Audit Committees, Corporate Governance, and the Quality of Financial Reporting: Evidence From Market Reactions to Earning Announcements

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This empirical study examines the relation between the audit committee effectiveness and the quality of financial reporting measured as the magnitude of market reactions to earnings announcements. Results show that market reactions increase (1) as audit committee directors have more stock ownership in their firms; (2) as audit committees meet more frequently; (3) as audit committees are composed of a higher percentage of directors with expertise in the financial reporting and auditing process; and (4) when the external auditor of a firm is a Big 4 audit firm. Market reactions decrease when there are unaffiliated large block-holders. Results provide empirical evidence in supporting the proposition that a firm with the effective audit committee will maintain a high-quality financial reporting system and that capital markets respond more favorably to earnings news from such a firm. As such, these results support the public and professional efforts to improve the quality of financial reporting by strengthening the effectiveness of audit committees in their oversight role in the financial reporting and auditing process.

Keywords: audit committees, corporate governance, quality of financial reporting, capital market reactions

INTRODUCTION

This study provides further evidence regarding the relation between the effectiveness of the oversight role of audit committees and the quality of financial reporting in a capital market setting. While public and regulatory bodies have attempted to improve the quality of financial reporting by promoting audit committee effectiveness, little systematic empirical evidence on the relation between audit committee effectiveness and the quality of financial reporting is currently available. Therefore, by focusing on the informativeness of accounting earnings in a capital market setting, this study examines the relation between audit committee effectiveness and the quality of financial reporting, measured as the size of the market reaction to unexpected earnings.

Because capital markets respond more sensitively and favorably to earnings news from firms with a higher quality of earnings, examining market responses to unexpected earnings news provides a measure of the quality of a firm's financial reporting system (Holthausen and Verrecchia, 1988; Lev, 1989; Choi and Salamon, 1990; Cho and Jung, 1991; Choi and Jeter, 1992; Imhoff, 1992; Imhoff and Lobo, 1992; Teoh and Wong, 1993). To the extent that the identified audit committee characteristics represent the effectiveness of the audit committee in its oversight role in the financial reporting process, the quality of reported earnings should be associated with the audit committee characteristics. Because the market can observe audit committee characteristics, this effect should be incorporated into the initial market reaction to unexpected earnings (Lev, 1989).

Thus, this study systematically investigates the relation between audit committee effectiveness and the market's response to earnings announcements. The following research question will be addressed: Given that capital markets respond differently to earnings news across firms, and we observe wide variations in audit committee characteristics as well as firms' internal governance structures, are characteristics of audit committees and firms' internal governance structures associated with the magnitude of the market reactions to unexpected earnings?

The remainder of this study is organized as follows: Section 2 reviews the relevant literature and develops the hypotheses. Section 3 describes the sample and data collection procedures. Section 4 explains the research design. Section 5 provides empirical analysis and discussions. Section 6 concludes this study.

PRIOR RESEARCH AND HYPOTHESIS DEVELOPMENT

Earnings Response Coefficients

Researchers in accounting and finance have for many years studied the association between accounting information and securities returns. In part, they have done so to provide evidence on whether accounting information is useful to investors when assessing the underlying value of a firm's securities. Thus, beginning with Ball and Brown's (1968) work, there has been considerable research on the relation between accounting information (e.g. accounting earnings) and stock prices. The results from this line of research suggest that accounting information is at least potentially useful for investors in assessing the value of a firm's securities [for a recent review, see Lev (1989), Bernard (1989)]. Much of the initial work in this area was based upon the pooled data of many firms, under the assumption that the relationship between accounting earnings and stock prices is constant across firms (Cho and Jung, 1991). However, several recent studies provide empirical evidence indicating that firm-specific and economy-wide factors systematically affect the magnitude of coefficients relating unexpected earnings and unexpected returns (earnings response coefficients) [for a recent review, see Cho and Jung (1991)].

The earnings response coefficient (ERC) is defined as the effect of a dollar of unexpected earnings on unexpected stock returns. ERC is typically measured as a slope coefficient from a regression of abnormal stock returns on the appropriately scaled unexpected earnings. ERC research is of fundamental importance because it provides insight into the nature of the relationship between accounting information and securities prices. Current accounting research includes numerous studies that attempt to identify the factors which are likely to determine the size of earnings response coefficients. These studies suggest that the earnings response coefficients are positively related to earnings growth (Collins and Kothari, 1989), earnings persistence (Kormendi and Lipe, 1987; Easton and Zmijewski, 1989; Collins and Kothari, 1989; Lipe, 1990), and negatively related to firm-specific risk (Collins and Kothari, 1989; Easton and Zmijewski, 1989; Lipe, 1990), the risk free interest rate (Collins and Kothari, 1989), and firm size (Atiase, 1985; Freeman, 1987; Collins and Kothari, 1989; Easton and Zmijewski, 1989; Lipe, 1990). In addition, Biddle and Seow (1991) provide evidence that the ERCs differ significantly across industries.

Quality of Earnings and Earnings Response Coefficients

Theoretical Relation Between Quality of Earnings and ERC

Researchers have recently begun to examine whether the quality of reported earnings systematically affects the magnitude of the association between stock price reaction and unexpected earnings. Some theorists (Holthausen and Verrecchia 1988; Lev 1989; Choi and Salamon 1990; Cho and Jung 1991) have demonstrated conditions under which the magnitude of the market reaction to unexpected earnings is a positive function of the extent of uncertainty in the firm's future cash flows and a negative function of the noise in the earnings signal (reported earnings).

Holthausen and Verrecchia (1988) develop a model of several factors that determine the magnitude of abnormal return. Under the assumption of an active market for a single risky security, they show that the potential usefulness of an information signal depends on the quality of the information as defined by its precision, and the extent to which any two information releases substitute for one another, as defined by the covariance between the error terms. Lev (1989) and Choi and Salamon (1990) develop models in which

the magnitude of the market reaction is a positive function of the uncertainty related to the firm's future cash flows and a negative function of the noise in the signal (reported earnings).

The theory noted above suggest that the ERC will increase with the quality of the earnings signal when the extent of prior uncertainty with respect to firm's future cash flows is controlled.

Empirical Evidence on the Relation Between Perceived Quality of Earnings and ERC

Traditional accounting theorists (Paton and Littleton, 1940; Sprouse and Moonitz, 1962) and regulatory bodies (FASB, 1982) have suggested that qualitative characteristics such as reliability, relevance, consistency, and compatibility should be important attributes of the quality of accounting information. Nevertheless, the quality of accounting earnings has not been well-defined by accounting standard-setting bodies. Due to this ambiguity in definition, the quality of a firm's accounting information is not readily measurable (Siegel, 1978, 1982; Bernstein and Siegel, 1982). In addition, Imhoff (1992), in discussions with security analysts, bond raters, and bankers, finds little consensus in assessments of the quality of a firm's financial reporting system, even among relatively sophisticated financial statement users. His results confirm the notion that the quality of accounting information is not a universally agreed-upon characteristic of a firm. However, recent empirical work provides evidence that suggests that investors systematically incorporate their perceptions of the quality of a firm's financial reporting system into setting equilibrium securities prices. Likewise, the market reacts more sensitively and favorably to earnings announcements of firms with a higher perceived quality of accounting earnings.

