

The Impact of Client Employee Compensation Contracts on the Design of Audit Procedures

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The Impact Of Client Employee Compensation Contracts On The Design Of Audit Procedures

Abstract:

This paper examines in a laboratory setting the impact of differential client compensation contracts on auditor choice of the level of required audit procedures. Consistent with prescriptions in auditing standards, we find support for the prediction that auditors do more audit work when clients pay fixed salaries plus incentives to employees, rather than fixed salaries only. Contrary to implied prescriptions in audit standards and to economic rationality, we also find that auditors do more audit work if clients pay incentives to employees based on financial performance measures than if they pay incentives based on non-financial performance measures. We interpret this finding as auditors having a systematic bias toward financial data, which may reflect a lack of understanding of the risk of material misstatement that can arise from the manipulation of non-financial performance data. An important implication of this finding is that audit firms may need to pay careful attention to how auditors are trained in strategic auditing approaches that rely more on understanding a client's non-financial performance measures and less on transaction-based testing.

1 Introduction

Recent trends in practice indicate that Big 5 audit firms are placing increasing importance on a client's key non-financial performance indicators in providing assurance services (cf. Bell et. al, 1997). A premise underlying such trends is that by focusing more on a client's non-financial performance indicators, auditors will have a stronger understanding of the client's business. This enables auditors to identify potential problems more rapidly and trigger more efficient and focused investigations, if necessary. Consequently, with greater emphasis on client non-financial performance indicators, auditors will have less need for routine transaction testing in providing assurance services.

Despite auditors placing greater emphasis on non-financial indicators in practice, it is not clear that auditors fully understand the impact of such measures. Senior Big 5 auditors primarily have an accounting background typically acquired at a time when non-financial indicators were rarely taught in accounting degrees at a University level. Furthermore, auditors traditionally have focused on transaction testing in carrying out audit work and are unlikely to have ever received formal training or significant on-the-job experience in understanding how non-financial performance measures work.

This potential lack of understanding of the consequences of non-financial measures may manifest itself in an auditor's understanding of the relative impact of different performance signals contained in a client employee incentive contract. If auditors do not fully understand the consequences of non-financial performance measures, then whether a (client employee contractible) performance signal is financial or non-financial could have differential effects on the level¹ of audit procedures. This is an important issue since the risk of material misstatement of the client's financial statements, created by incentives, arises irrespective of the *type* of incentive offered to an opportunistic employee. In short, the consequences of a manipulated financial performance based incentive can be just as damaging to a client's financial

¹ In this paper, we use "level" and "amount" of audit procedures interchangeably.

statements as the consequences of a manipulated non-financial performance based incentive.

There has been relatively little prior work that examines how different types of information, i.e. financial or non-financial information, affect the work that auditors do. Dilla and Stone (1997) find that an auditor uses financial information more than non-financial information in audit planning tasks where financial statement assertions are tested. Cohen, Krishnamoorthy and Wright (2000) find evidence that an auditor emphasizes financial information more than non-financial information in determining the overall scope of an audit. They argue that future research is needed in different contexts to examine whether audit work performed is affected differentially by non-financial information compared to the effect of financial information.

The purpose of this research is to investigate experimentally whether variations in the types of performance measures used in client employee incentive contracts will lead to variations in the level of audit procedures required by auditors. The results of this study are as follows. We find that client employee incentive compensation contracts in general do influence the level of audit procedures estimated to audit a client. Specific types of employee incentive contracts, i.e. financial and non-financial, respectively influence the level of audit procedures, relative to the case of no incentives. However, our main result is that auditors will perform higher levels of audit procedures on clients that pay employees incentives based on financial performance measures than on clients that pay employees incentives based on non-financial performance measures. We contend that this effect is due to auditors failing to fully comprehend the consequences of *non-financial* performance measures.

