

Does Incentive-based Compensation Impair Independence of Internal Auditors?

Evidence from Audit Fees

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ABSTRACT: This paper examines the effect of incentive-based compensation (IBC) of chief internal auditors on external auditors' perception regarding the quality of internal audit function (IAF). We posit that external auditors will place less reliance on the work of IAF, resulting in higher audit fees, if internal auditor objectivity is deemed compromised by IBC based on firm performance. Using a unique research design that combines survey and archival methodology, we find that after controlling for other factors that affect audit fees from extant audit pricing literature, the provision of IBC based on firm performance has a positive incremental effect on audit fees. We also find that the association between IBC and audit fees is more pronounced for IBC awarded with stocks or options compared to cash bonus. We attribute this result to stock-based compensation being viewed as providing a shortsighted incentive to engage in self-serving opportunistic behaviors.

Key Words: Incentive-based compensation, Internal auditor objectivity, Audit fees.

Data Availability: Individual survey responses are confidential. All the other data are derived from publicly available sources.

INTRODUCTION

This paper investigates the potential conflict of interest arising from firms providing incentive-based compensation (IBC) to their internal auditors. In the midst of recent attempts to strengthen various oversights over corporate financial activities, the internal audit function (hereafter, IAF) has been placed under the spotlight. As of October 31, 2004, the New York Stock Exchange (NYSE) requires all companies listed there to have internal audit departments. Although Nasdaq did not follow NYSE in imposing this listing requirement, it upheld an IAF as a best practice. The internal audit team should act as eyes and ears for the audit committee about what is going on within the company, providing assurance on the reliability and integrity of financial and operational information. The Institute of Internal Auditors (IIA) defines internal auditing as follows:

Internal auditing is an independent, objective, assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes.¹

In this context, the internal auditor plays a valuable role in the corporate governance process, and thus enhancing the independence of the internal auditor would be an important element of striving for good corporate governance.

The long-held practice of firms providing IBC to internal auditors, however, could potentially compromise internal auditors' independence, rendering the IAF less reliable. Prior research document the impact of performance based compensation on misreporting through

¹ The definition of internal auditing set forth by IIA can be obtained via <http://www.theiia.org/guidance/standards-and-practices/professional-practices-framework/definition-of-internal-auditing/>

accounting choices (e.g., Healy 1985; Burns and Kedia 2006; Bergstresser and Philippon 2008). If such performance based compensation is provided to the internal auditor of the firm, it could potentially compromise the internal auditor's objectivity required for providing a sound assurance on the reliability and integrity of financial information. That is, when earnings management is detected through internal audit, the auditor might just look the other way in hopes of reaping personal economic benefits. Dezoort et al. (2000) surveyed internal auditors' views on this potential conflict and reported that internal auditors recognize potential threats associated with IBC plans. The survey revealed impaired internal auditor objectivity and independence as the leading disadvantage associated with IBC.

Despite the potentially important implication of the provision of IBC to internal auditors, there is little empirical evidence on the impact of IBC on internal auditor independence. We investigate whether the provision of IBC based on firm performance impairs the internal auditor's objectivity, therefore the quality of IAF, from the perspective of external auditors. If external auditors perceive that IBC impairs internal auditor objectivity, then they may rely less on internal audit work, have to work harder to detect material misstatement of financial statements, and consequently charge higher audit fees. Specifically, this paper examines whether external auditors reduce reliance on internal auditors' work and conduct more extensive, costly audits of financial statements (i.e., higher audit fees) when the client firm provides IBC to its chief internal auditor. We employ a unique research design to investigate our research question. We combine survey and archival methodology to first identify the firms that provide IBC to their chief internal auditors and then use the firm identity to obtain the financial and audit fees data from Compustat and Audit Analytics. We mailed survey questionnaires to firms that were listed on NYSE in 2007, and were able to achieve a response rate of 25% (420 usable responses).

