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QUARTERLY FINANCIAL REPORTING: A TEST OF
VARYING FORMS OF AUDITOR ASSOCIATION

BY

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THESIS

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CHAPTER 1
INTRODUCTION

Today, business firms supply numerous types of unaudited information and demands are being made for disclosure of additional information to make investment and other decisions (e.g. the general demands of the Financial Analysts Federation (1973) and the writing of Backer (1970)). Such demands raise the issue of extending the auditing responsibilities of the independent certified public accountant (hereafter auditor, or CPA). Indeed, pressure for increased auditor responsibility related to this information currently exists and may be expected to continue from both the public and the Securities and Exchange Commission (SEC).¹

While it is clear to many that extension of the role of the auditor is possible, questions exist as to the manner in which it should be accomplished. Quarterly financial information and management forecasts provide examples of the problems involved. Fears exist that auditor association may result in a delay in reporting of quarterly information and/or not produce "reliable" information. Pertaining to management forecasts, it is argued that since CPAs cannot accurately foresee the future, their association with management forecasts will be meaningless. Clearly CPAs will not be able to attain the same degree of objectivity that is present under the current annual financial audit. It is therefore suggested that, if the audit function is to be extended, different forms of auditor association² will be necessary for these diverse types of information.

This research considers the implications of possible increases in the auditor's responsibilities relating to publicly released corporate information. To obtain an overall understanding of the nature of the audit services currently provided and to show how the range of these services can be extended, the current audit function is first examined. Then an empirical test is performed to assess the effects of varying forms of auditor association on investors' perceptions of the importance and reliability³ of financial information.

Objectives of This Research

The broad objective of this study is to test user reactions to the concept of varying forms of auditor association with information other than that considered in the conventional annual financial audit. For purposes of this study, the importance and reliability of an accounting report as perceived by "sophisticated users" is used as the criterion for evaluating the concept. Furthermore, a specific type of information--quarterly income information--is used as a means of testing the concept. Because user reactions to auditor association with quarterly income information may be dependent upon the circumstances underlying the release of the information, several variables believed (based on a review of the pertinent literature) to affect the perceived importance and reliability of quarterly information and auditor association are included in the analysis. As a result, the analysis considers the effect of forms of association on quarterly information as well as the importance of these other variables.

The specific research objectives and questions addressed by the study are:

- I. To test whether the form of auditor association with an accounting report (a summarized quarterly income statement):
 - A. Affects the perceived importance and/or perceived reliability of the report.
 - B. Interacts with the following variables to affect the perceived importance and/or perceived reliability of the report:
 1. The past accuracy of the quarterly income information (hereafter, past accuracy, or accuracy).
 2. Consistency of information with user expectations (hereafter, consistency with expectations, or consistency).
 3. The combination of past accuracy and consistency with expectations.
- II. To test whether the following variables affect the perceived importance and/or perceived reliability of an accounting report (a summarized quarterly income statement):
 - A. The past accuracy of the quarterly income information.
 - B. Consistency of information with user expectations.
 - C. The interaction of past accuracy and consistency with expectations.

The study attempts to determine how the various variables affect the perceived level of importance and reliability of a specific type of accounting information: quarterly income information. Objective IA tests whether users perceive an increase in the importance and reliability of the quarterly information for making investment decisions when an auditor becomes associated with it. Objective IB tests whether the responses to the form of auditor association interact with the other

identified variables. These other variables--past accuracy and consistency with expectations--are also considered singly and in combination to determine their effect on perceived importance and reliability (Objective II).

Need for the Study

The Commission on Auditors' Responsibilities (1975), established to study the role and responsibilities of independent auditors, has seen fit to address the extension of auditor function issue by asking what "forms of association would be worthwhile for each of the types⁴ of information identified?" Similarly, in a discussion of extension of the audit function, Peat, Marwick, Mitchell & Co. (1976, p. 49) queries, "What level of responsibility should the auditor assume when reporting?" The question is a difficult one to answer. Currently, in addition to association with annual financial statements at two levels ("unaudited" and "audited"), auditors are associated to a limited extent with quarterly statements and other information in annual reports.⁵ While there is clearly a cost involved in any form of auditor association, the benefit derived from such association is difficult to measure. A desirable first step in consideration of the auditor's future role is to determine whether users of corporate information are able to distinguish between the likely effects of various types or forms of auditor association. If users are able to make this distinction, the greater uncertainty implied by certain forms of auditor association may be acceptable to both user and auditor.

The approach used in this study is to examine analytically the auditor's current role and to suggest that it may be expanded. A research instrument is then administered to users of financial information to measure their perceptions of the importance and reliability of certain information released under varying circumstances.

In its Statement, The Committee to Prepare Statements of Basic Accounting Theory (1966) suggests that relevance is the primary standard by which accounting information should be evaluated. Because of the great difficulties involved in determining either normative or actual user decision models, the determination of what qualifies as relevant information becomes difficult.

Murphy (1976) states that the accountant cannot possibly dictate or anticipate all possible decision models and asserts that this is the job of the user. As such, he says that users must determine what information is relevant.

Horngren (1973) and Gerboth (1973) were among the first to suggest that decisions relating to the setting of accounting principles are largely political decisions. This argument also applies to decisions relating to the responsibilities of the auditor. The type of information collected by this study can serve as an input into the political process.

If it can be shown that users are able to distinguish between varying forms of auditor association, as evidenced by statistically significant differences in means relating to importance and reliability of information, increasing means will indicate the existence of a perceived benefit from increased auditor association. Significant differences

between specific forms of association also will indicate that the surveyed users do not perceive information only as potentially "audited" or "unaudited."

Summary of Research Stages

Basic Approach

The research first analytically considers the current role of the auditor as it relates to annual financial statements. The analysis uses the work of the Committee on Basic Auditing Concepts (ASOBAC 1972) as a starting point. In the analysis it is suggested that the value added to information by the auditor is in the form of control. The analysis then considers how this control affects users of financial information. A framework developed by Wyer (1974) is used to show how users' perceptions related to the reliability or "credibility" of the information affects the amount of influence the information will have on the user. The analysis demonstrates the relationship between Wyer's credibility concept and the evaluative criterion of reliability used in this study. Furthermore, the second evaluative criterion--importance--is related to the amount of influence the information has on the user.

The possibility that the audit control function can be extended to differing types of information is next examined. The auditor, it is argued, can exert varying degrees of control on different forms of information. These varying forms of control can be considered as varying forms of auditor association with that information. Thus, it is possible for any one type of information to have more than one form of association and for different types of information to have varying forms of association.

The empirical portion of the research gathers user reactions related to the concept of varying forms of auditor association. The research instrument is designed to gather financial analysts' (hereafter, analysts, subjects, or respondents) responses to questions pertaining to:

- (1) Hypothetical fact situations (scenarios) which describe the release of quarterly income information under various conditions and under various forms of auditor association. Past accuracy of income information and the degree in which the results are consistent with the analysts' prior expectations are systematically manipulated to arrive at each specific condition.
- (2) Quarterly financial statements and independent auditor association with quarterly financial statements.
- (3) The subjects' backgrounds (demographic questions).

Four forms of the research instrument, each containing six hypothetical fact situations, test the effect of various forms of auditor association with quarterly income information (Objective I) and the effect of past accuracy and consistency of information with expectations (Objective II).

Although the experimental design focuses on a number of variables, it is important to note that the form of auditor association is the primary variable in the sense that it is the key concept being examined. Variables relevant to quarterly information and form of auditor association were selected based on a review of pertinent literature (summarized in Chapter 3), and based on this writer's judgment that a more meaningful analysis of quarterly information and auditor association therewith can be conducted in a fairly specific decision setting context--as opposed to one in which a user is simply asked, "should auditors audit interim statements?"

The forms of auditor association to be tested are:

- (1) No auditor association. This is a control condition.
- (2) Year-end auditor association through an "unaudited footnote" relating to the quarterly information included in the annual financial statements. "Limited Review" procedures will be applied at year-end.
- (3) Quarterly auditor association in which the auditor issues a disclaimer based on the limited review performed at the end of the quarter.
- (4) Quarterly association in which the auditor issues a report rendering a positive opinion relating to the quarterly results. This report is similar to a "short form" report, but refers only to the information presented.

While these forms of auditor association are by no means the only ones possible, they cover a wide variety of possible forms of auditor association relating to quarterly financial information. The control, or no auditor association, level is the traditional situation. Statements on Auditing Standards (SAS) No. 10 and No. 13, as well as SEC Release #177 outline the second and third levels of the variable. The fourth level is an extension of responsibilities beyond that of a limited review and serves as a "ceiling" level. Because the fourth form of responsibility entails procedures similar to that of a conventional audit, it is expected that such an association would result in a delay in the release of the financial information. As such, this delay may affect the perceived importance. Therefore, the fourth form of the questionnaire confounds the effect of a delay in release of the statements with the form of association.

Although it is indeed difficult to articulate the degree of responsibility the auditor is assuming in the various forms of association, the

introduction to the research instrument outlines in general the extent of procedures to be followed by the auditor for each association form considered. Thus, in the two cases of limited reviews the scope of procedures employed are communicated through a general discussion of the procedures required to be followed. In the case of a quarterly audit the subject is told that the audit is similar in scope to a year-end audit.

Quite obviously the actual extent of control occurring through auditor association will be unknown (as indeed it is currently for annual audits). The research simply attempts to measure users' perceptions relating to these forms of association.

The second independent variable--accuracy of past quarterly information--is operationalized as the need (or lack of need) in the past to make numerous adjustments and corrections at year-end. These adjustments and corrections may be the result of problems such as poor quarterly cost (or revenue) estimates, extraordinary losses (or gains) deferred until year-end, and accounting changes in principles and estimates. The levels of the variable tested are:

1. Accurate: Few year-end adjustments and corrections in the past.
2. Inaccurate: Numerous year-end adjustments and corrections in the past.

Because users are believed to use quarterly information to compare with their prior expectations (See Chapter 3), a variable relating to expectations has been included in the analysis. The levels of this variable tested are:

1. Earnings lower than had been expected.
2. Earnings the same as had been expected.
3. Earnings higher than had been expected.

For each of the hypothetical fact situations, two questions are posed. First, the respondent is asked to evaluate the importance of the information by allocating 100 points between the quarterly information presented and all other information (from all other sources) which s/he would normally have available for decision making purposes. This "importance" variable attempts to measure the amount of perceived influence of the quarterly income information compared to all other information generally available.

Second, the respondent is asked to rate the reliability or "credibility" of the interim information. Responses are recorded on an eleven-point scale in which one extreme suggests that the user would have no confidence that the quarterly information was free of accounting errors, while the other extreme suggests that the user would have complete confidence that the quarterly information was free of accounting errors.

The second set of questions on the research instrument attempts to obtain additional insights into users' beliefs relating to quarterly statement information and auditor association therewith. Responses to these questions are used to obtain a better overall understanding of the respondents' beliefs.

Finally, the research instrument contains several demographic background questions relating to the analyst.

Analytical Development

Chapter 2 analytically considers the role of the auditor and proposes an approach entailing varying forms of auditor association, in which the auditor becomes involved with different types of corporate information. This approach requires users and auditors to accept a greater degree of uncertainty pertaining to the information.

Testing of User Reaction to the Concept of Varying Forms of Auditor Association

In Chapter 3, the overall approach used in the empirical portion of the study is outlined. Pertinent literature is reviewed and the basis for selection of quarterly statements and the various hypotheses of the study is demonstrated. The statistical techniques used are also presented.

Analysis of Results and Conclusions

Chapter 4 presents the various analyses of the information collected through the empirical research instrument.

A summary of the research, implications, and recommendations for both future research and the auditing profession are presented in Chapter 5.

Limitations of the Study

The approach of surveying only one group of users to obtain judgments has several limitations. Given an environment of numerous users with goals which often conflict, one viewpoint is not generally sufficient for making policy decisions. As such, the views of financial analysts must

be considered in combination with those of other users and even nonusers. However, if users' desires are to be considered, financial analysts clearly represent an important user group.

Second, subjects may bias replies so as to give the researcher what they believe s/he wants, or in such a manner as to not embarrass themselves (hereafter, these tendencies are referred to as "demand characteristics"). The scenario approach used in the research attempts to minimize this effect through the use of embedded variables; but, it must be acknowledged that the use of repeated measures makes a completely unobtrusive measurement impossible. Also, to minimize the demand effect on the audit level, different forms of the instrument were used. Furthermore, the questions in both the scenario and direct question portions of the instrument lack clearly "right" or "wrong" answers and thus minimize the demand effects.

Even if the replies are valid and reliable, the actual relationships between beliefs, attitudes, intentions, and behavior are not clear. Simply because an individual believes that quarterly information will be significant for a decision does not necessarily mean that s/he will use it. Fishbein and Ajzen (1975) suggest that the relationship between the intention to behave in some manner and actually behaving in that manner is affected by:

- (1) The level of specificity of the behavioral intention.
- (2) The stability of the intention.
- (3) Whether the behavior is under the volitional control of the respondent.

The scenarios in the instrument are written to make the setting more specific than would be possible by simply asking direct questions. The use of the investment decision is another attempt to specify the decision setting. A degree of stability of intentions is believed to exist because analysts are being asked questions which relate directly to decisions which they make on a daily basis. Volitional control seems to be a minor issue in this case since, when quarterly financial information is available, analysts definitely can use it if they so desire.⁶

Even if subjects are accurate in their perceptions of what information they use to make investment decisions it does not immediately follow that there will either be an actual effect of auditor association on the information or that resulting decisions will be better. Simply because users perceive an increase in the reliability and/or importance of information does not indicate an actual effect on the quality of the information. As discussed in Chapter 2, to affect the actual quality of information (or make it more "accurate") the auditor must exercise control. Likewise, if investors are using irrelevant information for making decisions, improving its quality will not necessarily improve decision making.

Additionally, even if auditor association does serve as a control for the information, and if the information does bring about better decisions, there is a need, ideally, to consider varying forms of auditor association in a cost-benefit framework. However, the complexity of the problem limits the likelihood of any complete solutions. The problem becomes even more complex if we accept that users' responses to the scope

extensions affect the cost-benefit analysis. But, measuring the effect of the proposed extensions of auditor responsibility on users' responses (as done in this study) provides a starting point for the analysis in that a measure of the benefit perceived by the user is collected.

Finally, there is the issue of generalizability of the results to other situations. The experimental design only allows for a manipulation of a limited number of variables, with others being held constant. Also, the number of levels each variable can assume is limited because of time and cost considerations. However, the variables manipulated have been selected on the basis of a review of the literature and of personal perceptions of the important variables. The approach used in the first portion of the questionnaire is an attempt to give the subject a background which more closely approximates an actual decision setting than has been presented in the past.

Notes

¹Carmichael (1974), for example, discusses the attitude of A. A. Sommer, former Commissioner of the SEC, who suggests that the auditor in the future may be asked to review all corporate public reports prior to their issuance. Also, the American Institute of Certified Public Accountants (AICPA) set up the Commission on Auditors' Responsibilities which when discussing the need for extending the auditor's role, stated that "the traditional association of independent auditors with annual financial statements is an obsolete, limited concept" (Commission on Auditors' Responsibilities, 1977, p. 59).

²See Summary of Research Stages," below, and Chapter 2 for discussion of different or varying forms of auditor association.

³See "Summary of Research Stages," below, and Chapter 2 for discussion of these two variables (importance and reliability).

⁴The types of information identified in the Statement include interim financial statements, other financial information in annual reports, forecasts, press releases, nonfinancial information in annual reports and data relating to social contributions and costs of the firm.

⁵Statements on Auditing Standards Numbers 8, 10, and 13, which relate to auditor association with other information in documents containing audited financial statements and limited reviews of quarterly statements, may be interpreted as steps in this direction.

⁶Fishbein and Ajzen (1975, pp. 379-381) report results of a study which seem to give a good example of limited volitional control. The study pertained to the correspondence between premarital sexual intercourse intentions and behavior. Intention data was collected at the beginning of a semester and behavior was measured by a questionnaire administered at the end of the semester. Interestingly enough the "r" obtained for the females was .676 (sig.<.01) while that for males was .394 (not sig.). The authors hypothesize that "many uncontrolled factors may have produced changes in behavioral intentions" (p. 379). It may be noted that the authors, like this writer, were unable to design the experiment to observe the actual behavior. But, they did perhaps succeed in selecting a more interesting dependent variable.

