DISSERTATION

James Robert Duncan

The Graduate School

University of Kentucky

1997

MORAL REASONING, EARNINGS PRESSURE, AND LIKELIHOOD OF DETECTION AS DETERMINANTS OF EARNINGS MANAGEMENT

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at the University of Kentucky

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The existence of earnings management, the intentional biasing of reported earnings to achieve some intended objective, is widely documented in the accounting academic literature. However, little research focuses on the personal and environmental influences on the behavior of corporate accountants that leads to earnings management activity. The purpose of this study is to experimentally investigate the influences of three potential determinants on earnings management: moral reasoning, earnings pressure, and likelihood of detection.

The study utilizes a between-subjects experiment with a fully crossed design, including two manipulated variables, earnings pressure and likelihood of detection, one individual difference variable, moral reasoning, and a covariate, social desirability bias. Seven hypotheses are developed and tested: the three main effects of the independent variables, three first-order interactions, and one second-order interaction among the selected determinants. Data are collected

from a sample of 130 corporate accountants from 31 divisions of six large, multi-division corporations.

Results indicate that earnings pressure strongly influences earnings management behavior, but corporate accountants are not deterred by likelihood of detection from engaging in earnings management activity. The influence of level of moral reasoning of corporate accountants on earnings management, as measured by the absolute value of the dependent variable, is significant, as well. No support is found for the predicted interaction effects. The covariate, social desirability bias, also significantly influences the absolute value of the response.

The results suggest that corporations which exert strong pressure to achieve earnings targets will experience managed earnings. In addition, neither the likelihood of audits nor the presence of strong corporate controls appear to deter earnings management in the presence of earnings pressure. The evidence suggests that the corporate accountant's level of moral reasoning also plays a role in the accountant's decision to engage in managing earnings.

This study responds to the call for research on the ethics of management accountants by extending moral reasoning research to corporate accountants. Furthermore, the present study is one of the first involving accounting ethical issues to measure and control for social desirability bias, a response risk when sensitive questions are asked of human subjects.

James R. Duncan

April 17, 1997

ACKNOWLEDGMENTS

The following dissertation was completed with the insights, direction, and inspiration of several individuals. My Dissertation Chair, Dr. James A. Knoblett, provided invaluable direction and encouragement throughout the entire process. Each of the other members of my Dissertation Committee, Dr. Jean C. Cooper, Dr. Donald L. Madden, Dr. Bennett J. Tepper, Dr. Kelly L. Tepper, and Dr. Arnold J. Stromberg provided critical suggestions that enhanced the overall quality of the completed product.

My family and friends provided much needed encouragement and support. My Lord and Savior, Jesus Christ, enabled me with the courage and persistence to finish the race set out for me. Finally, I wish to thank the participants in my study, without whose support the data would not have been available.

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Introduction

1.1 Introduction to the Research Issue

Increasingly, corporate employees are faced with pressure to perform: (1) to keep their jobs in an era of corporate downsizing; (2) to attain recognition required for promotion; and (3) to produce benefits for their company in competitive environments. The drive for success influences managers, including corporate accountants, to achieve expectations of corporate executives, shareholders, financial analysts, employees, and other stakeholders, as well as to attain self-interested objectives. Temptations exist to skirt rules and position results favorably. For example, Labich (1995) reports that the credit card processing unit of Citicorp found managers overstating revenues, and at American Express, managers procrastinated in writing off account balances of bankrupt customers. The popular press reports further examples: Corrpro, an engineering services company, disclosed an underreporting of operating expenses resulting from unjustified accounting entries (Thomas, 1995); and Pfizer, Inc., a pharmaceuticals company, was accused by an analyst of managing down profits just prior to the 1993 debate over health-care reform (Weber, 1994).

The fact that earnings management exists is well documented (Healy, 1985; Merchant, 1989; and Mihalek, Rich, and Smith, 1987). In many instances, the involvement of the corporate accountants is required to manage the earnings

results. But what are the factors that influence this behavior? The purpose of this study is to investigate selected determinants of earnings management: earnings pressure, moral reasoning, and likelihood of detection. The present study is not an exhaustive search for all determinants of earnings management, but an attempt to enhance knowledge of certain influences on the phenomenon. Other variables, such as organization culture and formal ethical training, are potential additional determinants of earnings management, but are beyond the scope of this study. Knowledge of the influences on earnings management behavior can help focus efforts to mitigate the problem of biased internal and external accounting information.

The purpose of this chapter is to provide an overview of this research study to investigate selected potential determinants of earnings management. Accordingly, Chapter 1 is structured as follows: Section 1.2 presents the research issue. Section 1.3 describes the motivation for the study. Section 1.4 briefly reviews the theoretical framework for the study. Section 1.5 identifies the primary research questions. Section 1.6 provides a summary discussion of the research methodology. Sections 1.7 and 1.8 identify the potential contributions and limitations of the study, respectively. Finally, Section 1.9 previews the remaining structure of the dissertation.

1.2 Statement of the Research Issue

The phenomenon of earnings management is frequently discussed and examined in the accounting academic literature (Burton and Sack, 1989; Healy, 1985; McNichols and Wilson, 1988; Merchant, 1989; Mihalek, et al., 1987; and Schipper, 1989). In a field study examining the achievability of bonus targets, managers of 54 profit centers confirmed that they had methods to manage earnings, a principal method of which is through accounting accruals (Merchant, 1989). A survey by Mihalek, et al., (1987) reported that accounting personnel at all levels of management indicate involvement in, or awareness of, material misstatement of financial results. A seminal work by Healy (1985) found evidence of earnings management by managers to achieve bonus targets for themselves and other managers in the firm. In a follow-up study, McNichols and Wilson (1988) also found evidence of earnings management practices by corporate managers and accountants.

Earnings management is defined by Schipper (1989) as "purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain . . . " (92). Merchant and Rockness (1994) define the term as "any action on the part of management which affects reported income and which provides no true economic advantage to the organization and may in fact, in the long-term, be detrimental" (79). Both of these definitions conjure up impressions of earnings management as a financial accounting issue.

The practice of earnings management suggests significant ethical and management accounting implications, as well.

Atkinson, Banker, Kaplan, and Young (1995) describe earnings management as a violation of ethical behavior. In an editorial, Burton and Sack (1989) indicate that the reporting of misleading results contains serious ethical implications. And Merchant and Rockness (1994) call earnings management "probably the most important ethical issue facing the accounting profession" (92). The practice of earnings management affects the accuracy of accounting information for internal decision making, as well as for external reporting. This perspective is implied in the works by Healy (1985) and Merchant (1989) in their examinations of earnings management behavior to achieve management bonuses.

Most prior examinations of earnings management have investigated the occurrence of the phenomenon from a financial accounting perspective, principally using capital markets data and archival methodology. However, little research has focused on the ethical and environmental influences on the behavior of corporate accountants that lead to earnings management activity. The purpose of this study is to experimentally investigate selected determinants of earnings management behavior, with a focus on the influence of moral reasoning in a management accounting context.

1.3 Motivation for the Study

The study of the influences on earnings management from an ethical perspective provides important implications to academics, practitioners, and policy-makers. Several researchers have commented on the dearth of investigations of the ethical behavior of management accountants. Burton and Sack (1989) call for academic research into the "ethical content of business problems" (114). While there exist several prior studies on the ethics of auditors (Ponemon, 1992A and 1992B; Ponemon and Gabhart, 1990; Ponemon and Glazer, 1990; Shaub and Lawrence, 1996; as examples), Etherington and Schulting (1994) point out that there is a scarcity of research on management accountants' ethics. "Clearly, compensation schemes and divisional managers' private information create a potential incentive to manipulate internal managerial accounting reports. Research in this area is sparse to nonexistent, possibly because of the difficulties in obtaining data" (Schipper, 1989: 92).

Accountants themselves recognize the ethical problems associated with earnings management. A survey (Rosenzweig and Fischer, 1994) of 265 members of a regional management accountant organization found that the respondents perceive significant ethical issues with accounting manipulation of earnings. Beyond the ethical implications, the intentional manipulation of earnings potentially affects the accuracy of accounting information for both internal decision making and external reporting, creates excessive compensation costs for the firm through inflated bonus payouts, and undermines the ethical

tone of the organization (Merchant, 1989). Another category of accountant, the external auditor, is also affected by the management of earnings which increases risk in the performance of the auditor's attest function.

Policy-makers, such as the Institute of Management Accountants (IMA) and the American Institute of Certified Public Accountants (AICPA) (many management accountants are also CPAs), develop and publish codes of ethics to encourage ethical behavior among professional accountants. Actions involving manipulation of accounting data are contrary to the IMA Standard of Ethical Conduct for Management Accountants (IMA, 1983: SMA 1C) on objectivity which states, "Management accountants have a responsibility . . . to disclose fully all relevant information that could reasonably be expected to influence an intended user's understanding of the reports . . . presented."

Although many corporate accountants are not members of IMA, further ethical implications for them are enumerated by the Treadway Commission report (National Commission of Fraudulent Financial Reporting, 1987). The Treadway Commission was co-sponsored by the AICPA, IMA, American Accounting Association, Financial Executives Institute, and the Institute of Internal Auditors to study ethical accounting and reporting behavior and issue recommendations for improvement. The report of the Commission indicates that earnings pressures influence management of companies (including accounting management) to engage in managed accounting activity to obtain higher stock values, postpone financial problems, or to obtain personal gain from incentives

based upon earnings levels. Treadway encourages corporations to adopt a code of ethical conduct to strengthen the ethical climate of the organization and to promote ethical decision-making. The report also recommends that accounting education emphasize ethical considerations.

For academic research, the experimental investigation of selected determinants of earnings management represents triangulation of an issue that has been studied using archival (Healy, 1985; McNichols and Wilson, 1988), field study (Merchant, 1989), and survey (Merchant and Rockness, 1994; Mihalek, et al., 1987) methodologies. Birnberg, Shields, and Young (1990) recommend that management accounting issues be studied using multiple methods to enhance knowledge about the issues. This study expands the investigation of the ethical behavior of accountants to corporate accountants, a group which has been little studied using an ethical framework (Etherington and Schulting, 1994). The proposed study also can enhance the understanding of ethical issues in management accounting and provide insights into the design of ethical content in accounting education.

1.4 Theoretical Framework

In order to examine selected determinants of earnings management, a thorough review of the extant literature on earnings management, cognitive-developmental theory, earnings pressure, and likelihood of detection

as a deterrent to behavior is required. A brief discussion of each of the four areas follows.

Studies of earnings management are typically conducted within an agency theory framework. Information asymmetry allows the agent (e.g., division management) to benefit by manipulating earnings reports to the detriment of the principal (e.g., corporate management) (Schipper, 1989). Managers (agents) can bias earnings through accounting methods, operating methods, or both (Merchant, 1989). Accounting methods include the manipulation of accruals and estimates and are the principal focus of the present study. Accountants can record excess accruals when profits are high and reduce the accruals in future periods when profits are low to achieve targets. Using archival data, Healy (1985) studied the use of accounting accruals to influence the achievement of bonuses. Other studies have likewise used archival data to establish the occurrence of earnings management to achieve various objectives (De Angelo, 1988; Fern, Dickey, and Brown, 1994; Hand, 1989; Ma, 1988; and Trueman, Titman, and Newman, 1988). Merchant (1989) used field study methodology to examine the relationship of earnings management and bonus achievability. However, few studies (Merchant and Rockness, 1994 is an exception) have examined the ethical nature of selected earnings management behaviors.

A recent approach to the study of ethical accounting behavior stems from Kohlberg's (1969) cognitive-development theory of moral reasoning. Kohlberg

(1969) theorizes six stages of moral reasoning; an individual's stage of development influences how the individual perceives behavior from an ethical standpoint. Rest (1979) developed an instrument, the Defining Issues Test (DIT), which measures the moral reasoning of individuals and has been widely used and validated in academic research. The DIT has been used in correlational accounting research to examine the influence of level of moral reasoning on various constructs, such as auditor rank, independence judgments, time pressure, environmental auditing, organization culture, etc. (Ponemon, 1990, 1992A, 1992B; Ponemon and Gabhart, 1990; Ponemon and Glazer, 1990; Jeffrey, 1993; Kite, Louwers, and Radtke, 1996; and Windsor and Ashkanasy, 1996).

A significant factor affecting earnings management behavior identified in survey (Mihalek, Rich, and Smith, 1987) and field study (Merchant, 1989) research is pressure to achieve targeted earnings. Healy (1985) also suggests that earnings pressure influences earnings management to achieve bonuses. In an analogous study, Ponemon (1992A) demonstrated the influence of work-related and peer pressure on the behavior of accountants.

The deterrent ability of the probability that earnings management behavior will be detected is not clear from prior literature. Kohlberg (1981) offers that those at lower levels of moral reasoning are inclined to avoid punishment that might accrue from detection. Likewise, tax compliance research (Anderson, Anderson, Helleloid, Joyce, and Schadewald, 1990; Beck and Jung, 1989)

suggests that high detection rates combined with penalties will influence behavior. However, Schneider and Wilner (1990) and Uecker, Brief, and Kinney (1981) found auditing to be ineffective as a deterrent to earnings management or financial irregularities. Merchant (1989) was told by his field study participants that earnings management is suppressed more by corporate headquarters controls than by audits. Since the presence of corporate controls appears to enhance perceptions of likelihood of detection, the present study will examine high and low combinations of corporate controls and audits as indicators of likelihood of detection.

Finally, this study will attempt to control for social desirability bias, a factor which can influence responses received from human subjects to sensitive questions. Studies in other domains have utilized this approach, but few accounting ethics studies have been identified which try to control for this variable.

1.5 Primary Research Questions

The research questions in this proposed study are motivated by several factors: (1) the call for expanded research of the ethical nature of management accountants' behavior; (2) the significance of earnings management to companies, practitioners, policy-makers, and academics; (3) the desirability of investigating accounting issues using alternative methods (triangulation); and (4)

the extension of the theory of moral reasoning research to management accountants.

Many factors, both personal and environmental, potentially influence corporate accountants to engage in earnings management behavior. The present study seeks to investigate the influence of three factors. One personal factor is the individual's level of moral reasoning, which according to Kohlberg (1969) differs by person based upon stage of development. An environmental influence on earnings management is the degree of pressure an accountant perceives to achieve earnings objectives. A third factor is the likelihood that earnings management behavior will be detected; if the accountant perceives that earnings management actions will be detected by others, resulting in negative ramifications, the accountant may be less likely to bias earnings results. Accordingly, the primary research questions in this study are:

RQ1: What is the influence of earnings pressure on earnings management behavior of corporate accountants?

The above research question will be investigated via the following research hypothesis:

$H1A_a$: When earnings pressure is strong, corporate accountants will record accruals lower than the minimum required accruals.

$H1B_a$: When earnings pressure is weak, corporate accountants will record accruals greater than the minimum required accruals.

RQ2: What is the influence of level of moral reasoning on earnings management behavior of corporate accountants?

The above research question will be investigated via the following research hypothesis:

$H2_a$: As level of moral reasoning decreases, corporate accountants will record accruals that deviate in larger amounts from minimum required accruals.

RQ3: What is the influence of likelihood of detection on earnings management behavior of corporate accountants?

The above research question will be investigated via the following research hypothesis:

$H3_a$: When likelihood of detection is low, corporate accountants will record accruals that deviate in larger amounts from minimum required accruals than when likelihood of detection is high.

RQ4: Do level of moral reasoning, earnings pressure, and likelihood of detection interact to influence the earnings management behavior of corporate accountants?

The above research question will be investigated via the following research hypotheses:

$H4_a$: The effect of earnings pressure on accruals recorded by corporate accountants will be moderated by level of moral reasoning. Specifically, the effect of earnings pressure on corporate accountants' accruals will be stronger as level of moral reasoning decreases.

$H5_a$: The effect of likelihood of detection on accruals recorded by corporate accountants will be moderated by level of moral reasoning. Specifically, the effect of likelihood of detection on corporate accountants' accruals will be stronger as level of moral reasoning decreases.

$H6_a$: The effect of earnings pressure on accruals recorded by corporate accountants will be moderated by likelihood of detection. Specifically, the effect of earnings pressure on corporate accountants' accruals will be stronger when likelihood of detection is low than when it is high.

$H7_a$: The interaction effect of earnings pressure and level of moral reasoning on accruals recorded by corporate accountants will be moderated by likelihood of detection. Specifically, this interaction will be stronger when likelihood of detection is low than when likelihood of detection is high.

The approach to investigation of these hypotheses is briefly summarized in the following section.

1.6 Overview of Research Methodology

The study will be conducted utilizing a between-subjects experiment with a crossed design including two manipulated variables, each at two levels, and one individual difference variable. An experiment in a field setting is considered appropriate to involve actual corporate accountants, who have the opportunity to engage in earnings management, and to examine the dependent variable in a natural context. Furthermore, the study of earnings management using an experiment represents a triangulation of methodologies (surveys, field studies, and archival data) utilized in previous studies to investigate the phenomenon.

The primary dependent variable, earnings management, is measured as the deviation from minimum required accrual estimates using an indirect response scenario. This projective technique is recommended by Fisher (1993) to reduce social desirability bias. Subjects will be asked to provide estimated accruals that they believe the "typical division controller" would provide for four accrual situations developed from prior earnings management literature (Bruns and Merchant, 1990; Merchant and Rockness, 1994; and Schneider and Wilner,

1990). Minimum required accruals are defined consistent with Statement of Financial Accounting Standards No. 5 (FASB, 1975) as the minimum amount within a range of loss. This approach is consistent with that used by McNichols and Wilson (1988) who developed a proxy for an accrual in the absence of earnings management. In this study, accruals refer to those for expenses and liabilities and not to accruals of revenues. An alternate measure of earnings management, absolute value of the deviation from minimum required accruals, is utilized for additional analysis for the continuously measured independent variable moral reasoning.