Our results show that after controlling for other factors that affect audit fees from extant audit pricing literature, the provision of IBC based on firm performance to the chief internal auditor has a positive incremental effect on audit fees. This finding suggests that the provision of IBC impairs the internal auditor's independence *in appearance*, if not *in fact*, and thus affect the external auditor's decision to rely on IAF. We also find that the association between IBC and audit fee is more pronounced for IBC paid in stocks or options compared to cash bonus. We attribute this result to stock-based compensation being viewed as providing a shortsighted incentive to engage in self-serving opportunistic behaviors.

We find a significant positive relation between audit fees and provision of incentive-based compensation to internal auditors. Our finding contributes to the growing body of literature on the role of corporate governance in financial reporting and audit process, as well as to our understanding of the determinants of audit fees. This study adds to our understanding of the role of the IAF, an important component of corporate governance, and provides further insight into external auditors' judgments and decisions as their work interrelates with that of internal auditors. Our results have a potential implication for various decision makers in exploring ways to strengthen the corporate governance process and to reduce the audit fees that have increased sharply in recent years.

The remainder of the paper is organized as follows. The next section discusses the factors influencing external auditor reliance decision on IAF and the role of IBC and its potential impact on the independence of internal auditors, and develops two hypotheses about the effect of providing IBC to internal auditors on audit fees. Research design, sample selection and data collection are then presented followed by the empirical results, additional analyses, and concluding remarks.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

External Auditors' Reliance on Internal Audit Function

The professional guidance provided in SAS No.65, *The Auditor's Consideration of the Internal Audit Function in an Audit of Financial Statements*, permits external auditors to utilize the work of internal auditors. The external auditors, however, should evaluate the quality of a client's IAF before reducing substantive testing based on the IAF's work (AICPA 1997). Much of the prior academic research investigating external auditors' reliance on the IAF has focused on examining which of the factors specified by SAS No, 65—competence, objectivity, and work performed—are important in the reliance decision (e.g., Brown 1983; Margheim 1986; Edge and Farley 1991; Maletta 1993).² Although the studies differ in how they rank the importance of these three factors, they provide evidence that these factors do influence the extent to which external auditors rely on work performed by internal auditors.³

The evaluation of the quality of the IAF allows external auditors to decide the extent of audit work to be performed during the engagement. Prior research indicates that external auditors' effort decreases as the quality of the IAF increases (Schneider 1985; Margheim 1986; DeZoort et al. 2001). According to Krishnamoorthy (2002), an efficient utilization of, and reliance on, internal auditors' work can aid external auditors in reducing audit effort. Felix et al. (2001) suggest that the primary reason external auditors use internal audit work in the performance of the financial statement audit is to achieve audit efficiency and effectiveness, reducing audit costs and thus audit fee. The implication is that if external auditors cannot rely on the work completed by

² Krishnamoorthy (2002) suggests, however, that ranking of these three attributes is futile because no one attribute uniformly dominates the others in all conditions.

³ See Gramling et al. (2004) for a thorough review of the literature investigating the external auditor's decision to rely on the work of internal auditors.

IAF to reduce the effort required to complete the financial statement audit, a corresponding increase in the external audit fees is to be expected,

Incentive-based Compensation and Internal Auditor Objectivity

Prior surveys report that a large percentage of internal auditors receive IBC in the form of bonuses tied to overall company financial performance (Stapp 1991; DeZoort et al. 2000). Based on a survey of 179 internal auditors, DeZoort et al. (2000) report that almost half the respondents indicated that IBC was available to internal auditors in their organizations. Of those respondents reporting the availability of IBC, 70 percent indicated that the compensation was based on overall company financial performance.⁴ The performance measures used in IBC are often related to reported earnings, such as net income, earnings per share, return on equity, and return on assets. The rationale behind rewarding internal auditors with IBC is to increase their productivity and effectiveness as well as boost their morale and motivation. However, prior research documents the impact of performance based compensation on misreporting through accounting choices (Healy 1985; Burns and Kedia 2006; Bergstresser and Philippon 2008). IBC plans tied to the company's short-term financial performance may inappropriately motivate internal auditors to bias their audit evaluations to maximize the performance measures in an effort to enhance their own personal wealth.⁵

Several studies demonstrate that the external auditor's reliance on the IAF is affected by the objectivity of the internal auditor since objectivity is important to an internal auditor's ability

⁴ Other common types of IBC plans involved bonuses based on internal audit department performance and individual performance (DeZoort et al. 2000).