This paper makes three contributions to the accounting literature. First, the paper provides preliminary evidence that auditors may not fully understand the consequences of non-financial performance measures. Yet, auditing practice is changing to embrace a client's non-financial performance measures as a focal point in providing assurance services. This finding has implications for the redevelopment of auditing standards that currently say little about the effect of non-financial

performance measures and for the development of significant training programs in audit firms switching to an audit approach focusing on non-financial performance measures. Second, the paper adds to a small but important literature on the *effect* of different performance measures in the employee incentive contracts of large organizations. The differential incentive effect studied here is in the context of the work of external auditors, which has not previously been investigated in the literature. Third, this paper provides empirical evidence of the consistency between auditor behavior and required audit standards. The paper shows that auditors conduct work in accordance with general prescriptions regarding the potential for manipulation of incentives. However, such prescriptions may need further refinement to reflect differences in incentive type.

This paper proceeds as follows. We present in section 2 an outline of the theoretical development of this study, including the research questions and the relationship of this study to previous work. In section 3, we present the study's hypotheses. In section 4, we outline the experimental design. In section 5, we present the data analysis. In section 6, we summarize the findings of the paper and present directions for future research.

2 Theory and Background

This section outlines key theoretical predictions and other background information that are used to address the two core research questions in this study. The questions are as follows:

1. Do incentive contracts offered by clients to their employees lead to a significant difference in the required audit procedures relative to the case of no employee incentive contracts?
2. Do *non-financial* incentive contracts offered by clients to their employees lead to a significant difference in the required audit procedures relative to the case of *financial* incentive contracts?

Theoretical predictions based on these questions are developed separately in Section 3. This

section provides theoretical background to the development of the predictions. Two subsections follow. First, we discuss issues surrounding the contractability of performance measures in practice. Two of those issues include the increasing use in practice of *non-financial* performance measures for incentive contracting and the manipulation of *financial* performance measures to maximize incentive contracts. Second, we outline theoretical and institutional issues of internal control, including audit implications.

2.1 *Contractible Performance Measures*

The use of performance measures in incentive contracts raises several issues, two of which are relevant to this study. First, the use of non-financial performance measures for incentive contracting has attracted attention in the recent literature, mainly because of empirical links found between such measures and future financial performance. The following subsection summarizes part of this recent literature. Second, while financial performance measures are well-established variables used for contracting, research evidence suggests such measures can be manipulated for incentive purposes by actions affecting related accruals. This in turn increases the risk of material misstatement in the financial statements. The second following subsection summarizes key prior work in the area of strategic accruals management.

2.1.1 Non-Financial Performance Measures

Non-financial performance measures are an increasingly important tool used by firms for a variety of purposes. A critical assumption underpinning this study is that non-financial performance measures in practice are used for the purposes of incentive contracting and that the use of such measures can affect financial results. This subsection provides supporting empirical evidence.

Several textbooks describe the structure of incentive compensation contracts that are based in part on non-financial performance measures (e.g. Demski, 1994; Atkinson, Banker, Kaplan and Young, 1997; and Kaplan and Atkinson, 1998). There also exist numerous single-firm research examples of the recent introduction of non-financial performance measures into incentive contracts (e.g. Moon and

Fitzgerald, 1996; Rucci, Kirn and Quinn, 1998; Banker, Potter and Srinivasan, 2000). Further, large sample studies are scarce but do exist (e.g. Bushman, Indjejikian and Smith, 1996 and Waterhouse and Svendsen, 1998). Ittner, Larcker and Rajan's (1997) sample of 114 firms using non-financial measures had on average a 37.1% weight on non-financial performance measures in annual bonus contracts. Finally, survey and field-based studies have found that the nature of a firm's reward systems affects the use of non-financial performance measures by firms (Chenhall and Langfield-Smith, 1998; Keating, 1996; Morissette 1996).

Various empirical papers have focused on establishing a link between current non-financial performance and future financial performance. Banker, Potter and Srinivasan (2000) find evidence that customer satisfaction measures are correlated with future financial performance and that introduction of contracting on nonfinancial measures improved both nonfinancial and financial performance. Hayes and Schaefer (2000) show that future performance is positively correlated with unexplained variation in current compensation. One interpretation of this result is that the unexplained variation arises because of the non-public nature of contracting variables such as internal (to the firm) non-financial measures of performance. The study also finds that the noisier the stock price and accounting earnings signals, the greater the association between the unexplained variation in current compensation (potentially attributable to nonfinancial measures) and future financial performance. This stream of research implies that incentives based on current non-financial measures of performance will lead to predictable effects on future financial results. It follows that if future financial results can be directly affected by non-financial measures of performance, then non-financial incentives can affect future financial results. Further, if any of those effects are related to the timing of a transaction then current financial results can also be affected.

