOM} was significant. When the sales-based stepwise logit model was employed, \textit{AUDCOM} was significant at the 0.05 significance level. Chi-square results indicated that the existence of a corporate audit committee affected the probability of a client of a smaller audit firm switching auditors. Results of the stepwise logit procedure for a sample of firms that had switched from one non-Big Eight auditor to another supported this finding. Because the direction of the
relationship is opposite that predicted, the evidence does not support the seventh hypothesis.

The eighth hypothesis postulated that firms of differing degrees of financial health would respond differently to changes in external auditor credibility. FDIST was significantly correlated with SIZE, GROWTH, NISSUE, and DEBT. Although the univariate nonparametric tests indicated significant differences between the Switch and Non-Switch groups, the logit model results did not consistently support this finding. The evidence does not appear to support the eighth hypothesis.

The ninth hypothesis held that firms would be less likely to terminate a relationship with an auditor that was a specialist in the firm's industry. Chi-square tests supported this hypothesis, but the logit results consistently failed to show significance for the variable SPEC. The divergence in results may attributable to SPEC's significant (p-value 0.01) correlation with SIZE.

The final independent variable focused on the geographical component of credibility. The tenth hypothesis was that a firm would be more likely to change auditors if the SEC action dealt with an audit failure in that firm's state. No evidence was found to support this hypothesis. Table 20 provides a summary of the results of the hypothesis tests.
### TABLE 20

**SUMMARY OF HYPOTHESIS TESTS**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>MOWN Management Ownership</td>
<td>Not Significant</td>
</tr>
<tr>
<td>H2</td>
<td>MBONUS Bonus Plan</td>
<td>Significant*</td>
</tr>
<tr>
<td>H3</td>
<td>DEBT Firm Leverage</td>
<td>Not Significant</td>
</tr>
<tr>
<td>H4</td>
<td>NISSUE New Issues of Equity/Debt</td>
<td>Not Significant</td>
</tr>
<tr>
<td>H5</td>
<td>SIZE Firm Size</td>
<td>Significant</td>
</tr>
<tr>
<td>H6</td>
<td>GROWTH Three Year Rate of Growth</td>
<td>Not Significant*</td>
</tr>
<tr>
<td>H7</td>
<td>AUDCOM Audit Committee</td>
<td>Significant*</td>
</tr>
<tr>
<td>H8</td>
<td>FDIST Financial Health</td>
<td>Not Significant</td>
</tr>
<tr>
<td>H9</td>
<td>SPEC Industry Specialist</td>
<td>Not Significant</td>
</tr>
<tr>
<td>H10</td>
<td>STATE Location of Client Firm</td>
<td>Not Significant</td>
</tr>
</tbody>
</table>

* Significant for clients of non-Big Eight auditors with sign opposite of that expected.

* Significant for clients of Big Eight auditors when measured in sales.

* Significant with sign opposite of that expected.

**Summary**

This chapter has presented the results of the univariate and multivariate tests. Results were discussed for the sample as a whole, and then separately for clients of Big Eight auditors and clients of smaller auditors. The following chapter will provide a discussion and interpretation of these results. Implications of the findings and suggestions for future research will be presented, along with a discussion of some limitations of this study.
CHAPTER 5
SUMMARY AND CONCLUSIONS

This chapter will summarize and discuss the results presented in the previous chapter. The implications of those results will be presented, followed by a discussion of some of the limitations of this study. The final section of the chapter will present some suggestions for future research.

Summary of Results and Implications

The single most significant variable in the sample as a whole was SIZE. In the sample as a whole and for clients of Big Eight auditors, firms in the Switch group were significantly smaller than firms in the Non-Switch group. The results seem to support the view that the demand for a credible auditor is a function of the amount of information available about the firm. As noted by Wilson and Grimlund (1990), financial statements make up a larger portion of a small firm's information set, and thus the credibility of those financial statements may be a more important consideration than it would be for a larger firm.
When the clients of Big Eight auditors and clients of smaller auditors were examined separately, several differences emerged. While firm size was also an important variable for clients of Big Eight auditors, it was not significant for the clients of smaller auditors. Among clients of Big Eight firms, firms with faster rates of sales growth were more likely to switch auditors. Strong evidence of such a trend among clients of smaller auditors was not found.

Clients of Big Eight auditors with corporate audit committees were significantly less likely to switch auditors after an SEC action against their auditor than firms without such committees. For clients of smaller auditors, the existence of an audit committee seemed to be a significant factor only for those firms switching from one non-Big Eight auditor to another. This result appears to be inconsistent with the findings of Lynn (1985), whose survey of firms revealed auditor prestige to be more important to firms with audit committees.