⁵ Even internal auditors who were eligible for IBC admitted that they share outsiders' perception that IBC plans based on overall company performance potentially impairs internal auditor objectivity and independence (DeZoort et al. 2000).

to play a significant role in affecting the quality of a company's financial reporting (e.g., Abdel-Khalik et al. 1983; Brown 1983; Messier and Schneider 1988; DeZoort et al. 2001; Glover et al. 2007). IBC and non-IBC internal auditors likely differ in motives as a result of differences in economic incentives, which may affect external auditor perception of internal auditor objectivity. To the extent that the perceived internal auditor objectivity is impaired by IBC, the effectiveness of the IAF is reduced, resulting in reduced external auditor reliance on the work of internal auditors. DeZoort et al. (2001) conduct an experiment that examines how external audit planning is affected when internal auditors have incentives to bias their evaluations and report that external auditors perceive the work performed by internal auditors who are eligible for IBC as less reliable. Felix et al.'s (2001) results imply that if external auditors cannot rely on the work completed by IAF to reduce the effort required to complete the financial statement audit, a corresponding increase in the external audit fees is to be expected.

As is common to many other behavioral studies, the actions of auditors in a hypothetical case scenario may not be the same as if the auditors encountered the situation in real life. This study employs a unique research design that combines survey and archival methodology to investigate the impact of IBC on actual audit fees. The above evidence and reasoning suggests the following hypothesis:

H1: If external auditors perceive IBC based on firm performance to compromise internal auditor objectivity, external auditors rely less on the work of IAF, leading to a higher audit fee.

Recent studies have examined the link between stock based compensation and financial reporting incentives based on concerns raised by regulators and investors that equity incentives

may lead to earnings management (e.g., Ke 2001; Beneish and Vargus 2002; Cheng and Warfield 2005). Although stock based compensation seems to have the desired incentive-alignment effect, at the same time, it may lead managers to focus on short-term stock prices.⁶ Ke (2002) finds that managers with equity incentives tend to manage earnings to increase the duration of a string of quarterly earnings increases. Consistent with the notion that managers might manage earnings upward prior to selling their own shares, Beneish and Vargus (2002) find that income-increasing accruals, when accompanied with insider sales, are of lower quality. For firms with higher managerial equity incentives, Chen and Warfield (2005) find that the incidence of earnings management is positively associated with equity incentives. Specifically, the study shows a significantly higher incidence of meeting or just beating analysts' forecasts, reporting more income-increasing abnormal accruals, and selling more shares after earnings management.

Presuming that internal auditors' behavior is similar to that of managers, the same concern may be raised about potential conflicts of interest arising from stock ownership by internal auditors (Heaston et al. 1993). In DeZoort et al. (2000) survey, 23 percent of the internal auditors who received IBC were awarded stock options. Extrinsic rewards such as stock or stock options may motivate internal auditors to bias their audit evaluations and affect external auditor's decision to rely on IAF during external audit planning. This suggests the following hypothesis:

H2: If external auditors perceive IBC based on firm performance to compromise internal auditor objectivity, external auditors rely less on the work of IAF with equity based IBC compared to cash bonus, leading to a higher audit fee.

⁶ Theoretically, as managers own more shares, they are more likely to act in the interest of shareholders. Consistent with the incentive-alignment effect, prior research finds a positive association between managerial ownership and stock-based compensation and future firm performance (e.g., Lambert and Larcker 1987; Hanlon et al. 2003).