In summary, it is clear that the demand for non-financial performance measures has not only increased over recent years, but the increased demand has also corresponded with significant levels of

contracting on non-financial performance measures. Further, there is evidence to support that non-financial measures can be linked to the financial results of a firm.

2.1.2 Financial Performance Measures

The use of financial performance measures in incentive contracts is well established at the executive level (e.g. see Murphy, 1998) and at divisional levels (e.g. see Bushman, Indjejikian and Smith, 1995). An important related question is: do financial incentives influence beneficiaries to take opportunistic actions that conflict with the best interests of the owners of the firm?

Using predictions based on agency theory, several papers have explored the manipulation of financial incentives through strategic accruals management. Several papers find across firms a correlation between earnings-based incentive structures and the level of reported earnings. (e.g. see Healy, 1985; Holthausen, Larcker and Sloan, 1995). An implication for auditing is that such manipulations can increase the risk of material misstatement in the financial statements. Section 5135 of the Canadian Institute of Chartered Accountants handbook specifically lists the existence of bonus contracts based on financial results as a factor that might increase the risk of material misstatement. The section states that an increased risk will cause the auditor to obtain more reliable evidence and expand the extent of audit procedures performed.

2.2 *Control Issues*

The link between a firm's compensation system and a firm's control system is not well established in the literature. However, several sources support the view that changes to a firm's compensation system will affect the firm's control system. Other sources also support the view that changes in the firm's control system will also affect the design of audit procedures related to internal control. Each set of sources is discussed in turn.

2.2.1 Control and Compensation

The Canadian Institute of Chartered Accountants (1995) has released the publication, "Guidance

on Control”. The publication discusses the CICA’s views on the nature of control and criteria to be considered in assessing the effectiveness of control in a firm. Control is defined as “those elements of an organization (including its resources, systems, processes, culture, structure and tasks) that, taken together, support people in the achievement of the organization's objectives” (CICA, 1995: 4). One criterion in assessing control is the implementation of human resource policies consistent with achievement of the organization’s objectives. Further, detailed explanation in the CICA publication reveals that this criteria of control requires an assessment of whether the reward systems are consistent with the organization’s objectives and whether it includes both financial and non-financial incentives (CICA, 1995: 16).

These observations are important because it highlights the institutional attention given to the link between compensation and the control system of an organization. Assuming an organization’s primary objective is to maximize profits, the CICA publication implies that contracting on non-financial performance measures (when they can be linked to future financial performance) is consistent with this institutional notion of control.

2.2.2 Control and Audit Procedures

Audit planning is often conducted in four stages (Robertson and Smieliauskas, 1998). First, the auditor assesses the client’s business and identifies associated business risk. Second, the auditor examines the client’s internal control system. Third, the auditor identifies specific audit risks. Fourth, the auditor designs the appropriate audit procedures, based on the information gathered from the first three stages of planning.

An important feature of this audit planning process, relevant for this study, is that the design of the audit procedures relies in part on the client’s control system and in part on specific audit risks. If different types of incentives affect control and/or the risk of material misstatement in the financial statements, then it follows that the different types of incentives will ultimately affect the design, amount

and type of audit procedures.

Further evidence of the link between audit procedures and compensation is found in Section 5135 of the CICA handbook. Here the handbook recommends that auditors must consider the nature of employee incentive contracts in assessing the risk of material misstatement in the client's financial statements. Increased risk of material misstatement caused by the presence of employee incentive contracts places increased responsibility on the auditor and a CICA requirement to obtain more evidence and expand the extent of audit procedures performed.