Two factors may explain the reluctance of firms with audit committees to switch auditors. First, the existence of an audit committee may create another layer of bureaucracy within the corporation. Additional evaluations and discussions at another decision making level within the firm may make it more difficult for firms to change auditors in response to a single event, such as
an SEC Rule 2(e) action against the firm's auditor. Firms without such committees may find the decision making process more "streamlined," and thus switch auditors more easily.

A second explanation for firms with audit committees being less likely to switch auditors affected by SEC actions may be the role of the committee in the auditor selection process. An independent audit committee may be able to more carefully evaluate the firm's auditors. The increased level of scrutiny may cause the audit committee to be influenced less by events not directly involving the firm, such as SEC actions against the firm's auditor.

The existence of an accounting-based bonus plan was not a significant factor in the analysis of clients of Big Eight auditors. This was the single most significant variable for clients of smaller auditors, however. Among this sample subset, firms with a bonus plan were less likely to switch auditors than firms without such a plan. This finding is contrary to the hypothesized relationship.

The other variables hypothesized to have an impact on the probability of a firm switching auditors were not consistently significant. This was true for variables suggested by agency theory (MOWN, NISSUE, DEBT) and variables suggested by prior research (FDIST, SPEC, STATE). No differences were noted between the Switch and Non-Switch groups for these variables.
Perhaps the most compelling result is the apparent failure of agency theory to correctly predict the observed relationships. The results for SIZE and MBONUS were contrary to what would have been expected under agency theory. Other agency theory derived variables (MOWN, NISSUE, DEBT) were not significant in this study. Although agency theory has been used to analyze firms changing auditors due to their evolving needs for auditor credibility, its predictions have yielded mixed results.

An example of the predictive ability of agency theory in the auditor choice literature is the level of management ownership of the firm. Agency theory predicts that firms with higher levels of management ownership have less need for credible auditing (Francis and Wilson 1988). Palmrose (1984) tested the degree of management ownership as a factor affecting the probability that a firm switching auditors would select a Big Eight auditor. No significant result was found. Similar results were reported by Francis and Wilson (1988). Eichenseher and Shields (1989) found management ownership positively associated with the switch to a Big Eight auditor, a result contrary to their prediction derived from agency theory.

Although Francis and Wilson (1988) found that changes in some agency cost derived variables were significant in predicting auditor choice, the results of
this study and others indicate that agency theory does
fully capture the factors affecting a firm's selection of
an auditor. As Francis and Wilson (1988, 680) note:

> While agency costs appear, at the margin, to affect
> auditor choice above and beyond client size/growth,
> the auditor selection process seems to be more complex
> than modelled in this and related studies.

The SEC has been criticized for its approach to
disciplinary actions against auditors under Rule 2(e).
Business Week (1984, 132) noted the perception that
"... such an action has a disproportionate effect on
smaller firms ..." The SEC may be subject to this
criticism because of its lack of knowledge about the
impact of its actions on audit firms. The results of this
study should provide the SEC with information about the
consequences of a Rule 2(e) action against an auditor.
The knowledge that different factors affect the response
of clients of Big Eight firms and clients of smaller
auditors should allow the SEC to more fully assess the
punitive impact of its actions against auditors under Rule
2(e). As more insight is gained into the consequences of
a Rule 2(e) action, the SEC will be able to better
determine when such an action is an appropriate regulatory
response in dealing with audit firms. Evidence of
disparate impact upon audit firms of different sizes may
cause the SEC to consider alternate disciplinary
procedures for smaller audit firms.
The results of this research also have implications for audit firms. Knowledge of the factors influencing a client's decision to switch auditors following events that adversely affect auditor credibility will allow auditors to more accurately assess the costs of such events. With a better understanding of the costs of a decline in credibility, auditors will be better equipped to determine the optimal level of resources allocated to maintaining audit quality and minimizing the chances of a credibility reducing event. For example, the results of this study suggest that an auditor with a client base composed of smaller firms has a greater need to avoid events that reduce credibility than an auditor that serves larger client firms.

Knowledge of which clients are most sensitive to changes in auditor credibility should benefit auditors that have experienced a decline in credibility. These auditors should be able to maximize the effectiveness of efforts to retain existing clients and attract new ones. An understanding of what factors influence a client to switch auditors will allow the auditor to identify the client firms most likely to leave for another auditor. Identification of these "at risk" clients will allow the auditor to better target its efforts as it seeks to minimize the adverse effects of a loss of credibility. An auditor seeking to attract new clients after a decline
in credibility will be able to identify those firms which are most likely to enter into a relationship with the auditor. Time and resources would then be used in attempts to attract those clients, rather than clients whose characteristics indicate little chance of success.