Choi and Jeter (1992) hypothesize that investors assess the quality of a firm's financial reporting by observing the audit qualifications, and that investors differentially respond to unexpected earnings according to their assessment of the quality of accounting information. They provide empirical evidence which suggests that different types of audit qualifications systematically affect the magnitude of association between accounting earnings and stock returns. This empirical result implies that stock markets systematically incorporate the quality of a firm's financial reporting system, as measured by audit qualifications, in setting equilibrium securities prices.

Imhoff (1992) also relates accounting quality to the stock market reaction to earnings announcement. He hypothesizes that firms with greater perceived quality of accounting information will experience greater stock price reaction to a unit of unexpected earnings at the time of the earnings announcement. He measures accounting quality by obtaining securities analysts' perceptions of the quality of a firm's accounting information system. He finds that the stock market reacts more to earnings news from firms with relatively high-ranked accounting quality.

Imhoff and Lobo (1992) examine whether the ex-ante earnings uncertainty can systematically affect the size of a firm's ERC. They measure ex-ante earnings uncertainty by obtaining the variance in analysts' earnings forecasts just before an earnings announcement. They find a negative relation between ex-ante earnings uncertainty and the size of the firm's ERC and conjectured that the measured ex-ante earnings uncertainty represents a proxy for the noise in a firm's financial reporting system.

Teoh and Wong (1993) relate the stock price reaction to the perceived auditor quality. They examine whether perceived auditor quality as a proxy for the quality of a firm's financial reporting system systematically influences the magnitude of association between unexpected earnings and unexpected returns. They hypothesize that auditor credibility increases with auditor size and that investors respond more to earnings announcements from firms with more credible accounting system. Teoh and Wong find that the Big Eight auditing firms exhibit greater earnings response coefficients than the non-Big Eight auditing firms. Their finding suggests that larger auditors are perceived to be associated with more credible accounting reports and that investors incorporate their perception of quality of earnings when assessing the value of a firm's securities, and respond more to earnings news from the firms with more credible accounting information.

Audit Committee Effectiveness and Market Reactions to Unexpected Earnings

Evidence from these studies on the quality of earnings as a determinant of the ERC suggests that the quality of earnings is a relevant factor for investors in assessing a firm's underlying economic value (Choi

and Jeter 1992; Imhoff 1992; Collins and DeAngelo 1990; Imhoff and Lobo 1992; Teoh and Wong 1993). That is, "when investors perceive deficiencies in the quality of reported earnings, they will obviously attempt to adjust such deficiencies" (Lev, 1989).

In the same spirit, it seems reasonable to expect that investors incorporate their perceptions of the quality of a firm's financial reporting by observing certain characteristics of the firm's audit committee. If a characteristic of an audit committee is related to the effectiveness of the audit committee in its oversight role in the financial reporting process, the quality of reported earnings should be associated with the audit committee characteristic. Because the market can observe audit committee characteristics, this effect should be incorporated into market reactions to the firm's unexpected earnings. Following hypotheses are generated:

Independence of Audit Committee Directors

H1b: *For firms whose audit committees are composed of a greater fraction of independent outside directors, a greater market reaction to firm's earnings announcements will be observed.*

The independence of audit committee directors [variable name IND] is measured as the percentage of independent outside directors of audit committees to total audit committee directors. Consistent with corporate governance literature (e.g. Weisbach 1988; Beasley 1996), I classify outside directors as independent outside directors when they do not have any business or personal ties with a corporation and its management other than their directorships.

The Extent of Stock Ownership by Audit Committee Directors

H2b: *For firms whose audit committee directors hold higher level stock ownership, a greater market reaction to firm's earnings announcements will be observed.*

Consistent with Beasley (1996), the extent of stock ownership held by audit committee directors [variable name STKOWN] is measured as the total percentage of the firm's stock that is owned by audit committee directors.

Quality of Audit Committee Directors as Good Monitors

H3b: *For firms whose audit committees directors hold more additional outside directorships, a greater market reaction to firm's earnings announcements will be observed.*

Consistent with Beasley (1996), quality of audit committee directors as good monitors [variable name QUALITY] is measured as the average number of additional outside directorships held by audit committee directors. I only include corporate board directorships and exclude non-corporate directorships such as directorships for charity organizations and non-profit organizations.

Tenure of Audit Committee Directors

H4b: *For firms whose audit committees are composed of directors with longer tenure, a greater market reaction to firm's earnings announcements will be observed.*

Consistent with Beasley (1996), the tenure of audit committee directors [variable TENURE] is measured as the average tenure or audit committee directors on the client's board.

Activity Level of Audit Committee Directors

H5b: *For firms whose audit committees meet more frequently, a greater market reaction to firm's earnings announcements will be observed.*

The activity level of audit committee directors [variable MEETING] is measured as the total number of annual audit committee meetings.

Accounting and Auditing Expertise of Audit Committee Directors

H6b: *For firms whose audit committees are composed of a greater fraction of expert directors, a greater market reaction to firm's earnings announcements will be observed.*

The expertise of audit committee directors in the financial reporting and auditing process [variable EXPERT] is measured as the percentage of AC directors who have the knowledge and expertise in the corporate financial reporting and auditing process. Such directors include CPAs, Controllers, Treasurers, and Internal Auditors.

SAMPLE SELECTION AND DESCRIPTION

Sample Selection

The above hypotheses are tested using a sample of 67 NASDAQ/NMS firms. Sample firms have at least 15 quarters of earnings and earnings announcements available from the *First Call New History RTEE Database* and price and return data available from *CRSP* over the period 1992-1996, plus corporate governance data available via proxy statements for the fiscal year of 1992-1993.

Table 1 describes the sampling criteria and procedures. The sample firms for this study are required to meet the following selection criteria:

1. In order to have earnings announcement dates, actual earnings, and other financial information, the initial sample firms will be limited to firms listed in the 1996 *COMPUSTAT Quarterly File*. This procedure identifies the 5,448 firms.
2. In order to control for any possible stock exchange effect and to allow wide variation in corporate governance structures, only NASDAQ/NMS firms are selected. This procedure deletes 2,497 firms.
3. In order to control for the possible industry effect, 316 firms, which operate in the finance and utility industries, are excluded[1].
4. In order to facilitate data analysis and comparisons with prior research, 1,418 firms with other than calendar fiscal years are deleted.
5. In order to have stock return data available, 524 firms not in *CRSP* are excluded.
6. In order to have information with regard to audit committee characteristics and the firm's corporate governance structure, 485 firms whose proxy statements are not available are deleted.
7. In order to have earnings estimates from security analysts, 28 firms that are not in the *First Call New History RTEE Database* are excluded.
8. In order to avoid the confounding effects of multiple classes of stock and to facilitate the data analysis, 25 firms with multiple common stocks are excluded.
9. In order to estimate the firm-specific earnings response coefficient efficiently, 88 firms which have less than 15 quarterly observations over the period of 1992-1996 are excluded.
10. The above sampling procedures finally yield a sample of 67 firms with 134 firm-year observations on corporate governance variables and 1241 firm-quarter observations for financial and stock return variables.

Sample Description

Panel A, Table 2 provides the descriptive statistics of sample firms used in this study. Because these firms are listed in NASDAQ/NMS, sample firms are relatively smaller than firms listed in NYSE/AMEX are. The mean (median) market value of the sample firms is $ 273.646 (105.631) million. The mean (median) sales of the sample firms is $ 116.126 (32.536) million. In addition, because sample firms are listed in NASDAQ/NMS, they are riskier firms than firms listed in NYSE/AMEX. The mean (median) beta is 1.198 (1.125).