3 Research Hypotheses

This study tests two primary hypotheses that are structured around the research questions presented in Section 2. The first hypothesis focuses on the level of audit procedures to be chosen by an auditor when a client offers incentives to employees. Two sources of knowledge are used to generate the relevant prediction. First, consistent with a direct application of Section 5135 of the CICA Handbook, auditors would expand the level of audit procedures if a client pays employees incentive compensation, relative to a similar client who pays employees a fixed wage only. Second, consistent with an application of the bonus plan hypothesis from positive accounting theory (Healy, 1985), in the presence of bonus contracts, employees will engage in opportunistic activities that manipulate earnings. Accordingly, auditors will do more audit work in the presence of client employee bonus contracts, to mitigate the risk of material misstatement. This work may require ensuring that the client has implemented appropriate controls to mitigate the risk of financial results being misstated, or simply conducting additional tests in attempting to mitigate the risk of material misstatement. This would also require higher levels of audit procedures relative to the case of a client offering fixed wage contracts only to employees. The formal hypothesis can be expressed as:

H₁: Auditors' assessments of the level of audit procedures required to audit a client whose control system incorporates fixed wage plus incentive based compensation contracts will be *higher* than auditors' assessments of the level of audit procedures required to audit a client whose control system incorporates fixed salary contracts only.

The second hypothesis examines the effect of client employee incentives based on different types of performance measures (i.e. financial or non-financial).² Hypothesis 1 implies that incentives can be dysfunctional in that they can induce an opportunistic manipulation of accounting numbers. In the case of financial incentives, this may be achieved through a variety of means, including strategic accrual management or popular earnings management techniques such as delaying expenses to periods where bonuses would not ordinarily be met (i.e. the big bath hypothesis). These effects in turn will require the auditor to ensure either that appropriate compensating controls are in place or that the auditor increases the level of audit procedures, relative to the case of no incentives. Thus, consistent with Hypothesis 1, we argue that in the presence of client employee incentives based on *financial* performance measures, auditors will conduct relatively more work than in the case of client employee fixed compensation only.

Non-financial performance measures have been shown in the literature to have a direct link to the future financial results of a firm. It follows that if incentives are based on those non-financial performance measures and employees manipulate the basis of measurement to maximize bonus payments, then any dysfunctional manipulation will mean future results will be misstated. If future results are misstated and these results have links to accruals that affect the current period, then current results may also be misstated. Accordingly, an auditor may need to perform more audit procedures in the presence of client employee incentive contracts that reward non-financial performance, relative to the case of fixed compensation.

Further support for this view may be found by examining the potential actions that could occur if

² Despite the theoretical possibility that incentives based on *only* non-financial performance measures may be optimal for some firms (e.g. when such measures are perfectly noiseless), there is no evidence in the literature to suggest firms commonly use incentive contracts based *only* on non-financial performance measures. One of the experimental conditions in this study asks the respondent to assume that the client's employees are paid a fixed wage plus incentives based *only* on non-financial performance measures. This design choice was made to highlight differences in the treatment conditions. Ex-post examination of written comments by the respondents showed no indication that the respondents were in any way confused by what might be argued as an "unusual" incentive contract structure. In addition, no respondent indicated that they treated the task any differently because the structure of the incentive contract they read in the case study differed from the structure of incentive contracts that they had normally audited in practice.

a non-financial performance measure is used in an incentive contract. Assume customer satisfaction and/or the number of customer complaints is the basis for bonus payments. An opportunistic client employee has motivation to perform several actions that may lead to misstatement of the current period financial statements. For example, suppose a client employee knows that current period customer satisfaction scores, on which incentives are paid, would increase if the employee delayed customer billing (for current period consumption of goods and services) until after year-end. Consequently, future revenues of the audit client would be overstated and current revenues would be understated. A second example relates to the suppression of contingent liabilities. An employee whose bonus depends on the level of customer complaints may be able to convince a customer to delay a complaint to the next reporting period. However, if that customer complaint is indicative of a serious lawsuit against the firm then the firm's current period financial statements incorrectly omit a contingent liability.

The second formal hypothesis independently examines the impact of employee incentives based on non-financial performance measures against the impact of employee incentives based on financial performance measures. Both types of contracts have been argued to increase audit procedures. This is because incentives may induce client employees to take actions that could result in the material misstatement of financial results. However when comparing financial vis-a-vis non-financial client employee incentive contracts, economic rationality would predict no obvious difference in the impact on the financial statements. The inducement to take dysfunctional actions exists irrespective of incentive type and such actions can have equally damaging effects on the fair statement of the financial results. Accordingly, an argument could be made that economic rationality predicts no difference between the audit procedures for financial and non-financial client employee bonus contracts.