Independent variables include one individual difference variable, level of moral reasoning, and two categorical variables, earnings pressure and likelihood of detection. Level of moral reasoning, a continuous variable, is measured using Rest's (1986) Defining Issues Test. Earnings pressure and likelihood of detection, each with high and low levels, are manipulated in the scenarios. Furthermore, social desirability bias is measured using Paulhus' (1988) Balanced Inventory of Desirable Responding (BIDR) subscale for impression management and is partialed out of the responses. Few accounting ethics studies have controlled for socially desirable responding; exceptions include Schneider and Wilner (1990), who utilize the random response technique in their investigation of the effectiveness of audits to deter financial reporting irregularities, and Cohen, Pant, and Sharp (1993), who measure socially

desirable responding to further validate and extend a multidimensional ethics scale.

A pilot test of the experiment was conducted using a small sample of corporate accountants. Manipulation check questions to ascertain the strength of manipulations were administered both in the pilot test and post-experimentally to the subjects. Changes were made to strengthen the manipulation check questions based upon the results of the pilot test.

The experiment's participants were selected from divisions of large, multi-national companies. Subjects include division chief financial officers, controllers, assistant controllers, and accounting managers, those who are assumed to be in a position to influence the level of accounting accruals and estimates, and therefore, who can influence or engage in earnings management behavior. Access to these subjects was obtained by leveraging existing relationships of the author and colleagues. The task scenario, one of four manipulation combinations, was randomly distributed to the subjects.

The data were analyzed using hierarchical multiple regression. This statistical analysis approach is selected, as opposed to ANOVA techniques, due to (1) the inclusion of both continuous and categorical independent variables in the study; (2) a desire to avoid loss of information which results from categorization of continuous variables; and (3) the possibility of unbalanced cell sizes for the individual difference variable, level of moral reasoning. In hierarchical multiple regression, regressions are performed in steps: first for the

covariate; second with the covariate and the primary independent variables; and third with the covariate, the independent variable main effects, and the interaction terms. The interaction terms are formed by multiplying the applicable individual terms. Social desirability is the covariate. The primary dependent variable is a continuous measure of deviation from minimum required accruals provided by participants in response to the indirect scenario. The full regression model is as follows:

$$Y_i = \beta_0 + \beta_1(SDB_i) + \beta_2(EP_i) + \beta_3(MR_i) + \beta_4(LD_i) + \beta_5(MR_i \times EP_i) + \beta_6(MR_i \times LD_i) + \beta_7(EP_i \times LD_i) + \beta_8(MR_i \times EP_i \times LD_i) + e_i \qquad (1.6\text{-}1)$$

where,

Y_i = Deviation from minimum required accruals, the response variable of the ith subject,
$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ are regression parameters,
SDB_i = Social desirability bias of the ith subject,
MR_i = Level of moral reasoning of the ith subject,
EP_i = Earnings pressure, strong or weak,
LD_i = Likelihood of detection, high or low,
e_i = Error term, independent N $(0, \sigma^2)$, and
i = 1, . . . , n.

Interpretation of the results should proceed from the examination of the second-order interaction for statistical significance, then to the first-order interactions, and finally to the main effects. These interaction terms indicate whether accountants' accruals differ based on their level of moral reasoning, in the presence of earnings pressure and likelihood of detection. If the interactions are statistically significant, it may be inappropriate to interpret the main effects, because such main effects are not constant in the presence of the variables that

jointly act with them (Kerlinger, 1986 and Pedhazur and Schmelkin, 1991). If the interaction effects are not significant, the main effects demonstrate the influences of the subjects' level of moral reasoning and earnings pressure on earnings management behavior and whether likelihood of detection tends to deter such behavior.

It is possible that certain independent variables in the study are nested variables, i.e., all levels of an independent variable do not occur at all levels of other independent variables. For example, the effects of earnings pressure and likelihood of detection could be nested within level of moral reasoning. However, based on analysis, the empirical data do not reveal nesting effects since all levels of each independent variable occur within all levels of the other independent variables.

1.7 Contributions of the Study

The present study contributes to research streams for earnings management and for moral reasoning of accountants which provide potential benefits to academics, practitioners, and policy-makers. From an academic research perspective, the present study using an experiment in a field setting represents a triangulation of prior research on earnings management using archival methods (Healy, 1985 and McNichols and Wilson, 1988), field studies (Merchant, 1989), and survey techniques (Merchant and Rockness, 1994). In addition, the present study answers the call for research on the ethics of management accountants by extending moral reasoning research to corporate

accountants. Insights from this study can contribute to the stream of research on the ethical nature of accountants which could influence the design of ethical education for future corporate accountants (Burton and Sack, 1989).

For practitioners, moral reasoning research should contribute to understanding the efficacy of corporate codes of conduct in mitigating earnings management and to the adequacy of "the tone at the top" advocated by the Treadway Commission. Based on extensive investigation of the moral reasoning of corporate accountants, corporations could elect to establish ethical committees to which managers could turn when faced with a pressured dilemma (Burton and Sack, 1989), develop interactive software programs for employees to get answers to ethical issues, or incorporate ratings of ethical behavior by subordinates and peers into periodic performance reviews (Labich, 1995). The stream of earnings management research can provide insights into the accuracy of accounting information for internal decision making and external reporting. The present study represents only one link in the extensive research program that could provide these contributions.

Policy-makers should benefit from the results of this and similar studies by gaining a greater understanding of the ethical nature of accountants. This stream of research could lead to the design and monitoring of more effective ethical codes and to the development of accounting policies and requirements.

1.8 Limitations of the Study

The present study contains several limitations. First, the use of a subject group from several large, multi-national companies represents convenience sampling which will limit generalizability of the findings; these subjects may not be representative of all corporate accounting professionals. Second, additional variables that influence accounting accrual decisions also are unidentified and unmeasured; the identification of additional variables, if included in the study and measured empirically, could alter the results of this investigation. Third, no time constraints, rewards, or penalties are utilized to influence the subjects or their decisions; in real world situations, individuals typically experience consequences to their actions. Fourth, the experiment contains only a single period; different results may obtain if multiple periods are considered in future research. Finally, the use of different tasks and alternative measurement techniques for the dependent variable may produce different results.

1.9 Organization of the Dissertation

This dissertation consists of five chapters, the remainder of which is organized as follows. Chapter 2 reviews the relevant existing literature on earnings management, moral reasoning, earnings pressure, and likelihood of detection and provides a theoretical development from which testable hypotheses are generated. Chapter 3 describes the research methodology for investigating the research questions and hypotheses; the hypotheses are

developed, the dependent and independent variables are delineated, and the subjects and research instruments are described. Chapter 4 discusses the data analysis and findings of the study. Chapter 5 summarizes the research issue and the findings, how the results relate to the theory provided in Chapter 2, and provides recommendations for future research.

Chapter Two

Review of Related Literature

2.1 Introduction

The purpose of this chapter is to review selected previous literature related to earnings management and the posited determinants. Accordingly, Section 2.2 will provide a discussion of research that has addressed earnings management. Section 2.3 will review the literature on moral reasoning and how this topic has been used in accounting research. Sections 2.4 and 2.5 will examine literature on the influences of pressure and likelihood of detection on behavior. Section 2.6 will address social desirability bias and how this influence threatens the validity of ethics studies. Finally, the last section will summarize the pertinent literature.

2.2 Earnings Management

Studies of earnings management are typically conducted within an agency theory framework. "Agency theory is relevant when we focus on financial reports generated by economic agents whose performance is in part evaluated on the basis of those reports" (Antle, 1989: 106). In summary, agency theory assumes a principal (i.e., corporate headquarters) who provides the resources or capital and an agent (i.e., division management) who provides the labor (Watts and Zimmerman, 1989). The principal's objective is to entice the agent to perform the activities that are in the principal's interests. An agency

problem (adverse selection) results when the agent has information that is unknown to the principal (information asymmetry). The agent (or division management) has incentives to use private information to manage earnings in order to maximize agent compensation (Wolk, Francis, and Tearney, 1992), maintain the status quo, and achieve personal promotion.

Schipper (1989) indicates that information asymmetry is a necessary condition for the occurrence of earnings management. "A demand for earnings management requires that the firm be considered as a contractual arrangement with two distinct groups of stakeholders, one of whom benefits from the effects of earnings management at the expense of the other" (Schipper, 1989: 95). Schipper views earnings management from an informational point of view.

> The informational perspective on earnings management assumes managers have private information which they can use when they choose elements from a feasible set of reporting rules, under a given set of contracts that determine (for example) compensation and other sharing rules among stakeholders. Their choices include not only accounting procedures but also estimates required by those procedures . . . (93).

The inherent inclusion of estimates and judgments in the accounting process facilitates earnings management actions. In a field study examining the achievability of bonus targets in 12 corporations, Merchant (1989) found that managers maneuver earnings through both accounting methods and operating methods. Schipper (1989) calls these accruals-based and real methods, respectively. Accounting methods involve (1) manipulation of accruals and accounting estimates, (2) timing of revenue recognition, (3) classification of expenditures as capital or expense, and (4) income statement classification

above or below operating income. Operating methods have cash flow effects and involve accelerating or decelerating decisions and actions which affect reported profit.

The focus of this study is on earnings management via accounting accruals and estimates. Accountants often determine the amounts of reserve and expense accruals on the need for additional income (Merchant, 1989). Reserves are built in good years, and released to income in leaner times.

Healy conducted a seminal study on earnings management, investigating the relationship between bonus schemes and accounting accrual decisions. Healy studied the actual bonus schemes of 94 large companies to ascertain the salient features of the incentive contracts. He found that bonus arrangements in many large companies are subject to both upper and lower bounds. If earnings exceed the upper bound, the bonus payout is capped; if earnings are below the lower bound, managers receive no bonus compensation. Using this more complete understanding of bonus schemes and the tenets of agency theory, Healy developed a "theory of the accounting incentive effects of bonus schemes" (88).

"The manager observes (earnings) at the end of each year and selects discretionary accounting . . . accruals to maximize his expected utility from bonus awards" (Healy, 1985: 89). The manager uses discretionary accruals to allocate income between accounting periods to achieve bonus-level earnings (Healy, 1985). When earnings are unachievably below the lower bound, the manager

will provide earnings-decreasing accruals. Earnings in excess of the upper bound are lost for current year bonus purposes, so the manager will record earnings-decreasing accruals to defer income into the next year to help in achieving bonus-level earnings. When accounting accruals can increase earnings to exceed the lower bound or increase earnings toward the upper bound, the manager will provide earnings-increasing accruals.

Healy (1985) defined total accounting accruals "as the difference between reported earnings and cash flows from operations" (86) and used total accruals as a proxy for discretionary accruals. He used COMPUSTAT data for the 94 companies and contingency tables and parametric and nonparametric statistics to investigate his theory. Healy found "a strong association between accruals and managers' income-reporting incentives under their bonus contracts" (106). The findings suggest that managers use accounting accruals to manage earnings levels to achieve bonus compensation.

One problem in Healy's study was the lack of a model to estimate expected accruals for better estimation of discretionary accruals (Kaplan, 1985). McNichols and Wilson (1988) extended Healy's (1985) study by developing a GAAP accrual proxy to measure the amount of bad debt provision that would be recorded in the absence of earnings manipulation. They generally found corroborating evidence for income-decreasing accruals when earnings are extremely high or low. The present study will obviate the need for a better model by incorporating only discretionary accruals in the experimental scenario

administered to subjects. In addition, the dependent variable in this study will be developed based on expected accruals, similar to the approach utilized by McNichols and Wilson (1988).

Other accounting studies have investigated the existence of earnings management from a financial accounting perspective. DeAngelo (1988) found evidence of earnings management by incumbent managers during a proxy fight by dissident shareholders. Hand (1989) found support for the use of debt-equity swaps to manage earnings. Guenther (1994) reported evidence of earnings management in connection with significant changes in corporate income tax rates. Evidence of health maintenance organizations managing earnings for political visibility reasons is suggested by Mensah, Considine, and Oakes (1994), and Pourciau (1993) reported evidence of earnings management activity associated with changes in executive management. Furthermore, studies have been performed on the incidence of income smoothing, a type of earnings management in which the objective is to report earnings in consistently upward trends. Fern, Brown, and Dickey (1994) found evidence of significant intertemporal smoothing in an investigation of the oil refining industry from 1971 through 1989, and strong political motivation to manage reported earnings. Ma (1988) reported strong evidence of banks using loan loss provisions to smooth reported earnings. Trueman, Titman, and Newman (1988) found incentives for managers to smooth income intertemporally, and suggested that, among other things, auditing could be a deterrent to earnings management.

One of the first studies to investigate the ethical nature of earnings management behavior is Merchant and Rockness (1994). These researchers surveyed the general managers, staff managers, and unit controllers of two corporations and the members of one Institute of Internal Auditors chapter about the acceptability of 13 earnings management practices. The survey's results indicate that the acceptability of earnings influencing actions varies "with the type, size, timing, and purpose of the actions" (Merchant and Rockness, 1994: 79). Merchant and Rockness (1994) suggest that:

> The managers who engage in earnings management the most will appear to be more effective because they will have smoother earnings patterns and will have achieved their budget targets more often. Thus these are the managers who will be promoted, and the manipulative culture will grow exponentially (92).

Studies of earnings management tend to seek evidence that earnings management practices exist in various contexts and accounting situations and appear to have adequately demonstrated the occurrence of this behavior in corporate organizations. These studies are most often performed from a financial accounting perspective, using capital markets methodology and archival data. However, few studies examine the ethical nature of earnings management behavior, address internal reporting implications, or use experimental methodology. The factors that influence the incidence of earnings management behavior would add to the knowledge associated with this phenomenon, and the present study will seek to investigate some of the determinants.

2.3 Moral Reasoning

Cognitive-development theory emerged from the work of Jean Piaget and Lawrence Kohlberg (Rest, 1979). Piaget defined the construct of moral judgment in his work on the moral thinking of children (Rest, 1979). In extending the work of Piaget, Kohlberg developed his widely-known six stages of moral reasoning and applied them to the study of older subjects (Kohlberg, 1969). Rest (1986) provides a review of over 500 research studies which provide well-established findings in support of Kohlberg's stage-sequence model of moral reasoning.

Appendix A lists the three levels and six stages of moral reasoning developed by Kohlberg. In the pre-conventional level, individuals are concerned primarily with the effect of actions upon self. At the conventional level, the focus of behavior shifts to the reactions expected from others. Finally, at the post-conventional level, individuals choose behavior based upon self-chosen moral principles. Within each level are high and low stages. In stage one, an individual is primarily motivated to obey externally defined rules to avoid punishment. A stage two individual will seek to make a deal in order to maximize the cost/benefit to self. Stage three individuals focus on cooperating with and meeting the expectations of those in their immediate surroundings, while stage four persons seek to cooperate with the broader society in general. The focus of stage five and six individuals derives from self-chosen principles

based on fairness of rules as determined by equity, equality, rational justness, and human dignity.

> According to Kohlberg, lower-stage individuals are strongly influenced by peer-group pressures. They tend to make decisions based on 'what most people do' or 'what most people expect.' On the other hand, a higher stage person chooses an alternative if it is consistent with his or her self chosen ethical beliefs. Higher stage people are less prone to cheating because it goes against their personal ethical principles. In contrast, a lower stage person is more prone to cheating, especially if his or her peer group is involved in this behavior (Etherington and Schulting, 1994: 169).

"The psychology of moral reasoning provides a theory that explains the human decision-making process prior to ethical behavior" (Ponemon, 1992A: 174). The theory describes the human decision-making process for moral dilemmas as opposed to prescribing actions that are morally right or wrong (Ponemon, 1992B).

> The model is cognitive in that it attempts to explain how a person thinks; it is structural in that it describes an underlying mental process; it is developmental in that the structure develops within an individual over time; it is sequential in that the development progresses in order and only in one direction . . . and consists of six discrete identifiable steps (Ponemon, 1992B: 241).

Rest (1979) developed and tested an instrument, the Defining Issues Test (DIT), to measure an individual's stage of moral reasoning. The DIT has been used in academic research for over 25 years in over 500 studies (Etherington and Schulting, 1994). The DIT is a self-administered questionnaire which "includes a series of six hypothetical conflicts. For each conflict or dilemma, subjects are required to select and rank order those issues that have, in their opinion, the most significant influence on its resolution" (Ponemon, 1992B: 245). High assessments of the statistical reliability and validity of the DIT have been

ascertained in a number of applications, with test-retest reliabilities for the test's scores in the high .70s or .80s and Cronbach's Alpha in the high .70s (Rest, 1990). These reliability coefficients exceed those generally considered minimally acceptable (Nunnally, 1978).

A number of accounting studies which use the theory of moral reasoning exist, principally dealing with auditors. Ponemon is a pioneer in utilizing moral reasoning and the DIT in auditing research, including studies of (1) the relationship of an auditor's position or rank to level of moral reasoning (Ponemon, 1990), (2) the influence of moral reasoning on auditors' judgments of their independence from their clients (a requirement of auditing standards) (Ponemon and Gabhart, 1990), and (3) the comparative ethical development of accounting students and alumni of a small liberal arts college versus those of a large state university (Ponemon and Glazer, 1990).