Panel B, Table 2 presents the industry classifications of the 67 sample firms. The industry with the largest presentation is Manufacturing with 44 (66 %) observations. In addition, Wholesale and Retail Trade has 10 (15 %) observations; Agriculture, Mining, and Construction have 7 (10 %) observations; Services have 6 (9 %) observations.

RESEARCH DESIGN

Measurement
Market Reactions to Earnings Announcements

Measuring market reactions to earnings announcements involves several steps. First, I measure unexpected earnings (UE) for each firm. Second, I measure the cumulative market adjusted returns (CMAR) surrounding earnings announcements for each firm. Third, I estimate the firm-specific earnings response coefficient for each firm by regressing the firm-specific CMAR on the firm-specific UE.

Unexpected Earnings

Unexpected earnings are measured as follows [2]:

$$UE_{it} = \frac{A_{it} - E_{it}}{P_{it}}$$

where: A_{it} = actual earnings for firm i in period t, obtained from the *First Call New History RTEE Database*
E_{it} = expected earnings for firm i in period t, obtained from the median of security analysts' most recent quarterly earnings forecasts in the *First Call New History RTEE Database*
P_{it} = stock price for firm i two trading days before the quarterly earnings announcement date in the *First Call New History RTEE Database*

Cumulative Market Adjusted Returns (CMAR$_{it}$)

Cumulative market adjusted returns (CMAR$_{it}$) are obtained as follows[3]:

$$CMAR_{it} = \sum_{t=-1}^{1} (R_{it} - R_{mt})$$

where: R_{it} = return on firm i on day t
R_{mt} = return on the CRSP equal-weighted market index on day t

The results are cumulative three-day returns surrounding the earnings announcement date in the *First Call New History RTEE Database.*

Estimation of Firm-Specific ERC

Utilizing Firm Specific Coefficient Methodology [Teets and Wasley(1996), Ahmed (1994), Kallapur (1994), Teets (1992), Easton and Zmijewski (1989)], I measure the firm-specific ERC for each firm by estimating the following regression:

Firm Specific ERC Model: $\text{CMAR}_{it} = \alpha_i + \beta_i\, \text{UE}_{it} + \varepsilon_{it}$

where: CMAR_{it} is cumulative market adjusted stock returns for firm i, for the three-day period (-1,1) surrounding the quarterly earnings announcement date in period t.

UE_{it} is firm i's unexpected earnings for announcement period t.

ε_{it} is a random error term.

β_i is the estimated firm-specific earnings response coefficient for firm i.

Table 3 reports the results of estimation of firm-specific ERC for 67 firms from 1241 firm-quarter observations. The mean (median) of the firm-specific ERC is 5.5208 (1.9932). The mean (median) of R^2 is 8.98 % (3.47 %), while the mean (median) of adjusted-R^2 is 3.4 % (-1.9 %).

Control Variables

Sample firms may differ in various factors because of differences in their underlying characteristics, such as the firm's internal governance structure and firm-specific non-governance characteristics. To the extent that these factors are important for determining the ERC, a difference in ERC may be found even if audit committee effectiveness is not a relevant determinant of the ERC. Therefore, in order to measure the incremental effect of audit committee effectiveness, these factors are included to control possible confounding effects in the empirical model.

Internal Governance Structure

I control for corporate governance variables because such governance characteristics influence not only the characteristics and effectiveness of audit committees but also the quality of financial reporting, thus market reactions to earnings news. I include four internal corporate governance variables: the type of external auditors, the presence of unaffiliated block-holders, the extent of stockownership by management, and the corporate leadership structure.

Type of External Auditors

The type of external auditors is likely to be associated with characteristics of audit committees, the internal governance structure, and market reactions to earnings announcements. The voluntary formation of audit committees is positively associated with the type of external auditors (Pincus et al 1989; Menon and Williams 1994). In addition, Menon and Williams (1994) report a significant positive correlation between the number of audit committee meetings and the type of external auditors. Teoh and Wong (1993) reports that firms audited by Big 8 auditors exhibit greater market reactions to earnings news.

Consistent with prior research (Teoh and Wong 1993), the type of external auditors [variable AUDITOR] is measured as a dummy variable with a value of one if the auditor is a Big 6 auditor and a value of zero otherwise. AUDITOR controls for differences in the type of external auditors among sample firms.

Presence of Unaffiliated Block-Holders

Recent empirical evidence suggests that monitoring by unaffiliated block-holders may affect the corporate governance structure in general and the board composition in particular. Specifically, large block-holders may influence the effectiveness and compositions of the board and subcommittees in various ways by influencing the selection of members (Fromson 1990). At the same time, large block-holders with a significant financial stake in the firm may closely monitor the financial reporting and auditing process (DeFond and Jiambalvo 1991; Beasley 1996; Dechow et al 1996). This, in turn, is expected to reduce the material omissions and misstatements in financial statements and to preserve the quality of financial reporting, resulting in an increase in market reactions to earnings announcements.

Consistent with prior research, the presence of unaffiliated block-holdings [variable BLOCKHLD] is measured as a dummy variable with a value of one if there is a block-holder with at least 5 % of common

stock and is not affiliated with management and a value of zero otherwise. BLOCKHLD controls for differences in monitoring by large block-holders unaffiliated with management among sample firms.

Corporate Leadership Structure

The effectiveness of audit committees is likely to be affected by the common corporate leadership structure among US corporations that have a CEO who also serves as the board chairman and exercises excessive influence over the selection and tenure of board members, the composition of board committees, the agenda of board meetings, and information flows (Fama and Jensen 1983; Paton and Baker 1987; Jensen 1993; Monks and Minow 1996). At the same time, empirical evidence suggests that the duality leadership structure negatively influences the corporate financial reporting process (Loebbecke et al 1989; Dechow et al; Livingston 1997).

Consistent with prior research, corporate leadership structure [variable DUALITY] is measured as a dummy variable with a value of one if a CEO or president is also the chairman of the board and a value of zero otherwise. DUALITY controls for differences in corporate leadership structure among sample firms.

Extent of Management Stockownership

Recent studies have found that the proportion of outside directors on the board is negatively correlated with the management's stock ownership (Hermalin and Weisbach 1988; Weisbach 1988). Also, the level of managerial ownership may be associated with the formation of audit committees (Pincus et al 1989; Menon and Williams 1994). In addition, Menon and Williams (1994) report evidence that a significant negative correlation exists between the frequency of audit committee meetings and the level of managerial stock ownership. At the same time, the level of managerial ownership may positively affect the quality of accounting earnings. Warfield et al (1995) find that managerial ownership is positively associated with the extent to which accounting earnings are informative.

Consistent with prior research, the extent of stock ownership that is held by management [variable MGTSHR] is measured as the cumulative percentage of stock ownership held by management. MGTSHR controls for differences in the extent of stock ownership held by management (all directors and officers) among sample firms.

Other Determinants of Earnings Response Coefficients

Prior research suggests that determinants of ERC are a positive function of earnings growth (Collins and Kothari, 1989) and earnings persistence (Kormendi and Lipe, 1987; Easton and Zmijewski, 1989; Collins and Kothari, 1989; Lipe, 1990). The determinants of ERC are also a negative function of firm-specific risk (Collins and Kothari, 1989; Lipe 1990) and firm size (Atiase, 1985; Freeman, 1987; Easton and Zmijewski, 1989; Collins and Kothari, 1989; Lipe, 1990). I include these factors to control for the possible confounding effect in the empirical model.