**Limitations**

The study has several limitations that may affect the interpretation of the observed results. First is the implicit assumption of this study that SEC actions under Rule 2(e) are events that adversely affect auditor credibility. Although such an assumption is based on prior research (Wilson and Grimlund 1990), if SEC actions do not affect auditor credibility the results of this study are difficult to interpret.

A second limitation is the assumption that all SEC actions were equally damaging to auditor credibility. A review of the SEC actions used in the study revealed no evident differences in the severity of the penalties imposed on the auditors involved. However, the impact of SEC actions on credibility may be affected by factors such as the publicity surrounding the SEC action, or of the alleged audit failure that triggered the SEC action. To the extent that these factors created differences in the impact of the SEC actions, the results of this study are confounded.
The third limitation is the probability that the Switch group includes firms that would have switched auditors whether or not the SEC had acted against their auditor. An attempt was made to partially control for this possibility by deleting from the Switch group firms that had switched from one level of auditor to another. To the extent this procedure did not control for auditor switching unrelated to SEC actions inferences about the results of this study are clouded.

A fourth limitation of the study is the attempt to capture complex constructs with relatively simple measures. For example, the geographical nature of reaction to changes in auditor credibility, the incentives of managers with accounting-based bonus plans, and effects of a corporate audit committee are all measured with dichotomous variables. To the extent that the measures employed do not correctly measure their underlying constructs, the inferences that can be drawn from the results are clouded.

A fifth limitation is the reliance of the study on publicly available information. If the decision to change auditors is based on non-public information, then this study's results and conclusions are incomplete. An example of non-public information that may have affected the results is the existence of multi-year audit contracts. Clients entering into such contracts may be
unable to switch auditors, even though they would switch in the absence of such a contract. The existence of multi-year audit contracts and other non-public information are factors confounding the results of this study.

Another possible limitation relates to interpretation of the results of the variable **AUDCOM**. Firms listed on the New York Stock Exchange have been required to have audit committees since 1978. Firms traded in the over-the-counter market have recently been required to form audit committees. Audit committees are optional for firms listed on other exchanges. Pincus, Rubarsky, and Wong (1989) document the evolution of requirements for audit committees, as well as the increase in voluntary formation of audit committees in the 1970s and 1980s.

This study examines events which occur over a period of time coinciding with a large increase in the number of firms with corporate audit committees. Although each client firm included in the sample was matched with another client firm from the same time period and from the same auditor, the possibility exists that the changes in exchange listing requirements or other factors influencing the formation of audit committees may affect the results.
Suggestions for Future Research

The observed differences between clients of Big Eight auditors and clients of smaller auditors suggest that the nature of the demand for auditor credibility is more complex than has been developed in the accounting literature to date. The failure of agency theory to effectively model a firm's response to declines in external auditor credibility supports this view. Future research could develop and explore alternative theories of the demand for auditor credibility.

Most accounting research to date has assumed that auditor credibility is a constant, and has examined clients' changing demands for auditor credibility. Missing from the accounting literature is an examination of the forces that change credibility over time. An avenue for future research would be an analysis of the intertemporal aspects of auditor credibility.

Third, the current research could be extended to other events that possibly affect auditor credibility. Litigation against auditors might be examined to determine its impact on auditor credibility. Other regulatory actions could also be examined for evidence of adverse effects due to declines in credibility.

A fourth direction for future research is suggested by the findings of this study regarding audit committees. A better understanding of the role of the audit committee
in the firm and its effect on the firm's decision making processes is needed. Future research could more closely examine whether the existence of a corporate audit committee does, in fact, inhibit auditor switching.
REFERENCES


VITA

THOMAS E. WILSON, JR.

EDUCATION:

1988 - Present  Louisiana State University
                 Ph.D. in Accounting
                 Expected Completion Date: August, 1991

1985 - 1988  University of Iowa
             Doctoral Program in Accounting

1982 - 1984  University of Houston
             MBA - Finance

1976 - 1980  Rice University
             B.A. - Economics

PROFESSIONAL EXPERIENCE:

1990 - Present  University of Southwestern Louisiana
                Department of Accounting
                Assistant Professor

1988 - 1990  Louisiana State University
              Teaching Assistant

1985 - 1988  University of Iowa
              Teaching Assistant

1980 - 1985  Excalibur Financial Corporation
              Vice-President & Corporate Secretary

CERTIFICATION:

Certified Public Accountant, Texas
PUBLICATIONS:


PERSONAL:

Date of Birth: June 4, 1958
Married, 2 children
Candidate:  Thomas E. Wilson, Jr.

Major Field:  Accounting

Title of Dissertation:  An Examination of Auditor Changes Following Events Adversely Affecting External Auditor Credibility

Approved:

[Signatures]

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:  May 1, 1991