RESEARCH DESIGN

To investigate the effect of IBC on external audit fees, we use a cross-sectional regression model (1) below. The dependent variable, LnAF , is the natural log of audit fees. The value of one is assigned to the indicator variable, IBC , if a chief internal auditor of the firm is compensated based on company performance, and zero otherwise. The dummy variable, IBCSTOCK , indicates whether the incentive-based compensation for a chief internal auditor is paid in stock or stock options and its coefficient captures the incremental effect of equity incentives on audit fees (H2). The dummy variable, IBCCASH , indicates whether the incentive-based compensation for a chief internal auditor is paid in cash. Control variables identified on the audit fee literature include (i) client firm's size (SIZE), (ii) client's operational complexity (NUMSEG), (iii) inherent risk (RECINV), (iv) financial distress (DEBTS), (v) profitability (LOSS), (vi) membership in financial or utility industry (FINUTIL), (vii) fees paid for non-audit services (LnNAF), (viii) audit quality (BIG4), (ix) tenure of a chief internal auditors (WORKYEAR), and (x) audit problems (APROBLEM). The definitions of control variables and expected signs of their coefficients are as follows:

SIZE = the natural log of lagged total assets. Since large firms can represent high litigation risk or complex internal control systems that increase audit difficulty, the positive association between firm size and audit fees are expected (e.g., St. Pierre and Anderson 1984).

NUMSEG = the number of business segments. Simunic (1980) reports the positive association between the number of business segments and audit fees, which is consistent with his prediction that operational complexity (as measured by the number of segments) makes audit more difficult and time-consuming.

RECINV = the sum of inventory and receivables divided by total assets. The coefficient of the variable that measures inherent risk of audit is expected to be positive, since receivables and inventory tend to have high risk of errors and to require audit with specialized audit (e.g., Stice 1991).

DEBTS = the ratio of debts to total assets. Simunic (1980), among others, reports that auditors tend to charge higher audit fees for firms with financial distress, since those firms heightens the litigation risk and/or a loss of audit firms.

LOSS = 1 if a firm had a loss during the past two years, and 0 otherwise. The poor performance of a client firm increases the litigation risk of audit firms, which, in turn, increase audit fees (e.g., Simunic 1980).

FINUTIL = 1 if a firm is in financial (SIC codes 6000-6199) or utilities industry (4900-4999), and 0 otherwise. Since firms in financial or utility industry are easier to audit than firms with extensive inventory, receivables, or intangible assets in other industries, auditors tend to charge lower audit fees for firms in financial or utility industry (Hay et al. 2006).

LnNAF = the natural log of non-audit fees. Hay et al. (2006) find the positive association between non-audit fees and audit fees, supporting potential explanations that client firms having problems tend to purchase consulting services and that non-audit services require more audit work.

BIG4 = 1 if an external auditor of the firm is a Big 4 Auditor, and 0 otherwise. Since big 4 auditors are likely to provide high audit quality and higher audit fees increase as audit quality increases, a positive relationship between Big 4 auditors and audit fees (e.g., Hay et al. 2006).

WORKYEAR = the number of years that a chief internal auditor has worked for the firm. If external auditors consider a chief internal auditor's tenure (that measures his/her

experience, expertise, and/or knowledge on the firm), then they rely more on internal audit, which reduces audit work and fees.

APROBLEM = 1 if an audit opinion is other than unqualified opinion, and 0 otherwise.⁷ Simunic (1980) report the positive association between audit problem and audit fees, supporting his prediction that audit problems may increase the audit risk or require more audit work, and thus audit fees.

Since the first hypothesis (H1) predicts the positive association between incentive-based compensation and audit fees, we expect that the coefficient of *IBC*, α_1 , is positive in the below model (1).

$$\begin{aligned} LnAF = & \alpha_0 + \alpha_1 IBC + \alpha_2 SIZE + \alpha_3 NUMSEG + \alpha_4 RECINV + \alpha_5 DEBTS + \alpha_6 LOSS + \\ & \alpha_7 FINUTIL + \alpha_8 LnNAF + \alpha_9 BIG4 + \alpha_{10} WORKYEAR + \alpha_{11} APROBLEM + \varepsilon \end{aligned} \quad (1)$$