Firm-Specific Risk

The firm-specific risk is expected to negatively affect market reactions to earnings announcements. Because the stock price for a firm is assumed to be the present value of the firm's expected future earnings discounted by the firm's expected rate of return, which is a function of the firm's systematic risk (beta), a negative association is expected to exist between firm-specific risk and ERC (Collins and Kothari 1989). In addition, Collins and Kothari (1989) and Lipe (1990) document a negative association between firm-specific risk and market reactions to earnings announcements.

Consistent with Collins and Kothari (1989) and Teoh and Wong (1993), firm-specific risk [variable BETA] is measured as the slope coefficient estimate in the capital market model.

Growth/Earnings Persistence

A firm's growth opportunity is expected to positively affect ERC because growth opportunities affect future cash flows and earnings (Collins and Kothari 1989). They measure a firm's growth opportunity as the market value to book value and find that ERC is a positive function in their proxy. Biddle and Seow

(1990) document a positive relation between growth opportunities and market reactions to earnings announcements.

Furthermore, earnings persistence is expected to positively affect ERC (Kormendi and Lipe 1987). Earnings persistence measures the degree to which current period earnings innovation (unexpected earnings) persists in the future. Because unexpected earnings provide information about changes in future cash flow and earnings, investors incorporate earnings persistence into setting the stock price. Thus, earnings persistence is expected to be positively associated with ERC. Many studies document empirical evidence on the positive association between earnings persistence and market reactions to unexpected earnings (Kormendi and Lipe, 1987; Easton and Zmijewski, 1989; Collins and Kothari, 1989; Lipe, 1990). Consistent with Teoh and Wong (1993), I use market to book value as a proxy for both growth opportunity and earnings persistence [variable MB]. Collins and Korthari (1989) also suggest that the ratio of market to book value may proxy for earnings persistence because the persistence affects the ratio.

Firm Size

Prior research has argued that firm size represent the information environment or extent of information search activities about large versus small firms (Atiase 1985; Freeman 1987). For larger firms, there is more non-accounting information available between releases of accounting information. To the extent that this information is incorporated into the stock price, accounting information released from larger firms is less informative. Thus, firm size is expected to negatively affect the market reactions to earnings announcements. Many studies report some evidence suggesting that the market reactions to unexpected earnings decreases with firm size (Atiase, 1985; Freeman, 1987; Easton and Zmijewski, 1989; Collins and Kothari, 1989; Lipe, 1990). In addition, firm size is included to control for other possible omitted variables in analysis. While firm size is not an economic determinant of ERC, it is likely to represent omitted variables or be associated with the identified determinants of ERC.

Consistent with Teoh and Wong (1993), firm size is measured as the natural log of market value of a firm's equity [variable SIZE].

Empirical Model and Hypothesis Test

The following multivariate ordinary least square (OLS) regression is used to test hypotheses relating audit committee characteristics and the magnitude of market reactions to earnings announcements, while controlling for differences in internal governance structure and firm-specific control variables across firms (the predicted sign is enclosed in parentheses):

$$ERC_i = \beta_0 + \beta_1 IND_i + \beta_2 STKOWN_i + \beta_3 QUALITY_i$$
$$+ \beta_4 TENURE_i + \beta_5 MEETING_i + \beta_6 EXPERT_i$$
$$+ \beta_7 AUDITOR_i + \beta_8 BLOCKHLD_i + \beta_9 DUALITY_i + \beta_{10} MGTSHR_i$$
$$+ \beta_{11} BETA_i + \beta_{12} MB_i + \beta_{13} SIZE_i + \beta_{14} YEAR_i + \varepsilon_i$$

where:

	ERC	firm-specific ERC estimated by utilizing Firm Specific Coefficient Methodology
(+)	IND	the percentage of independent outside directors on audit committees
(+)	STKOWN	the total percentage of the firm's stock that is owned by AC directors
(+)	QUALITY	the average number of outside directorships held by AC directors
(+)	TENURE	the average tenure of AC directors on the board
(+)	MEETING	the total number of AC meetings
(+)	EXPERT	the percentage of AC directors who have financial reporting and auditing expertise
(+)	AUDITOR	a dummy variable with a value of one if the auditor is a Big Six auditor and a value of zero otherwise

(+)	BLOCKHLD	a dummy variable with a value of one if there exists a block-holder who holds at least 5 % of common stock and not affiliated with management and a value of zero otherwise
(+)	DUALITY	a dummy variable with a value of one if a CEO or president is also the chairman of the board and a value of zero otherwise
(+)	MGTSHR	the cumulative percentage of stock-ownership held by management
(-)	BETA	the market model slope coefficient, as a proxy for firm-specific risk
(+)	MB	market to book ratio, a proxy for growth/earnings persistence
(-)	SIZE	natural log of the market value of a firm's equity
	YEAR	a dummy variable with a value of one if the fiscal year of proxy statement for a firm is 1992 and a value of zero for 1993

EMPIRICAL ANALYSIS AND DISCUSSION

This section reports and discusses the empirical results. The first section describes the characteristics of the research variables for sample firms. The second section analyzes the correlation among research variables and checks the possibility of multicollinearity. The third section reports and discusses the results of a multivariate OLS analysis of whether these variables are associated with the magnitude of market reactions to earnings announcements, after controlling for known factors as determinants of the magnitude of market reactions to earnings announcements. Table 4 provides the definitions of research variables used in this study.

Descriptive Statistics

Table 5 reports the descriptive statistics (means, standard deviations, the first quartiles, medians, and the third quartiles) for research variables of sample firms used in this study. For my sample, on average (median), 74.9 % (100 %) of audit committee directors are independent outside directors. Audit committee directors own 10.4 % (2.5 %) of their firm's common stocks, hold 1.35 (1) additional outside directorships, and have served for 7.2 (6) years on the board. Audit committees meet 2.03 (2) times a year. 8.9 % (0.0 %) of audit committee directors have expertise in the financial reporting and auditing process. 95.5 % (100 %) of external auditors are Big 6 auditors. 69.4 % (100 %) of firms have unaffiliated block-holders. 65.7 % (100 %) of sample firms have CEO/presidents who simultaneously serve as their chairmen of the boards. Management (directors and officers) own 29.0 % (26.1 %) of their firms' common stocks.

Analysis of Correlation and Multicollinearity

The overall significance of the univariate results may be misstated if the independent variables are correlated, because multicollinearity among independent variables leads to unstable, biased parameter estimates. I check multicollinearity by examining correlation coefficients among independent variables and by calculating the variance inflation factors (VIFs). As Table 6 indicates, except the correlation between variable MB and Size (0.56), none of the correlation coefficients between independent variables exceeds 0.50, the conservative cut-off point suggested by Johnston (1980). In addition, Table 7 indicates no VIF exceeds 2, which is far less than the cut-off point of 10 suggested by Myers (1990). It is thus concluded that multicollinearity is not a serious problem.

Multivariate Analysis

In this section, I report the results of multivariate tests of the association between the magnitude of market reactions to unexpected earnings and audit committee characteristics, other corporate governance characteristics, and control variables.