However, an alternative argument may be made about the expected directional effect of a comparison between financial and non-financial client employee incentive contracts. The argument proceeds as follows. Auditors typically have significant experience with the audit of clients who offer

fixed compensation and incentives based on financial performance measures. Auditing standards, training, training manuals, and client audit working papers address the internal control issues and substantive audit procedures that are relevant to auditing client employee compensation contracts incorporating fixed wages and financial incentives. However, in recent times, as argued in the literature review, audit clients have increasingly begun using incentive contracts based on *non-financial* performance measures. These contracts may lead demonstrably to similar manipulation problems to those arising from the use of incentive contracts based on financial performance measures. However the same auditing standards, training, training manuals and client working papers do *not* address in a significant way the internal control issues and substantive audit procedures associated with incentive contracts based on non-financial performance measures.

Based on this argument we hypothesize that an auditor's understanding of the implications of non-financial performance contracts is likely to be relatively deficient and they are unlikely to be cognizant of the possible financial implications associated with client employee non-financial incentive contracts. Formally stated:

H₂: Auditors' assessments of the level of audit procedures required to audit a client whose control system incorporates fixed wage plus *non-financial* incentive based compensation contracts will be *lower* than auditors' assessments of the level of audit procedures required to audit a client whose control system incorporates fixed wage plus *financial* based incentive compensation contracts.

To test Hypothesis 2 we measure auditors' assessments of tests of internal control and associated substantive procedures within three client compensation contracts: fixed compensation, fixed compensation plus financial incentives and fixed compensation plus non-financial incentives.

4 Research Design

The two research questions regarding the impact of incentive compensation contracts on required audit procedures employed by the auditor were addressed via a laboratory experiment. Subjects in the experiment comprised 110 Canadian auditors. The participants were from one Big 5 firm and had on

average 2.4 years audit experience. The study manipulated incentive compensation contracts in a 3 x 1 factorial design. The three incentive compensation contracts are: 1) the fixed salary contract only; 2) the fixed salary plus non-financial incentive-based compensation contract; and 3) the fixed wage salary plus financial incentive-based compensation contract.

4.1 Experiment Materials

The research instrument contained instructions and three distinct parts (hereafter referred to as parts one, two and three).³ The instructions asked subjects to complete each part of the instrument sequentially and without changing previous responses. Additionally, subjects were instructed to complete the instrument without consulting their peers and, if they had questions, to speak with one of the researchers.

Part one of the instrument contained a case concerning the audit of a large, successful, urban high-end hotel. Subjects were asked to assume the role of the audit manager planning the upcoming audit of the hotel. Case facts were varied only with respect to the incentive compensation contract used to remunerate the hotel's general and departmental managers. In all other respects, case facts were identical. Information in the case included the background of the hotel (clientele, organization chart, positive relationship of results to the industry) as well as the audit history (client for 10 years, good auditor-client relations, strong internal controls).

In the financial incentive-based compensation contract condition, manager compensation was comprised of a fixed salary plus a percentage of departmental net income. In the non-financial incentive-based compensation contract condition, manager compensation was comprised of a fixed salary plus a variable amount based on the departmental level of client satisfaction, client complaints, % of return customers and client use of other services. The compensation contract for the fixed salary condition is self-explanatory.

Part two of the instrument contained a variety of questions about the case and about the subject's audit approach (as the audit manager) in planning the audit. For example, questions regarding risk assessments, internal controls, and substantive audit procedures were included. The questions of interest to this study related to the following:

- 1) The participants' discussion of what they would include in their planning memo for the upcoming audit of the hotel including risks, controls and suggested audit procedures.
- 2) Estimates of the amount of substantive audit procedures and internal control testing required for the current year's audit. These responses were recorded on an 11-point scale anchored by low level of audit procedures/internal control testing and high level of audit procedures/internal control testing.