CHAPTER 2

THE CURRENT AUDIT FUNCTION AND
ITS POSSIBLE EXTENSION

The objective of this chapter is to describe the current audit function as it relates to annual financial statements and to discuss how the scope of this function might be extended. It is suggested that if the auditor accepts varying amounts of uncertainty pertaining to the information with which s/he is involved (through varying forms of association), it will be possible to expand the audit function.

Auditor involvement with specific information follows a process in which agents of business firms select appropriate accounting principles^{1,2} and make assumptions for their implementation. Because of this sequential relationship, the chapter begins with a discussion of the financial reporting function. To facilitate subsequent discussion of the role of the auditor relating to this reporting function, the reporting process is summarized through the use of symbols; ultimately a hypothetical vector of information disclosure items is developed to describe the effects of audits on financial statements. Second, the audit function is described through use of the concepts of control and credibility as outlined in A Statement of Basic Auditing Concepts (1972). Control and credibility are then related to the concept of the form of auditor association which is suggested in this chapter as the means of expanding the audit function. Finally, the possibility of extending the audit function is considered.

The Financial Reporting Function

Decisions must be made about what information will be reported to the public by business firms. Although an infinite amount of information could in theory be reported, regulatory agencies (such as the Financial Accounting Standards Board and the Securities and Exchange Commission in the United States) have created a degree of uniformity in reported information by requiring the disclosure of particular information. For other information, agents of the firm involved make disclosure decisions.

The information, that required and that not required, may be considered as a set of possible information disclosure items (hereafter, disclosure items). A required disclosure item is thus a unit of information which firms must report. As the analysis which follows does not depend upon a specific definition for units of information, the question is not directly considered. The only requirement is that the sum of the disclosure items be at least equivalent to all the information for which disclosure is required. In general, however, it may be noted that the set of required disclosure items includes quantitative disclosure items (e.g., the amount of inventory) as well as nonquantitative disclosure items (e.g., a firm's significant accounting policies).

Agents representing business firms must select accounting principles to follow to report the required disclosure items in financial statements. In the case of depreciation of a fixed asset, for example, the financial statement preparer may select from methods such as straight line, sum of the years' digits, and double declining balance. In other areas, such as reporting cumulative preferred stock dividends in arrears, less opportunity

for choice of principles exists, since the reporting requirements are quite specific.³

Because the accounting principles are in many cases general in nature, the financial statement preparer has a certain flexibility in the sense that s/he may select among alternate ways of implementing the chosen principles. Assumptions often need to be made in order to apply the chosen principles. Concerning depreciation, the preparer must exercise judgment and make an assumption relating to the asset's expected life and salvage value. In the statement of significant accounting policies, judgment must be exercised because the preparer must make assumptions about which policies are significant.⁴

For the following analysis it will be helpful to summarize symbolically the above discussion of disclosure items, accounting principles, and assumptions. The set of all possible information disclosure items about a firm may be represented by I; likewise, i can be used to represent those accounting information disclosure items for which the regulatory agencies have required disclosure. Any specific disclosure item may be symbolized as i'. In a similar manner j and k represent the acceptable elements of the overall possible set of principles and assumptions, J and K. Also, j' and k' represent the specific principles and assumptions chosen by the firm.

The relationship between the disclosure items, principles, and assumptions is that the information disclosed is conditional upon the assumptions made, which in turn are conditional upon the principles chosen, which of course are conditional upon the disclosure item itself; or,

$x_k' | (j' | i')$.⁵ Because this notation is cumbersome, the superscript ' will be used to represent $k' | (j' | i')$. Therefore,

$$x' \equiv x_k' | (j' | i').$$

Given a large number of possible I, J|I, and K (J|I), the role of the financial reporting disclosure regulatory agencies becomes one of determining which specific disclosure items (i) should be reported, which principles (j) should be used, and determining areas in which assumption-making (k) authority should be left to the financial statement preparers.

Given the acceptable j and k, agents of the firm must select those to be used to report the required i for financial reporting purposes. The i, j, and k are applied to information affecting the firm when the information is input into the accounting records, when it is processed, and finally when the financial statements or outputs of the system are prepared. Figure 2-1 shows this simple input → processing → output sequence. Accounting principles and assumptions may be made and/or applied at each of these three stages.

Thus at each of the three stages of the accounting cycle (input, processing, and output), for a given information disclosure item, the firm may have to make decisions related to what principles and assumptions to follow. Preparers of financial statements to be released to the public are required to prepare these statements so that all material, required disclosure items are in conformity with generally accepted accounting principles. The conditions necessary for statements to be in accord with generally accepted accounting principles have never been officially outlined.⁶ It seems appropriate to argue that for financial statements to

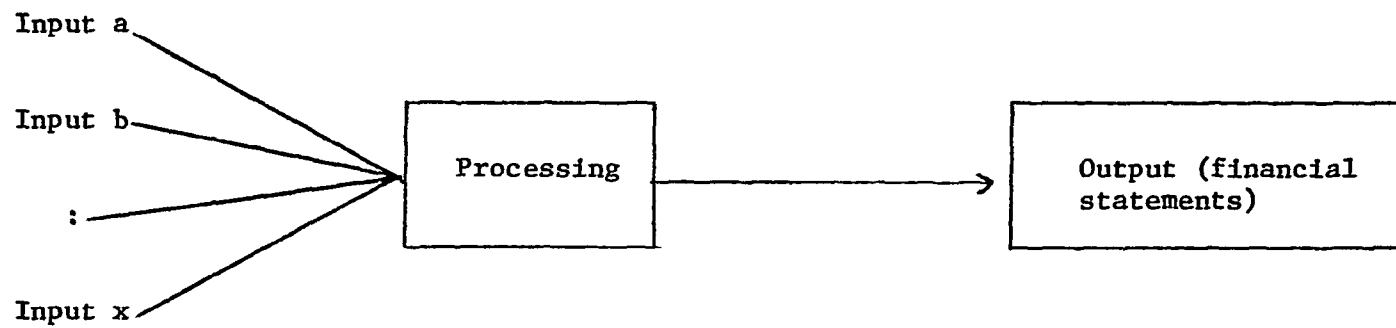


Figure 2-1. The Accounting Cycle

be in accord with generally accepted accounting principles the following conditions⁷ must be met for all material disclosure items:

1. The principles selected must be generally accepted or must not produce results which deviate materially from generally accepted accounting principles.
2. The principles chosen must be appropriate in the circumstances.
3. The assumptions used to implement the principles must be acceptable.
4. The assumptions and principles must be properly applied.

In preparing financial statements, agents representing the firm use appropriate guides released by regulatory agencies to select principles (conditions 1 and 2) and assumptions (condition 3)⁸ which are acceptable and appropriate. Proper application of assumptions and principles (condition 4) includes two subconditions. First, the chosen assumptions and principles must be consistently followed unless circumstances change and make alternate assumptions and principles preferable. Second, all inputs and processing of information must be handled properly (mathematically and procedurally) from an accounting point of view so as to produce outputs which present information which logically flows from the selected assumptions and principles. Table 2-1 summarizes the four conditions and indicates that, for any disclosure item, they may relate to any or all of the input, processing, and output stages of the accounting cycle. Table 2-2 identifies the steps in the input → processing → output process at which each of the conditions needs to be considered for a depreciable fixed asset. Note that all users may not agree as to exact required disclosure items or as to the boundaries between the input, processing, and output stages. As discussed earlier, what is necessary is that the sum of

Table 2-1

The Accounting Cycle and Conditions

CONDITION	Inputs	Processing	Outputs
1. Principles generally acceptable?			
2. Principles appropriate?			
3. Assumptions acceptable?			
4. Assumptions and principles properly applied?			

Table 2-2

The Accounting Cycle and Conditions: An Example

CONDITION	Inputs	Processing	Outputs
1. Principles generally acceptable?	Yes - Historical cost principles used	Yes - Asset being depreciated	Yes - Proper information disclosed in financial statements
2. Principles appropriate?	Yes - No unusual circumstances	Yes - No unusual circumstances	Yes - no unusual circumstances
3. Assumptions acceptable?	Yes - Reasonable life assumption	No - New assumption necessary	No new assumption necessary
4. Assumptions and principles properly applied?	Yes - Recorded properly	Yes a) consistently applied b) mathematical accumulation proper	Information flows from general ledger

the disclosure items be at least equal to the required disclosures. Likewise, as far as the principles and assumptions at the various stages of the accounting cycle (input, processing, and output) are concerned, all that is necessary is that all principles and assumptions be considered.

The financial information which the agents of a firm report may be viewed conceptually as a vector of disclosure items composed of the various x' . The vector obtained through application of the principles and assumptions used by the agents of the firm may be represented as \underline{X}' . As is the case for the symbols used above, this \underline{X}' vector will be used later in the analysis of the role of the auditor.

To summarize the discussion to this point, the role of the agents representing the firm relating to disclosure of required information (i) is to select and properly apply the various principles (j) and assumptions (k) to be used for each disclosure item. The role of the various regulatory agencies is to determine appropriate i, and j, as well as to determine areas in which assumption-making authority is to remain with the preparer of the financial statements.

The Audit Function

Statement on Auditing Standards No. 1 (Auditing Standards Executive Committee, 1973) states:

The objective of the ordinary examination of financial statements by the independent auditor is the expression of an opinion on the fairness with which they present financial position, results of operations, and changes in financial

position in conformity with generally accepted accounting principles. The auditor's report is the medium through which he expresses his opinion or, if circumstances require, disclaims an opinion. In either case, he states whether his examination has been made in accordance with generally accepted auditing standards. These standards require him to state whether, in his opinion, the financial statements are presented in conformity with generally accepted accounting principles and whether such principles have been consistently applied in the preparation of the financial statements of the current period in relation to those of the preceding period. (paragraph 1)

Figure 2-1, presented earlier, summarizes the steps involved in the preparation of an accounting report. Figure 2-2 illustrates that the auditor's examination begins with the output of the accounting system (the financial statements) and culminates in an opinion relating to that output. Thus, as discussed above, agents of the business firm select the various accounting principles and assumptions to be followed and use them to prepare the firm's financial statements. The question which arises is: Given the role of the firm's agents in preparing financial statements, what value does an audit have?

The American Accounting Association's 1972 Committee on Basic Auditing Concepts (1972) states that the function of auditing is to assist the user in evaluating the quality of the information being communicated. The Committee then elaborates this statement of function by suggesting that the audit function adds value to information by serving as a control over the quality of the information and by increasing the information's credibility (p. 29).

Control

ASOBAC suggests that the audit function serves as a control over the quality of information by:

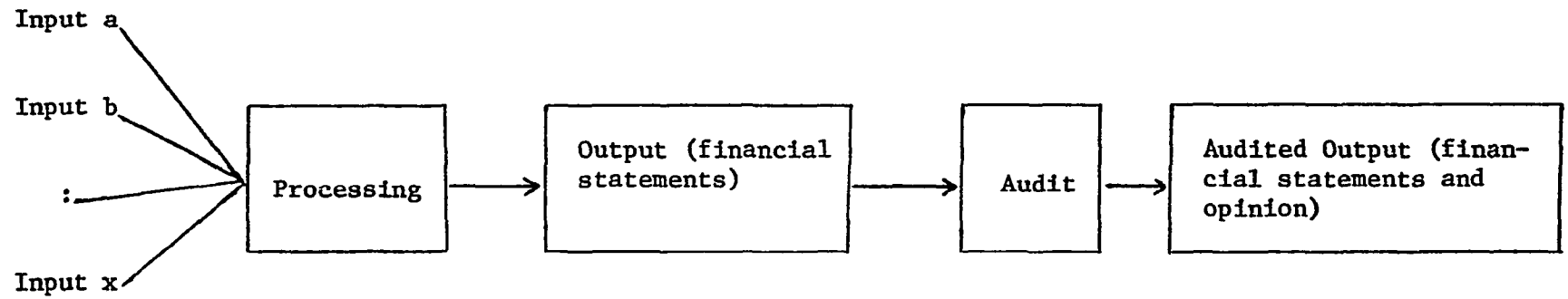


Figure 2-2. The Accounting Cycle With Audit

- (1) Providing an independent check on the accounting information against established criteria.
- (2) Motivating the preparer of the information to carry out the accounting process in a way that conforms to these established criteria.⁹

Specifically, the auditor is believed to serve as a control over the quality of information by means of his/her audit and the report s/he issues. The actual statement of opinion given, if the auditor agrees that the accounting information has been prepared according to the established criteria, is worded as follows:

In our opinion, the financial statements referred to above present fairly the financial position of X Company as of December 31, 19XX and the results of its operations and the changes in its financial position for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year. (AICPA Professional Standards, Volume 1, Paragraph 529.07).

In short, the statement made relating to ASOBAC's "established criteria" is that the financial statements fairly present the financial position, results of operations, and changes in financial position, in conformity with generally accepted accounting principles. The following question arises: Does the auditor's statement "presents fairly...in conformity with generally accepted accounting principles" imply conditions in addition to those necessary for presentation according to generally accepted accounting principles? If so, what are they? If not, the conditions stated earlier for statements to be in conformity with generally accepted accounting principles (see p. 5) are those necessary for the auditor's opinion.

Toba (1975) has suggested two assertions which he believes to be necessary and sufficient for the auditor's statement relating to fairness

of financial statements:

1. Accounting policy of the company under review is made in conformity with generally accepted accounting principles.
2. A system of internal control (particularly, a system of internal accounting control) is in accordance with reasonable standards established within the company under review.

However, Kinney's decision-theoretic approach toward consideration of internal control shows that in certain circumstances the accepted auditing standards do not even require the auditor to perform detailed tests of the firm's compliance with purported internal controls, which would seem necessary under Toba's second assertion (Kinney, 1975). Specifically, in the case of poor internal control Kinney shows that tests of compliance with purported internal controls would be omitted, since other procedures would be more cost effective in forming an opinion.¹⁰

Kissinger (1977) rejects both of Toba's assertions and suggests that the necessary and sufficient conditions for fair presentation are:

$$X \leftrightarrow V \cdot W \cdot (Y_1 + Y_2) \cdot (Y_3 + Y_4) \cdot Y_5 \\ \cdot (Z_1 + Z_2) \cdot (Z_3 + Z_4),$$

where the two-headed arrow, \leftrightarrow stands for "if and only if," the symbols, \cdot and $+$ stand for "and" and "or," respectively and the propositions are defined as

1. X The financial statements present fairly the financial position, results of operations and changes in financial position of the company under review.
2. Y_1 The specific accounting procedures adopted by the company under review conform with GAAP, i.e., they have substantial authoritative support and are appropriate in the circumstances.

3. Y_2 Specific accounting procedures which do not conform with GAAP do not, in and of themselves, cause the financial statements to differ materially, in any way, from financial statements which would result from the application of procedures which do conform with GAAP.
4. Y_3 All accounting policies have been applied on a consistent basis.
5. Y_4 The effects of all changes in accounting procedure have been disclosed in conformity with GAAP.
6. Y_5 The financial statements include all informative disclosures necessary to make the statements not misleading.
7. Z_1 The internal control system is comprehensive (i.e., no economic events outside the scope of the system occurred).
8. Z_2 No economic events which occurred and which were outside the scope of the internal control system resulted (either singly or in combination) in undetected (and uncorrected) material error or defalcation.
9. Z_3 The internal control system is effective (i.e., there were no breakdowns in the internal control system).
10. Z_4 No breakdown in the internal control system resulted in undetected (and uncorrected) material error or defalcation.
11. V No undisclosed unusual uncertainties exist as to the (material) effect of future developments on certain items.
12. W The financial statements contain no (material) deliberate management misstatements.

(pp.328-9)

Kissinger's research is valuable because he has considered items which appear not to have been considered by Toba. Also, his Z propositions make his analysis more consistent with that of Kinney in that it seems to eliminate the need for detailed testing of internal control.

However, his Z conditions also make any reference to internal control unnecessary. The Z conditions are simply one possible means to the end of determining that the principles and assumptions have been properly applied (see condition 4, page 21). In fact, Y₃ and Y₄ also deal with the proper application of accounting principles and assumptions. Likewise, W is necessary in the Kissinger framework because management is hypothesized to be beyond the internal control system (thus the Z proposition does not include management misstatements). When the Z's are eliminated, this condition (W) also fits neatly under the proper application of assumptions and principles.