Table 7 reports the OLS results which have an adjusted R^2 of 10.23%. The F statistic (2.017) of the model's fit is significant at the 0.0225 level, thus rejecting the null hypothesis that the coefficients are simultaneously zero. The results of OLS analysis show that the magnitude of market reactions is

systematically related to corporate financial governance characteristics, after controlling for some known factors as the determinants of earnings response coefficients. First, the results indicate that previously identified factors such as firm-specific risk and firm size are negatively associated with market reactions to earnings announcements, confirming the previous research findings. Second, market reactions to earnings announcements increase (1) as audit committee directors have more stock ownership in their firms; (2) as audit committees meet more frequently; (3) as audit committees are composed of a higher percentage of directors with expertise in the financial reporting and auditing process; and (4) when the external auditor of a firm is a Big 6 audit firm. Finally, market reactions to earnings announcements tend to decrease when there are unaffiliated large block-holders.

Audit Committee Characteristics

The results of Table 7 indicate that even after controlling for firm-specific variables and internal governance structures, some audit committee characteristics influence the magnitude of market reactions to earnings announcements. Three audit committee characteristic variables (STKOWN, MEETING, and EXPERT) have significant and predicted positive coefficients. The variables IND and QUALITY have expected positive coefficients. However, neither variable is statistically significant. The variable TENURE has an unexpected negative coefficient, but it is not significant.

H1: Independence of Audit Committee Directors

H1 predicts that firms whose audit committees are composed of a greater percentage of independent outside directors will exhibit greater market reactions to earnings announcements. The results in Table 7 do not support the hypothesized relation. The coefficient for IND, which represents the percentage of independent outside directors to total AC directors, is positive but it is not statistically significant ($p < 0.4905$). That is, audit committee independence has no statistical effect on the magnitude of market reactions to earnings announcements. The results are not consistent with the previous research in financial reporting and disclosure litigation (Beasley 1996; McMullen and Raghunandan 1996).

H2: Extent of Stock Ownership held by Audit Committee Directors

H2 predicts that firms whose audit committee directors hold higher levels of stock ownership will exhibit greater market reactions to earnings announcements. The results in Table 7 support the hypothesized relation. The coefficient for STKOWN, which represents the total percentage of a firm's stock that is owned by AC directors, is positive and statistically significant ($p < 0.0032$). That is, the extent of stock ownership by audit committee directors has statistically significant positive effects on market reaction to earnings announcements. The results suggest that the capital market views audit committees whose directors have a substantial financial stake in their firms as effective ones, and that the capital market responds more favorably to earnings announcements from firms with such audit committees.

The empirical results are consistent with previous research findings in financial reporting and disclosure litigation (Gerety and Lehn 1991; Beasley 1996; Dechow et al 1996), which find the negative effect of ownership interests by outside directors or boards on the likelihood of financial reporting fraud. On the other hand, this empirical evidence is contrary to the Price Waterhouse (1993) recommendation and FDICIA (1991) requirement that directors, who hold substantial personal financial stake in the firms, should not serve on audit committees[4].

H3: Quality of Audit Committee Directors as Good Monitors

H3 predicts that firms whose audit committee directors hold additional outside directorships will exhibit greater market reactions to earnings announcements. The results in Table 7 do not support the hypothesized relation. The coefficient for QUALITY, which represents the average number of additional outside directorships held by AC directors, is positive but insignificant ($p < 0.4989$). That is, the average number of additional outside directorships held by AC directors has no significant effect on market reactions to unexpected earnings.

The results are consistent with the previous mixed findings of the negative effects of additional outside directorships on the corporate financial reporting process. McMullen and Raghunandan (1996) find that the number of additional outside directorships held by audit committee directors does not differ between companies with financial reporting problems and companies without problems. Beasley (1996) finds that the likelihood of financial reporting fraud increases as outside directors serve on additional corporate boards.

On the other hand, the results may reflect investors' reservations about the effectiveness of "busy" directors (Monks and Minow 1995; Dobrzynski 1996; NACD 1996). As audit committee directors serve on more corporate boards, their effectiveness as diligent monitors may become questionable. The capital market may view these directors as ineffective, and their concerns about the quality of earnings may be negatively reflected in the market reactions to earnings announcements[5].

H4: Tenure of Audit Committee Directors

H4 predicts that firms whose audit committees are composed of directors with longer tenure will exhibit greater market reactions to earnings announcements. The results in Table 7 do not support the hypothesized relation. The coefficient for TENURE, which represents the average tenure of AC directors, is unexpectedly negative but it is not statistically significant ($p < 0.1257$). That is, the tenure of audit committee directors does not have a significant effect on the magnitude of market reactions to unexpected earnings.

The results may reflect the capital market's negative concern on the effectiveness of audit committee directors who have been on boards for a long time. As audit committee directors serve longer on boards, they may have developed a close and friendly relationship with management and hence do not act as independent and effective monitors of the firm's financial reporting. The capital market may suspect audit committees whose directors have been on boards for a long period of time as ineffective, and thus respond negatively to earnings news from firms with such audit committees[6].

H5: Activity Level of Audit Committee Directors

H5 predicts that firms whose audit committees meet more frequently will exhibit greater market reactions to earnings announcements. Consistent with the previous finding (McMullen and Raghunandan 1996), the results in Table 7 support the hypothesized relation. The coefficient for MEETING, which represents the total number of AC meetings, is positive and statistically significant ($p < 0.0008$). That is, the market reaction to unexpected earnings is an increasing function of the total number of audit committee meetings.

The results suggest that the capital market views audit committees that meet more frequently as more effective, and the capital market responds more favorably to earnings news from a firm whose audit committee is active and diligent.

H6: Accounting and Auditing Expertise of Audit Committee Directors

H6 predicts that firms whose audit committees are composed of a greater fraction of expert directors will exhibit greater market reactions to earnings announcements. The results in Table 7 are consistent with the hypothesized relation. The coefficient for EXPERT, which represents the percentage of audit committee directors who have financial reporting and auditing expertise, is positive and statistically significant ($p < 0.0013$). That is, the market reaction to unexpected earnings is an increasing function of the accounting and auditing expertise of audit committee directors. The results are consistent with McMullen and Raghunandan (1996)'s finding that firms with financial reporting problems have audit committee directors with financial reporting expertise less frequently than firms without financial reporting problems. Thus, the results suggest that the capital market consider audit committees with financial reporting experts as effective, and the investors respond favorably to earnings announcements from firms with such audit committees.

Corporate Governance Structure

The results of Table 7 indicate that internal governance structures are also likely to influence market reactions to earnings announcements. The market reactions to a firm's earnings announcements increase

when it has a Big 6 auditor as its external auditor. On the other hand, the presence of unaffiliated block-holders has a significant but negative effect on market reactions to earnings announcements. In addition, neither the extent of the stock ownership by management nor the corporate leadership structure has a statistically significant effect on market reaction to earnings announcements.

Type of External Auditors

The coefficient for AUDITOR, which represents a dummy variable with a value of one if the auditor is a Big 6 auditor and a value of zero otherwise, has a positive sign and is statistically significant ($p < 0.0509$). That is, for my sample, the quality of external auditors, measured as Big 6 vs. non-Big 6 has a statistically significant positive effect on market reaction to earnings announcements. This is consistent with Teoh and Wong's (1993) finding that Big 8 auditing firms exhibit greater market reactions to earnings announcements than non-Big 8 auditing firms. The findings suggest that larger auditors are perceived as being associated with more credible financial reports, and the capital market responds more favorably to earnings news from firms audited by larger auditors. Furthermore, the results provide empirical evidence in supporting the perspective that larger auditors are high quality auditors (DeAngelo 1981; Palmrose 1988, 1989; Knapp 1991).