Part three of the instrument contained demographic questions including experience in auditing incentive contracts, a manipulation check and general questions about compensation, internal control and audit risks and the relationship between each of these. The question of interest to this study is:

- 3) How did the compensation scheme influence your assessment of the level of audit procedures required? The responses for this question were reported on an 11-point scale anchored by no influence and high influence. Participants were also asked to explain how the compensation scheme influenced their assessments.

4.2 *Data Collection*

The data was collected under laboratory conditions at various senior training sessions of the Big 5 firm involved. One of the researchers was present at all sessions. All participation was confidential, anonymous and voluntary. However, a lottery draw for \$200 at each training session was used to motivate the auditors to participate in the study. Auditors at the senior level were selected to participate in this study due to their heavy involvement and responsibility of planning upcoming audits.

³ The research instrument is available upon request from the authors.

At each session, subjects were randomly assigned to one of the three treatment groups. A brief introduction was then made by one of the researchers. The introduction contained only generalized information to avoid sensitizing the subjects. At each session the researcher instructed subjects to read the instructions, complete the instrument without consulting their peers and not to change their responses after completing each part. Any questions subjects had were responded to on an individual basis. The instrument took between 30-35 minutes to complete and no evidence of subject fatigue was expected or apparent.

5 Analysis and Discussion

In this section, we discuss and analyze the results from the preliminary testing of the hypotheses. To briefly summarize our results, we find that a client offering incentives requires a higher level of audit procedures relative to a client offering fixed salary contracts only to employees. Also, a compensation contract that includes a bonus based on financial performance measures requires a higher level of audit procedures chosen by auditors than a compensation contract that includes a bonus based on non-financial performance measures. The detailed results are discussed below.

We find a significant difference between the level of audit procedures estimated to audit a client whose compensation contract incorporates a fixed salary plus incentives (10.8) and a client whose compensation contract incorporates fixed salary contracts only (9.8) ($F=3.98$, $p=0.0487$) (see Table 1).⁴ Also, compensation contracts that incorporated bonuses had a significantly stronger influence on the participants when they were making their assessments of the level of audit procedures required to perform the audit than compensation contracts that did not incorporate bonuses (6.1 versus 3.2; $F=35.66$; $p<0.0001$) (see Table 2). These results are consistent with the argumentation put forward when developing Hypothesis 1. That is, auditors will do more work in the presence of client employee bonus

⁴ To test the impact of the various compensation contracts on the level of audit procedures required to audit the client, we have added together the estimates of the amount of substantive audit procedures and the amount of control tests. Both of these were measured on 11 point scales.

contracts in order to mitigate the risk of material misstatement due to opportunistic employees.

The second hypothesis is also supported. Here, the results suggest that a significantly higher level of audit procedures is required when client's compensation contracts incorporate bonuses based on financial performance measures (11.4), as compared to when client's compensation contracts incorporate bonuses based on non-financial performance measures (10.3) ($F=3.69$; $p=0.0573$) (see Table 1). In support of this finding, participants' assessments of the level of audit procedures required to audit clients with incentive compensation contracts based on financial performance measures (7.4) were influenced significantly more by the compensation contract than when incentive compensation contracts were based on non-financial performance measures (4.9) ($F=19.89$; $p<0.0001$) (see Table 2). These results suggest that auditors do not fully comprehend that non-financial performance measures can be manipulated and therefore result in materially misstated financial statements. Supplementary analyses (statistics not reported) also indicate that auditors' estimates of required audit procedures do not significantly differ when the client's compensation contract incorporates non-financial performance measures and when the contract is based on a fixed salary only. These supplementary results further corroborate our contention that auditors do not have a complete understanding of the impact of bonus contracts incorporating non-financial performance measures on the financial statements and an upcoming audit.

**Insert Tables 1 & 2
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Additional analysis investigating the impact of compensation contracts on audit risk estimates further support the above findings. More specifically, incentive compensation contracts result in riskier audits as compared to fixed salary only compensation contracts and bonuses based on financial performance measures are assessed to be riskier in terms of audit risk than bonuses based on non-

financial performance measures.