Further, we estimate the model (2) that includes the indicator variables of *IBC* form, *IBCSTOCK* and *IBCCASH*. According to H1, we expect the coefficients of the two variables are significantly positive (α_{1a} and $\alpha_{1b} > 0$). To accept H2 that equity incentives is perceived as having more negative effects on an internal auditor's independence than cash incentives, we should observe the coefficient of *IBCSTOCK* (α_{1a}) greater than the coefficient of *IBCCASH* (α_{1b}).

$$\begin{aligned} LnAF = & \alpha_0 + \alpha_{1a} IBCSTOCK + \alpha_{1b} IBCCASH + \alpha_2 SIZE + \alpha_3 NUMSEG + \alpha_4 RECINV + \alpha_5 DEBTS \\ & + \alpha_6 LOSS + \alpha_7 FINUTIL + \alpha_8 LnNAF + \alpha_9 BIG4 + \alpha_{10} WORKYEAR + \\ & \alpha_{11} APROBLEM + \varepsilon \end{aligned} \quad (2)$$

⁷ The code 4 of auditors' opinion (data149 of Compustat annual file) includes unqualified opinion with explanatory language and the going-concern opinion. The unqualified opinion with explanatory language could be for a change in accounting policies. Using going-concern data from the Audit Analytics, we separate the two opinions, and include unqualified opinion with explanatory language in unqualified opinion (*APROBLEM*=0).

EMPIRICAL RESULTS

Sample Selection and Data Description

The initial sample includes 3,150 firms listed on the NYSE during the year 2007. After excluding duplicate addresses, we end up with 1,680 usable addresses to mail our survey questionnaire. As shown in Panel A of Table 1, we received 420 responses (a response rate of 25%) out of 1,680 surveys mailed. We remove 15 firms that did not provide clear information on incentive-based compensation and on a chief internal auditor. Next we remove 15 firms whose audit fees data are not available in Audit Analytics and that switched auditors during the year 2006. After excluding 62 firms whose financial data are missing in Compustat, we have the final sample of 273 firms with available data. Panel B of Table 1 shows that firms in manufacturing industry are about 40% of the sample firms.

[Insert Table 1 here]

Panel A of Table 2 presents descriptive statistics of the sample firms. The mean value greater than median value of lagged total assets indicates that the firm size is right-skewed. The sample firms, on average, pay \$4.3 million and \$0.98 million for audit services and non-audit services, respectively. On average, the sample firms also have three business segments, receivables and inventories which consist of 27 percent of total assets, and debts which consist of 26 percent of total assets, on average. The average number of years that a chief internal auditor has worked for a sample firm is 12 years (median is 10 years). About 13 percent of sample firms have losses in 2006, and 14 percent of sample firms are the members in financial or utility industry. In addition, external auditors of most sample firms are Big 4 auditors.

A majority of firms (81 percent) provide IBC for their chief internal auditors. About 19 percent of sample firms provide IBC in stock (or stock option). Panel B shows that about 17

percent of sample firms provide IBC in both stock and cash, but 62 percent firms provide IBC in cash only. 19 percent of sample firms provide IBC in other forms such as restricted stock, deferred shares, profit sharing, or long-term incentive plan.

[Insert Table 2 here]

Tests for Non-response Bias

To examine non-response bias, we conduct a standard test that compares responses by early and late respondents (see Oppenheim 1966). We divide the sample into early and late respondents. We classify responses received during the first two months as early respondents, and ones received after the end of the second month as late respondents. The p-values in Table 3 indicate that mean values and frequencies between early and late respondents are not significantly different. Thus, we conclude that firm characteristics of non-respondents are not systematically different from those of our sample, and that there is no significant non-response bias.

[Insert Table 3 here]

Regression Results

Table 4 reports regression results for H1 and H2. Consistent with our prediction, the coefficient of interest, α_1 , is significantly positive, indicating that external auditors rely less on internal audit work, charging higher audit fees for their audit work, when a chief internal auditor's compensation is tied to firm performance. In other words, external auditors consider, in appearance at least, incentive-based compensation impairing internal auditors' independence, and conduct more audits for firms whose internal auditors are paid based on firm performance.