Presence of Unaffiliated Block-Holdings

The coefficient for BLOCKHLD, which represents a dummy variable with a value of one if there exists a block-holder who holds at least 5 % of common stock and not affiliated with management and a value of zero otherwise, has a negative sign and is statistically significant ($p < 0.0253$). That is, the presence of an unaffiliated block-holder has a significant negative effect on market reactions to earnings announcements. These findings are not consistent with the perspective that large block-holders with their significant financial stakes in the firm closely monitor the financial reporting and auditing process (DeFond and Jiambalvo 1991; Beasley 1996; Dechow et al 1996).

Corporate Leadership Structure

The coefficient for DUALITY, which represents a dummy variable with a value of one if a CEO or president is also the chairman of the board and a value of zero otherwise, has a positive sign but it is not significant ($p < 0.2209$). That is, the magnitude of market reactions to earnings announcements is not associated with the corporate leadership structure.

The results are not consistent with prior research findings in financial reporting and disclosure litigation, which document the negative effect of duality leadership structure on the quality of the financial reporting and auditing process (Loebbecke et al 1989; Dechow et al 1996; Livingston 1997).

Extent of Stock Ownership Held by Management

The coefficient for MGTSHR, which represents the cumulative percentage of stock-ownership held by management, is positive but it is not significant ($p < 0.1107$). That is, the size of market reactions to unexpected earnings is marginally positively associated with the stock-ownership held by management. Thus, this result is directionally consistent with Warfield et al (1995)'s finding that managerial ownership is positively associated with the informativeness of accounting earnings.

Firm-Specific Non-Governance Characteristics

The results of Table 7 indicate that the magnitude of market reactions to earnings announcements is also negatively associated with two of client's specific non-governance characteristics, firm-specific risk and firm size. However, a firm's growth/earnings persistence has no statistically significant effect on market reactions to earnings announcements.

Firm-Specific Risk

Consistent with prior research (Collins and Kothari, 1989; Easton and Zmijewski, 1989; Lipe, 1990), the coefficient for BETA, which represents firm-specific risk, has a negative sign and is statistically

significant (p<0.0526). That is, a client's firm-specific risk has statistically negative effect market reactions to earnings announcements. These results are consistent with the extant findings.

Growth/Earnings Persistence

The coefficient for MB, which represents the growth/earnings persistence measured as the market to book value, has a positive sign but is not statistically significant (p<0.2533). That is, firm growth/earnings persistence has no statistically significant effect on market reactions to earnings announcements.

Firm Size

Consistent with prior research (Atiase, 1985; Freeman, 1987; Collins and Kothari, 1989; Easton and Zmijewski, 1989; Lipe, 1990), Larger market reactions to earnings announcement involve relatively smaller firms. The coefficient for SIZE, which represents the natural log of the market value of a firm, has a negative sign and it is statistically significant (p<0.0647). That is, the magnitude of market reactions to earnings announcements decreases with the firm size.

CONCLUSIONS

Summary

This empirical study provides further evidence regarding the relation between the effectiveness of the oversight role of audit committees and the quality of financial reporting in a capital market setting. This study systematically examines the relation between audit committee effectiveness and the quality of a firm's financial reporting, measured as the magnitude of market reactions to unexpected earnings. Recent accounting theories and empirical evidence suggest that capital markets respond more sensitively and favorably to earnings news from firms with high quality earnings. Thus, examining the market's responses to unexpected earnings news provides a measure of the quality of a firm's financial reporting system. To the extent that corporate financial governance characteristics are related to the effectiveness of the corporate financial governance process, the quality of reported earnings should be associated with corporate financial governance characteristics. Because the market can observe corporate financial governance characteristics, this effect should be incorporated into the initial market reactions to unexpected earnings (i.e., earnings response coefficients, ERCs). Therefore, I argue that the more effective the corporate financial governance process, the greater the market reactions to earnings news, measured as ERCs.

For this study, I use 67 NASDAQ/NMS firms which have at least 15 quarters of earnings and earnings announcement dates from the *First Call New History RTEE Database* and price and return data from *CRSP* over the period 1992-1996, plus corporate governance data available via proxy statements. The effectiveness of audit committees is measured as each of the following six audit committee characteristics: Independence, Stock Ownership, Quality, Tenure, Activity Level, and Expertise. On the basis of the theoretical relations between audit committee effectiveness and each audit committee characteristic, six separate hypotheses are examined. In order to test relations between corporate financial governance characteristics and capital market reactions to earnings news, I first estimate firm-specific ERCs by regressing market adjusted abnormal returns on the unexpected earnings for each firm. I then regress firm-specific ERCs on corporate financial governance characteristics and control variables which have been found in previous research to be determinants of ERCs.

Empirical results show that the magnitude of market reactions to earnings announcements is significantly related to corporate financial governance characteristics, after controlling for previously known factors affecting market reactions. On the one hand, market reactions to earnings announcements increase (1) as audit committee directors have more stock ownership in their firms; (2) as audit committees meet more frequently; (3) as audit committees are composed of a higher percentage of directors with expertise in the financial reporting and auditing process; and (4) when the external auditor of a firm is a Big 6 audit firm. On the other hand, market reactions to earnings announcements tend to decrease when there are unaffiliated large block-holders. In addition, previously identified factors such as firm-specific risk and

firm size are negatively associated with market reactions to earnings announcements, confirming previous research findings.

The results of this paper provide empirical evidence in supporting the proposition that a firm with an effective audit committee will maintain a high quality financial reporting system, and capital markets respond more favorably to earnings news from such a firm. As such, these results support public and professional efforts to improve the quality of financial reporting by strengthening the effectiveness of audit committees in their oversight role in the financial reporting and auditing process.

Contributions

This study provides systematic evidence regarding audit committee characteristics and the quality of financial reporting, thus confirming the public concerns and regulatory efforts to improve corporate financial governance.

This study also provides evidence about the expanding role of corporate audit committees as the principal legitimizing force in balancing the interests of shareholders with those of managers in the financial reporting process. Thus, this study enhances our understanding of the role of the audit committee and its directors in modern corporations.

This study also provides empirical evidence on the effects of such governance structures as managerial stock ownership, corporate leadership structure, and the presence of unaffiliated large block-holders on the quality of accounting information. Taking the corporate governance approach, this study also provides the additional factors affecting market reactions to earnings announcements.

This research is of fundamental importance because it provides insights into the nature of the relationship between accounting information and securities prices: whether accounting information is at least potentially useful for investors in assessing the underlying value of firms. This study provide insights on how investors incorporate their perceptions of the quality of a firm's financial reporting, by observing corporate financial governance characteristics, into setting a firm's securities prices. This paper contributes to our understanding of how investors assess the quality of earnings and incorporate it into valuing firms.

This paper provides further evidence of the determinants of earnings response coefficients. Incorporating previously identified determinants as control variables along with audit committee effectiveness as a proxy for quality of earnings, this study provide new additional evidence regarding the determinants of ERCs. In addition, because hypotheses are tested using NASDAQ listed firms and the results confirm previous findings, this study provides the check of robustness for previous findings across the stock exchange.