Other studies in accounting use the DIT to compare the levels of moral reasoning of accountants with those of other populations (Armstrong, 1987; St. Pierre, Nelson, and Gabbin, 1990; Jeffrey, 1993). Windsor and Ashkanasy (1996) examine the relationship of auditor level of moral reasoning and organization culture. Kite, Louwers, and Radtke (1996) investigate level of moral reasoning and assignment of auditors to environmental auditing positions. And Schatzberg, Sevcik, and Shapiro (1996) hypothesize that level of moral reasoning may be a determinant in individual variation in independence impairment in a laboratory market setting; they suggest using the DIT in

conjunction with experimental market methodology to examine this issue. Findings of these studies indicate that level of moral reasoning is significantly correlated to the other constructs of interest.

In a study on the relationship of pressure variables and moral reasoning, Ponemon (1992A) found that peer and work-related pressures, interacting with level of moral reasoning, influence auditors to underreport the time to complete audit tasks. Ponemon's hypotheses suggest that pressure variables will interact with an individual's level of moral reasoning to influence behavior. In this sense, this situation is analogous to the position posited in this study; that is, a pressure variable, earnings pressure, will interact with the corporate accountant's level of moral reasoning to influence behavior, i.e., earnings management. Accordingly, the level of moral reasoning of corporate accountants and the level of earnings pressure to meet forecasted targets should be explored as potential determinants of earnings management behavior.

Previous accounting research, principally utilizing auditing contexts, indicates that level of moral reasoning is a significant factor affecting the decisions made by these professionals. However, little research has been performed of the level of moral reasoning and decisions made by corporate accountants. The existing research on auditors suggests that level of moral reasoning could be a factor influencing earnings management decisions of management accountants.

2.4 Earnings Pressure

Pressure for short-term performance drives earnings management practices (Merchant, 1989). According to the survey by Mihalek, et al. (1987), more than 50% of the respondent managers employed by public companies experience pressure to achieve earnings targets. "Pressure to alter results is strongest felt by those individuals in the middle level of management (i.e., division controllers and managers) particularly when it comes to managing reported net income and return on investment" (Mihalek, et al., 1987: 35).

Pressure arises from several sources: (1) period-end requests from corporate managers and division CEOs to increase profits; (2) a need by the accountant to act as a team player in support of division management; (3) a need to create new reserves if earnings exceed target or "take a bath" if earnings will fail to meet the target (Merchant, 1989). These pressure sources support the findings by Healy (1985) of the pressure felt by managers to meet bonus targets in the current period, or if the target cannot be met, to get an early start on achieving the next period's target.

The Treadway Commission (National Commission on Fraudulent Financial Reporting, 1987) also suggested that pressure influences the occurrence of biased reporting. Among those influences cited by the Commission, all related in one way or another to earnings pressure, are: 1) need to meet the expectations of investors (e.g., corporate management in the

case of a division); 2) efforts to postpone financial difficulties; and 3) incentives to achieve personal gains, such as compensation, promotion, or job retention.

In a study to model the ethical decision-making process of auditors, McCoy (1994) found pressure variables to be significant influences. Specifically, when faced with supervisor pressure to take a specific action, practicing auditors rated the action as more ethical and were more likely to respond that they would act as the supervisor suggested. These results suggest that pressure variables exert a strong influence on moral judgments and behavior.

Other research on the interaction of pressure variables and level of moral reasoning suggest that earnings pressure may interact with level of moral reasoning to influence earnings management behavior. Ponemon (1992A) found that time pressure, interacting with level of moral reasoning, influences auditors' time reporting behavior. In his study of time reporting by auditors, Ponemon posited:

> The way in which an auditor perceives the problem and resolves the conflict will result in action consistent with his or her level of moral reasoning. Auditors at a lower level of moral reasoning will be more sensitive to work-related pressure and will be more likely to underreport. Those at higher levels will show greater resilience to work-related pressure under identical conditions and will be less likely to underreport (Ponemon, 1992A: 178).

Ponemon's (1992A) research has shown that pressure from work-related factors influences accountants' behavior. In addition, accountants' level of moral reasoning appears to interact with pressure variables to influence ethical behavior.

Existing literature provides evidence that pressure variables influence behavior. However, the influence of earnings pressure on earnings management has to-date only been investigated through survey and field study methodology. The present study will experimentally include earnings pressure as a manipulated variable.

2.5 Likelihood of Detection

Kohlberg (1981) suggests that higher penalties influence people with lower levels of moral reasoning. Individuals at low levels of moral reasoning (specifically stage one) are motivated to avoid punishment which might result from a higher likelihood of detection of earnings management behavior. Furthermore, tax compliance research indicates that increases in audit probability and correspondingly higher likelihoods of detection improve compliance behavior with tax reporting rules (Anderson, Anderson, Helleloid, Joyce, and Schadewald, 1990; Beck and Jung, 1989; Alm, Jackson, and McKee, 1992; Witte and Woodbury, 1985). This research suggests that, ceteris paribus, a reasonable likelihood of detection should therefore have a deterring effect on earnings management practices.

The probability that a manager's activity will be reviewed by either internal or external auditors may not, however, be an adequate deterrent to earnings management behavior. In a study of the effectiveness of auditing, Schneider and Wilner (1990) found such ineffectiveness. In two of three experimental

cases of commission of intentional accounting accrual misstatements, the presence of neither internal nor external auditing influenced the accounting manager-subjects' behavior by deterring it. Uecker, Brief, and Kinney (1981) found similar results. These results possibly stem from the inability of audits to perfectly detect behavior. In an experimental study of the detection of deviations from internal control procedures performed by Waggoner (1990), auditor detection rates ranged from 12.5% to 87.5%, with an average detection rate of 59%. Possibly, corporate accountants perceive these imperfect detection rates as inadequate deterrents.

In his field study, Merchant (1989) learned that his subjects believed their earnings management activities were deterred more by corporate controls than by auditing activity. "The ability of the external auditors to control earnings management activities is limited because their tests are designed to detect material deceptions, and almost nothing in a single profit center's financial statements is material to the corporation's consolidated financial statements" (Merchant, 1989: 175). Corporate control staffs can act as a deterrent by questioning key accrual entries and account balances and by requiring inclusion of such details in periodic reporting packages submitted by divisions to corporate headquarters. The size of an accounting reserve or a significant accrual entry may prompt the corporate staff to question division management. However, some corporate staffs may adhere to a decentralized operating philosophy and

neglect to question certain accounting practices. Some corporations may even acquiesce to earnings management by failure to question manipulative practices.

Existing literature is unclear as to whether likelihood of detection is a significant deterrent to earnings management behavior. While Kohlberg (1981) and tax compliance research suggest that individuals are motivated to avoid punishment which results from detection, auditing researchers have failed to establish that internal and external audits alone are sufficient deterrents. Based on Merchant's (1989) field study results, the present study will examine the combination of (1) strong corporate headquarters controls via specific reporting with (2) audits, to investigate the deterring effect to earnings management behavior based upon the likelihood of detection.

2.6 Social Desirability Bias

Few accounting ethics researchers have addressed the effect of socially desirable responding. "Socially desirable responding (is) the tendency of individuals to present themselves favorably with respect to current social norms and standards" (Zerbe and Paulhus, 1987: 250). Individuals responding to questions of sensitive issues tend "to deny socially undesirable traits and behaviors and to admit socially desirable ones" (Randall and Fernandes, 1991: 805). Socially desirable responding creates a bias (social desirability bias) that is of concern whenever research participants are asked to provide self-reported responses or when respondents are suspicious of the purposes of the research

and believe the results can be used to their detriment (Cozby, 1993). "The stronger the social norms governing the topic under investigation, the more likely social desirability bias is to occur" (Fisher, 1993: 313).

Since ethics research often involves obtaining responses from individuals regarding sensitive questions, social desirability bias (SDB) may represent a threat to the validity of the research findings (Randall and Fernandes, 1991). Such findings may be spurious or misleading, because the study participants provide responses that project themselves in a favorable manner versus revealing their real traits or behaviors (Fisher, 1993).

Prior research tends to indicate that SDB is a problem in ethics investigations using managers in organizations (Randall and Fernandes, 1991). In an ethics study involving the measurement of behavioral intentions of accounting academics, Cohen, Pant, and Sharp (1993) confirmed that SDB effects exist when respondents were asked to directly report their intended actions with respect to ethical dilemmas, even under conditions of anonymity. However, few ethics studies include procedures to identify or control for SDB; notable exceptions are Cohen, et al. (1993) and Schneider and Wilner (1990).

Paulhus (1984) maintains that socially desirable responding actually consists of two factors: self-deception and impression management. The distinction is based on a conscious versus an unconscious intention on the part of the respondent.

> Self-deception refers to the unconscious tendency to see oneself in a favorable light. It is manifested in socially desirable, positively biased self-descriptions that the respondent actually believes to be true . . . .

> Impression management represents conscious presentation of a false front, such as deliberately falsifying test responses to create a favorable impression (Zerbe & Paulhus, 1987: 253).

Researchers (Paulhus, 1984; and Zerbe and Paulhus, 1987) assert that it is the impression management factor of SDB that threatens contamination of research results. Any self-reported bias that is honestly believed (i.e., self-deception) should not be eliminated from measurement of self-reported constructs. Paulhus (1991) developed the Balanced Inventory of Desirable Responding (BIDR) which contains subscales to separately measure the two dimensions of SDB.

Using the BIDR, Randall and Fernandes (1991) found a strong correlation of self-reported ethical behavior with the impression management factor, but only weak association between self-deception and self-reported ethical behavior. They concluded, "it appears that self-reported ethical conduct is more closely associated with a conscious over-reporting of desirable behaviors and under-reporting of undesirable behaviors, than it is associated with an unconscious tendency . . . " (812).

Various methods have been suggested to reduce or control for the effects of SDB in studies of behavioral constructs, including ensuring anonymity, indirect questioning, random response technique (RRT), use of hypothetical scenarios, and statistical methods of partialling variables. Fisher (1993) conducted a series of three studies to investigate the ability of indirect questioning to reduce SDB and to ascertain the extent to which indirect questioning revealed the attitudes of the respondents. His college student subjects were asked to "predict the likely

responses of 'a typical college student'" (305). Fisher (1993) found that indirect questioning reduced the effects of SDB "on variables subject to social influence and has no effect on socially neutral variables" (303) and "that subjects engaged in classical projection when making predictions about a typical other" (312). Other researchers (Burton and Near, 1995; and Armacost, Hosseini, Morris, and Rehbein, 1991) have investigated the comparative effectiveness of direct questioning, indirect scenarios, and RRT for reducing SDB in responses to sensitive questions. They found that the use of scenarios with indirect questioning (typical other) provided more affirmative responses to sensitive questions than did direct questioning or RRT. Further, RRT provided lower estimates of the occurrence of sensitive behavior than did direct questioning and scenarios with indirect responses. Ganster, Hennessey, and Luthans (1983) have suggested statistical methods to partial out measured SDB effects from research results. The present study will seek to measure and control for social desirability bias using the indirect response scenario and by treating SDB as a covariate in the regression analysis.

2.7 Summary of Literature Reviewed

Prior earnings management studies establish that this phenomenon occurs in a variety of contexts and accounting situations. These studies principally utilize a financial accounting perspective and capital markets methodology and archival data. A review of the earnings management literature

has revealed no studies of the personal and environmental factors influencing the occurrence of earnings management behavior.

Auditing research using the cognitive-development theory of moral reasoning indicates that level of moral reasoning is a significant factor affecting the behavior of auditors. These studies provide the suggestion that level of moral reasoning could be an influence affecting the tendency to engage in earnings management behavior. However, no research has been found that explores this suggestion.

Survey and field study research promotes the idea that earnings pressure heavily influences earnings management practices. Other studies (McCoy, 1994; and Ponemon, 1992A) also suggest that pressure variables influence behavior. The inclusion of earnings pressure as a manipulated variable in the present experiment represents a triangulation of previous methodology.

Existing literature on likelihood of detection is unclear as to whether this perception is an adequate deterrent to earnings management behavior. Field study research (Merchant, 1989) suggests that the presence of strong corporate controls combined with the probability of auditing activity is a more effective deterrent. The present research will investigate this premise.

The present study adds to the accounting literature on earnings management by investigating potential influences on earnings management behavior. Level of moral reasoning, interacting with earnings pressure and likelihood of detection, are posited to influence the occurrence of earnings

management behavior. The study represents a triangulation of previous methodology (survey, archival, and field study) examining earnings management, the dependent variable of interest. An additional contribution of the present study stems from the measurement and control of social desirability bias in responses to sensitive questions.

Chapter Three

Research Methodology

3.1 Introduction to the Research Methodology

The purpose of this chapter is to delineate: (1) a theoretical foundation and development of testable hypotheses; (2) the research design used to test the hypotheses; (3) the experimental task and research instruments; (4) the measurement of the dependent and independent variables and the control of social desirability bias; (5) the participants in the experiment; and (6) the statistical methods used to analyze the data.

Consequently, Chapter 3 is organized as follows: Section 3.2 develops a theoretical foundation and testable research hypotheses. Section 3.3 briefly describes the research design. The experimental task and the instruments used to gather the research data are outlined in Section 3.4. Section 3.5 relates the measurement of the dependent and independent variables, control of social desirability bias, and the checks of manipulation strength. The participants of the experiment are described in Section 3.6. Section 3.7 outlines the statistical methods used to analyze the research data, and Section 3.8 provides a brief summary of the chapter.

3.2 Theoretical Foundation and Development of Hypotheses

When presented with a situation in which actual earnings differ from earnings targets, a corporate accountant is faced with a decision of whether to

influence the earnings outcome. Existing literature suggests that the accountant's level of moral reasoning, the presence of earnings pressure, and the likelihood that behavior will be detected will influence this decision. However, no research has been found which examines the influences of these determinants of earnings management behavior in an experimental setting. This section develops hypotheses to investigate the influence of these determinants. Specifically, this section proposes that the earnings management behavior of corporate accountants is influenced by the main effects of the three independent variables, and that interaction effects also influence the inclination to engage in earnings management activity.

Merchant (1989) and Mihalek, et al. (1987) suggest that earnings pressure creates a strong influence to achieve targeted earnings. These studies report that earnings management is a phenomenon which can and does occur with regularity in practice. When earnings pressure is strong, corporate accountants will make income-increasing accruals to achieve targeted earnings. When earnings pressure is weak, corporate accountants will make income-decreasing accruals to build accruals to improve income of future years (Healy, 1985). The following research hypothesis is proposed to test the influence of earnings pressure on earnings management behavior:

$H1_0$: Corporate accountants will record accruals equal to minimum required accruals under either strong or weak earnings pressure.
$H1A_a$: When earnings pressure is strong, corporate accountants will record accruals less than minimum required accruals .
$H1B_a$: When earnings pressure is weak, corporate accountants will record accruals greater than the minimum required accruals.

The way in which behavior is viewed is influenced by an individual's level of moral reasoning (Kohlberg, 1969). This view is affected by how others will perceive the behavior. Individuals at lower levels of moral reasoning (stages one and two) are influenced in their behavior to avoid punishment and to maximize self-interest. Those at mid levels of moral reasoning (stages three and four) seek to cooperate with peer groups and society. Only those at higher levels of moral reasoning (stages five and six) are guided in their behavior by self-chosen ethical principles. Therefore, individuals at lower levels of moral reasoning will be more inclined to succumb to expectations of others and their own self-interests, while those at higher levels of moral reasoning will tend to resist those influences when faced with an earnings management opportunity. Accordingly, as moral reasoning decreases, accountants will be more inclined to engage in earnings management activity. In order to test the relationship of level of moral reasoning to earnings management actions, the following research hypothesis is proposed:

$H2_0$: Corporate accountants will record accruals equal to minimum required accruals regardless of their level of moral reasoning.
$H2_a$: As level of moral reasoning decreases, corporate accountants will record accruals that deviate in larger amounts from minimum required accruals.

The probability that covert behavior will be detected influences perpetration of that behavior (Kohlberg, 1981; Beck and Jung, 1989). Therefore, engaging in earnings management activity will be influenced by the perception that such behavior will be discovered by auditors or corporate management. A higher likelihood of detection will tend to discourage earnings management, while a lower likelihood of detection will tend to encourage earnings management activity. Extant literature indicates that auditing alone does not necessarily lead to lower instances of earnings management (Schneider and Wilner, 1990; and Uecker, et al., 1981). However, when corporate reporting requirements are combined with auditing, individuals may be less likely to engage in earnings management behavior. This leads to the following proposed hypothesis to test the influence of likelihood of detection on earnings management activity:

$H3_0$: Corporate accountants will record accruals equal to minimum required accruals regardless of the likelihood of detection.
$H3_a$: When likelihood of detection is low, corporate accountants will record accruals that deviate in larger amounts from minimum required accruals.

The performance of earnings management could be influenced by factors working in unison. A combination of variables, the accountant's level of moral reasoning, the existence of earnings pressure, and the likelihood that earnings management behavior will be detected, may influence the behavior. Hypotheses 4, 5, and 6 are proposed to examine the first-order interaction effects of the independent variables on earnings management behavior.

Individuals with higher levels of moral reasoning will behave in accordance with their self-chosen principles of fairness. However, as moral reasoning decreases, individuals will be more likely to succumb to pressures to attain earnings targets. Accordingly, the effect of earnings pressure on accruals recorded by corporate accountants will be moderated by the accountant's level of moral reasoning. Hypothesis 4 is proposed to test this interaction effect.

$H4_0$: The interaction effect of level of moral reasoning and earnings pressure on accruals recorded by corporate accountants is not statistically significant.