Overall, the results suggest that clients that have incentive compensation contracts require higher levels of audit procedures as compared to clients that pay fixed salaries only. More importantly, auditors are not recognizing that client management may manipulate financial statements when their compensation contracts incorporate non-financial performance measures. This result suggests that audit firms should improve their training with regards to non-financial performance measures, especially given the recent push towards strategic auditing, an approach that relies more heavily on non-financial performance measures, and the increased use of non-financial performance measures in compensation contracts.

6 Summary

This research investigates experimentally whether variations in the types of performance measures used in client employee incentive contracts will lead to variations in the level of audit procedures required by auditors. Theory and institutional evidence suggests that (a) the level of substantive audit procedures are affected by audit client use of employee incentive contracts based on performance measures; and (b) absent the examination of non-financial performance indicators in University accounting curriculum and/or formal audit training, auditors are unlikely to fully understand the implications of the relatively recent trend in audit clients using non-financial indicator based employee incentive contracts.

The study tests two hypotheses. The first predicts the level of substantive audit procedures required for clients using fixed salary plus incentive based compensation contracts will be greater than for clients using fixed salary contracts only. The second predicts the level of substantive audit procedures required for clients using fixed salary plus non-financial performance based incentive compensation contracts will be lower than for clients using fixed salary plus financial performance based

incentive compensation contracts.

With respect to our first hypothesis, we find that client employee incentive compensation contracts do influence the level of audit procedures estimated to audit a client. Specific types of employee incentive contracts, i.e. financial indicator based and non-financial indicator based, result in increased levels of required audit procedures, relative to the case of fixed salary employee compensation contracts. The results support the argument that incentive contracts based on performance measures increase the risk of material misstatement in financial statements and therefore require higher levels of audit procedures.

With respect to our second hypothesis, we find that compensation contracts incorporating bonuses based on financial performance measures require significantly higher levels of audit procedures than compensation contracts incorporating bonuses based on non-financial performance measures. These results seem contrary to implied prescriptions in authoritative audit pronouncements and economic rationality. However, they are consistent with the view that auditors may not yet fully comprehend the degree of risk associated with material misstatement through manipulation of non-financial performance indicators.

The implications of these results are non-trivial. Auditors are expected to plan the audit work in accordance with general audit standard prescriptions regarding the potential for manipulation of performance based incentives. However, redevelopment of audit standards such that prescriptions are more refined and a closer examination of non-financial performance based compensation contracts in formalised audit training procedures would appear to be first steps in mitigating the potential risk of material misstatement in financial statements of audit clients who use such contracts.

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Table 1**Analysis of Variance for Level of Audit Procedures Assessments****Panel A: ANOVA Table**

Source	Df	Sum of Squares	F	Pr>F
Model	2	47.90	3.78	0.0260
Error	107	678.56		
Corrected Total	109	726.46		

Panel B: Treatment Means**Level of Audit Procedures**

	Mean	S.D.	n
Fixed Salary	9.8056	2.34	36
Bonus based on Performance Measures	10.8108	2.65	74
Bonus based on Financial Performance Measures	11.3889	2.26	38
Bonus based on Non-Financial Performance Measures	10.2632	2.89	36

Panel C: Planned Contrasts

	Hypothesis	F value	p-value
Fixed vs Bonus	H1	3.98	0.0487
Non-financial vs Financial	H2	3.69	0.0573

Table 2

**Analysis of Variance for Influence of Compensation Contract
on Level of Audit Procedures Assessments**

Panel A: ANOVA Table

Source	Df	Sum of Squares	F	Pr>F
Model	2	316.71	27.37	<0.0001
Error	107	619.08		
Corrected Total	109	935.79		

Panel B: Treatment Means**Level of Audit Procedures**

	Mean	S.D	n
Fixed Salary	3.2361	2.69	36
Bonus based on Performance Measures	6.1216	2.57	74
Bonus based on Financial Performance Measures	7.4028	1.90	38
Bonus based on Non-Financial Performance Measures	4.9079	2.55	36

Panel C: Planned Contrasts

	Hypothesis	F value	p-value
Fixed vs Bonus	H1	35.66	<0.0001
Non-financial vs Financial	H2	19.89	<0.0001