Presuming that internal auditors' behaviors are similar to that of managers, we expect that potential conflicts of interest arising from stock ownership by internal auditors would external

auditors' less reliance on internal audits when internal auditors are paid in stock or stock options for their IBC. To see the effect of incentive-based compensation form on external auditors' perception on internal audit, we include incentive-based compensation paid in stock or stock option, and in cash. Table 4 shows test results supporting H1 and H2. Both the coefficient of IBCSTOCK and that of IBCCASH are all significantly positive at the 1 percent significance level, consistent with H1. Yet, the coefficient of IBCSTOCK is greater by about 79% ($=\frac{0.23-0.13}{0.13}$) than that of IBCCASH. The F-value for $\alpha_{1a} = \alpha_{1b}$ is 7.06 with p-value=0.0010 (not reported in table), supporting H2. That is, external auditors rely less on the internal audits with equity-based IBC, compared to cash bonus, leading to a higher audit fee.

[Insert Table 4 here]

As for control variables, firm size, number of business segments, losses, non-audit service fees, and audit problems are significantly positive, increasing audit fees. Memberships in financial or utility industry lower audit fees, consistent with previous research. Although the coefficients of receivables and inventory and debts are not consistent with predicted signs, they are statistically insignificant for our sample firms. The Big 4 auditors as a proxy for audit quality are weakly significant (based on a one-tailed test). We attribute this weak result to the narrow cross-sectional variations in the variable, since most firms have a Big 4 auditor. The tenure of internal auditors tends to reduce audit fees, but its effect is not significant.

CONCLUSION

We investigate whether the provision of IBC based on firm performance impairs the internal auditor's objectivity, therefore the quality of internal audit function, from the perspective of external auditors. Using the sample firms identified through responses to a survey, we find that

the provision of IBC based on firm performance to the chief internal auditor has a positive incremental effect on audit fees. This finding suggests that the provision of IBC impairs the internal auditor's independence *in appearance*, if not *in fact*, and thus affect the external auditor's decision to rely on the internal audit function. We also find that the association between IBC and audit fee is more pronounced for IBC paid in stocks or options compared to cash bonus. We attribute this result to stock-based compensation being viewed as providing a shortsighted incentive to engage in self-serving opportunistic behaviors.

This study adds to our understanding of the role of the internal audit function, an important component of corporate governance, and provides further insight into external auditors' judgments and decisions as their work interrelates with that of internal auditors. Our results have a potential implication for various decision makers in exploring ways to strengthen the corporate governance process and to reduce the audit fees that have increased sharply in recent years.

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TABLE 1
Sample Selection and Industry Distribution

Panel A: Sample Selection		No. of firms	
Respondent firms on NYSE (among 1,680 NYSE firms in 2006)		420	
Firms that did not provide necessary data		(68)	
Firms whose audit fees are unavailable in Audit Analytics		(15)	
Firms that switched auditors		(2)	
Financials unavailable in Compustat		<u>(62)</u>	
Final sample		273	
Panel B: Industry Distribution		No. of firms	Percent
Agriculture, Forestry, Fishing		1	0.37%
Mining, Construction		23	8.42%
Manufacturing — Food, textiles, lumber, chemicals		43	15.75%
Manufacturing — Rubber, metal, machinery, equipment		67	24.54%
Transportation, Communication, Utilities		35	12.82%
Wholesale, Retail		26	9.52%
Finance, Insurance, Real Estate		54	19.78%
Business Services		<u>24</u>	<u>8.80%</u>
Total		273	100.00%