Y₁ and Y₂ are a combination of the four conditions necessary for statements to be in accord with generally accepted accounting principles. Likewise Y₅ and V in effect require adequate disclosure of material information disclosure items; the principle of adequate disclosure has often been acknowledged as a generally accepted principle. Therefore, it would seem that Kissinger's conditions may be summarized under the four conditions (originally presented above in the section on the Financial Reporting Function) necessary for statements to be in accord with generally accepted accounting principles.¹¹

Thus we conclude that, for the auditor to express an opinion, s/he must determine whether the four conditions necessary for statements to be in accord with generally accepted accounting principles have been met.

The auditor must determine whether:

1. The principles selected by the firm are generally accepted or do not produce results which deviate materially from generally accepted accounting principles.

2. The principles chosen are appropriate in the circumstances.
3. The assumptions used to implement the principles are acceptable.
4. The assumptions and principles are properly applied.

In determining whether the selected principles are generally accepted (condition 1), the auditor uses his knowledge of the acceptable standards. If the auditor finds the principles used for a disclosure item to be acceptable, s/he simply determines whether conditions 2, 3, and 4 have been met. When s/he finds the principles to be not accepted s/he must test conditions 2, 3, and 4 for both the principle used by the firm and for available generally accepted accounting principles to form an opinion as to whether the principle used produces materially different results than an accepted principle.

Relating to the second condition, Statement on Auditing Standards No. 5 (Auditing Standards Executive Committee, 1975) suggests that judgment must be exercised by the auditor to determine whether the principle is acceptable under the circumstances. The main guidelines provided reflect the desire that the substance of transactions not differ from the form in which they are recorded. The Statement suggests:

Specifying the circumstances in which one accounting principle should be selected from among alternative principles is the function of bodies having authority to establish accounting principles. When criteria for selection among alternative accounting principles have not been established to relate accounting methods to circumstances, the auditor may conclude that more than one accounting principle is appropriate in the circumstances. The auditor should recognize, however, that there may be unusual circumstances in which the selection and application of specific accounting principles from among alternate principles may make the financial statements taken as a whole misleading. (paragraph 9)

Thus, the auditor is not given firm, operational guidelines as to when specific principles are not appropriate. No empirical data regarding auditors' actual interpretations of this stage of the audit process are currently available.¹²

As discussed earlier, assumptions become necessary due to the generality of the accounting principles. The agents of the firm make these assumptions to implement the selected principles. As an example, if an assumption relating to the life of a fixed asset needs to be made, the agents may have past experience which shows that the expected life may be eight to twelve years. In such a situation it is likely that an auditor would accept a client's decision to use either a nine- or a ten-year life-- both would probably appear reasonable. However, the auditor would probably question a decision to use a two- or three-year life. Given the need to make assumptions relating to the use of the acceptable principles, it would seem that review by an auditor might be especially valuable since agents of the firm might have a vested interest in particular results.

In addition to forming an opinion on the appropriateness and acceptability of the assumptions and principles, the auditor must form an opinion as to whether the selected principles and assumptions have been properly applied (condition 4). To do this s/he performs tests of the accuracy and appropriateness of the inputs as well as the mathematical application or processing of the information. Also, a determination that principles and assumptions have been consistently applied must be made. For example, if straight line depreciation and a ten-year life with no salvage value have been used in the past for an asset, the auditor

would expect an annual depreciation expense of ten percent of the asset's proper historical cost.

Table 2-1 is appropriate for summarizing the areas which the auditor must examine for each required disclosure item. Thus the auditor attempts to form an opinion as to whether the principles and assumptions selected by agents of the firm are generally accepted and appropriate and whether the information in the financial statements deviates from that which would be derived through proper application of those principles and assumptions. The analysis takes place at the input, processing, and output stages of the accounting cycle.

If the auditor knew in advance the value which would be arrived at for disclosure item i' by employing accounting principle set j' with assumption set k' (x'), all that would be necessary would be an evaluation of the appropriateness and acceptability of j' and k' as they apply to i in the circumstances. The auditor then could determine whether x^* , the result obtained through proper implementation of j' and k' , differed from the firm's representation, x' , by a material amount. Let d represent the difference between x' and x^* , or

$$d = x' - x^* . \quad (1)$$

Expanding the analysis beyond the individual disclosure item base, \underline{X}' , as discussed above, represents the vector whose elements consist of the various disclosure items of the firm's financial statements. Let \underline{X}^* represent the vector of those disclosure items which would be arrived at through proper application of the acceptable principles and assumptions

made by the firm being audited. If \underline{D} represents the vector of the amounts of the various d , then

$$\underline{D} = \underline{X}' - \underline{X}^* . \quad (2)$$

But, of the three vectors (\underline{X}' , \underline{X}^* , \underline{D}), the auditor only knows the values for \underline{X}' when he begins an audit. Evidence must be gathered which will provide a basis for an opinion relating to the elements of \underline{D} . If the evidence gathered in relation to conditions one through four above indicates that an x' element equals the value x^* , the auditor estimates the d element of \underline{D} to be zero; the auditor's estimates of d and \underline{D} may be represented by $d^\#$ and $\underline{D}^\#$.

Given the above, the current control function of the auditor may be considered in more specific terms than originally stated in ASOBAC (see above). The control function may be considered to occur when the auditor renders an opinion as to whether each element of D is either immaterial or is explicitly considered in the audit report which is issued.¹³ This is done through use of the auditor's estimate of \underline{D} , that is, $\underline{D}^\#$. This function of expressing an opinion as to whether all elements of \underline{D} are either immaterial or considered in the auditor's report serves as a control for the statements involved when it decreases intentional and unintentional deviations from acceptable principles, assumptions, and applications. Control occurs when, as a result of having an auditor associated with the financial statements, the likelihood (probability) increases that either the reported values by management do not differ materially from an acceptable x^* and/or when material elements of \underline{D} are considered in the auditor's report. More simply, control occurs when the audit function

increases the probability that the reported information does not deviate materially from X*. Financial statements may be said to be accurate when the information reported has been compiled using accepted principles and assumptions properly applied. The control function thus is intended to increase the accuracy of the financial statements.

Credibility

ASOBAC identifies credibility as the second value added by the audit function. The Committee suggests that the credibility allows the user to have confidence that control (as defined by the Committee above, pages 25-26) has occurred. Therefore, the user will "be more confident in using the information for its intended purposes than he would be if the audit function had not been performed" (ASOBAC, p. 29). The Committee's conception of credibility is more clearly explained in its discussion of degrees of credibility. While discussing auditors' subjective beliefs relating to financial statements, the Committee suggests that the concept of degrees of credibility is "the probability that a given assertion is true or valid" (ASOBAC, p. 41). A credibility judgment is thus made by both the user and the auditor. In this study, as in ASOBAC, the term credibility is used in the sense of a subjective probability or subjective belief.

The auditor increases the credibility of financial statements by her/his examination and by the audit report issued. This increase in credibility occurs because it is believed that the auditor has served as a control over the quality of the information (i.e., it is believed that the actual probability has increased that the elements of X' do not differ

materially from \underline{X}^* and/or material elements of \underline{D} are considered in the report). While control relates to actual probabilities, credibility relates to subjective probabilities concerning the information. Thus credibility is a measure of how reliable an individual believes information to be. Also, credibility may be considered to be the subjective probability, as assessed by a user or CPA, that \underline{X}' does not deviate materially from \underline{X}^* . To the extent that credibility does not exist, the user or CPA operates under uncertainty. Uncertainty may be viewed conceptually as $(1 - \text{credibility})$.

Credibility on its own does not suggest value to a user. The increase in credibility has perceived value to a user (decision maker) only when the information which the auditor makes "more credible" is perceived as being important (useful) for some purpose. An increase in information credibility related to the number of hangers in the closet of the vice president of a firm may not be perceived as important (useful) by most decision makers; an increase in credibility related to a firm's net income might be considered important (useful) to a number of decision makers.

The effect of an increase in credibility surrounding a financial statement may be analyzed through use of a model proposed by Wyer (1974). The model sets forth factors which affect the probability that information (a message) will influence a user. Wyer's model suggests that the probability that a person will be influenced by a message is a function of the probability that the message will be received and comprehended (P_r) and the probability that the person will yield (P_y)¹⁴ to the communication, given that it is received (Wyer, p. 190). Yielding usually occurs when

the contents of the communication are not refuted or successfully counter-argued ($P_{ca'}$).

For our purposes it is appropriate to view yielding as having occurred when the information in question is used in making a decision. This is similar to Feltham's (1968) concept of information system relevance which suggests that information is relevant if it has the potential of changing an investment decision. As such, Feltham suggests that the decision maker must believe that the information is important in predicting future events for it to be relevant.

Wyer's basic model:

$$P_i = P_r(P_{ca}P_{y/ca} + P_{ca'}P_{y/ca'}) + P_{r'}P_{i/r'} \quad (3)$$

where P_i = Probability that subject will be influenced by information.

$$P_{ca} = 1 - P_{ca'}$$

$P_{y/ca}$ = Probability that subject will yield, if the contents of the communication are refuted.

$P_{y/ca'}$ = Probability that subject will yield, if the contents of the communication are not refuted.

$$P_{r'} = 1 - P_r$$

$P_{i/r'}$ = Probability that subject will be influenced by information, given that it is not received and comprehended.

simplifies to:

$$P_i = P_r P_{ca'} P_{y/ca'} \quad (4)$$

with the assumption that a person is not influenced by a communication s/he does not receive and comprehend ($P_{i/r'} = 0$), and that when the person refutes the contents of the communication s/he will not be influenced by it

($P_{y/ca} = 0$). While these assumptions may not be valid in reality,¹⁵ they are made to highlight conceptually a primary effect of how an increase in credibility of information can in theory increase the probability that information will influence a user. For the purposes of the present study the formula will be slightly modified to eliminate the negative tone of the probability of an item not being refuted ($P_{ca'}$).

Let:

$$P_{ac} = P_{ca'} \quad (5)$$

where P_{ac} is considered to be the probability that an information item is believed or accepted as credible.¹⁶ Thus, the substitution in effect suggests that the probability that an item will not be refuted is equal to the probability that it is believed or accepted. With this substitution, formula (4) becomes

$$P_i = P_r P_{ac} P_{y/ac} \quad (6)$$

Thus, in words, the probability that a subject (financial statement user) is influenced by information (financial statement) is equal to the probability that the information (financial statement) is received and comprehended, times the probability that the message (financial statement) is accepted as credible, times the probability that it causes the user to yield, given that the information is accepted as credible. The attestation function may be considered in these terms: $P_r, P_{ac}, P_{y/ac}$.

The attestation function is related to P_r if independent involvement with a financial statement increases the probability that the user will receive and comprehend the message. For example, if an auditor is

associated with a financial statement which is sent to users, this fact alone might cause users to receive and comprehend the financial statement; in this case auditor association would increase the probability that users will be influenced by the message (P_i).

An increase in the probability that a message will be accepted as credible (P_{ac}) may also increase the probability that the message will influence a user. If the user believes that the auditor has served as a control over the quality of the financial statements, the result will be an increased P_{ac} .

The final component of the model, $P_{y/ac}$, deals with the user's decision model in that the user decides whether or not to consider the information in the decision making process, given that it is considered credible. As such, $P_{y/ac}$ is not as directly related to the function of the auditor as are P_r and P_{ac} . This component $P_{y/ac}$ may be viewed as a measure of relevance which is independent of the actual credibility of the item which is being considered.

Summary

The audit function is intended to control the quality of information and to increase the information's credibility. This control increases the actual likelihood that reported information does not deviate materially from that which would be arrived at by proper application of acceptable accounting principles and assumptions selected by the firm. Credibility is related to control because it pertains to subjective beliefs relating to the increased accuracy of the financial statements which results from

the control function. An increase in the credibility of a financial statement is an increase in the user's or auditor's subjective belief that the financial statement is not materially in error (all elements of D are believed to be immaterial or considered). This increased credibility affects a decision maker when the financial statements provide important (useful) information ($P_{y|ac} > 0$), by increasing the probability that the information will be received and comprehended (P_r), and/or by increasing the probability that the information will be accepted as credible (P_{ac}). The primary perceived benefit of an audit is its effect on P_r and P_{ac} . When considering a decision maker's needs it is appropriate to give attention to both the credibility of the information and the importance of the information.

Extensions of the Auditor's Role

The above discussion of the auditor's current role in relation to annual financial statements serves as background for the issue of possible extensions of that role--a topic of primary concern in this study. Because of this concern, it is useful to consider conditions believed to create a demand for auditing as well as conditions necessary to supply those services. ASOBAC will again serve to initiate the analysis.

Demand for Auditor Involvement

ASOBAC suggests four conditions which create a demand for auditing: a perceived conflict of interest between user and preparer of information, consequence of information, complexity of subject matter, and remoteness

of user from the source of the information. The Committee suggests that these factors combine to make it difficult for a user to evaluate the information presented. Its report states that the audit function can control "bias" in the statements which may result from the above conditions. In terms of the above analysis, "bias" may be represented as material d_i elements of \underline{D} . Similarly, control may be viewed as reducing "bias."

Because it is difficult to operationalize concepts such as conflict of interest, consequence, complexity, and remoteness it is useful to consider their perceived effect, which is bias. The Committee states that both "deliberate and unintentional" (p. 29) bias may be controlled by an audit. But, it would seem that this "bias" construct of the committee combines two distinct concepts. Bias, in a statistical sense, refers to deviation from the expected value of a distribution (or, if $E(\bar{x}) \neq \mu$ where E is the expectation operator, \bar{x} is equal to the sample mean and μ equals the population mean). Or, if the expected value to be reported by the firm (x') deviates from x^* , a bias exists. Indeed, intentional and unintentional errors may result in biased representations in financial statements. Fraud in which management systematically attempts to overstate receivables represents an example of intentional bias. Unintentional bias may occur when a firm is unable to obtain an accurate total for its payables at year-end and consistently understates them.

The second concept in the Committee's construct of bias is unbiased variability around the expected value. This is the case in which errors occur which, over the periods involved, counterbalance one another.

Although this unbiased variability may theoretically be intentional or unintentional, a common example is unintentional: random errors made in the application of the various accounting principles and assumptions. ASOBAC in effect hypothesizes that both unbiased and biased variability would be expected to increase as firm complexity increases. In these cases, according to ASOBAC, a demand for auditing will occur.

A more operational hypothesis as to when a demand for auditing services will occur is in cases in which:

1. Biased and/or unbiased variability are perceived to exist in useful information, and
2. Users believe that independent review will serve to control the biased and/or unbiased variability and thereby increase credibility.

In terms of the current audit function as considered above, demand will occur when material elements of D are believed to exist and when users believe that auditors can exert control over useful information.

The demand for auditing services may be determined in several ways. Users may be asked directly whether they desire auditor involvement with a specific type of information. Alternatively, the demand may be determined indirectly by asking users questions relating to their beliefs about information with and without auditor involvement (the approach used in this study).

Supply of Auditor Involvement

Given the above factors which create a demand for auditor services, a question arises as to the conditions that need to be met to enable auditors to supply the desired control. ASOBAC attacks the question by assuming

that the subject matter of any extension of the audit function must possess the following attributes:

1. The subject matter must be susceptible to the deduction of evidential assertions. Such assertions must be both quantifiable and verifiable.
2. An information system must be present to record the actions, events, or results thereof; preferably adequate internal control will also be operating.
3. Consensus must exist on the established criteria against which the information prepared from the subject matter can be evaluated.

While each of the attributes mentioned above is necessary, two further conditions needed are: auditor's competence and summarization of the findings in a report (p. 30).

The earlier analysis of the auditor's control and credibility functions may be used to consider the appropriateness of the Committee's attributes.

While it is clear that for the auditor to exert control s/he must be able to examine evidence, the necessity of restricting the scope of auditing to quantifiable subject matter is questionable. The fact that nonquantitative items are currently reported in financial statements (e.g., a statement of significant accounting policies), as well as current auditor involvement in evaluating internal control for governmental agencies (AICPA, Professional Standards, Volume 1, Section 640), indicate that quantifiability may not be a necessary attribute. Regardless, it is reasonable to conclude that a restriction to quantitative information is a significant constraint whose ramifications should be seriously considered before the constraint is adopted.

Second, the Committee suggests that proper extension of auditor responsibility is contingent upon the existence of an information system.

While it may be argued that "information system" is vague as a term and that perhaps by definition such a system exists for every known element in the world, the Committee has a fairly specific type of information system in mind. They suggest, for example, that because forecasts must be inferred from past actions and events recorded in the information system, they would not be a part of the system itself. It is unclear why an information system as envisioned by the Committee is necessary. If auditors can exert control by affecting the accuracy of information, such a restrictive definition of an information system would seem unnecessary.