$H4_a$: The effect of earnings pressure on accruals recorded by corporate accountants will be moderated by level of moral reasoning. Specifically, the effect of earnings pressure on corporate accountants' accruals will be stronger as level of moral reasoning decreases.

Persons at lower levels of moral reasoning are motivated to avoid punishment resulting from detection of undesirable behavior. Therefore, as moral reasoning decreases, the effect of likelihood of detection on corporate accountants' accruals should be stronger. Hypothesis 5 is proposed to test this interaction effect.

$H5_0$: The interaction effect of level of moral reasoning and likelihood of detection on accruals recorded by corporate accountants is not statistically significant.

$H5_a$: The effect of likelihood of detection on accruals recorded by corporate accountants will be moderated by level of moral reasoning. Specifically, the effect of likelihood of detection on corporate accountants' accruals will be stronger as level of moral reasoning decreases.

The tendency to succumb to earnings pressure in managing earnings should be mitigated by the resulting embarrassment and other negative repercussions which might result if earnings management is detected by auditors or corporate management. Corporate accountants could potentially lose future promotions or even their jobs if earnings management activity were viewed sufficiently unfavorably by their superiors. Hypothesis 6 is proposed to test the interaction effect of likelihood of detection and earnings pressure on earnings management.

$H6_0$: The interaction effect of earnings pressure and likelihood of detection on accruals recorded by corporate accountants is not statistically significant.

$H6_a$: The effect of earnings pressure on accruals recorded by corporate accountants will be moderated by likelihood of detection. Specifically, the effect of earnings pressure on corporate accountants' accruals will be stronger when likelihood of detection is low than when it is high.

Even though corporate accountants with lower levels of moral reasoning may be inclined to submit to stronger earnings pressure to engage in earnings management activity, this propensity may be influenced by the likelihood that such activity may be detected. As indicated by Kohlberg (1981), individuals at lower levels of moral reasoning are inclined to avoid punishment which would result from detection of earnings management behavior. Accordingly, to test this suggested second-order interaction effect, the following research hypothesis is proposed:

$H7_0$: The interaction effect of earnings pressure, level of moral reasoning, and likelihood of detection on accruals recorded by corporate accountants is not statistically significant.

$H7_a$: The interaction effect of earnings pressure and level of moral reasoning on accruals recorded by corporate accountants will be moderated by likelihood of detection. Specifically, this interaction effect will be stronger when likelihood of detection is low than when it is high.

3.3 Research Design

The present study utilizes a between-subjects, post-test only, experiment in a field setting with two manipulated variables and one individual difference variable. An experimental design in a field setting is considered appropriate in order to (1) examine the selected determinants of earnings management in a natural context, (2) increase generalizability by using actual corporate accountants, and (3) provide a study using alternative methods to those used in previous research on earnings management.

Independent variables include two manipulations, earnings pressure with both strong and weak levels, and likelihood of detection also with two levels of high and low. The level of moral reasoning of individual corporate accountants is an individual difference variable with continuous measurement. In addition, social desirability bias of the individual responses is measured for control in the statistical analysis. The primary dependent variable, provided by the corporate accountant subjects in an indirect response scenario, is the deviation from minimum required accruals .

3.4 Research Instruments and Task

The subjects were provided with background data on a hypothetical corporate division, including statements that (1) the division always attempts to meet earnings expectations and (2) the payment of division bonuses depends on meeting earnings targets. Two scenarios of pre-adjusted earnings were presented: strong earnings pressure (preadjusted earnings of $10,200,000), and weak earnings pressure (preadjusted earnings of $10,920,000) against a targeted earnings of $10,000,000. These earnings levels are selected to produce the earnings pressure treatments given the adjustments that must be considered in the scenario. The subjects were given four accrual accounts for which they indicated the adjustments that the typical division controller would record before earnings results are finalized. This indirect response is based upon Fisher's (1993) suggestion that such responses mitigate socially desirable responding. The four accounts included in the scenarios are: inventory reserve, litigation liability, accrued consulting, and allowance for bad debts. The accounts and related descriptions included in the scenario were developed based upon those used in previous research (Bruns and Merchant, 1990 and Schneider and Wilner, 1990) to empirically provide situations that represent instances of earnings management opportunities.

The composite minimum required accruals equal $500,000, which provides the earnings pressure manipulation; that is, if the minimum required composite adjustments are made in the strong (weak) earnings pressure

treatment, adjusted earnings will be below (above) the earnings target of $10,000,000. The scenarios provide descriptions of the facts and circumstances that must be considered in adjusting the accrual accounts and require the subjects to select an estimate the typical division controller would provide for each account. The scenarios are constructed in such a way that the minimum required accrual is based upon the "best estimate" provisions of Statement of Financial Accounting Standards No. 5 (SFAS 5) (Financial Accounting Standards Board, 1975); no other point within the range of loss estimates is designed to be a better estimate. For the strong (weak) earnings pressure group, selection of all the low (high) estimates for the four liabilities will produce earnings that meet forecasted earnings. To enhance the pressure, the scenarios include inferences that individual promotions are dependent upon division management recommendations and statements that the division president has already represented to his corporate superior that the division will likely meet its annual earnings target. Appendix B summarizes the earnings and accrual ranges. The scenarios and research materials are presented in Appendix C. The scenarios were reviewed by nine individuals with current or previous corporate accounting experience who indicated that the scenarios represent realistic situations.

The scenarios indicate two levels of likelihood of detection. The low level indicates that no specific reporting to corporate headquarters is required for the accrual account analyses, and the probability of external and internal audit is low. The high level of likelihood of detection indicates a high likelihood of

auditor challenge to the liability estimates and the requirement that specific account analyses with written balance justifications be submitted to corporate headquarters with the period-end financial reporting packages. The operationalization of likelihood of detection as "high" and "low" is based on the importance of perceptions in influencing behavior as demonstrated in tax research (Cowell, 1992; and Lewis, 1982) and is similar to that used in tax research for probability of IRS penalties (Newberry, Reckers, and Wyndelts, 1993; and Schisler, 1994).

After subjects completed the task to measure the influence of earnings pressure and likelihood of detection on the dependent variable, the subjects were given the Defining Issues Test (DIT) to ascertain their levels of moral reasoning. The DIT is a self-administered set of six hypothetical ethical dilemmas for which subjects first rank order the importance of 12 items in deciding how to respond to each dilemma, and then rank the four most important of the items in reaching their decisions. These rankings are used to determine a "P" score which is a continuous measure of the subject's level of moral reasoning (Rest, 1990). The reliability and validity of the DIT has been extensively assessed in previous research as reported in Rest (1979) and the Manual for the Defining Issues Test (Rest, 1990).

The final research instrument is the impression management section of the Balanced Inventory of Desirable Responding (BIDR). This instrument is a series of 20 questions to which subjects respond using a scale of one to seven

(1 = not true; 7 = very true). The impression management subscale indicates the extent to which subjects are providing responses to present themselves in a favorable light versus responding with their own beliefs and opinions. Paulhus (1991) reports a .75 to .86 internal consistency coefficient for the impression management subscale, and Randall and Fernandes (1991) report .79 (all above the coefficient alpha considered minimally acceptable according to Nunnally [1978]).

Subjects were randomly assigned to the high and low earnings pressure/likelihood of detection groups (four versions of the scenario). The task materials (see Appendix C) were mailed to the subjects with a cover letter from their corporate CFO/Controller requesting their participation. In addition, participants who received the research materials by mail were phoned in advance to increase their willingness to participate, and a follow-up postcard was mailed to all participants two weeks after the experimental materials were mailed to them. Basic demographic data were collected from the subjects, who received assurances of complete confidentiality and corporate anonymity.

3.5 Measurement of Variables

Dependent Variable

The primary dependent variable is the deviation from minimum required accrual estimates made by the corporate accountants. The scenarios include the description of the facts and circumstances surrounding the need for

adjustment. SFAS 5 provides that if some point within a range of loss estimates is a better estimate than another, that amount should be accrued. If no amount within the range is better than another, the minimum amount of the range should be accrued; the scenarios were constructed to meet this criterion. Minimum required accruals are defined as the minimum amount within the range of loss. Accruals refer to accounting entries for expenses and liabilities rather than to accrued revenues. The absolute value of the dependent variable is used to perform alternative analyses to investigate the relationships of the continuously measured variable, moral reasoning, and the covariate, social desirability bias, to earnings management.

Independent Variables

Manipulated variables are earnings pressure and likelihood of detection. Earnings pressure is dichotomized at strong (preadjusted earnings of $10,200,000) and weak (preadjusted earnings of $10,920,000) levels. In the high earnings pressure level, subjects must underrecord accruals in order to achieve the earnings target. In the low earnings pressure level, subjects may overrecord accruals in order to include excess reserves for future period earnings or record accruals so that earnings exceed the earnings target. High and low levels of likelihood of detection were also included in alternate scenarios.

Manipulation checks were performed to ascertain the strength of the manipulations for earnings pressure and likelihood of detection and the extent of

hypothesis guessing by the subjects. The data for the manipulation checks were collected in a pilot study conducted prior to the actual study which utilized a small sample of eight actual corporate accountants. Changes were made to strengthen the manipulation check questions based on the results of this preliminary sample. The manipulation check data were also collected via a postexperimental questionnaire from the study's subjects.

After subjects completed the task to measure the influence of earnings pressure and likelihood of detection on the dependent variable, the subjects were given the DIT to ascertain their levels of moral reasoning, indicated by the "P" score of the DIT.

Control of Social Desirability Bias

The present study incorporates responses from corporate accountants relating to earnings management. Fisher (1993) suggests that subjects are more likely to employ impression management when they fear the research results will be used to provide evidence about themselves rather than as objective research. In the present study, selected techniques are utilized to address the threat of social desirability bias.

The scenario is designed to capture subject estimates of accrual estimates which show the extent of earnings management behavior. The scenarios are structured to elicit indirect responses in the form of estimates the "typical division controller" would provide. The use of indirect responses is consistent with recommendations by Fisher (1993) and Armacost, et al. (1991).

In addition, social desirability bias is measured using the impression management subscale of the BIDR. The BIDR impression management subscale contains 20 items for which respondents are asked how each item applies to themselves on a 7-point scale (1 is not true at all, 4 is neither true nor false, and 7 is very true). Extreme responses (scores of 6 and 7) for the 20 items are summed to arrive at a measure of impression management. Paulhus (1991) and Randall and Fernandes (1991) have investigated the internal consistency and test-retest reliability of the BIDR and have found them to be above those levels generally considered to be minimally acceptable.

3.6 Subjects

Subjects were selected from operating divisions of several large, multi-national corporations and include division chief financial officers, controllers, assistant controllers, and accounting managers, those who are assumed to be in a position to influence the level of adjustment to expense and liability account balances, and therefore, who can influence or engage in earnings management behavior. Access to the companies and their accounting employees was obtained by leveraging existing relationships of the author and colleagues.

Completed participant materials may include responses which are unusable in the statistical analysis due to ineffective manipulation, inattention to task, or demand effects. The DIT includes internal reliability and consistency

checks on subject responses that may require deletion from the data set. In addition, responses to post-experimental questions should reveal the presence of demand effects from hypothesis guessing. Any such responses identified were deleted from the data analysis. Consequently, completed research materials were requested from approximately 200 subjects in order to achieve a sample size of approximately 143 participants. This sample size is determined using Cohen's (1987) statistical power analysis formula and provides an alpha level of .01 at an estimated effect size of .10 and estimated power of .80. Lower sample sizes are acceptable if higher alpha levels are acceptable and/or larger effect sizes are found.

3.7 Statistical Analysis

The study includes one continuous and two categorical independent variables. The measurement of these variables plus the theoretically proposed process in which the independent variables influence the dependent variable suggest that hierarchical multiple regression be selected as the statistical method to analyze the data (Pedhazur and Schmelkin, 1991). Regression, as opposed to ANOVA, also prevents loss of information if a continuous variable were to be categorized and allows for unequal cell sizes. In hierarchical multiple regression, regressions are performed in steps: first for the covariate; second with the covariate and the independent variables' main effects; third with the covariate, the independent variable main effects, and the interaction terms. The

interaction terms are formed by multiplying the applicable individual terms. Social desirability bias is entered as the covariate to be partialed out.

The full model is:

$$Y_i = \beta_0 + \beta_1(SDB_i) + \beta_2(EP_i) + \beta_3(MR_i) + \beta_4(LD_i) + \beta_5(MR_i \times EP_i) + \beta_6(MR_i \times LD_i) + \beta_7(EP_i \times LD_i) + \beta_8(MR_i \times EP_i \times LD_i) + e_i \qquad (1.6\text{-}1)$$

where,

Y_i = Earnings management (deviation from minimum required accrual), the response variable of the ith subject,
$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ are regression parameters,
SDB_i = Social desirability bias of the ith subject,
MR_i = Level of moral reasoning of the ith subject,
EP_i = Earnings pressure, strong (1) or weak (0),
LD_i = Likelihood of detection, high (0) or low (1),
e_i = Error term, independent N $(0, \sigma^2)$, and
i = 1, . . . , n

Tests of acceptance or rejection of the null hypotheses were performed using one-tailed t-tests in which the test statistics provided by statistical software were compared to critical values for one-tailed tests. Tests of the model assumptions regarding independence, normal distribution, and constant variance were performed. The independence assumption was tested using the Durbin-Watson test for lack of randomness. The Shapiro-Wilk test for normality and normal probability plots were performed for the normality assumption. Residual analysis was utilized to assess the constant variance assumption. Use of a log transformation of the dependent variable assists in correcting nonconstant variance, if noted (Dielman, 1991).

The use of multiplicative interaction terms can present problems in regression with multicollinearity. Correlation tests and variance inflation factors

(VIF) can be utilized to ascertain the extent of multicollinearity. Procedures to center the variables (computing deviations of each variable from its mean) can be used to control for multicollinearity, if noted (Jaccard, Turris, and Wan, 1990).

The regressions provide t-statistics, levels of significance, and adjusted R^2 (proportions of variance in the dependent variable explained by the independent variables) to evaluate the research data. Interpretation of the results should proceed from the examination of the second-order interaction for statistical significance, then to the first-order interactions, and finally to the main effects. The interaction terms indicate the extent to which the independent variables in combination provide moderating influences on earnings management behavior. If the interactions are statistically significant, it is inappropriate to interpret the main effects, because such main effects are not constant in the presence of the variables that jointly act with them (Kerlinger, 1986 and Pedhazur and Schmelkin, 1991). If the interaction effects are not significant, the main effects demonstrate the influence of these factors on the dependent variable, earnings management. Graphs of the interaction effects will be utilized to assist in interpreting the interactions, if found.

It is possible that certain independent variables in the study are nested variables, i.e., all levels of an independent variable do not occur at all levels of other independent variables. For example, the effects of earnings pressure and likelihood of detection could be nested within level of moral reasoning. This possibility was investigated by analysis of a 2 x 3 frequency table; the

independent variable moral reasoning was split into high and low levels for this purpose.

Descriptive data were analyzed using ANOVAs for the means and frequencies of subjects to determine if there is a significant difference in means of subjects receiving each of the four scenarios. In addition, descriptive statistics for the dependent and continuous independent variables were analyzed, particularly for the ranges and means of level of moral reasoning to see if these are consistent with those of previous studies and to see if the distributional assumptions hold.

3.8 Summary of Methodology

An experiment in a field setting is the methodology selected to examine the present research study. This chapter presents a theoretical framework for the study and develops testable research hypotheses. The experimental task was administered to division accounting personnel of large, multinational corporations and incorporate three primary research instruments, an indirect response scenario, the Defining Issues Test, and the Balanced Inventory of Desirable Responding. The principal method of statistical analysis used in the present study is hierarchical multiple regression. Analysis of the data provides an indication of the determinants of earnings management, which should benefit practitioners, academics, and policy-makers. The analysis of data is presented in the next chapter.

Chapter Four

Data Analysis and Results

4.1 Introduction to Data Analysis and Results

The purpose of this chapter is to present the analysis of data and the statistical results of the study. Section 4.2 describes the sample, participant characteristics, and descriptive statistics. Section 4.3 presents the results of the manipulation checks for the experimental treatments, and Section 4.4 outlines the tests of reliability for the continuous independent measures. The regression results are presented in Section 4.5, including tests of the regression assumptions and discussion of the hypotheses tests.

4.2 Sample, Participant Characteristics, and Descriptive Statistics

Research instruments were distributed by mail to 205 participants who are chief financial officers, controllers, assistant controllers, or accounting managers of 31 divisions of six large, multi-division companies. Responses were received from 145 participants, representing a response rate of 70.7%. Fifteen of the responses failed the consistency checks of the DIT scoring process, which was performed by the University of Minnesota Center for the Study of Ethical Development. Accordingly, the final sample included 130 participants, representing a usable response rate of 63.4%. This sample size is considered acceptable based on the required sample size calculation utilizing the power

tables and the higher power and effect sizes indicated in Section 4.5. Participant characteristics are presented in Table 1.

Table 1

Participant Characteristics

	n=130
Age (in years)	
Mean	38.7
S.D.	6.5
Range	27 - 60
Education Level (highest level attained)	
Graduate Degree	35%
Bachelor's Degree	63%
2-Year Degree	1%
High School Degree	1%
CPA Certification	74%
Other Certification (CMA, CIA)	2%
Job Classification	
Upper Management	33%
Middle Management	65%
Staff	2%
Years of Work Experience	
Mean	16.4
S.D.	6.7
Range	5 - 40
Years in Current Position	
Mean	2.9
S.D.	3.2
Range	0 - 17
Years with Current Employer	
Mean	9.0
S.D.	7.9
Range	.5 - 33

Participants have an average age of nearly 39, average work experience exceeding 16 years, nine of which are with their current employers, and have been in their current positions approximately three years. Ninety-eight percent of participants have bachelor's or graduate degrees, and almost three-fourths have received a CPA certification. One-third of the participants consider themselves members of upper management, while nearly two-thirds are part of middle management within their divisions.