Limitations

One shortcoming of this study comes from the relatively small size of the sample used in this study, considering the relatively large number of independent research variables. A future study will enlarge the sample size to 200 firms, including NYSE listed firms. This future study will provide sufficient statistical power and also investigate the possible stock exchange effects on market reactions to earnings announcements.

Because the dependent variable, the firm-specific earnings response coefficient (ERC), is measured with some degrees of errors, a mis-specification problem in the dependent variable may exist, and thus impair the validity of the results.

In addition, errors in measuring the independent research variables could also bias the results. The important potential measurement issue is the proxy for capital market's expectation for earnings. This study adopts analyst forecasts as the earnings expectation measure. However, a recent empirical study shows that analyst forecasts may be biased (Matsumoto 1998). Matsumoto argues that managers use their influences with securities analysts to obtain more pessimistic forecasts to improve their chances to beat the market expectations. Moreover, she documented that manager's preferences for relatively pessimistic forecasts are associated with some corporate governance characteristics. She found a positive association with the percent of institutional investors and a negative association with the percent of managerial ownership. To

the extent that the nature of analyst forecasts are associated with corporate governance characteristics, the bias in analyst forecasts could result in confounding effects, and thus impair the validity of the results.

Finally, the results may be biased if the other determinants of ERC are omitted, not fully captured by the included control variables, or when omitted variables are systematically correlated with both the corporate financial governance characteristics and the nature of market reactions to earnings announcements.

Future Research Directions

One possible extension of this study is to investigate the effect of the size of audit committees on the quality of financial reporting and auditing process. Corporate governance critics (Jensen 1993, Minow and Monks 1996) argue that boards of directors are ineffective because of their excessive size. When a board is too large, a potential free-rider problem is created and boards become less effective. Likewise, the size of audit committees may affect the effective functioning of audit committees, and thus the quality of the financial reporting and auditing process.[7]

Focusing on the auditor's attestation role, one possible extension of this study would be to investigate the association between audit committee effectiveness and the likelihood of a firm's receiving qualified opinions. When professional independent auditors perceive deficiencies in their examination of clients' financial statements, they render audit opinions other than unqualified opinions. Thus, an audit opinion provides a measure of the quality of a firm's financial reporting. It is hypothesized that the firms with more effective audit committees, along with effective governance structures, are less likely to receive qualified opinions.

TABLE 1
SAMPLE SELECTION CRITERIA AND PROCEDURE

Firms on 1996 COMPUSTAT Quarterly file			5,448
Less:	Firms not listed in NASDAQ/NMS	(2,497)	
	Firms in finance and utility industries	(316)	
	Firms with non-calendar fiscal years	(1,418)	
	Firms not on CRSP file	(524)	
	Firms without proxy statements	(485)	
	Firms not on FIRST CALL NHRD file	(28)	
	Firms with multiple common stocks	(25)	
	Firms having less than 15 quarterly observations over the period of 1992-1996	(88)	
Firms in the final sample			67
Number of firm-quarter observations			1241
Number of firm-year observations			134

TABLE 2
DESCRIPTION OF 67 NASDAQ NATIONAL MARKET SYSTEM FIRMS

Panel A: Descriptive Statistics for the sample of 67 NASDAQ/NMS Firms

Variables	Number of Firms	Mean	Standard Deviation	First Quartile	Median	Third Quartile
SALES	67	116.126	279.899	16.164	32.536	116.293
Asset	67	230.337	360.956	47.203	103.409	300.167
Book Value	67	106.099	152.478	24.516	56.676	130.350
Market Value	67	273.646	551.599	33.677	105.631	290.891
Market to Book Value	67	2.331	1.922	1.005	1.694	2.841
Beta (β)	67	1.1980	0.719	0.725	1.125	1.527

- All variables except Beta are averaged over 1992-1996.
- Beta is estimated by market model regressions with monthly returns and equal weighted index over 1992-1996

Panel B: Industry Distribution of 67 NASDAQ/NMS Firms

SIC Code	Industry Name	Observations	Percentage
01xx ~ 17xx	Agriculture, Mining, and Construction	7	10
20xx ~ 39xx	Manufacturing	44	66
50xx ~ 59xx	Wholesale and Retail Trade	10	15
70xx ~ 88xx	Services	6	9
	Total	67	100

TABLE 3
ESTIMATION OF FIRM SPECIFIC EARNINGS RESPONSE COEFFICIENT
FOR 67 FIRMS FROM 1241 FIRM-QUARTER OBSERVATIONS

Firm Specific Earnings Response Coefficient Model: $CMAR_{it} = \alpha_i + \beta_i UE_{it} + \epsilon_{it}$

	Number of Firms	Mean	Standard Deviation	First Quartile	Median	Third Quartile
α (Intercept)	67	0.0031	0.0191	-0.0084	0.0021	0.0117
β (ERC)	67	5.5208	17.6152	0.1105	1.9932	6.1078
R^2	67	0.0898	0.1285	0.0073	0.0347	0.0992
Adjusted R^2	67	0.0340	0.1369	-0.0527	-0.0190	0.0492

CAR $_{it}$ is cumulative market adjusted stock returns for firm i, for the three-day period (-1,1) surrounding the quarterly earnings announcement date in period t.
UE $_{it}$ is firm i's unexpected earnings for announcement period t.
ϵ_{it} is a random error term.
β_i is the estimated firm specific earnings response coefficient for firm i.

The Sample Period Is 1992-1996

TABLE 4
VARIABLE DEFINITIONS

Variable	Expected SIGN	Definition
Dependent Variable		
ERC		firm-specific ERC for a firm, estimated using Firm-Specific Coefficient Methodology
Independent Variables		
IND	+	the percentage of independent outside directors on audit committees
STKOWN	+	the total percentage of the firm's stock that is owned by AC directors
QUALITY	+	the average number of outside directorships held by AC directors
TENURE	+	the average tenure of AC directors on board
MEETING	+	the total number of AC meetings
EXPERT	+	the percentage of AC directors who have the financial reporting and auditing expertise
AUDITOR	+	a dummy variable with a value of one if the auditor is a Big Six auditor and a value of zero otherwise

BLOCKHLD	+	a dummy variable with a value of one if there exists a block-holder who holds at least 5 % of common stock and not affiliated with management and a value of zero otherwise
DUALITY	+	a dummy variable with a value of one if a CEO or a president is also the chairman of the board and a value of zero otherwise
MGTSHR	+	the cumulative percentage of stock-ownership held by management
BETA	-	the market model slope coefficient, as a proxy for firm specific risk
MB	+	market to book ratio, a proxy for growth/earnings persistence
SIZE	-	natural log of market value of a firm
YEAR		a dummy variable with a value of one if the fiscal year of proxy statement for a firm is 1992 and a value of zero for 1993

TABLE 5
DESCRIPTIVE CORPORATE GOVERNANCE CHARACTERISTICS

VARIABLES	Number of Firm Years	Mean	Standard Deviation	First Quartile	Median	Third Quartile
IND	134	0.749	0.257	0.667	1.000	1.000
STKOWN	134	0.104	0.155	0.006	0.025	0.141
QUALITY	134	1.325	1.002	0.500	1.000	2.000
TENURE	132	7.219	4.316	4.292	6.000	9.750
MEETING	134	2.030	1.130	1.000	2.000	3.000
EXPERT	134	0.089	0.160	0.000	0.000	0.143
AUDITOR	134	0.955	0.208	1.000	1.000	1.000
BLOCKHLD	134	0.694	0.462	0.000	1.000	1.000
DUALITY	134	0.657	0.477	0.000	1.000	1.000
MGTSHR	134	0.290	0.198	0.135	0.261	0.408