TABLE 2
Descriptive Statistics

Panel A: Descriptive Statistics of Full Sample (N=273)							
	Mean	Minimum	1 st Quartile	Median	3 rd Quartile	Maximum	Std. Dev.
Lagged total assets	15,014	124	1,156	3,030	8,559	853,370	64,782
Audit fees	4.33	0.33	1.57	2.61	4.71	91.90	6.80
Non-audit fees	0.98	0.02	0.17	0.36	1.00	20.00	1.97
NUMSEG	3.00	1.00	1.00	3.00	4.00	8.00	1.64
RECINV	0.27	0.00	0.11	0.24	0.37	0.97	0.21
DEBTS	0.26	0.00	0.12	0.24	0.35	0.95	0.19
WORKYEAR	12	0	5	10	20	36	9
IBC	221 (81%) firms with IBC vs. 52 (19%) firms without IBC ($\chi^2=105$)						
IBCSTOCK	51 (19%) with IBC paid in stock or stock option vs. 222 (81%) others ($\chi^2=107$)						
IBCCASH	215 (79%) with IBC paid in cash bonus vs. 58 (21%) others ($\chi^2=92$)						
LOSS	35 (13%) with losses vs. 238 (87%) with no losses ($\chi^2=151$)						
FINUTIL	38 (14%) in financial or utility industry vs. 235 (86%) others ($\chi^2=142$)						
BIG4	266 (97%) firms with BIG4 auditors vs. 7 (3%) others ($\chi^2=246$)						

Panel B: Distribution of IBC forms

IBC paid in both stock and cash	45 firms (17%)
IBC paid in stock, but not cash	6 firms (2%)
IBC paid in cash, but not stock	170 firms (62%)
IBC paid in other forms	52 firms (19%)

Lagged total assets, audit fees, and non-audit fees are stated in million dollars. NUMSEG = the number of business segments; RECINV= the sum of receivables and inventory divided by total assets; DEBTS = the ratio of debts to total assets; WORKYEAR = the number of years that a chief internal auditor has been working for the firm; IBC = 1 if the compensation for a chief internal auditor is based on company performance, and 0 otherwise; IBCSTOCK = 1 if the compensation for a chief internal auditor is based on company performance and paid in stock or stock option, and 0 otherwise; IBCCASH = 1 if the compensation for a chief internal auditor is based on company performance and paid in cash, and 0 otherwise; LOSS = 1 if a client firm reports a loss in the past two years, and 0 otherwise; FINUTIL = 1 if a firm is in financial (SIC codes 6000-6199) or utilities (4900-4999) industry, and 0 otherwise; and BIG4 = 1 if a firm's external auditor is one of BIG 4 audit firms, and 0 otherwise.

TABLE 3
Tests for Non-response Bias

		211 early respondents	62 late respondents	p-value ^a
Lagged total assets	Mean	15,623	12,942	0.72
Audit fees	Mean	4.52	7.48	0.23
Non-audit fees	Mean	1.03	0.81	0.32
NUMSEG	Mean	3.01	2.97	0.85
RECINV	Mean	0.27	0.28	0.78
DEBTS	Mean	0.26	0.27	0.52
WORKYEAR	Mean	12.45	11.97	0.72
IBC	% of firms with IBC=1	79%	87%	0.16
IBCSTOCK	% of firms with IBCSTOCK=1	17%	24%	0.21
IBCCASH	% of firms with IBCCASH=1	77%	84%	0.26
LOSS	% of firms with LOSS=1	14%	10%	0.40
FINUTIL	% of firms with FINUTIL=1	13%	18%	0.32
BIG4	% of firms with BIG4=1	97%	98%	0.59

^aThe p-values are based on t-tests for mean values and chi-square tests for frequencies.

Lagged total assets, audit fees, and non-audit fees are stated in million dollars. NUMSEG = the number of business segments; RECINV= the sum of receivables and inventory divided by total assets; DEBTS = the ratio of debts to total assets; WORKYEAR = the number of years that a chief internal auditor has been working for the firm; IBC = 1 if the compensation for a chief internal auditor is based on company performance, and 0 otherwise; IBCSTOCK = 1 if the compensation for a chief internal auditor is based on company performance and paid in stock or stock option, and 0 otherwise; IBCCASH = 1 if the compensation for a chief internal auditor is based on company performance and paid in cash, and 0 otherwise; LOSS = 1 if a client firm reports a loss in the past two years, and 0 otherwise; FINUTIL = 1 if a firm is in financial (SIC codes 6000-6199) or utilities (4900-4999) industry, and 0 otherwise; and BIG4 = 1 if a firm's external auditor is one of BIG 4 audit firms, and 0 otherwise.