Descriptive statistics on the continuous variables are indicated in Table 2. Panel A reports the means, standard deviations, and ranges for the DIT P score, social desirability bias, and the dependent variable deviation from minimum required accruals. The mean DIT score of participants is comparable to that reported in other research (Kite, et al. 1996: mean=40.9; Ponemon, 1992A: mean=38.7; Ponemon, 1992B: mean=38.1; Ponemon and Gabhart, 1990: mean=32.6; Windsor & Ashkanasy, 1996: mean=38.6; and Rest, 1979: mean=40.0 for general public). Social desirability bias has a higher mean than the range of 4.1 to 6.7 reported by Paulhus (1994) for primarily undergraduate student samples, indicating that participants have a slightly higher propensity to provide the response expected by the researcher. The dependent variable has a mean of $71,558, with a large standard deviation and range, which is expected with the manipulation of earnings pressure and likelihood of detection.

Panel B of Table 2 reports the DIT score by treatment. A regression performed with the DIT score as the dependent variable and treatment as the

independent variable indicates that the DIT score does not differ significantly by treatment (F=1.08, p>.361). The results of Duncan's Multiple Range Test, Tukey's Standardized Range Test, and Scheffe's Test also indicate no difference in DIT score by treatment (n=130, alpha=.05, df=126).

Panel C of Table 2 reports the dependent variable, deviation from minimum required accruals (DMR), by treatment. A regression with DMR as the dependent variable and treatment as the independent variable indicates that the dependent variable does differ significantly by treatment (F=31.07, p=.0001). Duncan's, Tukey's, and Scheffe's tests indicate that DMR differs by earnings pressure treatments but not by likelihood of detection (n=130, alpha=.05, df=126).

Table 3 indicates that the data do not display nesting effects. DIT P scores were split on the mean of 39 into high and low levels. Table 3 reveals that all levels of independent variables occur within all levels of other independent variables.

Table 2

Descriptive Statistics

Panel A: Means, S.D., and Range

	Mean	S.D.	Range
DIT P Score	39.1	12.8	6.7 to 75.0
Social Desirability Bias	8.9	3.8	0 to 20
Deviation from Minimum Required Accruals (DMR)	$71,558	$208,516	$(700,000) to $400,000

Panel B: DIT Score by Treatment [a]

	Mean
High EP, Low LD (Treatment 1) n=31	38.7
High EP, High LD (Treatment 2) n=35	36.3
Low EP, Low LD (Treatment 3) n=34	39.9
Low EP, High LD (Treatment 4) n=30	41.9

Panel C: DMR by Treatment [b]

	Mean
High EP, Low LD (Treatment 1)	$210,571
High EP, High LD (Treatment 2)	198,226
Low EP, Low LD (Treatment 3)	(58,897)
Low EP, High LD (Treatment 4)	(73,667)

(a) - DIT score does not differ significantly by treatment (F=1.08, p>.361).

(b) - DMR cell means differ by treatment (F=31.07, p=.0001). Duncan's, Tukey's, and Scheffe's tests indicate DMR differs by EP treatments, but not LD (n=130, alpha=.05, df=126).

EP - Earnings pressure.

LD - Likelihood of detection.

Table 3

Distribution of Subjects Among Cells -

Test of Nested Effects of Data

	High LD	Low LD
Strong EP:		
High MR	14	12
Low MR	17	23
Weak EP:		
High MR	15	16
Low MR	19	14

EP - Earnings pressure.
MR - Moral reasoning.
LD - Likelihood of detection.

4.3 Manipulation Checks

In order to test for the strength of the earnings pressure (EP) and likelihood of detection (LD) manipulations, participants were asked to respond to certain questions on a seven-point Likert scale. EP questions included items such as "The difference between preliminary earnings and targeted earnings was less than $300,000" and "How much pressure would the typical controller perceive in determining adjustments in this situation?" LD questions included items such as "There is a high likelihood that auditors will review the controller's adjustment decisions" and "The controller must submit detailed explanations for the adjustments to corporate headquarters."

Two tests were performed to assess the strength of the manipulations. T-tests for differences in means of high and low levels of EP and LD were computed for each individual manipulation check question. Results in Table 4 show that means for high and low levels of each question are significantly different ($p<.002$).

Table 4

Manipulation Check Questions -

T-Tests for Difference in Means

	Mean (Standard Deviation)		
	High	Low	P-value
Earnings Pressure:			
Question 1	5.86 (2.05)	1.96 (1.84)	<.001
Question 8	5.45 (1.42)	3.71 (1.77)	<.001
Question 11	5.72 (0.81)	5.20 (1.15)	.002
Likelihood of Detection:			
Question 2	6.01 (1.26)	3.18 (2.17)	<.001
Question 5	6.18 (1.02)	4.56 (1.98)	<.001
Question 10	5.32 (1.60)	3.15 (2.12)	<.001

In addition, ANOVAs were performed with summed manipulation check scores as the dependent variable and the variables of interest and the interaction of EP and LD as independent variables. The model for the EP manipulation check was significant ($F=9.65$, $p=.0001$) with EP the only independent variable of significance ($p=.0001$). Similarly, the model for the LD manipulation check was significant ($F=29.03$, $p=.0001$) and only the variable of interest, LD, had a significant influence ($p=.0001$). Furthermore, Duncan's,

Tukey's, and Scheffe's tests all indicate that the means of high and low EP and high and low LD are significantly different (alpha=.05).

In order for the manipulation check responses to be considered additive for the ANOVAs, it is important to assess the reliability. Coefficient alphas for the summed EP responses and the summed LD response were .51 and .80, respectively. The alpha for LD is above the .70 level generally considered acceptable (Nunnally, 1978), but the alpha for EP is not. Deleting responses for specific EP questions did not appreciably improve the alpha. In addition, the computation of coefficient alpha by treatment produced reliabilities in the .40s to .60s. In spite of these reliabilities for the addition of manipulation check items, the evidence from the ANOVAs and the t-tests suggest that the EP and LD variables were adequately manipulated.

4.4 Reliability of Independent Variables

The DIT is scored by the Center for the Study of Ethical Development of the University of Minnesota, which was requested to provide a reliability coefficient for the scored DIT sample (n=130). For individual samples, the Center can compute only inter-story (six stories) reliability based on a DIT P score for each story for each participant. An inter-item reliability cannot be computed due to the existence of missing data. The coefficient alpha reported by the Center is .525, below the .70 recommended by Nunnally (1978). The coefficient alpha in the .70s reported by Rest (1990) is generally determined

from heterogeneous samples versus the homogeneous sample in the present study. With the lower than desirable reliability, an alternative is to investigate the significance of the moral reasoning measure in the study's regressions. In addition, the correction for attenuation suggested by Nunnally (1978) did not produce a significantly higher theoretical correlation between the DIT score and the dependent variable.

The impression management scale of the BIDR measure of social desirability bias is scored dichotomously, with one assigned to responses of six and seven on a seven-point Likert scale and zero assigned to other responses. Accordingly, the Kuder-Richardson 20 (KR-20) technique (Nunnally, 1978) was utilized to calculate the reliability coefficient. The KR-20 coefficient alpha for social desirability bias was .762, above levels generally considered acceptable.

4.5 Regression Results

Regression results for the full model for the dependent variable, deviation from minimum required accruals (DMR) are presented in Table 5. The overall model produces an F-value of 12.04 with a p-value of .0001. The adjusted R-square indicates that the set of independent variables explains 40.7% of the variance in the dependent measure. The power of the tests computed using Cohen's (1987) power tables is greater than 99.5% (alpha=.01), "the percent of significance tests performed on random samples . . . which yield a value of F that results in rejecting the null hypothesis" (415).

Table 5

Regression Analysis - Full Model

Dependent Variable: Deviation from Minimum Required Accruals

Variable	DF	Regression Coefficient	t-value	Prob>t
Intercept	1	- 132,873	- 1.189	.237
Social Desirability Bias (SDB)	1	- 789	- .212	.833
Earnings Pressure (EP)	1	417,362	3.126	.002
Likelihood of Detection (LD)	1	- 51,107	- .371	.711
Moral Reasoning (MR)	1	1,588	.638	.525
EP x MR	1	- 3.435	- 1.072	.286
LD x MR	1	1,727	.539	.591
EP x LD	1	- 41,745	- .219	.827
EP x LD x MR	1	467	.102	.919
Regression Model	9			
Residual	120			
R-square	.443			
Adjusted R-square	.407			
F-value	12.04			
Prob>F	.0001			

Tests of Regression Assumptions

The appropriateness of the model's basic assumptions should be examined for serious departures from the assumptions. The model assumes that error terms (1) are independent, (2) are normally distributed, and (3) have constant variance.

To test for the independence assumption, the Durbin-Watson test for lack of randomness was computed, resulting in a value of 1.98. Durbin-Watson values close to 2 indicate that the errors are uncorrelated.

The Shapiro-Wilk test for normality produces a value of .1523, indicating that the null hypothesis that the error terms are normally distributed cannot be rejected. In addition, a normal probability plot of the error terms (Appendix D) indicates an approximate straight line.

Residual analysis is important for studying the fit of the model. A plot of the residuals versus the predicted values (Appendices E and F) indicates a scatter of points around mean zero and no obvious pattern or model discrepancies. This reveals no problem with the constant variance assumption and supports the linearity assumption (Dielman, 1991). Scatter plots of the continuous independent variable and the covariate versus the residuals also revealed no model discrepancies.

Hypotheses Tests

When interaction effects are predicted, it is necessary to interpret the interactions prior to evaluation of the main effects (Pedhazur and Schmelkin, 1991). Accordingly, Hypothesis 7 predicts a second-order interaction in which the interaction effect of earnings pressure (EP) and level of moral reasoning (MR) on accruals recorded by corporate accountants will be moderated by likelihood of detection (LD). The relationship tested in Hypothesis 7 is:

$$H7_0: B_8 = 0$$
$$H7_a: B_8 < 0$$

Results in Table 5 indicate that the regression coefficient for the second-order interaction of EP x LD x MR is not significant (p=.919). Therefore, the null hypothesis cannot be rejected.

First-order interactions are predicted in Hypotheses 4, 5, and 6. Hypothesis 4 suggests that MR moderates the influence of EP on earnings management. The relationships tested in Hypotheses 4, 5, and 6 are:

$H4_0$: $B_5 = 0$
$H4_a$: $B_5 > 0$

$H5_0$: $B_6 = 0$
$H5_a$: $B_6 > 0$

$H6_0$: $B_7 = 0$
$H6_a$: $B_7 > 0$

Table 5 indicates the regression coefficient for EP x MR is not statistically significant (p=.286), so that Hypothesis 4 is not supported. Likewise, the interactions of LD x MR (p=.591) and EP x LD (p=.827) lead to a lack of support for Hypothesis 5 and Hypothesis 6, respectively.

A subgroup analysis was performed by computing regressions with main effects and interaction effects of EP x LD for observations below and above the mean of MR (mean=39). Results are shown in Table 6, panels A and B. The objective was to determine if EP had a significant effect on earnings management for subjects with low MR (n=73), but no significant effect for subjects with high MR (n=57). Table 6 indicates that the regression coefficients for EP are statistically significant for both low (p=.0001) and high (p=.0001) MR

subjects. This analysis further supports the absence of the statistically significant interaction between EP and MR predicted in Hypothesis 4.

Table 6

Regression Analysis - Subgroup Analysis

Dependent Variable: Deviation from Minimum Required Accruals

Variable	DF	Regression Coefficient	t-value	Prob>t
Panel A: Low MR				
Intercept	1	- 46,684	- .764	.447
Social Desirability Bias	1	- 2,240	- .431	.668
Earnings Pressure (EP)	1	282,896	4.903	.0001
Likelihood of Detection (LD)	1	- 6,693	- .111	.912
EP x LD	1	5,582	.069	.945
Regression Model	5			
Residual	67			
R-square	.4299			
Adjusted R-square	.3963			
F-value	12.82			
Prob>F	.0001			
Panel B: High MR				
Intercept	1	- 115,158	- 1.641	.107
Social Desirability Bias	1	3,170	.566	.574
Earnings Pressure (EP)	1	282,921	4.804	.0001
Likelihood of Detection (LD)	1	44,862	.810	.422
EP x LD	1	- 59,864	- .734	.466
Regression Model	5			
Residual	51			
R-square	.4246			
Adjusted R-square	.3803			
F-value	9.59			
Prob>F	.0001			

The regression with only the main effects of EP, LD, MR and the covariate of SDB is shown in Table 7. This regression is performed to test for the main effects predicted in Hypotheses 1, 2, and 3 in the absence of statistically significant interaction effects. Hypotheses 1A and 1B predict that in the presence of strong earnings pressure (EP), corporate accountants will record accruals less than the minimum required accruals, and in the presence of weak EP, accruals will be greater than the minimum required accruals.

$$H1_0: B_2 = 0$$
$$H1_a: B_2 > 0$$

In Table 7, the regression coefficient for EP is statistically significant (p=.0001). Additionally, the direction of the effect of EP on earnings management is tested by examination of differences in means. Mean response for strong EP was $204,773 less than minimum required accruals, while mean response for weak EP was $65,820 higher than minimum required accruals. Duncan's, Tukey's (critical value=2.799), and Scheffe's (critical value=3.918) tests indicate significant differences in means for the dependent variable, deviation from minimum required accruals, for strong and weak levels of EP (alpha=.05, df=124). Accordingly, the null hypothesis can be rejected, and the directions predicted in Hypothesis 1A and 1B are supported.

Table 7

Regression Analysis - Main Effects Model

Dependent Variable: Deviation from Minimum Required Accruals

Variable	DF	Regression Coefficient	t-value	Prob>t
Intercept	1	- 94,494	- 1.587	.115
Social Desirability Bias	1	- 353	- .095	.924
Earnings Pressure	1	273,069	9.585	.0001
Likelihood of Detection	1	821	.029	.977
Moral Reasoning	1	771	.688	.493
Regression Model	5			
Residual	124			
R-square	.4264			
Adjusted R-square	.4080			
F-value	23.23			
Prob>F	.0001			

Hypothesis 2 predicts that as MR decreases, corporate accountants will accrue amounts that deviate in larger amounts from DMR. This relationship is tested by:

$$H2_0: B_3 = 0$$
$$H2_a: B_3 < 0$$

However, the regression coefficient for MR is not statistically significant (p=.493) indicating that the null hypothesis cannot be rejected.

The dependent variable, deviation from minimum required accruals, provides for both positive and negative values. This definition makes it difficult to predict whether the value of DMR will be positive or negative as the continuous variable level of moral reasoning decreases. From a theoretical viewpoint, the

absolute values of the deviations from minimum required accruals would still indicate the presence of earnings management, but would not indicate direction. An additional regression analysis was performed to examine the effects of the continuous variable MR and the continuously measured covariate SDB on earnings management as measured by the absolute value of the subjects' responses. These regression results for the dependent variable, absolute value of deviation from minimum required accruals, are shown in Table 8.

Table 8

Regression Analysis - Main Effects of MR and SDB

Dependent Variable: Absolute Value of Deviation from Minimum Required Accruals (ADMR)

Variable	DF	Regression Coefficient	t-value	Prob>t
Intercept	1	311,741	7.374	.0001
Social Desirability Bias	1	- 7,347	- 2.508	.013
Moral Reasoning	1	- 1,783	- 2.029	.045
Regression Model	3			
Residual	126			
R-square	.0844			
Adjusted R-square	.0700			
F-value	5.85			
Prob>F	.0037			

In this analysis, the regression coefficient for MR has the proper negative sign for direction and is statistically significant (p=.045), which provides some evidence that the level of moral reasoning influences the earnings management

behavior of corporate accountants. As level of moral reasoning increases, the absolute value of the deviation from minimum required accruals approaches zero.

Two additional tests were performed to investigate the effect of level of moral reasoning on earnings management. Based on Kohlberg's delineation of his theory, it is possible that only those at the lowest stages of moral reasoning will engage in earnings management. For this test, earnings management was defined as any response other than the $500,000 minimum required accruals as designed in the scenarios. Moral reasoning was categorized into thirds based upon guidance provided by Rest (1990). A frequency table of MR by earnings management and a chi-square test were performed. However, since only eight of the 130 subjects selected exactly $500,000 for the accruals, the cell sizes were insufficient to provide meaningful results.

The second additional test involved the definition of earnings management based on whether subjects (1) achieved the earnings target, (2) failed to achieve the earnings target, or (3) achieved the target but recorded additional amounts to contribute to future earnings. These determinations were made based upon total accruals provided by the subjects. Moral reasoning was trichotomized based upon Rest's (1990) guidance. A logit regression of earnings management on moral reasoning failed to produce statistically significant results (chi-square=2.23, p=.694). The failure of these additional tests to provide further evidence of the relationship between earnings management and MR is at least

partially attributable to the inadequacy of the design of the research instruments for these definitions of earnings management.