Third, consensus on established criteria, against which the information can be evaluated, would generally seem necessary. The issue, however, may relate more to the meaning of "established criteria." Earlier in the report, the Committee suggested that in certain areas the establishment of criteria may be "more implicit and ill-defined than in the case of generally accepted accounting principles for financial audits" (ASOBAC, p. 21). At least some implicit agreement on appropriate criteria must exist. Thus, if an audit deals with information such as management forecasts, various established forecasting techniques may serve as the acceptable criteria for comparison purposes. Without at least implied criteria no \underline{X}^* (vector of proper disclosure items) exists and it becomes impossible for the auditor to estimate \underline{D} (vector of differences between client balances and proper balances of disclosure items).

Finally, while it is difficult to conceive of the auditor as exerting control without competence, it is unclear why a report is necessary. For

example, auditors today are associated to a very limited extent with other information in documents containing audited financial statements (i.e., they read the annual report and search for inconsistencies with the audited statements). No report on the examination is issued unless inconsistencies are found and are not corrected.

Examination of the concept of control provides an alternate way of considering possible changes in the auditor's role. In connection with annual financial statements, it was suggested that control is exhibited when the audit function increases the probability that the reported information does not deviate materially from X*. A question which arises is: How much control is necessary to make auditor involvement desirable?

Traditionally auditor involvement with financial statements has been limited to either a complete audit, or to a very limited form of involvement in which the product is "unaudited statements." This auditor involvement, through audits and unaudited statements, has often been referred to as auditor association.

Auditors are currently "associated" with other information in documents containing audited financial statements (as mentioned above), as well as with quarterly financial information through a limited review which calls for procedures far short of a year-end audit (see below). These forms of association presumably exert a lower degree of control than a complete audit. If more control is exerted through a year-end audit, both users and auditors should perceive a lower degree of credibility attaching to this information than to the annual audited financial statements.

The issue of changes in the auditor's role thus involves the degree of control as well as the information with which the auditor is associated. The concept of varying degrees of auditor control implies a greater acceptance of uncertainty (defined above as 1 - credibility) relating to areas of possible audit extension.

The Commission on Auditors' Responsibilities (1975), Coopers and Lybrand (1974), and Peat, Marwick, Mitchell & Co. (1976) have all suggested the possibility of varying forms of auditor association for different types of information. The concept of varying forms of auditor association can be illustrated by again using Table 2-1. Current auditor responsibility for annual financial statements involves examining the entire accounting process (inputs, processing, outputs) and rendering an opinion pertaining to the outputs or financial statements. The extent of attention directed at each of the three stages of the accounting process may be varied for other kinds of information. The implication is that an audit of (and the opinion resulting therefrom), for example, several inputs and the methods of processing the information, could in some cases perform the control and credibility-adding functions at an adequate level.

Also, within any stage of the accounting process, the actual tests may be varied. An auditor might, for example, consider it only necessary to examine to a limited extent the actual application of principles and assumptions in the processing stage for a certain type of association. The examination, although not similar in scope to that of the conventional audit, may still produce information useful to users' decisions. Users may be willing and able to accept and understand forms of auditor

association that imply a higher degree of uncertainty (lower level of credibility) than that associated with annual historical financial statements. For types of information other than that considered by the conventional financial statement audit, the user might simply desire a higher degree of credibility than that which exists without any auditor association.

ASOBAC recognizes the possibility of differing degrees of credibility. The Committee suggests that "ideally, an investigator should not express his belief concerning a proposition without expressing the degree of credibility attached to the proposition being judged" (p. 41). In the future it may be possible, the Committee proposes, to modify the auditor's report to include a statement of degree of credibility. The Committee is thus suggesting that in the future more specific assurances may be given.

Carmichael (1974) extends the assurance concept when he suggests that differing "levels of assurance" (p. 69) are needed for different types of information (e.g., interim statements, forecasts, and annual financial statements). He views a spectrum of possible forms of assurance ranging from a "denial of assurance when the CPA is acting in the role of an accountant in a writeup engagement to the maximum form of assurance of the traditional opinion audit" (p. 69).

A question arises as to the connection between Carmichael's varying levels of assurance and the varying forms of auditor association discussed above. The two terms, although not synonymous, are consistent with one another. The varying forms of auditor association concept discussed in

this chapter relates to specific auditor involvement with the information on which the auditor is reporting. As discussed above, this association may occur at the input, processing, and/or output stages of the accounting cycle. The concept does not deal directly with the type of audit report to be issued. However, quite obviously, the form of auditor association will affect the "assurances" which can legitimately be given in the audit report.

Levels of assurance as a concept is concerned with the actual information given in the audit report. These assurances may theoretically range even beyond Carmichael's conception (i.e., from no assurance to the traditional audit opinion). In theory, complete assurance that no errors exist in the financial statements could be one extreme. The connection between the two terms, association and assurance, is that the type of assurance which the auditor is able to give legitimately is conditional upon the form of association. Thus, if an auditor is associated with a forecast and has only performed tests relating to ascertaining that major assumptions made in preparation of the forecast have been listed, the assurance which s/he can validly give would relate only to listing of assumptions and not, for example, to achieveability of the forecast. Or, again theoretically, the auditor might decide to issue no expressed assurances and simply describe the form of association through outlining the auditing procedures s/he has followed.

The current situation relating to quarterly financial information is an especially good example of varying forms of auditor association and varying levels of assurance. Prior to 1976 there was, in general, no auditor association with quarterly information. As of 1976 the SEC required

an "unaudited" footnote to be included in the audited annual financial statements of most large publicly held firms. SAS No. 10 developed a form of auditor association by outlining the required "limited" procedures which auditors must perform at year-end on this "unaudited" information. Thus, although the auditor is not associated with the quarterly information when it is released, the agents of the firm are aware that at year-end their quarterly information will be subject to the appropriate "limited" procedures. Also, no express assurances are given by the auditor for this form of association.

SAS No. 10 also made it possible for the firm to engage the auditor to perform the review at the end of the quarter on a "timely" basis (another form of auditor association), with a report being issued to the Board of Directors upon completion of the examination. Subsequently, SAS No. 13 allowed the auditor to issue a report to the public based on his/her limited review. Thus, for this form of association the auditor performs the same procedures as s/he would for the "unaudited" footnote in the annual financial statements, but performs them at the close of the quarter. In this situation the control the auditor exerts through a quarterly limited review is almost completely exerted prior to year-end. The only express assurances given in this case are the fact that a limited review has been performed and, in the case of quarterly statements filed with the SEC, that any material errors noted were corrected in the reported information.

Finally, it is possible for auditors to perform a complete audit of the quarterly information (another form of auditor association). In this

form of auditor association a report similar to that given at year-end may be issued. Thus, in the case of quarterly financial information, existing forms of auditor association range from none at all to a complete audit.

Despite these increases in auditor association relating to quarterly financial information, two comments relating to a possible problem with the expansion of role seem pertinent. Carmichael (1974) states that:

Doubts about the ability of users to distinguish among different forms of assurance have slowed acceptance by auditors of the concept of levels of assurance. Many fear that users might not recognize the distinctions and would assume that the auditor was accepting the same degree of responsibility as he does for audited annual financial statements. (p. 69)

Similarly the SEC (1975) notes:

A number of commentators have indicated that they do not believe that independent accountants should be permitted to associate their names with data on the basis of limited review Procedures. This position is also taken in the AudSEC exposure draft on interim reviews referred to above. This view is based on the concern that users of the accountant's report will not be able to distinguish between a report covering an audit conducted in accordance with generally accepted auditing standards and a report on a limited review following specified procedures and hence will be misled. The Commission has considered these comments, but is not prepared to conclude that investors will be unable to distinguish appropriately between different types of reports. It believes that an accountant's report on a limited review may provide significant and useful information to investors and that such reports should be encouraged. (p. 3557)

Despite these concerns voiced by Carmichael and the SEC, the concept of varying forms of auditor association (as well as the related varying levels of assurances which may be given) appears to offer a promising approach towards altering the supply of auditor services. Rather than

dwelling upon specific attributes of the information with which the auditor is to be associated (e.g., the existence of a specific type of information system or the necessity of limiting association to quantitative information), the approach, as outlined above, attempts to determine at a more basic level those situations in which the auditor is likely to be able to serve as a control over the information.

However, numerous questions relating to both control and credibility associated with varying forms of auditor association need to be considered. The following chapter attempts to address these questions. The empirical portion of this research project tests whether users perceive a difference in the usefulness and/or credibility of information released under varying circumstances with varying forms of auditor association.

Notes

¹Traditionally, members of top management have served as the agents making disclosure decisions.

²The methods of application are included in the term "accounting principles." See section 1051.07, Professional Standards, Volume 3.

³It may be noted that even when only one acceptable principle exists the agents representing business firms make a decision as to whether or not to follow the required principle.

⁴The issue of whether it is possible to make assumptions without making judgments is not considered. Throughout this chapter, combinations of judgments and assumptions are summarized as "assumptions."

⁵The "x" here is actually unnecessary. It is included in order to be consistent with the subsequent simplified notation system.

⁶The closest the Accounting Principles Board (APB) or Financial Accounting Standards Board (FASB) has come to facing this issue has been APB Statement Number 4 (Sections 1010 through 1029 of Professional Standards, Volume 3), in which conditions for fair presentation in conformity with generally accepted accounting principles were outlined. Because the Statements of the APB do not have the authority of its Opinions or FASB Statements (see section 1029.14 and 510.08 of Professional Standards, Volume 3) the status of this report is in question. It should be noted that the conditions proposed in this study for information to be in conformity with generally accepted accounting principles include the conditions presented in Statement Number 4.

⁷While others may differ as to the exact specification of the above conditions, it would seem that these conditions in one form or another provide reasonable requirements for statements to be in accord with generally accepted accounting principles.

⁸Because of the generality of the guidance given relating to assumptions for any specific $j|i'$ the various "reasonable" k may produce a range of acceptable values. Also, since each of the acceptable j produces such a range, the combination of the respective ranges is often an even wider range of acceptable values for the disclosure item, i' . Note that the "uniformity" issue relating to accounting disclosure may be viewed as one of determining how many j and k are acceptable for each disclosure item i' . Thus absolute uniformity (assuming no application errors) occurs when j and k both equal one for each disclosure item.

The approach presented here is consistent with the two-dimensional approach of analyzing differences in accounting measures suggested by Murphy (1976). His work builds on that of Ijiri and Jaedicke (1966). Murphy suggests that differences in accounting measures are due to different "measurers" and different "rules." Variations caused by measurers may be caused either by the need to make assumptions in incorporating the principles, or by errors (e.g., mathematical errors) in applying the selected principles. The "rules" in this analysis are the principles and any available guidelines for making assumptions.

⁹The summary that follows pertains primarily to item (1) of ASOBAC's concept of control. However, the fact that the preparer knows that an independent audit will ultimately employ such an approach is believed to motivate the preparer to carry out the accounting process according to the established criteria. See Barefield (1975) on this subject.

¹⁰SAS No. 20 requires that auditors communicate known material weaknesses in internal control to management and to the board of directors. Consistent with Kinney's interpretation it states that this communication is not required to enable the auditor to state that his/her examination has been made in accord with generally accepted auditing standards. The communication is considered incident to the auditor's objective of making an examination of the financial statements.

¹¹It may be noted that this seems to be consistent with the American Institute of Certified Public Accountants' position in SAS No. 5 which states:

The independent auditor's judgment concerning the "fairness" of the overall presentation of financial statements should be applied within the framework of generally accepted accounting principles. Without that framework the auditor would have no uniform standard for judging the presentation of financial position, results of operations, and changes in financial position in financial statements.

The auditor's opinion that financial statements present fairly an entity's financial position, results of operations, and changes in financial position in conformity with generally accepted accounting principles should be based on his judgment as to whether (a) the accounting principles selected and applied have general acceptance... (b) the accounting principles are appropriate in the circumstances ... (c) the financial statements, including the related notes, are informative of matters that may affect their use, understanding, and interpretation... (d) the information presented in the financial statements is classified and summarized in a reasonable manner, that is, neither too detailed nor too condensed... and (e) the financial statements reflect the underlying

events and transactions in a manner that presents the financial position, results of operations, and changes in financial position stated within a range of acceptable limits, that is, limits that are reasonable and practicable to attain in financial statements (paragraph 4 and 5).

¹²This is currently considered a problem by the Board of Directors of the AICPA, which has directed the Accounting Standards Executive Committee to attempt to develop criteria for circumstances when generally accepted accounting principles are not appropriate (Commission on Auditors' Responsibilities, 1977).

¹³To consider the possibility of several immaterial errors combining to deviate materially from their respective values, all relevant combinations of the d elements of \underline{D} must also be immaterial.

¹⁴Mathematically, Wyer defines P_y as equal to $P_{i|r}$ or the probability that a user is influenced, given that a message is received.

¹⁵Wyer (1974) cites results of research which indicate that while these assumptions may hold in general, they may not be valid in specific situations. For example, the knowledge that a communication has been released without any information as to its contents has affected certain individuals' responses to research instruments in laboratory settings.

¹⁶If this substitution is bothersome, the P_{ac} factor can be used in the original formula (3) instead of P_{ca} . Since all distributions considered are objective, the generality of the model is not affected.

CHAPTER 3

IDENTIFICATION OF RESEARCH ISSUES

The objective of this chapter is to identify pertinent unresolved issues relating to the varying forms of the concept of auditor association. The aim is to explain and justify the choice of quarterly reports as the specific area of focus and to explain the development of the research instrument and hypotheses.

The chapter begins with a review of the limited available research on varying forms of auditor association and identifies unresolved related issues. Second, quarterly financial information is presented as an area in which to test the concept of varying forms of auditor association and pertinent quarterly research is reviewed. Third is the development of the research instrument used in this study and a discussion of the variables tested. Next, the specific hypotheses are presented. Finally, the statistical techniques used in the research are outlined.

Traditionally, questions pertaining to auditor association have been of the form: With what information should the auditor be associated? The related research attempts to measure the demand for auditor services and the ability of the auditor to supply those services.

The general approach to assessing demand for auditor association has been to survey users' preferences for auditor association with various types of information (Imke, 1967; Opinion Research Corporation, 1974; Pratt, 1972; Shenkir & Rakes, 1972). For example, a user is asked: "Do you favor

or oppose requiring companies to have complete audits of their quarterly financial reports?"

Researchers have generally questioned CPAs directly to determine whether auditors are able to supply auditing services in new areas (Pratt, 1972), and have presented numerous a priori arguments about auditor involvement in new areas (Bevis, 1962; Johnson, 1974; Nurnberg, 1971; Wilkinson & Doney, 1965). These a priori arguments have generally presented specific attributes of traditional audits as a basis for determining whether audit responsibility could be extended to the areas under consideration.

The concept of varying forms of auditor association, as discussed in Chapter 2, is relatively new. In addition to asking "what information?" it asks "to what extent?" The research on this relatively new concept of varying forms of auditor association may also be addressed by considering supply and demand for auditing services. The newness of the issue may account for the fact that only a limited amount of pertinent research is available.

Varying Forms of Auditor Association:
Research and Issues

Research in this area relates to management forecasts, unaudited statements, and audits of management. A common approach has been to measure user and, in some cases, preparer reactions to varying forms of auditor association.

Research to Date

Three empirical studies pertaining to forecasts are especially relevant to the issue of varying forms of auditor association. Asebrook and Carmichael (1973) used a questionnaire to survey chartered financial analysts, financial executives, and certified public accountants. Respondents were asked questions related to two types of auditors' reports associated with a forecast. Both types implied a similar form of auditor association, differing from each other primarily in the evaluation of the assumptions. In the first form the CPA would perform "minimum tests" to satisfy himself/herself that the assumptions were not without basis. If the CPA found the assumptions to be without basis s/he would insist on revision or withdrawal from the engagement if the forecast was not revised. In the second form the CPA would explicitly report whether the assumptions were selected with appropriate care and consideration. Because the "minimum tests" referred to by Asebrook and Carmichael were not defined, and because the survey instrument suggested that the auditor would withdraw from the engagement if the assumptions were found to lack substance, it is not surprising that the results indicated little difference in financial analyst preference for the two approaches. Fifty-seven and 53 percent respectively agreed that CPA association would serve a useful purpose.