Variable Definitions

IND	=	the percentage of independent outside directors to total AC directors
STKOWN	=	the total percentage of the firm's stock that is owned by AC Directors
QUALITY	=	the average number of outside directorships held by AC directors
TENURE	=	the average tenure of AC directors on the board
MEETING	=	the total number of AC meetings
EXPERT	=	the percentage of AC directors with knowledge and expertise in financial reporting and auditing areas.
AUDITOR	=	a dummy variable with a value of one if the auditor is a Big Six auditor and a value of zero otherwise

BLOCKHLD   =   a dummy variable with a value of one if there exists a blockholder who holds at least 5% of common stock and not affiliated with management and a value of zero otherwise

DUALITY   =   dummy variable with a value of one if a CEO or a president is also the chairman of the board and a value of zero otherwise

MGTSHR   =   the cumulative percentage of stock-ownership held by management

TABLE 6
CORRELATION MATRIX FOR RESEARCH VARIABLES

Variable	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13
IND (X1)	1.00	-0.08	-0.04	0.00	0.10	0.07	-0.12	0.11	-0.12	0.13	0.13	-0.05	-0.00
STKOWN (X2)		1.00	-0.07	-0.06	0.18*	-0.14	0.11	-0.28**	-0.05	-0.25**	-0.03	-0.01	-0.02
TENURE (X3)			1.00	-0.06	-0.09	-0.21*	-0.20*	0.08	0.08	0.04	0.05	0.00	-0.03
MEETING (X4)				1.00	0.10	-0.03	0.06	-0.06	0.01	0.02	-0.11	0.21*	0.23**
QUALITY (X5)					1.00	0.00	0.07	-0.25**	0.11	-0.02	0.03	0.04	0.23**
EXPERT(X6)						1.00	0.17*	0.16	-0.03	-0.03	0.08	0.19*	0.22*
BLOCKHLD (X7)							1.00	0.26**	0.17	-0.00	-0.04	-0.08	0.08
MGTSHR (X8)								1.00	-0.02	0.16	0.09	0.12	-0.09*
AUDITOR (X9)									1.00	-0.00	0.09	0.13	0.27**
DUALITY (X10)										1.00	0.07	-0.05	-0.02
BETA (X11)											1.00	0.10	0.06
MB (X12)												1.00	0.57**
SIZE (X13)													1.00

See Table 4 for variable definitions
** significant at 0.01, * significant at 0.05 (two-tailed)

TABLE 7
OLS RESULTS FOR THE RELATION BETWEEN THE CORPORATE GOVERNANCE STRUCTURE AND THE MARKET REACTIONS TO EARNINGS ANNOUNCEMENTS

$$ERC_i = \beta_0 + \beta_1\,IND_i + \beta_2\,STKOWN_i + \beta_3\,QUALITY_i$$
$$+ \beta_4\,TENURE_i + \beta_5\,MEETING_i + \beta_6\,EXPERT_i$$
$$+ \beta_7\,AUDITOR_i + \beta_8\,BLOCKHOLD_i + \beta_9\,DUALITY_i + \beta_{10}\,MGTSHR_i$$
$$+ \beta_{11}\,BETA_I + \beta_{12}\,MB_I + \beta_{13}\,SIZE_I + \beta_{14}\,YEAR_I + \varepsilon_I$$

COEFFICIENTS	INDEPENDENT Variable	Expected Sign	Estimated Coefficients	Standard Errors	P-value	VIF
β_0	**INTERCEPT**	None	1.3661	4.4420	0.3795	
Audit Committee Characteristics						
β_1	IND	+	0.0560	2.3431	0.4905	1.11
β_2	STKOWN	+	11.4236	4.1047	0.0032	1.27
β_3	QUALITY	+	0.0016	0.6116	0.4989	1.16
β_4	TENURE	+	-0.1688	0.1464	0.1257	1.11
β_5	MEETING	+	1.7346	0.5348	0.0008	1.11
β_6	EXPERT	+	9.0238	3.9997	0.0013	1.25
OTHER CORPORATE GOVERNANCE CHARACTERISTICS						
β_7	AUDITOR	+	5.6214	3.4076	0.0509	1.09
β_8	BLOCKHLD	+	-2.9994	1.5175	0.0253	1.41
β_9	DUALITY	-	0.9649	1.2499	0.2209	1.10
β_{10}	MGTSHR	+	1.9440	1.5808	0.1107	1.55
Control Variables						
β_{11}	BETA	-	-1.3643	0.8352	0.0526	1.09
β_{12}	MB	+	-0.2617	0.3928	0.2533	1.76
β_{13}	SIZE	-	-0.9033	0.5910	0.0647	1.86
β_{14}	YEAR	None	-0.1883	1.1606	0.4357	1.02

SAMPLE SIZE : 126
F-statistics : 2.017 (p<0.0225)
ADJUSTED R^2 : 0.1023
Chi-square statistics for heteroskedasticity : 98.8818 (p<0.6234)

See Table 4 for definitions of variables.

ENDNOTES

[1.] Biddle and Seow (1990) report differential market reactions to earnings announcements among different industies. In addition, Teets (1992) report that market reactions to earnings news are smaller for the utility industry.

[2.] Unexpected earnings are scaled by the stock price because Christie (1987) and Kormendi and Lipe (1987) suggest that the stock price is an appropriate deflator.

3. Risk adjusted returns are not used because estimated beta risk using daily returns are unstable and inaccurate due to infrequent trading among NASDAQ firms (Teoh and Wong 1993). Also, risk adjusted returns are not used because beta risk (BETA), estimated by using monthly returns, is used as a control variable in "right side" determinants of market reactions to earnings announcements.

4. Increasing directors' personal financial stake in their corporation may impair their independence and the effectiveness of audit committees. In order to investigate this possible confounding effect of stock ownership, I have examined specifications using both categorical variables and quadratic terms. However, neither of these forms yield statistically significant effects.

5. I have examined both categorical variables and a quadratic specification in the empirical model to explore the possibility of an inverted U-shaped effect of the additional outside directorships. However, neither of these specifications yields statistically significant effects.

6. The insignificant result may be due to the countervailing effect of the tenure of audit committee directors. While audit committee directors may become more effective overseers in the financial reporting process as they serve longer on the board and obtain more firm specific knowledge, the longer tenure may also represent situations in which some audit committee members have been effectively co-opted by top management. Some audit committee members may have developed close relationships with top management and hence no longer act as independent and effective monitors of the firm's financial reporting process. In order to investigate the possibility of an inverted U-shaped effect of audit committee members' tenure, I have examined both categorical variables and a quadratic specification. However, neither of these specifications yields statistically significant effects.

7. For this study with the current sample, I have not found such effect. However, these insignificant results may be due to the relatively small degree of variability in the size of the audit committees in my sample. The mean (median) of the size of audit committees in my sample is 2 (2). The size of audit committees may vary less because I draw the sample from the relatively homogeneous group: NASDAQ and First Call New History RTEE Data. A future study with NYSE firms would provide more variations in the size of the audit committees and may identify some significant and interesting results.

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