Hypothesis 3 predicts a main effect of LD on earnings management. This relationship is tested by:

$$H3_0: B_4 = 0$$
$$H3_a: B_4 > 0$$

Table 7 shows that the regression parameter for LD is not significant (p=.977) for the dependent variable, DMR. This analysis indicates that corporate accountants tend to discount the effect of corporate controls and likelihood of audit on their decisions to engage in earnings management behavior. Therefore, the null hypothesis that LD has no effect on the deviation of corporate accountants' accruals from minimum required accruals cannot be rejected.

Research involving asking sensitive questions of human subjects allows the possibility that the subjects will engage in socially desirable responding. Table 9 produces the results of a regression with the effect of the covariate, SDB, on the dependent variable, DMR. The regression coefficient is not statistically significant (p=.604), indicating that SDB does not significantly affect the subjects' responses. However, the regression coefficient for the covariate, SDB, is statistically significant (p=.013) for the absolute value of the dependent variable in Table 8. As a continuous variable, SDB is similar to MR in that it is difficult to predict the direction of the dependent variable DMR. This effect of SDB on ADMR suggests that as SDB increases for subjects, they tend to provide the expected results, i.e., accruals near those minimally required.

Table 9

Regression Analysis - Covariate Only

Dependent Variable: Deviation from Minimum Required Accruals

Variable	DF	Regression Coefficient	t-value	Prob>t
Intercept	1	93,875	2.013	.046
Social Desirability Bias	1	- 2,497	- .520	.604
Regression Model	2			
Residual	127			
R-square	.0021			
Adjusted R-square	-.0057			
F-value	.2710			
Prob>F	.6037			

4.6 Summary

This chapter presented a description of the research participants, an analysis of the manipulations and reliability of the measures, and the regression results. Using the dependent variable, deviation from minimum required accruals, the hypotheses for the second-order interaction among EP, LD, and MR is not supported. Furthermore, the hypotheses for the first-order interactions between the variables is also not supported. Research results support the existence of a relationship between earnings pressure and earnings management as proposed in Hypotheses 1A and 1B. However, the predicted relationships between LD and MR and earnings management are not supported by the analyses for the dependent variable, deviation from minimum required accruals.

Transforming the dependent variable to its absolute value provides different results. Theoretically, the absolute value of the deviation from minimum required accruals defines earnings management, but precludes an understanding of direction. For the transformed dependent variable, relationships between MR and earnings management and SDB and earnings management are statistically significant. Therefore, the data analysis indicates some support for the main effects of two of the independent variables and for the covariate. Chapter 5 presents a discussion of these results and the limitations and implications of this study.

Chapter Five

Summary and Conclusions

5.1 Introduction to Summary and Conclusions

The purposes of this chapter are to discuss the results of the data analysis and the limitations of the study, and present implications for future research. Section 5.2 presents a discussion of the results of the hypotheses tests and additional analysis of data. Section 5.3 describes the limitations of the study, and Section 5.4 presents the implications for future research.

5.2 Discussion of Research Results

This study examined the phenomenon of earnings management in an experimental context for the influence of the selected determinants of earnings pressure, moral reasoning, and likelihood of detection. Seven hypotheses were developed and tested: the three main effects of the selected determinants, three first-order interactions, and one second-order interaction. Data were collected from a sample of 130 corporate accountants from 31 divisions of six large, multi-division corporations, who completed a five-part research instrument. Earnings pressure and likelihood of detection were manipulated variables, while level of moral reasoning and the covariate, social desirability bias, were continuously measured variables. The data were analyzed using regression analysis.

Results indicate that earnings pressure strongly influences earnings management behavior, but the inclination of corporate accountants to engage in earnings management practices is not deterred by likelihood of detection. The influence of level of moral reasoning of corporate accountants on earnings management is also significant, as measured by the absolute value of the dependent variable. No support was found for the predicted interaction effects.

The need to achieve short-term performance objectives exerts a strong influence on the tendency to manage earnings. This finding from the experimental study is consistent with those from field studies (Merchant, 1989) and surveys (Mihalek, et al., 1987) and supports the suggestions from the Treadway Commission (National Commission on Fraudulent Financial Reporting, 1987). The influence of a pressure variable on the behavior of accountants is also consistent with the findings of influences of supervisor pressure (McCoy, 1994) and time pressure (Ponemon, 1992A). That is, accountants appear to react to influences to achieve objectives. In this study, corporate accountants tended to underrecord accruals when faced with strong earnings pressure and overprovide accruals when the difference between preliminary earnings and targeted earnings allowed larger amounts.

Existing accounting literature is unclear as whether likelihood of detection is a significant deterrent to behavior. The results of this study suggest that the combination of corporate controls and a high likelihood of external and internal audits does not deter corporate accountants from engaging in earnings

management behavior. Corporate accountants tended to engage in earnings management practices irrespective of the level of likelihood of detection. Both Merchant (1989) and Schneider and Wilner (1990) report that accountants do not modify behavior when faced with the threat of audit. Approximately three-fourths of the participants in this study are CPA's, who have some familiarity with the performance and outcomes of audits; perhaps this knowledge leads corporate accountants to dismiss the repercussions of being detected when they engage in earnings management in the face of earnings pressure. It further appears that the presence of corporate controls does not affect the decisions of corporate accountants. Although the t-tests and ANOVAs suggest that the manipulation of likelihood of detection was effective in the present study, it is possible that the low reliability by treatment may indicate that the manipulation was not as strong as would be desired. Accordingly, it is possible that stronger manipulation of likelihood of detection in an experimental study could produce different results.

The predicted influence of level of moral reasoning on the deviation from minimum required accruals was not supported by the data analysis. The low reliability of the independent variable (.53) may account for the lack of statistical significance, and perhaps, a better measure of moral reasoning could produce different statistical results. In addition, the absence of a meaningful penalty for detection of earnings management behavior may explain the lack of support for the hypothesized effect of moral reasoning. Kohlberg's (1969) theory suggests

that those at lower levels of moral reasoning are influenced by sanctions, and those at higher levels are influenced by issues of fairness.

However, regression analysis using the absolute value of the deviation from minimum required accruals as the dependent variable did indicate a significant effect for level of moral reasoning. Although the absolute value of the dependent variable does not indicate direction of the earnings management actions, the transformation is theoretically consistent with an operational definition of the construct of earnings management. In addition, the correlation between the absolute value of the dependent variable and level of moral reasoning was statistically significant ($r = -.20$, $p = .0242$). This result suggests that a corporate accountant's level of moral reasoning could have some influence on the tendency to engage in earnings management behavior. This study is the first research to show a possible relationship between a personality variable and earnings management and is consistent with research that has shown moral reasoning to affect other aspects of accountants' behavior. An implication of this finding is that corporate efforts to advance the level of moral reasoning of employees through training and awareness programs may lead to a lower propensity to manage earnings results.

None of the hypothesized interactions were statistically significant. These results may be influenced by the measurement issues described for likelihood of detection (manipulation) and moral reasoning (reliability). Alternatively, it could be that the culture in divisions of large corporations is so strongly influenced by

the need to achieve results that this cultural aspect overrides personality variables, such as level of moral reasoning, in individuals and the fear of reprisals from detection of earnings management behavior. Possibly, the model is misspecified by the failure to include additional variables, such as corporate culture.

The regression analysis with the dependent variable deviation from minimum required accruals did not indicate a significant effect for the covariate, social desirability bias. However, as for moral reasoning, a statistically significant effect for social desirability bias was indicated for the absolute value of the dependent variable. This suggests that as participants score higher on the impression management subscale of the BIDR, they are more likely to provide the accrual decisions they perceive are expected of them. The results of this study imply that research that involves asking sensitive questions of human subjects, such as in ethical situations, should attempt to measure and control for the effects of socially desirable responding. The present study is one of the first involving accounting ethical issues to utilize this approach.

This study is only one link in the extensive research programs for earnings management and the moral reasoning of accountants. The utilization of an experimental approach represents a triangulation of prior research results on earnings management using archival methods, field studies, and survey techniques. In addition, the present study answers the call for research on the ethics of management accountants by extending moral reasoning research to

corporate accountants in divisions of large companies. Future research which corroborates this study's findings could influence the design of ethical education for future accountants and provide insights into the accuracy of accounting information for internal decision making and external reporting.

5.3 Limitations of the Study

The present study contains several limitations. The dependent variable was based on a theoretical response for minimum required accruals, similar to the approach to measurement of earnings management utilized by McNichols and Wilson (1988). However, a different measure of the dependent variable, using alternative scenarios or different responses, may produce different results, and actual behavior may differ from the responses to a hypothetical scenario. The use of actual accountants in corporate divisions increases the external validity of the study, but generalizability is limited by the use of a convenience sample from only 31 divisions of six large companies. The participants had no consequences to their actions, including no rewards, constraints, or penalties; real world situations usually involve consequences to chosen behavior. The present study included a single period; different results may occur in research with multiple periods. Finally, the present study examined only selected determinants of earnings management. Omitted variables, such as corporate culture, could alter the results of the study.

5.4 Implications for Future Research

The issues identified above regarding the relationship of the selected determinants of earnings pressure, level of moral reasoning, and likelihood of detection and earnings management behavior justify further investigation. Better methods to manipulate detection and the penalties that result therefrom could be utilized, including the use of laboratory techniques in which participants incur actual penalties if earnings management behavior is detected. In addition, better measurement methods for level of moral reasoning that result in higher reliability could be developed. Future studies could also involve alternative model specification, including the identification and measurement of additional variables such as corporate culture which affect the phenomenon of earnings management. Replication of the present study with broader samples, different experimental scenarios, and multiple periods would improve understanding of the relationships investigated in this study. Furthermore, future research could address the effectiveness of corporate codes of conduct and established corporate ethical committees in mitigating earnings management behavior.

The relationship of ethical sensitivity to earnings management could be investigated in a future study. Shaub, Finn, and Munter (1993) developed a scale to measure ethical sensitivity, which involves ethical perceptions, a precursor to ethical judgments. An experimental study could be designed to investigate accountants' perceptions of the ethical nature of earnings management, which would extend the research by Bruns and Merchant (1990).

Finally, the effect of social desirability bias on the responses of human subjects could be further investigated in accounting ethics contexts. Ethics literature from other domains suggests that the possibility of this bias exists whenever subjects anticipate one response is more desirable from the standpoint of a researcher than another.

Appendix A: Six Stages of Moral Reasoning

Pre-conventional level: focus is self

Stage 1	Obedience: you do what you're told primarily to avoid punishment.
Stage 2	Instrumental egotism and simple exchange: let's make a deal or only consider the cost and/or benefits to oneself.

Conventional level: focus is relationships

Stage 3	Interpersonal concordance: be considerate, nice and kind and you'll get along with people. Focus is on cooperation with those in your environment.
Stage 4	Law and duty to the social order: everyone in society is obligated and is protected by the law. Focus is on cooperation with society in general.

Post-conventional level: focus is personally held principles

Stage 5	Societal consensus: you are obligated by whatever arrangements are agreed to and by due process and procedure. Focus is on fairness of the law as determined by equity and equality in the process of developing the rule.
Stage 6	Nonarbitrary social cooperation: how rational and impartial people would organize cooperation is moral. Focus is on fairness of the law or rules derived from general principles of just and right as determined by rational people.

Source: Ponemon (1992B).

Appendix B: Earnings Pressure and Range of Accrual Estimates

	Forecasted Earnings	High Pressure Scenario	Low Pressure Scenario
After-Tax Earnings Before Adjustment	$10,000,000	$10,200,000	$10,920,000

		After-Tax Amounts	
Account	Minimum Required	Low Estimate	High Estimate
Inventory Reserve	$175,000	$100,000	$200,000
Litigation	150,000	0	200,000
Accrued Consulting	125,000	0	300,000
Allowance for Bad Debts	50,000	0	200,000
Total Adjustments	$500,000	$100,000	$900,000
Earnings After Adjustments	$9,500,000	$10,100,000	$10,020,000
Achieves Target?	No	Yes	Yes

Appendix C: Experimental Scenario - High EP, Low LD (Treatment 1)

Background

Carroll Thomas is the controller of a medium-sized division of a large, Fortune 500 company with headquarters in a northeastern state. Prior to appointment to Carroll's current position approximately two years ago, Carroll worked for the corporate accounting staff at headquarters. The company has a reputation for promoting its outstanding performers; marginal performers are "counseled out." Carroll hopes to spend another year or so in the current position and then be promoted to a larger division with more visibility and responsibility. Promotions are typically based on recommendations of division management, but must receive concurrence of functional heads at corporate headquarters (for controller positions, the Senior VP and Controller of the company). The division president strongly encourages his division management personnel to be team players; those who fail to demonstrate team behavior are rated negatively in performance evaluations.

Earnings Target

Headquarters management *expects* its divisions to reach their respective earnings targets each year and has removed presidents of divisions failing to meet targets in three consecutive years. Carroll's division has reached its earnings target for the first three quarters of the current year after failing to achieve targeted earnings last year. Divisional management bonuses are based on attaining the earnings target, so bonuses were not paid in the division last year. *Last week, the division president indicated to the company CEO that the division most likely will reach its earnings target in the current quarter and for the full year.* The division's preliminary results for the 4th quarter reveal after-tax earnings of **$10,200,000 versus a target of $10 million**. Bonus calculations will be made after earnings are finalized.

Adjustments

Four accounts remain to be considered for adjustment before divisional earnings are finalized for the 4th quarter and the year. Adjustments to these accounts will not affect earnings trends for the division (i.e., even after adjustments, the division will earn more than in the prior year). The four accounts and related considerations are as follows (all amounts are after-tax effects):

1. Inventory Reserve: During the year-end physical inventory, approximately $200,000 of a raw material was identified as possibly unusable in normal production before its shelf-life would expire. Discussions with the division purchasing manager reveal that it is possible that $50,000 of the raw material could be sold at cost to another company. The division purchasing manager contacted the other company who indicated a 60% chance they could use half of the $50,000 of material. The division purchasing manager promised to contact other companies about buying the remaining $150,000 of material.

2. Litigation Liability: The division was sued for $500,000 by a former manager-level employee for age discrimination after the former employee was dismissed in a down-sizing. In two different discussions with the division's legal counsel, the former

employee has offered to settle the lawsuit for $150,000 and later at $150,000 plus $50,000 in legal fees. Division legal counsel is still considering the settlement but is not optimistic about the division prevailing in the lawsuit. However, division legal counsel indicated that the trial will not occur for six months and the legal system provides a series of appeals if the division loses. Therefore, it could be several years before the outcome is ultimately known.

3. Accrued Consulting: The division received an invoice for $300,000 from a consulting firm relating to consulting work performed on a proposed new product. The invoice relates to work completed in the most recent quarter, but the division Research & Development (R&D) VP indicates that the invoice contains a significant overcharge based upon rate discussions held with the consulting firm project manager over lunch last week. Because the invoice is in dispute, the R&D VP requests Carroll to delay recording the invoice until he can resolve the amount with the consulting firm representative. Nonetheless, the R&D VP believes he can negotiate a $175,000 discount and that the consulting firm will rescind the invoice until the matter is resolved.

4. Allowance for Bad Debts: The division has a $200,000 receivable from a customer who has, for the last 10 years, purchased large volumes of the division's products. The VP of Sales indicates that the customer is currently experiencing cash flow problems and recommends an extension be granted for the receivable. Without an extension, the customer would be forced to default on the receivable, and the division would likely collect only 75% through repossession of the products. The VP of Sales also believes the customer, upon recovery from its cash difficulties, would purchase its future product needs from competitors of the division. However, it is too early to tell whether the customer's financial difficulties will be resolved or will worsen. The Sales VP indicates that the division president would likely approve an extension.

No supporting documentation is specifically required to be submitted for these accounts to corporate headquarters along with the year-end reporting package. From Carroll's experience with the company, there is a **low** probability that the company's internal or external auditors will examine the balances of these accounts, based upon the materiality levels they have used in the past, and question Carroll about the adjustments.

Requirements

Please provide an estimate below of the adjustments that the **typical division controller** would record in the 4th quarter:

Preliminary Earnings	$10,200,000
1. Inventory Reserve	_____
2. Litigation Liability	_____
3. Accrued Consulting	_____
4. Allowance for Bad Debts	_____
Total Adjustments	_____
Division Net Income After Adjustments	$_____

Appendix C: Experimental Scenario - High EP, High LD (Treatment 2)

Background

Carroll Thomas is the controller of a medium-sized division of a large, Fortune 500 company with headquarters in a northeastern state. Prior to appointment to Carroll's current position approximately two years ago, Carroll worked for the corporate accounting staff at headquarters. The company has a reputation for promoting its outstanding performers; marginal performers are "counseled out." Carroll hopes to spend another year or so in the current position and then be promoted to a larger division with more visibility and responsibility. Promotions are typically based on recommendations of division management, but must receive concurrence of functional heads at corporate headquarters (for controller positions, the Senior VP and Controller of the company). The division president strongly encourages his division management personnel to be team players; those who fail to demonstrate team behavior are rated negatively in performance evaluations.

Earnings Target

Headquarters management *expects* its divisions to reach their respective earnings targets each year and has removed presidents of divisions failing to meet targets in three consecutive years. Carroll's division has reached its earnings target for the first three quarters of the current year after failing to achieve targeted earnings last year. Divisional management bonuses are based on attaining the earnings target, so bonuses were not paid in the division last year. *Last week, the division president indicated to the company CEO that the division most likely will reach its earnings target in the current quarter and for the full year.* The division's preliminary results for the 4th quarter reveal after-tax earnings of **$10,200,000 versus a target of $10 million**. Bonus calculations will be made after earnings are finalized.