Asebrook and Carmichael also considered the supply issue. They questioned CPAs on issues such as competence and the likely effect of auditor association with forecasts. In both forms considered they found that slightly more CPAs agreed than disagreed with statements suggesting

that auditor association serves a useful purpose and that CPAs currently have the necessary competence to be associated with forecasts in these capacities.

Benjamin, Smith, and Strawser (1973) asked whether "there is, or within 10 years will be, a need for CPAs to attest to financial forecasts or other disclosures of estimates of the future included in financial statements." They found that approximately 55 percent of the chartered financial analysts who responded (53 out of 225 mailed) perceived a need. Replies to a subsequent question concerning what items to include if the auditor's opinion is extended to published financial forecasts were:

Soundness of the accounting methods used	100 percent yes
Accuracy of compilation of the data	83 percent yes
Assumptions underlying the forecast	58 percent yes

Thus, there were definite differences in the demand for each of the three forms of auditor association.

Corless and Norgaard (1974) used three versions of a questionnaire in which the following forms of assurance were considered:

- (a) A report giving negative assurance with respect to the assumptions ("...nothing came to our attention as a result of our study that caused us to believe that such assumptions, which have been selected by management, do not constitute a reasonable basis....")
- (b) A report giving positive assurance with respect to assumptions ("We believe that management has chosen the assumptions with due care and consideration.")

- (c) A report similar to that used in the United Kingdom ("In our opinion, the forecasts, so far as the accounting bases and calculations are concerned, have been properly compiled on the basis of the assumptions....") (p. 47).

The authors only present summary results which show that approximately 57 percent of the analysts surveyed would place more confidence in a forecast with which a CPA is associated, compared to a forecast without CPA association.

Winters (1975) tested the effect of a limited form of auditor association on annual financial statements. Of 1200 questionnaires sent to commercial loan officers of banks, 566 usable responses were received. Officers were asked to compare unaudited financial statements with which CPAs were associated with unaudited financial statements which had no auditor association. Seventy-nine percent of the respondents replied that they would increase reliance on the statements in cases of CPA association. Eighty-six percent of the bankers agreed that auditor association increases the likelihood that financial statements would be in accord with generally accepted accounting principles. Finally, 58 percent agreed that CPA association, even with unaudited statements, provides "reasonably high assurance that statements are not false or misleading" (p. 31). It may be noted that in the case of unaudited statements no express assurances are given; the bankers perceived an increase in statement credibility due to the limited form of auditor association.

Smith, Lanier, and Taylor (1972) asked CPAs, Controllers, Chartered Financial Analysts, and Mutual Fund Managers whether a CPA's opinion concerning the management function should include management performance only,

the means utilized by management only, or both performance and means. The predominant reply from all groups was that both performance and means should be included.

Thus, the available research for varying forms of auditor association has generally asked users to compare statements with and without auditor association and has asked auditors whether they are able to provide the service.

Issues: Demand Oriented

Carmichael and the Securities and Exchange Commission (see Chapter 2) raise a primary issue of user ability to distinguish between varying forms of auditor association. The research to date has not adequately addressed this issue because the studies have failed to make clear the form of association. The assurances given by the auditor in the Asebrook and Carmichael study (1973) are ambiguous because the forms of auditor association are not adequately differentiated. In the Corless and Norgaard study (1974) the level of responsibility related to the United Kingdom report is not explicit. Benjamin, Smith, and Strawser (1973, p. 17) refer only to the "assumptions underlying the forecast" and do not further clarify the form of auditor association. Smith, Lanier, and Taylor (1972) are equally brief in their description of auditor association when they refer to management performance and means.

Furthermore, none of the studies has made an effort to indicate the extent of the procedures which the auditor has followed in the examination. This lack of definition of procedures used may make it especially difficult for the respondents to understand the form of auditor association being tested or to make statements regarding the credibility of the statements.

The issue of determining the specific circumstances under which auditor association may be considered desirable also needs to be studied. For example, in the case of quarterly financial statements, perhaps an audit only increases the perceived reliability in cases where the past quarterly information has included numerous errors. The existing research has asked questions in a general context and has failed to consider specific circumstances.

The influence of user costs incurred for additional auditing services (e.g., the cost of delay in release of statements) has not been addressed. Research has placed users in a position in which the auditor's association is cost free. In addition, the responses requested have generally related to making an evaluative statement which compares respondent confidence with and without auditor association. The combination of no cost and requesting a direct evaluative comment may cause higher user responses than if costs were incorporated and if indirect measures of the effect on statement importance and reliability of auditor association were obtained.

Issues: Supply Oriented

As discussed in Chapter 2, the issue of varying forms of auditor association may be considered as varying the extent of control exerted by the auditor. One supply-oriented issue concerns auditors' ability to exert varying degrees of control. As discussed above, Asebrook and Carmichael (1973) addressed the issue and found mixed CPA reactions to proposed association with forecasts. Smith, Lanier, and Taylor (1972) found that 14 of the 18 CPAs responding agreed that a CPA's opinion

concerning the management function should include both performance and means.

The related issue of whether CPAs are able to currently exert control in areas such as forecasts, interim statements, and management audits has not been empirically addressed. Thus, the only evidence available is in the form of opinions.

The effect on the auditor's other roles of varying forms of auditor association with a specific type of information is another pertinent issue. The ability of auditors to supply varying forms of association may not be independent of the other roles they perform. For example, Asebrook and Carmichael (1973), Corless and Norgaard (1974) and Smith, Lanier, and Taylor (1972) all found that some users questioned an auditor's independence in a subsequent audit after being associated with the client through forecasts or management audits.

Finally, the question of what legal responsibility the auditor is to assume for specific forms of association needs to be considered. Decisions as to appropriate legal responsibility are likely to be difficult, since the question relates to whether the auditor has exerted an adequate degree of control.

General Approach Used in This Study

This research involves a demand-oriented approach toward varying forms of auditor association. The research does not directly approach the supply-oriented issues of whether auditors can actually exert varying degrees of control, the effect on the auditor's other roles, or new legal responsibilities. The focus of the research is on measurement of demand

by gathering the responses of financial analysts to quarterly financial information released under varying circumstances.

The study attempts to determine whether users respond differently to information released with varying degrees of auditor association. The approach used, as discussed briefly in Chapter 1 and in further detail below, is to use an instrument which gathers reactions to quarterly financial information released under varying circumstances. Respondents' perceptions of both reliability and relative importance of the information are measured. The responses supply information about users' understanding of the limitations of the increased reliability which can be expected to arise from quarterly limited reviews as well as quarterly audits. To the extent that user demands are to be considered for policy-making purposes, the results may be considered as perceived benefits (or the lack of perceived benefits) of auditor association.

Quarterly information has been selected as a type of information with which investors are familiar (see literature review below) and as a type of information with which auditors are currently associated; therefore, the consideration of the effect of auditor association on user perceptions is reasonable. The issue of determining whether users respond differently to various forms of auditor association short of a full audit is tested by presenting the form of auditor association with the quarterly financial information in a summarized manner in the background information supplied with the research instrument. Also, in the cases in which the auditor is associated with the information in the form of a limited review, a general description of the procedures followed is presented. In the

cases of a full quarterly audit the user is given express assurances similar to that of an annual audit.

The dependent variables are the importance and reliability of the quarterly information for equity investment decision purposes. As such, the research attempts to measure the perceived importance and reliability of the quarterly financial information under various forms of auditor association. Differing levels of responses to either of the dependent variables will indicate differing user expectations. Increases in reliability ratings associated with increasing forms of auditor association indicate a perceived benefit. Increases in perceived relative importance indicate that the association increases the weight which the user attaches to the information.

Certain variables related to specific quarterly financial information and accompanying auditor association are systematically manipulated. These variables isolate possible situations in which the effect of auditor association may vary. Specifically, the approach isolates circumstances in which auditor association affects reliability and relative importance. See the Research Instrument Development section (below) for further details.

Finally, the cost-free nature of the auditor association to the user cannot realistically be completely overcome. The group of users involved do not directly face many costs with the information considered. However, one cost which does face the financial analyst is a delay in release of the information when a full audit is performed. Accordingly, a delay in release of the financial information in full audit situations has been incorporated. Also, to avoid the respondents' tendency to reply that more

auditor association is automatically better than less, the form of the dependent variables does not directly compare whether auditor association is better than nonassociation. The measurement of perceived differences in importance and reliability is accomplished by comparing responses of subjects who have received differing audit association forms. Also, the form of auditor association is not varied for any one respondent.

Prior Quarterly Information Research

The objective of this section is to argue the usefulness of quarterly information to investors, and to suggest that quarterly financial information has, in the past, been biased and has contained much unbiased variability. This objective is accomplished by summarizing relevant research. The section first examines the issue of the usefulness of quarterly information. Second, evidence pertaining to the past variability of reported quarterly information is presented. In this manner, the section serves as a justification for the choice of quarterly financial information as an important research area, and also permits identification of independent variables for inclusion in the research instrument.

Usefulness

The usefulness issue will be viewed from several perspectives. First, several studies are considered which have hypothesized a priori that quarterly statements should be useful. Second, the results of studies which attempt to show how quarterly information apparently could have been used are presented. Finally, several market studies which bear on the issue of the actual use of quarterly information are analyzed.

Usefulness: A Priori Analysis. Shillinglaw (1961) was one of the first to consider the possible uses of quarterly financial information. He asserts that the main objective of financial statements is to provide a partial basis for evaluating the results of current operations and current financial position. He suggests that they are also somewhat useful for forecasting the results of future operations. He then observes that financial statements relating to periods of less than one year have the same objectives as annual statements, except they are also used by outside investors in forecasting the results that will be shown on the annual statements. Shillinglaw concludes that quarterly statements should aid in predicting the current year's results and suggests that the usefulness of published interim income statements in predicting annual profit is likely to be impaired if the statements do not include adjustments for quarterly fluctuations.

Green (1964) discusses the problems of the effects of seasonal fluctuations on quarterly statements and hypothesizes that the year is a base period, i.e., the information from annual financial statements is used to project firm earning power. He then recommends a method which stabilizes seasonal fluctuations and provides a basis for predicting the annual income. In his summary he observes that "to the investor or financial analyst, the interim report must aid in the prediction of the annual income" (Green, 1964, p. 48).

Others have suggested additional uses for quarterly data. Seidler and Benjes (1967) state that quarterly reports are increasingly used by research analysts to update and adjust their projections of the future

financial performance of corporations. They comment that the "latest 12 months reported earnings and quarterly earnings comparisons to be reported in the near future often assume more significance than earnings reported in an annual report" (Seidler & Benjes, 1967, p. 109).

Seidler and Benjes thus suggest that the quarterly information by itself may be useful and that when it is combined with the prior nine months of data an updated, timely twelve month report may be constructed. One who uses the data in this manner would quite possibly disagree with the suggestions made by Shillinglaw and Green which assume an annual base period.

The possibilities for using quarterly statements as a forecasting tool seem much broader than simply forecasting the annual income figure. At a very basic level, the analyst who follows a firm may use the quarterly statement by comparing it with his own prior forecast for the period.

While forecasts of annual operating results are often a component of stock valuation models (Mao, 1969), the quarterly report may have other uses in these models. Edwards, Dominiak, and Hedges (1972) suggest that analysts may use a quarterly report to estimate the growth factor in a valuation model. It may also be helpful in determining a proper risk-adjusted discount rate for the valuation model being used. An argument can be made that quarterly information may help the investor to gain a better understanding of the uncertain environment faced by the firm.

Ijiri (1975) has suggested that annual financial statements, because of their historical base, may serve as a means for measuring stewardship or accountability. Quarterly financial information is also

historical-cost-based and thus may be viewed as a timely means for measuring stewardship or accountability. Thus, completely apart from prediction, quarterly financial information may allow investors to determine how well management is performing its duties.

Usefulness: Predictive Ability Studies. The second group of usefulness studies has attempted to show how quarterly information could have been used effectively. In a study and a replication of that study, Green and Segall (1966, 1967) were unable to reject the null hypothesis that models which employ first quarter earnings per share (EPS) (the "interim" models) are not superior to models which do not use first quarter EPS (the "annual" models). Their approach was to select four naive interim EPS prediction models and three annual EPS prediction models and to use each of the seven models to forecast annual earnings. Each of the four interim models incorporated the first quarter's actual EPS for the year being predicted; the annual models used only prior years' annual information to predict the current year's EPS. Measures of both absolute and relative error were used to evaluate each forecast. In both the original experiment and the replication, the rather startling revelation that incorporating the first quarter did not increase accuracy of predictions raised questions as to whether interim statements were indeed useful.

Brown and Niederhoffer (1968) followed up the research of Green and Segall and added several earnings models. They found that "the interim predictors as a group generally were superior to the annuals as a group. In addition, the best of the interim predictors was consistently better

than the best of the annuals" (Brown & Niederhoffer, 1968, p. 496). Green and Segall (1968) responded to the article and in essence argued that the results were not as clearcut as the authors had suggested and that Brown and Niederhoffer used the Compustat data file, which may have biased their results.

Using a similar methodology Reilly, Morgenson, and West (1972) selected 38 companies from the Compustat data file and used five quarterly models, five annual models, and six different measures of performance to test whether quarterly data helped in the prediction of EPS, Net Profit, and Net Sales. They found that models incorporating the first and first and second quarters generally outperformed the annual models. They wisely attributed their different results (from Green and Segall) in part to the fact that they used the Compustat data file and to the fact that they were thus analyzing larger and more successful firms than a random sample of all New York Stock Exchange firms. In a similar vein, Stickney (1975) found that, for firms initially going public, incorporating first quarter earnings aided in prediction.

Thus, the results subsequent to Green and Segall's papers have shown that quarterly models in general have outpredicted annual models. However, there is evidence of rather serious methodological limitations in the research. First, the only considered objective of quarterly statements is their ability to predict the year's EPS (or in Reilly, Morgenson, and West (1972), EPS, Net Profit, and Net Sales). As discussed above, other uses have been claimed. Second, the approach does not consider the possibility that different firms' EPS may have different time

series properties. Thus each quarterly and annual model is assumed for each firm in the sample and compared to the other models. Third, the authors have been unable to agree on a mutually acceptable measure of error. Finally, the models are essentially very simple time series models which ignore the publication of information relating to the firm other than the property (usually EPS) being measured. Thus if the economy enters a recession, this is not directly considered by the model. It would seem that the analyst would incorporate this information into his/her prediction of annual earnings.

Coates (1972) extended the procedures originally proposed by Green and Segall (1966) by using a time series approach applied to 27 New York Stock Exchange firms for the period between 1945 and 1966. Coates' approach was to select for each of the 27 firms the naive EPS prediction model which minimized two measures of error--mean absolute error and root mean squared error. Thus, for each firm, Coates selected the best model and tested how well it performed as additional quarterly data were included. He found that for 25 of his 27 firms inclusion of quarterly data caused the quarterly models to outperform the annual models. He concluded that investors would be foolish to reject the information in quarterly reports.

Barnea, Dyckman, and Magee (1972) criticize Coates by pointing out that his choice of the "best" EPS model is based on data unavailable to investors at the time of prediction--i.e. Coates used the entire 22-year period to determine the best model. While their comments are certainly valid, the method used by Coates clearly shows the limitations of the

prior cross-sectional studies which do not model time series properties. Subsequent analyses using Box-Jenkins time series analysis by Lorek (1975) and Foster (1976) confirm the importance of modeling firm expectation models individually.

Lab studies are an alternate approach for studying the usefulness of quarterly statements for predictive purposes. Bruns (1966) found that students playing a business game who received quarterly reports did not in general make better decisions related to areas such as pricing, advertising, production, and forecasting sales than did students who received only annual information. Using rate of return as a measure, Cook (1967) found that students who received quarterly information outperformed those students receiving annual reports and no quarterly reports when playing the UCLA Executive Game. Bollom (1973), who also used students and a business game, prepared interim statements under several differing methods and discovered no significant differences as to usefulness of statements. He concluded that if further research supports his findings, the practice of issuing quarterly statements for a seasonal business should be evaluated. Clearly, much more research is needed before any generalizations can be made concerning lab studies.

Usefulness: Market Reaction Studies. May (1971) addressed the question of whether quarterly earnings figures are actually used by investors. He compared the market price response in the week of the accounting earnings announcement with the average market price change for the five weeks preceding and the five weeks subsequent to the earnings announcement. Using 105 American Stock Exchange firms which issued quarterly

reports during the period between 1964-1968, he found that both a parametric z statistic approach and an ordinal approach based on the hypergeometric distribution showed significant differences in price reactions for the weeks surrounding the announcement and the week of the earnings announcement. Thus, although May did not establish a casual link, it may be argued that his results are consistent with a hypothesis that quarterly announcements of earnings cause changes in the market value of stock.