TABLE 4
Regression of Audit Fees on Explanatory Variables

$$\text{LnAF} = \alpha_0 + \alpha_1\text{IBC} + \alpha_2\text{SIZE} + \alpha_3\text{NUMSEG} + \alpha_4\text{RECINV} + \alpha_5\text{DEBTS} + \alpha_6\text{LOSS} + \alpha_7\text{FINUTIL} + \alpha_8\text{LnNAF} + \alpha_9\text{BIG4} + \alpha_{10}\text{WORKYEAR} + \alpha_{11}\text{APROBLEM} + \varepsilon \quad (1)$$

$$\text{LnAF} = \alpha_0 + \alpha_{1a}\text{IBCSTOCK} + \alpha_{1b}\text{IBCCASH} + \alpha_2\text{SIZE} + \alpha_3\text{NUMSEG} + \alpha_4\text{RECINV} + \alpha_5\text{DEBTS} + \alpha_6\text{LOSS} + \alpha_7\text{FINUTIL} + \alpha_8\text{LnNAF} + \alpha_9\text{BIG4} + \alpha_{10}\text{WORKYEAR} + \alpha_{11}\text{APROBLEM} + \varepsilon \quad (2)$$

	Predicted Sign	Model (1) Coefficient (t-value) ^a	Model (2) Coefficient (t-value) ^a
Intercept	?	8.41 (25.07)***	8.51 (25.73)***
IBC	+	0.21 (2.80)***	
IBCSTOCK	+		0.23 (3.01)***
IBCCASH	+		0.13 (1.88)***
SIZE	+	0.30 (12.02)***	0.29 (11.71)***
NUMSEG	+	0.05 (2.90)***	0.05 (2.73)***
RECINV	+	-0.03 (-0.22)	-0.07 (-0.47)
DEBTS	+	-0.15 (-0.99)	-0.14 (-0.90)
LOSS	+	0.30 (3.49)***	0.33 (3.80)***
FINUTIL	-	-0.32 (-3.57)***	-0.32 (-3.52)***
LnNAF	+	0.26 (9.81)***	0.26 (9.94)***
BIG4	+	0.27 (1.45)	0.26 (1.43)
WORKYEAR	-	-0.00 (-0.79)	-0.00 (-0.78)
APROBLEM	+	0.21 (3.18)***	0.21 (3.16)***
N		273	273
Adjusted R ²		0.71	0.71

***, **, and * indicate the significance at 1 percent, 5 percent, and 10 percent level, respectively, based on one-tailed tests.

LnAF = the natural log of audit fees; IBC = 1 if the compensation for a chief internal auditor is based on company performance, and 0 otherwise; IBCSTOCK = 1 if the compensation for a chief internal auditor is based on company performance and paid in stock or stock option, and 0 otherwise; IBCCASH = 1 if the compensation for a chief internal auditor is based on company performance and paid in cash, and 0 otherwise; SIZE = the natural log of lagged total assets; NUMSEG = the number of business segments; RECINV = the sum of receivables and inventory divided by total assets; DEBTS = the ratio of debts to total assets; LOSS = 1 if a client firm reports a loss in the past two years, and 0 otherwise; FINUTIL = 1 if a firm is in financial (SIC codes 6000-6199) or utilities (4900-4999) industry, and 0 otherwise; LnNAF = the natural log of non-audit fees; BIG4 = 1 if a firm's external auditor is one of BIG 4 audit firms, and 0 otherwise; WORKYEAR = the number of years that a chief internal auditor has been working for the firm; and APROBLEM = 1 if an audit opinion is other than unqualified opinion, and 0 otherwise.