Adjustments

Four accounts remain to be considered for adjustment before divisional earnings are finalized for the 4th quarter and the year. Adjustments to these accounts will not affect earnings trends for the division (i.e., even after adjustments, the division will earn more than in the prior year). The four accounts and related considerations are as follows (all amounts are after-tax effects):

1. Inventory Reserve: During the year-end physical inventory, approximately $200,000 of a raw material was identified as possibly unusable in normal production before its shelf-life would expire. Discussions with the division purchasing manager reveal that it is possible that $50,000 of the raw material could be sold at cost to another company. The division purchasing manager contacted the other company who indicated a 60% chance they could use half of the $50,000 of material. The division purchasing manager promised to contact other companies about buying the remaining $150,000 of material.

2. Litigation Liability: The division was sued for $500,000 by a former manager-level employee for age discrimination after the former employee was dismissed in a down-sizing. In two different discussions with the division's legal counsel, the former

employee has offered to settle the lawsuit for $150,000 and later at $150,000 plus $50,000 in legal fees. Division legal counsel is still considering the settlement but is not optimistic about the division prevailing in the lawsuit. However, division legal counsel indicated that the trial will not occur for six months and the legal system provides a series of appeals if the division loses. Therefore, it could be several years before the outcome is ultimately known.

3. Accrued Consulting: The division received an invoice for $300,000 from a consulting firm relating to consulting work performed on a proposed new product. The invoice relates to work completed in the most recent quarter, but the division Research & Development (R&D) VP indicates that the invoice contains a significant overcharge based upon rate discussions held with the consulting firm project manager over lunch last week. Because the invoice is in dispute, the R&D VP requests Carroll to delay recording the invoice until he can resolve the amount with the consulting firm representative. Nonetheless, the R&D VP believes he can negotiate a $175,000 discount and that the consulting firm will rescind the invoice until the matter is resolved.

4. Allowance for Bad Debts: The division has a $200,000 receivable from a customer who has, for the last 10 years, purchased large volumes of the division's products. The VP of Sales indicates that the customer is currently experiencing cash flow problems and recommends an extension be granted for the receivable. Without an extension, the customer would be forced to default on the receivable, and the division would likely collect only 75% through repossession of the products. The VP of Sales also believes the customer, upon recovery from its cash difficulties, would purchase its future product needs from competitors of the division. However, it is too early to tell whether the customer's financial difficulties will be resolved or will worsen. The Sales VP indicates that the division president would likely approve an extension.

Supporting documentation, including detailed descriptions of the circumstances, is specifically required to be submitted for these accounts to corporate headquarters along with the year-end reporting package. From Carroll's experience with the company, there is a **high** probability that the company's internal or external auditors will examine the balances of these accounts, based upon the materiality levels they have used in the past, and question Carroll about the adjustments.

Requirements

Please provide an estimate below of the adjustments that the **typical division controller** would record in the 4th quarter:

Preliminary Earnings	$10,200,000
1. Inventory Reserve	_____
2. Litigation Liability	_____
3. Accrued Consulting	_____
4. Allowance for Bad Debts	_____
Total Adjustments	_____
Division Net Income After Adjustments	$_____

Appendix C: Experimental Scenario - Low EP, Low LD (Treatment 3)

Background

Carroll Thomas is the controller of a medium-sized division of a large, Fortune 500 company with headquarters in a northeastern state. Prior to appointment to Carroll's current position approximately two years ago, Carroll worked for the corporate accounting staff at headquarters. The company has a reputation for promoting its outstanding performers. Carroll hopes to spend another year or so in the current position and then be promoted to a larger division with more visibility and responsibility. Promotions are typically based on recommendations of division management, but must receive concurrence of functional heads at corporate headquarters (for controller positions, the Senior VP and Controller of the company). The division president encourages his division management personnel to be team players.

Earnings Target

Headquarters management expects its divisions to reach their respective earnings targets each year. Carroll's division has reached its earnings target for the first three quarters of the current year after failing to achieve targeted earnings last year. Divisional management bonuses are based on attaining the earnings target. *Last week, the division president indicated to the company CEO that the division most likely will reach its earnings target in the current quarter and for the full year.* The division's preliminary results for the 4th quarter reveal after-tax earnings of **$10,920,000 versus a target of $10 million**. Bonus calculations will be made after earnings are finalized.

Adjustments

Four accounts remain to be considered for adjustment before divisional earnings are finalized for the 4th quarter and the year. Adjustments to these accounts will not affect earnings trends for the division (i.e., even after adjustments, the division will earn more than in the prior year). The four accounts and related considerations are as follows (all amounts are after-tax effects):

1. Inventory Reserve: During the year-end physical inventory, approximately $200,000 of a raw material was identified as possibly unusable in normal production before its shelf-life would expire. Discussions with the division purchasing manager reveal that it is possible that $50,000 of the raw material could be sold at cost to another company. The division purchasing manager contacted the other company who indicated a 60% chance they could use half of the $50,000 of material. The division purchasing manager promised to contact other companies about buying the remaining $150,000 of material.

2. Litigation Liability: The division was sued for $500,000 by a former manager-level employee for age discrimination after the former employee was dismissed in a down-sizing. In two different discussions with the division's legal counsel, the former employee has offered to settle the lawsuit for $150,000 and later at $150,000 plus $50,000 in legal fees. Division legal counsel is still considering the settlement but is not optimistic about the division prevailing in the lawsuit. However, division legal counsel indicated that the trial will not occur for six months and the legal system provides a series

of appeals if the division loses. Therefore, it could be several years before the outcome is ultimately known.

3. Accrued Consulting: The division received an invoice for $300,000 from a consulting firm relating to consulting work performed on a proposed new product. The invoice relates to work completed in the most recent quarter, but the division Research & Development (R&D) VP indicates that the invoice contains a significant overcharge based upon rate discussions held with the consulting firm project manager over lunch last week. Because the invoice is in dispute, the R&D VP requests Carroll to delay recording the invoice until he can resolve the amount with the consulting firm representative. Nonetheless, the R&D VP believes he can negotiate a $175,000 discount and that the consulting firm will rescind the invoice until the matter is resolved.

4. Allowance for Bad Debts: The division has a $200,000 receivable from a customer who has, for the last 10 years, purchased large volumes of the division's products. The VP of Sales indicates that the customer is currently experiencing cash flow problems and recommends an extension be granted for the receivable. Without an extension, the customer would be forced to default on the receivable, and the division would likely collect only 75% through repossession of the products. The VP of Sales also believes the customer, upon recovery from its cash difficulties, would purchase its future product needs from competitors of the division. However, it is too early to tell whether the customer's financial difficulties will be resolved or will worsen. The Sales VP indicates that the division president would likely approve an extension.

Supporting documentation, including detailed descriptions of the circumstances, is specifically required to be submitted for these accounts to corporate headquarters along with the year-end reporting package. From Carroll's experience with the company, there is a **high** probability that the company's internal or external auditors will examine the balances of these accounts, based upon the materiality levels they have used in the past, and question Carroll about the adjustments.

Requirements

Please provide an estimate below of the adjustments that the **typical division controller** would record in the 4th quarter:

Preliminary Earnings $10,920,000

1. Inventory Reserve _____
2. Litigation Liability _____
3. Accrued Consulting _____
4. Allowance for Bad Debts _____

Total Adjustments _____

Division Net Income After Adjustments $_____

Appendix C: Experimental Scenario - Low EP, High LD (Treatment 4)

Background

Carroll Thomas is the controller of a medium-sized division of a large, Fortune 500 company with headquarters in a northeastern state. Prior to appointment to Carroll's current position approximately two years ago, Carroll worked for the corporate accounting staff at headquarters. The company has a reputation for promoting its outstanding performers. Carroll hopes to spend another year or so in the current position and then be promoted to a larger division with more visibility and responsibility. Promotions are typically based on recommendations of division management, but must receive concurrence of functional heads at corporate headquarters (for controller positions, the Senior VP and Controller of the company). The division president encourages his division management personnel to be team players.

Earnings Target

Headquarters management expects its divisions to reach their respective earnings targets each year. Carroll's division has reached its earnings target for the first three quarters of the current year after failing to achieve targeted earnings last year. Divisional management bonuses are based on attaining the earnings target. *Last week, the division president indicated to the company CEO that the division most likely will reach its earnings target in the current quarter and for the full year.* The division's preliminary results for the 4th quarter reveal after-tax earnings of **$10,920,000 versus a target of $10 million**. Bonus calculations will be made after earnings are finalized.

Adjustments

Four accounts remain to be considered for adjustment before divisional earnings are finalized for the 4th quarter and the year. Adjustments to these accounts will not affect earnings trends for the division (i.e., even after adjustments, the division will earn more than in the prior year). The four accounts and related considerations are as follows (all amounts are after-tax effects):

1. Inventory Reserve: During the year-end physical inventory, approximately $200,000 of a raw material was identified as possibly unusable in normal production before its shelf-life would expire. Discussions with the division purchasing manager reveal that it is possible that $50,000 of the raw material could be sold at cost to another company. The division purchasing manager contacted the other company who indicated a 60% chance they could use half of the $50,000 of material. The division purchasing manager promised to contact other companies about buying the remaining $150,000 of material.

2. Litigation Liability: The division was sued for $500,000 by a former manager-level employee for age discrimination after the former employee was dismissed in a down-sizing. In two different discussions with the division's legal counsel, the former employee has offered to settle the lawsuit for $150,000 and later at $150,000 plus $50,000 in legal fees. Division legal counsel is still considering the settlement but is not optimistic about the division prevailing in the lawsuit. However, division legal counsel

indicated that the trial will not occur for six months and the legal system provides a series of appeals if the division loses. Therefore, it could be several years before the outcome is ultimately known.

3. Accrued Consulting: The division received an invoice for $300,000 from a consulting firm relating to consulting work performed on a proposed new product. The invoice relates to work completed in the most recent quarter, but the division Research & Development (R&D) VP indicates that the invoice contains a significant overcharge based upon rate discussions held with the consulting firm project manager over lunch last week. Because the invoice is in dispute, the R&D VP requests Carroll to delay recording the invoice until he can resolve the amount with the consulting firm representative. Nonetheless, the R&D VP believes he can negotiate a $175,000 discount and that the consulting firm will rescind the invoice until the matter is resolved.

4. Allowance for Bad Debts: The division has a $200,000 receivable from a customer who has, for the last 10 years, purchased large volumes of the division's products. The VP of Sales indicates that the customer is currently experiencing cash flow problems and recommends an extension be granted for the receivable. Without an extension, the customer would be forced to default on the receivable, and the division would likely collect only 75% through repossession of the products. The VP of Sales also believes the customer, upon recovery from its cash difficulties, would purchase its future product needs from competitors of the division. However, it is too early to tell whether the customer's financial difficulties will be resolved or will worsen. The Sales VP indicates that the division president would likely approve an extension.

Supporting documentation, including detailed descriptions of the circumstances, is specifically required to be submitted for these accounts to corporate headquarters along with the year-end reporting package. From Carroll's experience with the company, there is a **high** probability that the company's internal or external auditors will examine the balances of these accounts, based upon the materiality levels they have used in the past, and question Carroll about the adjustments.

Requirements

Please provide an estimate below of the adjustments that the **typical division controller** would record in the 4th quarter:

Preliminary Earnings $10,920,000

1. Inventory Reserve _____
2. Litigation Liability _____
3. Accrued Consulting _____
4. Allowance for Bad Debts _____

Total Adjustments _____

Division Net Income After Adjustments $_____

Appendix C: Manipulation Check Questions

For questions 1 - 10, recall the information in the scenario and, using the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

1 ---------- 2 ---------- 3 ---------- 4 ---------- 5 ---------- 6 ---------- 7

Strongly Disagree — Neutral — Strongly Agree

_____ 1. The difference between preliminary earnings and targeted earnings was less than $300,000.

_____ 2. There is a high likelihood that auditors will review the controller's adjustment decisions.

_____ 3. The scenario presented is typical of situations encountered in many companies in finalizing earnings results.

_____ 4. A controller who failed to achieve targeted earnings could face negative repercussions.

_____ 5. Corporate or audit personnel are likely to inquire as to the controller's rationale for the adjustment decisions.

_____ 6. A typical controller would experience extreme pressure in selecting adjustments that would achieve the earnings target in this situation.

_____ 7. I have participated in decisions similar to those described in the scenario.

_____ 8. The difference between preliminary earnings and the earnings target produced little pressure in achieving targeted earnings.

_____ 9. Coworkers of mine have experienced situations similar to those in the scenario.

_____ 10. The controller must submit detailed explanations for the adjustments to corporate headquarters.

For question 11 only, use the following scale for your response:

1 ---------- 2 ---------- 3 ---------- 4 ---------- 5 ---------- 6 ---------- 7

No Pressure — Neutral — Extreme Pressure

_____ 11. How much pressure would the typical controller perceive in determining adjustments in this situation?

Appendix C: Impression Management Subscale (BIDR)

Using the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

1 ---------- 2 ---------- 3 ---------- 4 ---------- 5 ---------- 6 ---------- 7

NOT TRUE SOMEWHAT TRUE VERY TRUE

_____ 1. I sometimes tell lies if I have to.

_____ 2. I never cover up my mistakes.

_____ 3. There have been occasions when I have taken advantage of someone.

_____ 4. I never swear.

_____ 5. I sometimes try to get even rather than forgive and forget.

_____ 6. I always obey laws, even if I'm unlikely to get caught.

_____ 7. I have said something bad about a friend behind his or her back.

_____ 8. When I hear people talking privately, I avoid listening.

_____ 9. I have received too much change from a salesperson without telling him or her.

_____ 10. I always declare everything at customs.

_____ 11. When I was young, I sometimes stole things.

_____ 12. I have never dropped litter on the street.

_____ 13. I sometimes drive faster than the speed limit.

_____ 14. I never read sexy books or magazines.

_____ 15. I have done things that I don't tell other people about.

_____ 16. I never take things that don't belong to me.

_____ 17. I have taken sick-leave from work or school even though I wasn't really sick.

_____ 18. I have never damaged a library book or store merchandise without reporting it.

_____ 19. I have some pretty awful habits.

_____ 20. I don't gossip about other people's business.

Appendix C: Participant Information

The following information is for statistical analysis only and will not be used for participant identification.

1. My age is: _____

2. Highest level of education completed:
   - High School _____
   - 2-Year College Degree _____
   - Bachelor Degree _____
   - Masters Degree or Higher _____

3. My years of full-time work experience are: _____

4. Years in my current position are: _____

5. Years with my current employer are: _____

6. Professional certifications held: CPA _____ CMA _____ Other (list) _____

7. Current job classification. Staff _____ Middle Management _____ Upper Management _____

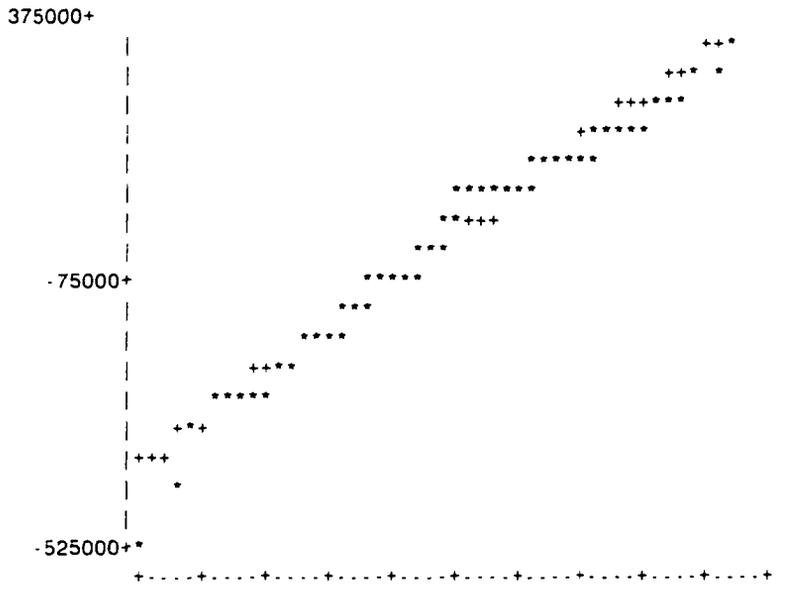
8. What do you think the purpose of the study is?