May also compared the relative price change at the announcement of quarterly earnings with the response to the announcement of annual earnings. Although the annual responses were generally higher, they were not significantly higher. He then concluded that investors may be unaware of, or unable to take account of, the difference in quality or reliability of quarterly and annual accounting data.

Kiger (1972) attempted to predict the market price change of stocks by first predicting the expected annual earnings per share before the release of the quarterly data and then, second, by using the quarterly EPS data to predict annual EPS. For the prediction of annual EPS he used four separate naive models which were first used without the most recent quarterly EPS and then with the quarterly EPS. For each of these four models he was thus able to calculate the change in expectations relating to EPS by subtracting one expected annual EPS figure from the other. He then calculated an average price-earnings ratio before release of the quarterly data and, by assuming that it would remain constant, he calculated an expected market price change for each of the thirty firms in his study for quarters two and three of 1968 and 1969 for each of the four EPS models used. More simply:

Hypothesized market price change per share	=	Average price earnings ratio before release of quarterly data	x	Change in projected EPS caused by release of quarterly data
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For each of the four earnings models, for each of the thirty firms, Kiger calculated the correlation between the hypothesized market price change per share and the actual market price change per share. Although none of the four models was extremely successful in predicting the market price change on an individual quarter basis (the correlation coefficient was never significant at more than a .05 level for more than one of the four quarters in the study), when all four quarters were combined three of the models showed a correlation significant at the .01 level and the fourth model was significant at the .10 level. Kiger then concluded that a positive correlation between actual price changes and hypothesized changes exists when interim reports are issued; he suggested that this evidence is consistent with the hypothesis that interim reports are used by investors.

Although Kiger's results were in the direction expected, and do support the premise that quarterly statements are currently used by investors, several limitations should be noted. First, his earnings models are extremely naive (one, for example, simply adds up the last four quarters' earnings per share and uses the total as the estimate of annual EPS). Indeed, even in his example, the release of one figure (actual second quarter EPS) causes the four models to give hypothesized stock price changes of +\$1.69, -\$8.43, +\$.90 and -\$9.78 respectively for the four models used; the price of the stock before announcement was only

\$43.73. A second limitation is the assumption of a constant price earnings ratio; this of course implies an extremely simple stock valuation model. Furthermore, the sample size of thirty firms per quarter is small and undoubtedly worked against obtaining significant results for each quarter.

In the same paper Kiger analyzed volume changes at the time of release of quarterly earnings. He used a control period which included five days surrounding the quarterly earnings announcement. Using a sign test and Wilcoxon's Matched-Pairs Signed-Rank Test he found significant increases in trading volume at the time quarterly earnings were released. These results are consistent with those obtained by May using price change data.

Foster (1977) used six forecasting models for quarterly earnings and found a strongly significant association between the sign of a firm's unexpected quarterly earnings change (forecast - actual) and the firm's risk-adjusted security return in the 60 trading days up to and including the announcement date of each quarter's earnings. These results are consistent with a hypothesis that investors use the information. Earlier, Brown and Kennelly (1972) used the Abnormal Performance Index approach developed by Ball and Brown (1968) and found that the inclusion of quarterly earnings per share increased the expected return by 33 to 40 percent.

The above research is representative of the available quarterly information market research which clearly indicates that decision makers are currently using quarterly information. The articles considered

have been selected as the most frequently cited articles in the accounting literature.

Variability of Quarterly Financial Statements

Several approaches have been used to test the variability of quarterly financial statements. Newell (1969) tested the volatility of quarterly income data for 87 American Stock Exchange firms for the period 1962-1968. He calculated the ratio of net income to sales for each of those years on an annual and quarterly basis. Then, for each year, he ranked each quarter's ratio as compared to the year's average. He found that for 54 percent of the firms the greatest deviation for the period occurred in the fourth quarter (assuming a uniform distribution, he noted that this result would be expected to occur less than 1 out of 100,000 times by chance). He therefore concluded that the results plus "correspondence with selected financial officers" confirmed that year-end adjustments are not unusual and that the reliability of published unaudited quarterly net income is questionable (Newell, p. 39). Pratt (1972) applied a similar methodology to 92 New York Stock Exchange firms for 1970 and arrived at results similar to Newell's.

Kiger (1974) measured the volatility of quarterly earnings and sales for 881 firms on the Compustat tapes for the period from 1966-1969. For each year he computed the proportion of total sales and net income which occurred in each quarter for each of the firms. Volatility was computed by subtracting the low ratio for a quarter from the high ratio for that quarter. Thus, if a firm had a net income for the first quarter, as a percentage of total annual income for the year, of .26, .24, .28, .25 for

the years 1966, 1967, 1968 and 1969 respectively, the measure of volatility would be .04 (that is, .28 - .24). He found that for both sales and net income the median volatility was highest in the fourth quarter; thus, these results are consistent with Newell's and Kiger's.

The Newell, Pratt, and Kiger results are consistent with a priori arguments which question the accuracy of unaudited quarterly data. Their results are supported by a survey by Backer (1970). Approximately 70 percent of 70 executives surveyed indicated that their companies provided interim reserves for expenses and losses expected to be incurred later in the year, and that these reserves were not based on experience or expectations but rather "represent a manifestation of conservatism to offset random or unpredictable expenses that may occur" (Backer, 1970, p. 216).

The reader must, however, realize that subsequent to the Newell, Pratt, Kiger, and Backer studies, Accounting Principles Board Opinion #28, on interim financial statements, did somewhat limit the "flexibility" in quarterly reporting decisions. But, as discussed in Chapter 2, the problem is still perceived to exist, since the SEC currently requires a limited amount of auditor association with summarized quarterly income information. In 1975 the SEC issued Accounting Series Release #177 which suggests:

The Commission has brought a number of enforcement actions involving quarterly reports and it has observed other cases where quarterly reports have required correction. In addition, it has noted the preponderance of Form 8-K filings covering unusual charges and credits to income being made later in the year. While these are not suggested

to be evidence of systematic abuse in quarterly reporting, they do indicate that deficiencies exist. Although auditor involvement will not prevent all deficiencies, the Commission does believe that it will enhance the reliability of interim reports and reduce the likelihood of abuse. (SEC, 1975, p. 3554)

While the information gathered by the research conducted in this study will not actually determine whether this increased care and attention will occur, the research does measure user reactions to various forms of auditor association with quarterly statements. In particular, changes in perceived importance and credibility of quarterly financial information released under varying forms of auditor association are measured. The information gathered summarizes user reactions both to limited reviews as suggested by the SEC and to greater and lesser degrees of association.

Summary

The available research indicates that quarterly financial information is used by decision makers. It aids users in predicting the future earning power of the firm. While it is clear that users have other sources of information available to aid them in predicting future earning power, the quarterly information can serve as an aid in adjusting forecasts. The research instrument used in this study incorporates the fact that other sources of information are available by including an independent variable which relates to the consistency of the income information with the users' prior expectations (i.e., whether the information is higher than, lower than, or the same as the user expected).

There is also evidence which indicates that quarterly information has been inaccurate in the past. Applying the terms presented in Chapter 2, the information has contained biased and/or unbiased variability. The research instrument also incorporates this factor as an independent variable. Biased and unbiased variability are combined into one variable which is then defined or explained as the past need for (or lack of need for) the firm to make various corrections and adjustments of the quarterly information at year-end.

Research Instrument Development

This research attempts to measure user perceptions of the effect of varying forms of auditor association. As discussed earlier, in addition to simply considering areas in which the auditor can become involved, the issue of the form of involvement (manner and extent) must also be considered.

In this study the issues are examined by considering whether users respond differently to questions related to quarterly financial information released under varying circumstances with varying forms of auditor association. The research instrument was developed to assess financial analysts' perceptions of the importance and reliability of quarterly information used for equity investment decisions. The instrument (included in the appendices) was used to gather financial analysts' responses to questions pertaining to:

1. Hypothetical fact situations (scenarios) which describe the release of quarterly income information under various circumstances (past accuracy of income information, the degree to which the results were consistent with prior

expectations of the analyst, and the form of auditor association were systematically manipulated to arrive at each specific circumstance).

2. Quarterly financial information and independent auditor association with quarterly financial information.
3. The subjects' background (demographic questions).

The research instrument contains six hypothetical fact situations which, when considered together, were used to test the effect of the dependent variables or perceived importance and reliability. Forms of auditor association were varied across subjects as a nonrepeated measure through use of different forms of the research instrument. The accuracy and consistency variables were repeated measures since all subjects answered questions pertaining to each of the levels of the variables (see Statistical Techniques, below, for further detail).

Respondents Selected and Decision Setting

Financial analysts for five large banks in a large midwestern city were selected as subjects. These financial analysts were involved in making and recommending investment decisions for their respective banks. Financial analysts were selected because they represent a large group of sophisticated users who have voiced the need for quarterly financial information in the past (Backer, 1970; Edwards, Dominiak, & Hedges, 1972; Pratt, 1972). The equity investment decision was chosen because it is considered to be one of the major uses of quarterly financial statements. Specifically, the equity investment decision related to common stock investments in commercial firms listed on the New York Stock Exchange was selected as a basis for the test. This setting was chosen as an important one with which the analysts were familiar.

Dependent Variables: Importance
and Reliability

Two dependent variables were selected to measure user responses to varying forms of auditor association: perceived importance and perceived reliability.

Importance. The respondent was directed to allocate 100 points (on the basis of relative importance) between the quarterly financial information presented and all other sources of information which s/he generally has available. The relative importance variable was chosen to operationalize the amount of influence which the respondents believed the quarterly financial information would have on their decisions (see Chapter 2). This notion of relative importance forced the respondent to make tradeoffs between the information presented and other information generally available. An increase in perceived importance of the information when it has auditor association (see below for forms of auditor association tested) may be considered as a perceived benefit of the auditor's association.

An alternate approach would have been to scale replies ranging from "no importance" to "extreme importance." This method was rejected because of the fact that quarterly financial information is an acknowledged important input to the decision-making process and because a demand response of extreme importance has a limited meaning, since any number of decision-making inputs may be considered to be extremely important.

Another rejected approach is that of asking the respondent directly to compare the importance of the information with and without auditor

association (as in Asebrook & Carmichael (1973) and Corless & Norgaard (1974)). This approach obviously encounters the problem that users may tend to desire auditor association simply because, in a direct comparison, most would agree that statements with auditor association are at least as good as and possibly better than unaudited statements.

Reliability. The reliability variable was selected to measure users' perceptions relating to how accurate the quarterly financial information is likely to be in various circumstances (see Chapter 2). This variable attempts to isolate circumstances under which users perceive that the information, as presented, may be relied upon as being accurate. The extent to which the respondent would rely on the information as presented is used as the operational form for the reliability of the financial information. An 11 point scale from 0 (no confidence that the report is free of accounting errors) to 10 (complete confidence that the report is free of accounting errors) is used.

The term "reliability" is used in the questionnaire instead of "credibility." During debriefing of respondents in pretesting of the questionnaire, it was noted that the term credibility has a negative connotation to many since the word is commonly used in the context of "credibility gaps." Similar problems were not encountered with the term reliability. Note that the term reliability is used differently here than by Ijiri and Jaedicke (1966) and Murphy (1976) who use the term to evaluate an accounting number's ability to aid in prediction of a desired ex post determined value.

Other Questions: Quarterly Financial Statement and Auditor Association and Subjects' Background

These questions (Types 2 and 3 on page 78) were developed to obtain greater insight into the subjects' general opinions relating to quarterly financial information and auditor association therewith and to obtain a more detailed background summary relating to each subject. The information obtained is used and summarized in Chapter 4.

Independent Variables

Form of Auditor Association. The effects on importance and reliability of the following forms of auditor association (essentially as described in the questionnaire) were tested:

- (1) No auditor association. This is a control condition.
- (2) Year-end auditor association through an "unaudited footnote" relating to the quarterly information included in the annual financial statements. "Limited review" procedures will be applied at year-end.
- (3) Quarterly auditor association in which the auditor issues a disclaimer based on the limited review performed at the end of the quarter.
- (4) Quarterly association in which the auditor issues a report rendering a positive opinion relating to the quarterly results. This report is similar to a "short form" report, but refers only to the information presented.

Traditionally, auditors have not been directly associated with quarterly financial information. ASR #177 released by the SEC in 1975 prompted the AICPA's Auditing Standards Executive Committee to release Statements No. 10 (1975) and No. 13 (1976) which outline procedures and reporting standards for a limited review of quarterly financial information.

SAS No. 10 outlines the nature of the procedures as:

- a. Inquiry concerning (i) the accounting system, to obtain an understanding of the manner in which transactions are recorded, classified and summarized in the preparation of interim financial information, and (ii) any significant changes in the system of internal accounting control, to ascertain their potential effect on the preparation of interim financial information.
- b. Analytical review of interim financial information by reference to internal financial statements, trial balances or other financial data, to identify and inquire about relationships and individual items that appear to be unusual. An analytical review consists of (i) a systematic comparison of current financial information with that anticipated for the current period, with that of the immediately preceding interim period, and with that of the corresponding interim period of the previous fiscal year; (ii) a study of the interrelationships of elements of financial information that would be expected to conform to a predictable pattern based on the entity's experience; and (iii) a consideration of the types of matters that in the preceding year or quarters have required accounting adjustments.
- c. Reading the minutes of meetings of stockholders, board of directors and committees of the board of directors to identify actions that may affect the interim financial information.
- d. Reading the interim financial information to consider, on the basis of information coming to the accountant's attention, whether the information to be reported conforms with generally accepted accounting principles.
- e. Obtaining letters from other accountants, if any, who have been engaged to make a limited review of the interim financial information of significant segments of the reporting entity, its subsidiaries or other investees.
- f. Inquiry of officers and other executives having responsibility for financial and accounting matters concerning (i) whether the interim financial information has been prepared in conformity with generally accepted accounting principles consistently applied, (ii) changes in the entity's business activities or accounting practices, (iii) matters as to which questions have

arisen in the course of applying the foregoing procedures, and (iv) events subsequent to the date of the interim financial information that would have a material effect on the presentation of such information (paragraph 10).

The extent of procedures is contingent upon:

- (1) The accountants' knowledge of accounting and reporting practices of the firm involved.
- (2) The accountants' knowledge of weakness in internal accounting control of the firm involved.
- (3) The accountants' knowledge of changes in the nature or volume of activity or accounting changes.
- (4) Issuance of accounting pronouncements affecting the firm involved.
- (5) Questions raised in performing other procedures.

After the above procedures have been completed, SAS No. 13 prescribes the following report:

We have made a limited review, in accordance with standards established by the American Institute of Certified Public Accountants, of (describe the information or statements subjected to such review) of ABC Company and consolidated subsidiaries as of September 30, 19X1 and for the three-month and nine-month periods then ended. Since we did not make an audit, we express no opinion on the (information or statements) referred to above (paragraph 5).

In cases in which the report is to be filed with the SEC the report is altered to include a statement which indicates that all necessary proposed adjustments and disclosures found by the CPA have been included in the statements. This statement is not explicit in the first form of the report quoted above.

The limited review procedures may be performed either on a required basis at year-end, or voluntarily on a "timely basis" at the end of each quarter. The case in which the firm elects to have the review at year-

end (when summary quarterly financial information is included in an "unaudited footnote" to the audited annual financial statements) describes the second level of the variable. To give the respondent background relating to the limited review, the SAS No. 10 procedures listed above were synthesized in the information presented with the questionnaire.

The case in which the firm elects to have the auditors perform the audit on a timely, quarterly basis describes the third level of the variable. As in the second level, a summary of the limited review procedures was presented to the analyst.

The fourth level of the variable tested is the "full audit." The full audit is meant to be similar in scope to that normally performed at year end for an annual audit. The scope of procedures performed in a full audit clearly exceeds that of the limited review performed either at year-end or on a timely basis at the close of a quarter.

The scope of a full audit is likely to delay the release of the quarterly financial information. Pratt (1972) obtained the following distribution of replies from CPAs to a question concerning the delay they would expect in the issuance of quarterly financial information if an audit were to be performed:

<u>Day Delay</u>	<u>Number Responses</u>
0	9
1 - 15	11
16 - 30	32
31 - 45	17
46 - 60	1
Over 60	<u>1</u>
	71

Because the great majority of Pratt's respondents believed some delay was necessary, a decision was made to confound the effect of a lag in release of the information with the effect of increased auditor association in the case of the complete audit. Three weeks was selected as an average expected delay.

Accuracy of Past Quarterly Information. As discussed in Chapter 2, one of the conditions which appears necessary for the auditor to control the accuracy of financial information is the existence of variability (biased or unbiased) in the reported information. The research instrument operationalizes this variability by describing the need (or lack of need) in the past, for the firm to make adjustments to and corrections of the reported quarterly information at year-end, when audited statements are released. It was hypothesized (see next section) that auditor association would have an especially large effect in cases in which it had been necessary in the past to revise the quarterly information at year-end.

Consistency of Information With Expectations. Since investors have numerous types of information available with which to form their predictions relating to a firm's earnings, it was judged appropriate to have the respondents compare the information included in the quarterly earnings figure with that which had been expected. The levels of the variable tested are higher than, lower than, and as expected.

Hypotheses

The approach used in this study is to manipulate systematically the form of auditor association as well as two other variables which are believed to be relevant to the importance and reliability of quarterly

financial information. The hypotheses tested in the study are divided between the main variable of concern, form of auditor association, and the other two variables--consistency of earnings with prior expectations and the past accuracy of the firm's quarterly financial information.

Form of Auditor Association
and its Interactions

H_{IA}: VARYING THE FORM OF AUDITOR ASSOCIATION WITH GIVEN QUARTERLY INCOME INFORMATION DOES NOT AFFECT THE USERS' PERCEIVED IMPORTANCE OR RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

Does auditor association affect the perceived importance and/or reliability of quarterly income information? The questionnaire attempted to measure whether the subjects believe auditor association will have an effect on the dependent variables.

H_{IB1}: THE NATURE OF THE FIRM'S PAST QUARTERLY INCOME INFORMATION, ACCURATE OR INACCURATE, DOES NOT INTERACT WITH THE FORM OF AUDITOR ASSOCIATION TO AFFECT THE USERS' PERCEIVED IMPORTANCE OR RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

Is the possible increase in importance and/or reliability due to auditor association with quarterly income information affected by the past accuracy of the firm's quarterly statements?

H_{IB2}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS (LOWER THAN, THE SAME AS, HIGHER THAN) DOES NOT INTERACT WITH THE FORM OF AUDITOR ASSOCIATION TO AFFECT THE USERS' PERCEIVED IMPORTANCE OR RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

Users are believed to use quarterly information to compare with their prior expectations. This interaction term tests whether importance and/or reliability are affected by the interaction of auditor association and consistency with expectations.

H_{IB3}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS, AND THE PAST ACCURACY OF THE FIRM'S QUARTERLY INCOME INFORMATION DO NOT INTERACT IN COMBINATION WITH FORM OF AUDITOR ASSOCIATION TO AFFECT THE USERS' PERCEIVED IMPORTANCE OR RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

This three-way interaction indicates whether the independent variables interact in combination with each other. For example, in the case of a firm which has had inaccurate quarterly statements in the past, and releases information inconsistent with user expectations, it is possible that auditor association will increase perceived importance and/or reliability disproportionately.

Consistency of Earnings with Expectations and Past Accuracy

H_{IIA}: THE NATURE OF THE FIRM'S PAST QUARTERLY INFORMATION, ACCURATE OR INACCURATE, DOES NOT AFFECT THE USERS' PERCEIVED IMPORTANCE OR RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

While the accuracy variable by itself was expected to be quite significant, it was included to give the user some background information on the firm. It was believed that in cases where the firm had issued accurate statements in the past the user would consider the statements to be more important and more reliable.

H_{IIB}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS (LOWER THAN, THE SAME AS, HIGHER THAN), DOES NOT AFFECT THE USERS' PERCEIVED IMPORTANCE OR RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

This variable was also included primarily to measure its interaction with form of auditor association for both the importance and reliability variables.

H_{IIC}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS, AND THE PAST ACCURACY OF THE FIRM'S QUARTERLY INCOME INFORMATION DO NOT INTERACT TO AFFECT THE USERS' PERCEIVED IMPORTANCE OR RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

This interaction term was expected to be significant primarily because of the case of the firm with inaccurate quarterly statements in the past which releases a quarterly statement inconsistent with user expectations.

Statistical Techniques

The various hypotheses are tested through use of a 4x2x3 factorial analysis of variance (ANOVA) with repeated measures on the last two factors (past accuracy, and consistency with expectations) for both the importance and reliability variables (see Figure 3-1).

The first factor--form of auditor association--is the nonrepeated measure. Thus, an individual received a research instrument in which the form of auditor association was not varied. The design was used to test the four possible forms of auditor association discussed above. The first form, no auditor association, served as a control in the sense that the perceived level of importance and credibility of scenarios with no auditor association could be compared with three varying forms of auditor association. The use of different forms of the research instrument eliminates the opportunity for the subject to make interquestion comparisons on form of auditor association and allows an unobtrusive measurement of the effect of the form of auditor association.

	<u>Accurate</u>			<u>Inaccurate</u>		
	<u>Low</u> (1)	<u>Expected</u> (2)	<u>High</u> (3)	<u>Low</u> (4)	<u>Expected</u> (5)	<u>High</u> (6)
I. No Auditor Association						
		S ₁₁				
		S ₁₂				
		:				
		S _{1n}				
II. Limited Review at Year-End						
		S ₂₁				
		S ₂₂				
		:				
		S _{2n}				
III. Limited Review at End of Quarter						
		S ₃₁				
		S ₃₂				
		:				
		S _{3n}				
IV. "Audit"						
		S ₄₁				
		S ₄₂				
		:				
		S _{4n}				

Figure 3-1. Experimental Design
4x2x3 ANOVA

The various levels of the repeated variables (past accuracy, and consistency with expectations) were embedded in scenarios. Each subject responded to six scenarios--each of which requested replies related to importance and reliability.

Hypotheses IA, IIA, and IIB were tested by the various main effects. Hypotheses IB1 and IB2 were tested by the interaction between auditor association level and the variables discussed above. In cases where there were statistically significant interaction results, simple main effects (Kirk, 1968) were calculated. Hypothesis IIC was tested in the same manner as the other two-way interactions.

CHAPTER 4

RESULTS

This study attempts to determine whether users perceive differences in reliability and importance of quarterly financial information when it has been exposed to varying forms of auditor association. Specific concerns relate to the interaction of the past accuracy of the quarterly financial information and the consistency of the information with the user's prior expectations and with the form of auditor association.

The objective of this chapter is to report the results of the study as they relate to the experimental hypotheses. The experimental hypotheses were originally stated (Chapter 3) in terms of both dependent variables: reliability and importance. To facilitate a more orderly presentation of empirical results, a single hypothesis, which was originally stated in terms of the effect of a treatment on reliability or importance, is presented in this chapter as two separate hypotheses--one for each dependent variable.

The first section of the chapter presents demographic information on the respondents and general opinion information pertaining to quarterly financial information. Second, results pertaining to the reliability hypotheses are presented. Third are the results for the importance variable. Finally, the various tests of the appropriateness of the statistical technique used (an analysis of variance) are presented.

Respondent Demographic Information

Fifty-seven investment analysts from five large banks located in a large midwestern city participated in the study. The research instrument was administered by distributing forms to the director of each bank's investment research division. Each director distributed the instrument to his subordinates. Table 4-1 summarizes response rates. The "eligible respondents" in Table 4-1 represent those analysts who were involved in either making portfolio decisions, recommending policy decisions, or recommending investment issues. Trainees and clerical assistants were excluded. The 57 returned instruments were all usable, although five of the 57 instruments did have some missing background and/or opinion information. These five were not included in the statistical analysis when

Table 4-1
Response Rates

Bank	Eligible Respondents	Number Returned	Return Rate
A	6	5	83.3 %
B	21	18	85.7
C	12	9	75.0
D	12	11	91.7
E	14	14	100.0
	<hr style="width: 50%; margin: 0 auto;"/> 65	<hr style="width: 50%; margin: 0 auto;"/> 57	<hr style="width: 50%; margin: 0 auto;"/> 87.7 %

the missing reply pertained to a particular question. All 57 respondents answered all questions pertaining to the six scenarios which are used for the overall analysis of variance.

Table 4-2 summarizes respondents' demographic information. Table 4-3 presents a summary of replies to questions included in the research instrument relating to the analysts' overall opinions on quarterly financial information and auditor association therewith. This demographic and opinion information was used in detailed testing (the final section below) of the assumptions of the analysis of variance model.

Results: Reliability

Table 4-4 presents the overall analysis of variance for the reliability variable. As in Chapter 3, the hypotheses are divided here between the Form of Auditor Association¹ and the other two variables--Past Accuracy of the Firm's Quarterly Financial Information (hereafter, Past Accuracy) and the Consistency of Earnings With Prior Expectations (hereafter, Consistency With Expectations).

Form of Auditor Association and its Interactions

H_{IA}: VARYING THE FORM OF AUDITOR ASSOCIATION WITH GIVEN QUARTERLY INCOME INFORMATION DOES NOT AFFECT THE USERS' PERCEIVED RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

The A effect of Table 4-4 indicates that this hypothesis is rejected at the .05 level (actually, .01235). Table 4-5 summarizes all of the cell means obtained in the study. This hypothesis tests whether the row means

Table 4-2
Responses to Background Questions

Question	Reply	Number
Education (Question 8):	Bachelor's Degree	6
	Master's Degree	46
	Ph.D. Degree	4
	No Reply	<u>1</u>
		57
Formal Accounting Courses (Question 9):	None	3
	Between 1 and 3	21
	More than 3	32
	No Reply	<u>1</u>
		57
Chartered Financial Analyst (Question 10):	Yes	15
	No	41
	No Reply	<u>1</u>
		57
Level of Responsibility (Question 11):	Make Portfolio	
	Decisions	9
	Recommend Policy	
	Decisions	4
	Recommend Issues	38
Some Combination of		
Above	<u>6</u>	
		57
Experience in Financial Analysis (Question 13):	Mean	7.16 years
	Standard Deviation	5.13 years
Age (Question 14):	Mean	33.75 years
	Standard Deviation	7.47 years

Table 4-3

Responses to Question 7 From Research Instrument
(Percentages)

7. Indicate the extent to which you agree or disagree with the following:	Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
Some form of auditor association should be required with all quarterly corporate financial information before it is released to the public....	9	49	21	12	9	0
Full quarterly audits should be required of all quarterly corporate financial information before it is released to the public.....	4	11	12	23	40	10
In the past, when there was no auditor association, the information in quarterly corporate financial reports was as reliable as the information in audited annual reports.....	0	30	26	16	19	9
Before receiving this questionnaire I had given considerable thought to the issue of auditor association with quarterly corporate financial information.....	2	14	12	25	33	14
When dealing with annual corporate financial information the auditor's primary responsibility is to prepare the financial statements.....	0	14	16	9	27	34

Table 4-3 (continued)

7. Indicate the extent to which you agree or disagree with the following:	Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
All other things considered equal, I would rely more on a quarterly financial statement with which an auditor is associated than one in which no auditor association is present.....	11	40	35	5	9	0
A good financial analyst, without access to inside information, can consistently outperform the market.....	4	23	38	7	21	7

Table 4-4
Analysis of Variance Table: Reliability

Source	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
A (Form of Auditor Association)	3	108.85	36.28	3.99*
D (Subjects Within Groups)	53	482.17	9.10	
B (Past Accuracy)	1	610.67	610.67	149.43***
AB	3	41.24	13.75	3.36*
BD	53	216.59	4.09	
C (Consistency With Expectations)	2	18.01	9.00	12.28***
AC	6	1.96	.33	.45
CD	106	77.70	.73	
BC	2	4.85	2.42	4.19*
ABC	6	2.77	.46	.80
BCD	106	61.38	.58	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

Table 4-5

ABC Mean Summary Table: Reliability

	B ₁ - Inaccurate			B ₂ - Accurate			Row Means
	C ₁ Lower	C ₂ Expected	C ₃ Higher	C ₁ Lower	C ₂ Expected	C ₃ Higher	
A ₁ - No Auditor Association	3.308	3.769	2.846	6.923	7.385	7.231	5.244
A ₂ - Limited Review-Year- End	4.938	4.750	4.375	7.000	7.500	7.000	5.927
A ₃ - Limited Review- Quarterly	5.200	5.400	4.667	7.333	7.867	7.600	6.344
A ₄ Audit	5.692	6.461	5.538	7.615	8.154	7.615	6.846
Column Means	4.807	5.088	4.368	7.211	7.719	7.351	6.091

($A_1=5.244$, $A_2=5.927$, $A_3=6.344$, $A_4=6.846$) differ significantly. The significant F ratio indicates that at least two of these four means differ significantly. The Newman-Keuls² multiple comparison procedure indicates that the following significant differences exist:

$A_4 > A_1$ at the .01 level of significance

$A_3 > A_1$ at the .10 level of significance.

Thus, audited quarterly income information is considered to be more reliable than unaudited information at the .01 level of statistical significance. Income information which has been exposed to a limited review prior to its release is considered to be more reliable than unaudited information at the .10 level of significance. Knowledge of required year-end limited review requirements (level two of the variable) did not result in a significantly higher mean response than in the case of unaudited quarterly information (level one of the variable). However, it should be noted that all means increase with increasing auditor association. These and the other results reported below, based on the Newman-Keuls procedure, are "conservative" in the sense that the procedure is specifically for analyses in which no direction of differences in means can be assumed on an a priori basis. In this case, it should be noted that on an a priori basis more auditor association will be perceived as either having no effect on, or increasing, reliability; it is difficult to imagine an audit decreasing the reliability of information.

H_{IB1} : THE NATURE OF THE FIRM'S PAST QUARTERLY INCOME INFORMATION, ACCURATE OR INACCURATE, DOES NOT INTERACT WITH THE FORM OF AUDITOR ASSOCIATION TO AFFECT THE USERS' PERCEIVED RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

Table 4-4 indicates that this hypothesis, as tested by the AB interaction term, is rejected at the .05 level of significance. Because this interaction term is significant, overall analyses of the A factor (Form of Auditor Association) and the B factor (Past Accuracy) are of limited interest (Kirk, 1968, pp. 179-182). Such interaction indicates that the significance of the A and/or the B effect may not exist at all levels of the other variable (i.e., levels of A may not differ significantly at all levels of B and/or levels of B may not differ significantly at all levels of A).

A test of simple main effects was performed to determine whether means of the forms of auditor association differ for firms with accurate past quarterly financial information as well as for those firms with inaccurate past quarterly financial information. Table 4-6 summarizes the necessary analysis to determine where significantly different means exist. The significance of A at B_1 (probability less than .001, hereafter, $p < .001$) indicates that some of the auditor association means differ significantly for firms which have in the past released inaccurate quarterly financial information. Table 4-7 presents those means (3.308, 4.688, 5.089, 5.897). Those which differ significantly are:

$A_4 > A_1$ and $A_3 > A_1$ at the .01 level of significance.

$A_2 > A_1$ at the .05 level of significance.

$A_4 > A_2$ at the .10 level of significance.

Thus, the perceived reliability of audited quarterly information for firms which have released inaccurate statements in the past is significantly greater than for either unaudited firms ($p < .01$) or those released in which a limited review will be performed at year-end ($p < .10$). Both forms of limited

Table 4-6

AB Simple Main Effects: Reliability

Source	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
A (Form of Auditor Association)	3	108.85		
AB	3	<u>41.24</u>		
		150.09		
Simple Main Effects				
A at B ₁ (Inaccurate)	3	138.51	46.17	7.00***
A at B ₂ (Accurate)	3	<u>11.58</u>	3.86	.58
		150.09		
Error Term - Pooled D and BD	106		6.59	
B (Past Accuracy)	1	610.67		
AB	3	<u>41.24</u>		
		651.91		
Simple Main Effects				
B at A ₁ (No Auditor Association)	1	314.83	314.83	77.03***
B at A ₂ (Limited Review-Year-End)	1	129.07	129.07	31.58***
B at A ₃ (Limited Review-Quarterly)	1	132.41	132.41	32.40***
B at A ₄ (Audit)	1	<u>75.60</u>	75.60	18.50***
		651.91		
Error Term - BD	53		4.09	

*p<.05

**p<.01

***p<.001

Table 4-7

AB Mean Summary Table: Reliability

	B ₁ Inaccurate	B ₂ Accurate	Row Means
A ₁ - No Auditor Association	3.308	7.179	5.244
A ₂ - Limited Review--Year-End	4.688	7.167	5.927
A ₃ - Limited Review--Quarterly	5.089	7.600	6.344
A ₄ - Audit	5.897	7.795	6.846
Column Means	4.754	7.427	6.091

review (year end[A₂], and timely, quarterly[A₃]) differ significantly from unaudited quarterly information when inaccurate information has been released in the past ($p < .05$ and $p < .01$, respectively).