9. At what time during completion of the research materials did you begin to think you knew the purpose of the study?

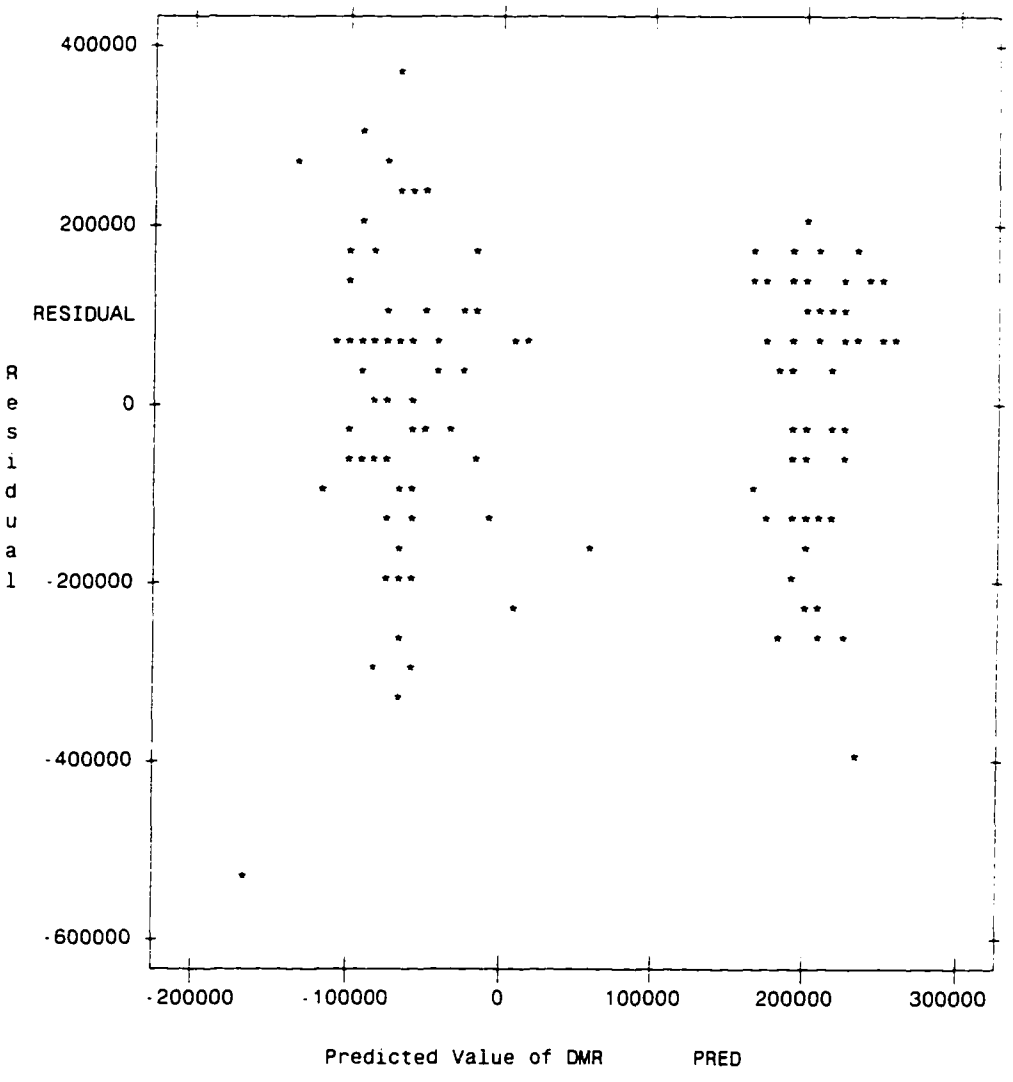
10. What do you think the research hopes to accomplish?

11. Please provide any other comments you may have.

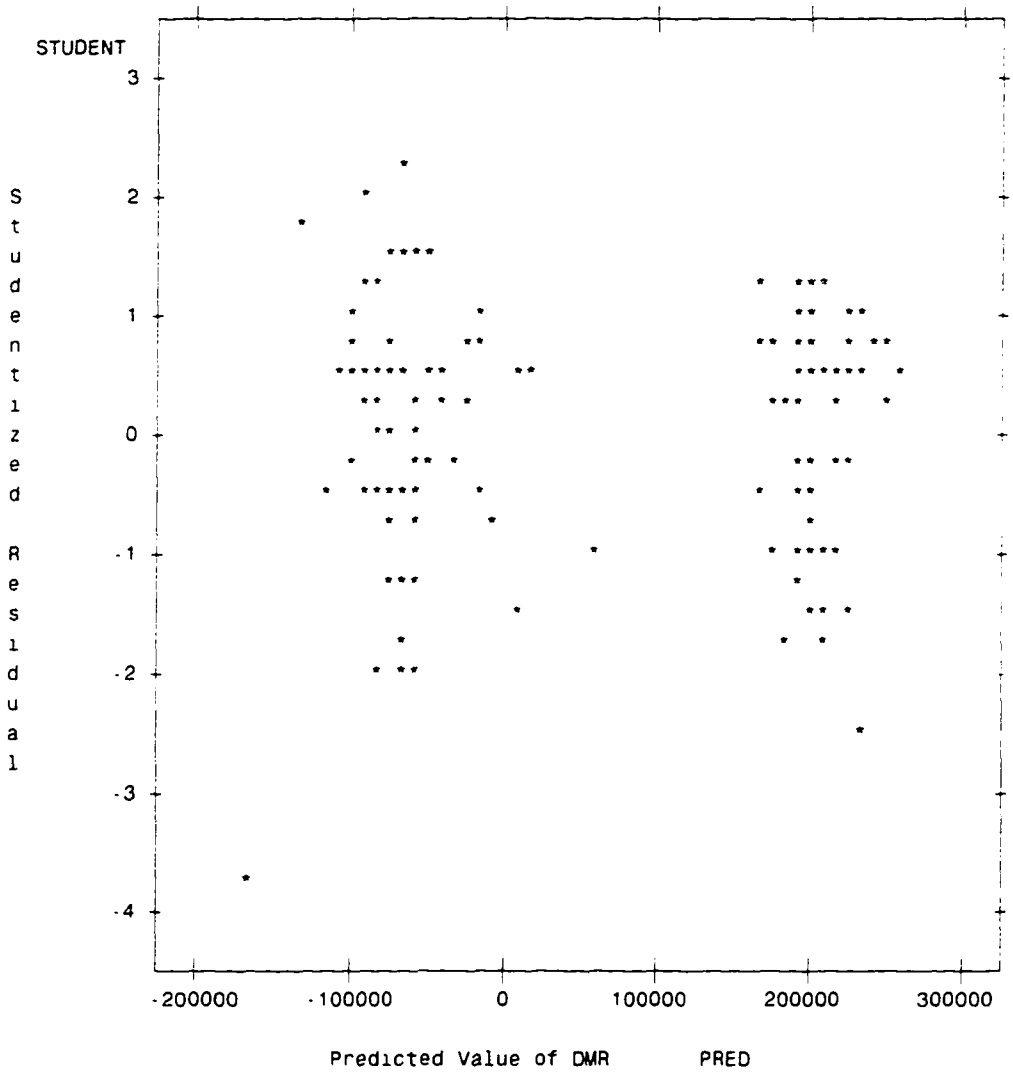
Appendix D: Normal Probability Plot of Residuals



Appendix E: Scatterplot of Residuals vs. Predicted Values



Appendix F: Scatterplot of Studentized Residuals vs. Predicted Values



References

Alm, J., Jackson, B., & McKee, M. 1992. Estimating the determinants of taxpayer compliance with experimental data. National Tax Journal. 45 (1). 107-114.

Anderson, M., Anderson, U., Helleloid, R., Joyce, E., & Schadewald, M. 1990. Internal Revenue Service access to tax accrual workpapers: A laboratory investigation. Accounting Review. 65 (4). 857-874.

Antle, R. 1989. Intellectual boundaries in accounting research. Accounting Horizons. 3 (2). 103-109.

Armacost, R., Hosseini, J., Morris, S., & Rehbein, K. 1991. An empirical comparison of direct questioning, scenario, and randomized response methods for obtaining sensitive business information. Decision Sciences. 22 (5). 1073-1090.

Armstrong, C. 1987. Moral development and accounting education. Journal of Accounting Education. 5. 27-43.

Atkinson, A., Banker, R., Kaplan, R., & Young, M. 1995. Management Accounting. Englewood Cliffs, NJ: Prentice Hall.

Beck, P. & Jung, W. 1989. Taxpayer compliance under uncertainty. Journal of Accounting & Public Policy. 8 (1). 1-27.

Birnberg, J., Shields, M., & Young, M. 1990. The case for multiple methods in empirical management accounting research (with an illustration from budget setting). Journal of Management Accounting Research. 2. 33-66.

Bruns, W. & Merchant, K. 1990. The dangerous morality of managing earnings. Management Accountant. 72 (2). 22-25.

Burton, B. & Near, J. 1995. Estimating the incidence of wrongdoing and whistle-blowing: Results of a study using randomized response technique. Journal of Business Ethics. 14 (1). 17-30.

Burton, J. & Sack, R. 1989. Ethics and professionalism in accounting education. Accounting Horizons. 3 (4). 114-116.

Cohen, Jacob. 1987. Statistical Power Analysis for the Behavioral Sciences. Hillsdale, NJ: Lawrence Erlbaum Associates.

Cohen, J., Pant, L., & Sharp, D. 1993. A validation and extension of a multidimensional ethics scale. Journal of Business Ethics. 12 (1). 13-26.

Cowell, F. A. 1992. Tax evasion and inequity. Journal of Economic Psychology. 13. 521-543.

Cozby, P. 1993. Methods in Behavioral Research. Mountain View, CA: Mayfield Publishing Company.

DeAngelo, L. 1988. Managerial competition, information costs, and corporate governance: The use of accounting performance measures in proxy contests. Journal of Accounting & Economics. 10 (1). 3-36.

Dielman, T. 1991. Applied Regression Analysis for Business and Economics. Boston: PWS-KENT Publishing Company.

Etherington, L. & Schulting, L. 1994. Ethical development of accountants: The case of Canadian CMAs. Proceedings of the Ernst & Young Research on Accounting Ethics Symposium. June 12-14, 1994.

Fern, R. H., Brown, B. C., & Dickey, S. W. 1994. An empirical test of politically-motivated income smoothing in the oil refining industry. Journal of Applied Business Research. 10 (1). 92-100.

Financial Accounting Standards Board. 1975. Statement of Financial Accounting Standards No. 5: Accounting for contingencies. Stamford CT: FASB.

Fisher, R. 1993. Social desirability bias and the validity of indirect questioning. Journal of Consumer Research. 20 (2). 303-315.

Ganster, D., Hennessey, H., & Luthans, F. 1983. Social desirability response effects: Three alternative models. Academy of Management Journal. 26 (2). 321-331.

Guenther, D. 1994. Earnings management in response to corporate tax rate changes: Evidence from the 1986 Tax Reform Act. Accounting Review. 69 (1). 230-243.

Hand, J. 1989. Did firms undertake debt-equity swaps for an accounting paper profit or true financial gain? Accounting Review. 64 (4). 587-623.

Healy, P. 1985. The effect of bonus schemes on accounting decisions. Journal of Accounting and Economics. 7. 85-107.

Institute of Management Accountants. 1983. Standards of Ethical Conduct for Management Accountants. Montvale NJ: IMA.

Jaccard, J., Turris, R., & Wan, C. Interaction Effects in Multiple Regression. Newbury Park, CA: Sage Publications, Inc.

Jeffrey, C. 1993. Ethical development of accounting students, non-accounting students, and liberal arts students. Issues in Accounting Education. 8 (1). 86-96.

Kaplan, R. 1985. Comments on Paul Healy. Journal of Accounting and Economics. 7. 109-113.

Kerlinger, F. 1986. Foundations of Behavioral Research. 3rd Edition. New York: Harcourt, Brace, Jovanovich College Publishers.

Kite, D., Louwers, T., & Radtke, R. 1996. Ethics and environmental auditing: An investigation of environmental auditors' levels of moral reasoning. Behavioral Research in Accounting. 8 (Supplement). 200-214.

Kohlberg, L. 1969. Stage and sequence: The cognitive-developmental approach to socialization. In D. Goslin, Ed., Handbook of Socialization Theory and Research. Chicago: Rand McNally College Publishing Company.

Kohlberg, L. 1981. Essays on Moral Development. San Francisco: Harper & Row.

Labich, K. 1995. The new crisis in business ethics. In S. M. Young (Ed.) Readings in Management Accounting. Englewood Cliffs, NJ: Prentice Hall.

Lewis, A. 1982. The Psychology of Taxation. New York: St. Martin's Press.

Ma, C. K. 1988. Loan loss reserves and income smoothing: The experience in the U.S. banking industry. Journal of Business Finance & Accounting. 15 (4). 487-497.

McCoy, T. L. 1994. An analysis of moral judgments and other factors affecting behavioral intentions of Certified Public Accountants. Doctoral Dissertation. University of Mississippi.

McNichols, M. & Wilson, P. 1988. Evidence of earnings management from the provision for bad debts. Journal of Accounting Research. 26 (Supplement). 1-40.

Mensah, Y., Considine, J., & Oakes, L. 1994. Statutory insolvency regulations and earnings management in the prepaid health-care industry. Accounting Review. 69 (1). 70-95.

Merchant, K. 1989. Rewarding Results: Motivating Profit Center Managers. Boston: Harvard Business School Press.

Merchant, K. & Rockness, J. 1994. The ethics of managing earnings: An empirical investigation. Journal of Accounting and Public Policy. 13. 79-94.

Mihalek, P., Rich, A., & Smith, C. 1987. Ethics and management accountants. Management Accounting. 69 (6). 34-36.

National Commission on Fraudulent Financial Reporting. 1987. Report of the National Commission on Fraudulent Financial Reporting: Exposure Draft. Washington DC: NCFFR.

Newberry, K., Reckers, P., & Wyndelts, R. 1993. An examination of tax practitioner decisions: The role of preparer sanctions and framing effects associated with client condition. Journal of Economic Psychology. 14. 439-452.

Nunnally, J. C. 1978. Psychometric Theory. 2nd Edition. New York: McGraw-Hill.

Paulhus, D. 1984. Two-component models of socially desirable responding. Journal of Personality and Social Psychology. 46 (3). 598-609.

Paulhus, D. 1991. Measurement and control of response bias. In J. P. Robinson, P., R. Shaver, & L. S. Wrightsman (Eds.). Measures of Personality and Social Psychological Attitudes. San Diego: Academic Press.

Paulhus, D. 1994. Balanced Inventory of Desirable Responding. Reference Manual for BIDR Version 6. University of British Columbia.

Pedhazur, E. & Schmelkin, L. 1991. Measurement, Design, and Analysis: An Integrated Approach. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Ponemon, L. A. 1990. Ethical judgments in accounting: A cognitive-developmental perspective. Critical Perspectives on Accounting. 191-215.

Ponemon, L. A. 1992A. Auditor underreporting of time and moral reasoning: An experimental lab study. Contemporary Accounting Research. 9 (1). 71-189.

Ponemon, L. A. 1992B. Ethical reasoning and selection-socialization in accounting. Accounting, Organizations and Society. 17 (3/4). 239-258.

Ponemon, L. A. & Gabhart, D. 1990. Auditor independence judgments: A cognitive developmental model and experimental evidence. Contemporary Accounting Research. 227-251.

Ponemon, L. A. & Glazer, A. 1990. Accounting education and ethical development: The influence of liberal learning on students and alumni in accounting practice. Issues in Accounting Education. 21-34.

Pourciau, S. 1993. Earnings management and nonroutine executive changes. Journal of Accounting & Economics. 16 (1-3). 317-336.

Randall, D. & Fernandes, M. 1991. The social desirability response bias in ethics research. Journal of Business Ethics. 10 (11). 805-817.

Rest, J. R. 1979. Development in Judging Moral Issues. Minneapolis, MN: University of Minnesota Press.

Rest, J. R. 1986. Moral Development: Advances in Research and Theory. New York: Praeger Publishers.

Rest, J. R. 1990. Manual for the Defining Issues Test. Third Edition, 8/90 Revision. Minneapolis, MN: University of Minnesota.

Rosenzweig, K. & Fischer, M. 1994. Is managing earnings ethically acceptable? Management Accounting. 75 (9). 31-34.

Schatzberg, J., Sevcik, G., & Shapiro, D. 1996. Exploratory experimental evidence on independence impairment conditions: Aggregate and individual results. Behavioral Research in Accounting. 8 (Supplement). 173-195.

Schipper, K. 1989. Earnings management. Accounting Horizons. 3 (4). 91-102.

Schisler, D. 1994. An experimental examination of factors affecting tax preparers' aggressiveness----Aprospect theory approach. Journal of the American Taxation Association. 16 (2). 124-142.

Schneider, A. & Wilner, N. 1990. A test of audit deterrent to financial reporting irregularities using the randomized response technique. Accounting Review. 65 (3). 668-681.

Shaub, M., Finn, D., & Munter, P. 1993. The effects of auditors' ethical orientation on commitment and ethical sensitivity. Behavioral Research in Accounting. 5. 145-169.

Shaub, M. & Lawrence, J. 1996. Ethics, experience, and professional skepticism: A situational analysis. Behavioral Research in Accounting. 8 (Supplement). 124-157.

St. Pierre, K., Nelson, E., & Gabbin, A. 1990. A study of the ethical development of accounting majors in relation to other business and nonbusiness disciplines. Accounting Educators' Journal. Summer. 23-35.

Thomas, P. 1995. Who's news: Corrpro replaces two officers, restates net, reports loss. Wall Street Journal. June 20. Section B. 8.

Trueman, B., Titman, S., & Newman, P. 1988. An explanation for accounting income smoothing. Journal of Accounting Research. 26. 127-143.

Uecker, W., Brief, A., & Kinney, W. 1981. Perception of the internal and external auditor as a deterrent to corporate irregularities. Accounting Review. 56 (3). 465-478.

Watts, R. & Zimmerman, J. 1989. Positive Accounting Theory. Englewood Cliffs, NJ: Prentice Hall.

Weber, J. 1994. Did Pfizer doctor its numbers? Business Week. February 14, 1994. 34.

Windsor, C. & Ashkanasy, N. 1996. Auditor independence decision making: The role of organization culture perceptions. Behavioral Research in Accounting. 8 (Supplement). 80-97.

Witte, A. & Woodbury, D. 1985. The effects of tax laws and tax administration on tax compliance: The case of the U. S. individual income tax. National Tax Journal. 38 (1). 1-13.

Wolk, H., Francis, J., & Tearney, M. 1992. Accounting Theory: A Conceptual and Institutional Approach. Cincinnati, OH: South-Western Publishing Co.

Zerbe, W. & Paulhus, D. 1987. Socially desirable responding in organizational behavior: A reconception. Academy of Management Review. 18 (2). 250-264.

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