In the case of firms which have released accurate quarterly information in the past (A at B₂), Table 4-6 indicates that no significant differences exist between means. Table 4-7 presents those means (7.179, 7.167, 7.600, 7.795).

Table 4-6 also includes the results which indicate that under all four auditor association forms the difference in reliability between accurate and inaccurate firms is significant at the .001 level.³ Firms which in the past have released accurate quarterly financial information are perceived as having significantly more reliable current information than those which have released inaccurate information.

H_{IB2}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS (LOWER THAN, THE SAME AS, HIGHER THAN), DOES NOT INTERACT WITH THE FORM OF AUDITOR ASSOCIATION TO AFFECT THE USERS' PERCEIVED RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

The AC interaction term from Table 4-4 tests this hypothesis. This interaction is clearly insignificant. Differences in reliability results due to Form of Auditor Association thus generalize across differing levels of the Consistency With Expectations variable. Also, differences in levels of the Consistency With Expectations variable generalize across levels of the Form of Auditor Association variable. The pertinent means are summarized in Table 4-8.

H_{IB3}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS, AND THE PAST ACCURACY OF THE FIRM'S QUARTERLY INCOME INFORMATION DO NOT INTERACT IN COMBINATION WITH FORM OF AUDITOR ASSOCIATION TO AFFECT THE USERS' PERCEIVED RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

The ABC interaction term, which tests this hypothesis, is not significant (see Table 4-4). The insignificance of the ABC and AC interactions indicates that, of the variables tested, only Past Accuracy interacts with Form of Auditor Association to affect reliability measures.

Past Accuracy and Consistency of Earnings With Expectations

H_{IIA}: THE NATURE OF THE FIRM'S PAST QUARTERLY INFORMATION, ACCURATE OR INACCURATE, DOES NOT AFFECT THE USERS' PERCEIVED RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

This hypothesis, as tested by B (Table 4-4), is rejected at the .001 level of significance. Information released by firms which in the past have released accurate quarterly income information is clearly perceived

Table 4-8

AC Mean Summary Table: Reliability

	C_1 Lower	C_2 Expected	C_3 Higher	Row Means
A_1 - No Auditor Association	5.115	5.577	5.038	5.244
A_2 - Limited Review--Year-End	5.969	6.125	5.688	5.927
A_3 - Limited Review--Quarterly	6.267	6.633	6.133	6.344
A_4 - Audit	6.654	7.308	6.577	6.846
Column Means	6.009	6.404	5.860	6.091

as being more reliable than that released by firms which have released inaccurate information in the past. The row means of Table 4-9 (4.754, 7.427) are the means which differ significantly. Because both the AB and BC interactions are significant, further analysis of B is presented under Hypotheses IB1 and IIC.

Table 4-9

BC Mean Summary Table: Reliability

	C_1 Lower	C_2 Expected	C_3 Higher	Row Means
B_1 - Inaccurate	4.807	5.088	4.368	4.754
B_2 - Accurate	7.211	7.719	7.351	7.427
Column Means	6.009	6.404	5.860	6.091

H_{IIB}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS (LOWER THAN, THE SAME AS, HIGHER THAN), DOES NOT AFFECT THE USERS' PERCEIVED RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

The tested means are the column means from Table 4-9 (6.009, 6.404, 5.860). The C factor of Table 4-4 indicates that this hypothesis is rejected at the .001 level of significance. Newman-Keuls procedure indicates that income which was as expected was considered significantly more reliable ($p < .01$) than income which was either higher or lower than expected. Further discussion is deferred until presentation of the results of Hypothesis IIC, which deal with the interaction between Past Accuracy and Consistency With Expectations.

H_{IIC}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS, AND THE PAST ACCURACY OF THE FIRM'S QUARTERLY INCOME INFORMATION, DO NOT INTERACT TO AFFECT THE USERS' PERCEIVED RELIABILITY OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

The BC interaction (Table 4-4) rejects this hypothesis ($p < .05$). Table 4-10 summarizes the simple main effects associated with this hypothesis. The significance of B at C₁, C₂, and C₃ indicates that at all levels of C (earnings lower than expected, earnings the same as expected, earnings higher than expected), information released by firms which have released inaccurate quarterly information in the past is considered significantly less reliable than information released by firms which have released accurate information in the past ($p < .001$).

Table 4-10 also shows the simple effects for C at B₁ (inaccurate quarterly financial statements in the past) and B₂ (accurate quarterly financial statements in the past). The table shows differences in the effect of C on reliability at both levels of B.

Table 4-10

BC Simple Main Effects: Reliability

Source	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
B (Past Accuracy)	1	610.67		
BC	2	<u>4.85</u>		
		615.52		
Simple Main Effects				
B at C ₁ (Lower Than Expected)	1	164.64	164.64	94.08***
B at C ₂ (Same As Expected)	1	197.37	197.37	112.78***
B at C ₃ (Higher Than Expected)	1	<u>253.51</u>	253.51	144.86***
		615.52		
Error Term--Pooled BD and BCD	159		1.75	
C (Consistency With Expectations)	2	18.01		
BC	2	<u>4.85</u>		
		22.86		
Simple Main Effects				
C at B ₁ (Inaccurate)	2	14.98	7.49	11.41***
C at B ₂ (Accurate)	2	<u>7.88</u>	3.94	6.01**
		22.86		
Error Term--Pooled CD and BCD	212		.66	

*p.<.05

**p.<.01

***p.<.001

The Newman-Keuls multiple comparison procedure applied to the three levels of the Consistency With Expectations variable at level B_1 indicates that quarterly income information with earnings at expected levels is considered significantly more reliable than information with either higher ($p < .01$) or lower ($p < .10$) earnings than expected. Also, the perceived reliability of lower-than-expected earnings exceeds that of higher-than-expected earnings at the .01 level of significance for firms which in the past have released inaccurate quarterly information. Or, for inaccurate firms:

$C_2 > C_3$ and $C_1 > C_3$ at the .01 level of significance

$C_2 > C_1$ at the .10 level of significance.

For firms which have released accurate information in the past, perceived reliability of earnings at expected levels also exceeds perceived reliability of lower-than-expected earnings ($p < .01$) or higher-than-expected earnings ($p < .05$). To summarize, the significant differences for accurate firms are:

$C_2 > C_1$ at the .01 level of significance

$C_2 > C_3$ at the .05 level of significance.

It should be noted that in the case of lower- versus higher-than-expected earnings no significant difference in reliability ratings exists for firms which have released accurate information in the past. In fact, for accurate firms, perceived reliability for higher-than-expected earnings slightly exceeds that for lower-than-expected earnings. A possible explanation for this result surfaced during debriefing of respondents. One analyst suggested that when a firm which in the past has

adjusted and corrected quarterly information releases information with a lower-than-expected amount of earnings, he concluded that the earnings were at least as bad as indicated. However, when higher-than-expected earnings were released he could not be equally certain that earnings would indeed be higher. But, in the case of firms which had been accurate in the past he did not differentiate between the reliability of higher- or lower-than-expected earnings.

Summary of Reliability Results

Table 4-11 summarizes the significant main effects and simple main effects. Table 4-11 shows that the significant A (Form of Auditor Association) effect arose primarily due to the significant difference between audited quarterly financial information and that with which no auditor is associated. However, the significance of the AB interaction provides the key to the analysis of those hypotheses related to the form of auditor association. Auditors are perceived as increasing the reliability of the quarterly financial information in cases in which the firm has released inaccurate quarterly information in the past. For these inaccurate firms users perceive significant differences in reliability between all forms of auditor association tested (audit, limited review quarterly, limited review at year-end) as compared to statements with which no auditor is associated. Also, at the .10 level of significance, audited quarterly income information is considered more reliable than that which will be subjected to a limited review at year-end. Interestingly, neither the difference between the two forms of limited review nor the

Table 4-11
 Summary of Significant * Main and Simple
 Main Effects: Reliability

Effect	Level of Significance			
	.001	.01	.05	.10
A (Form of Auditor Association)		$A_4 > A_1$		$A_3 > A_1$
A at B ₁		$A_4, A_3 > A_1$	$A_2 > A_1$	$A_4 > A_2$
A at B ₂				
A at C ₁ , C ₂ , C ₃				
B (Past Accuracy)	$B_2 > B_1$			
B at A ₁ , A ₂ , A ₃ , A ₄	$B_2 > B_1$			
B at C ₁ , C ₂ , C ₃	$B_2 > B_1$			
C (Consistency With Expectations)		$C_2 > C_1, C_3$		
C at A ₁ , A ₂ , A ₃ , A ₄				
C at B ₁		$C_1, C_2 > C_3$		$C_2 > C_1$
C at B ₂		$C_2 > C_1$	$C_2 > C_3$	

* Using Newman-Keuls Multiple Comparison Procedure

Note:

(A₁, A₂, A₃, A₄) = (No Auditor Association, Limited Review at Year-End, Limited Review Quarterly, Audit)

(B₁, B₂) = (Accurate Past Quarterly Information, Inaccurate Past Quarterly Information)

(C₁, C₂, C₃) = (Lower-Than-Expected Income, Same-As-Expected Income, Higher-Than-Expected Income)

difference between a timely limited review and an audit, are significant at the .10 level of significance. However, the means increase with increased auditor association. Also, as noted above, the Newman-Keuls procedure does not consider the fact that the means were logically either equal or ordered.

The B (Past Accuracy), C (Consistency With Expectations), and BC interaction all proved significant. The BC analysis indicated that firms which in the past have provided inaccurate information and which indicate higher-than-expected earnings are viewed as providing information less reliable than those reporting earnings lower than or equal to expectations. The insignificant AC (Auditor Association and Consistency With Expectations) interaction and ABC (Auditor Association interaction with Past Accuracy and Consistency With Expectations) are especially informative since they indicate that auditor association does not eliminate or significantly decrease this difference in reliability.

Results: Importance

Table 4-12 presents the overall analysis of variance relating to the importance variable. As in the discussion of reliability, the variables are divided between those related to the Form of Auditor Association and the other two variables--Consistency of Earnings With Prior Expectations, and the Past Accuracy of the Firm's Quarterly Financial Information.

Table 4-12
 Analysis of Variance Table: Importance

Source	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
A (Form of Auditor Association)	3	8519.10	2839.70	1.57
D (Subjects Within Groups)	53	95890.45	1809.25	
B (Past Accuracy)	1	6301.24	6301.24	18.49***
AB	3	248.25	82.75	.24
BD	53	18061.18	340.77	
C (Consistency With Expectations)	2	451.81	225.90	1.74
AC	6	430.75	71.79	.55
CD	106	13752.11	129.74	
BC	2	466.78	233.39	3.50*
ABC	6	492.85	82.14	1.23
BCD	106	7071.70	66.71	

* $p < .05$

** $p < .01$

*** $p < .001$

Form of Auditor Association
and its Interactions

H_{IA}: VARYING THE FORM OF AUDITOR ASSOCIATION WITH GIVEN QUARTERLY INCOME INFORMATION DOES NOT AFFECT THE USERS' PERCEIVED IMPORTANCE OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

The A effect, which tests this hypothesis (Table 4-12), is not significant. It actually becomes significant at the .21 level. The row means (35.513, 35.156, 32.256, 45,769) are presented in Table 4-13. It may be noted that while the means of no auditor association and both limited reviews are approximately equal, the mean of audit condition is more than 10 points greater than any of the other three.⁴

H_{IB1}: THE NATURE OF THE FIRM'S PAST QUARTERLY INCOME INFORMATION, ACCURATE OR INACCURATE, DOES NOT INTERACT WITH THE FORM OF AUDITOR ASSOCIATION TO AFFECT THE USERS' PERCEIVED IMPORTANCE OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

This hypothesis is not rejected (Table 4-12, the AC effect). The individual means in Table 4-14 indicate that the mean of the audit form of association exceeds the other three levels of the Form of Auditor Association variable under both accurate and inaccurate conditions. Also, relatively small differences between the other forms of auditor association exist under both accurate and inaccurate conditions. These two conditions rule against a significant AB interaction.

H_{IB2}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS (LOWER THAN, THE SAME AS, HIGHER THAN), DOES NOT INTERACT WITH THE FORM OF AUDITOR ASSOCIATION TO AFFECT THE USERS' PERCEIVED IMPORTANCE OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

The AC interaction (Table 4-12) is also insignificant. As in the case of the reliability dependent variable, Form of Auditor Association did

Table 4-13

ABC Mean Summary Table: Importance

	B ₁ - Inaccurate			B ₂ - Accurate			Row Means
	C ₁ Lower	C ₂ Expected	C ₃ Higher	C ₁ Lower	C ₂ Expected	C ₃ Higher	
A ₁ - No Auditor Association	34.231	28.077	27.308	44.231	38.846	40.385	35.513
A ₂ - Limited Review-Year-End	31.250	32.188	28.750	38.750	40.313	39.688	35.156
A ₃ - Limited Review-Quarterly	31.333	30.333	25.333	35.533	35.000	36.000	32.256
A ₄ - Audit	41.538	44.615	39.231	53.846	44.231	51.154	45.769
Column Means	34.298	33.596	29.912	42.596	39.474	41.491	36.895

Table 4-14

AB Mean Summary Table: Importance

	B ₁ Inaccurate	B ₂ Accurate	Row Means
A ₁ - No Auditor Association	29.872	41.154	35.513
A ₂ - Limited Review--Year-End	30.729	39.583	35.156
A ₃ - Limited Review--Quarterly	29.000	35.511	32.256
A ₄ - Audit	41.795	49.744	45.769
Column Means	32.602	41.187	36.895

not interact significantly with the Consistency With Expectations variable. Table 4-15 presents the relevant means.

Table 4-15

AC Mean Summary Table: Importance

	C ₁ Lower	C ₂ Expected	C ₃ Higher	Row Means
A ₁ - No Auditor Association	39.231	32.462	33.846	35.513
A ₂ - Limited Review--Year-End	35.000	36.250	34.219	35.156
A ₃ - Limited Review--Quarterly	33.433	32.667	30.667	32.256
A ₄ - Audit	47.692	44.423	45.192	45.769
Column Means	38.447	36.535	35.702	36.895

H_{IB3}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS, AND THE PAST ACCURACY OF THE FIRM'S QUARTERLY INCOME INFORMATION DO NOT INTERACT IN COMBINATION WITH FORM OF AUDITOR ASSOCIATION TO AFFECT THE USER'S PERCEIVED IMPORTANCE OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

The ABC interaction (Table 4-12), which tests this hypothesis, is insignificant. Thus, perceived importance of the quarterly income information was not significantly affected by any form of auditor association.

Past Accuracy and Consistency of Earnings With Expectations

H_{IIA}: THE NATURE OF THE FIRM'S PAST QUARTERLY INFORMATION, ACCURATE OR INACCURATE, DOES NOT AFFECT THE USERS' PERCEIVED IMPORTANCE OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

This hypothesis is tested by the B effect (Table 4-12). Its significance at the .001 level indicates that Past Accuracy affects the perceived importance of the quarterly financial information. The pertinent means for inaccurate and accurate firms (32.602, 41.187) are presented in Table 4-16. These results are consistent with those obtained for the reliability variable. The BC interaction is also significant; further discussion is deferred until the results of Hypothesis IIC are discussed.

H_{IIB}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS (LOWER THAN, THE SAME AS, HIGHER THAN) DOES NOT AFFECT THE USERS' PERCEIVED IMPORTANCE OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

The Consistency With Expectations variable, tested by the C factor (Table 4-12) is not significant. Further discussion related to Consistency follows under Hypothesis IIC.

Table 4-16

BC Mean Summary Table: Importance

	C ₁ Lower	C ₂ Expected	C ₃ Higher	Row Means
B ₁ - Inaccurate	34.298	33.596	29.912	32.602
B ₂ - Accurate	42.596	39.474	41.491	41.187
Column Means	38.447	36.535	35.702	36.895

H_{IIC}: THE CONSISTENCY OF THE QUARTERLY INCOME INFORMATION WITH USER EXPECTATIONS, AND THE PAST ACCURACY OF THE FIRM'S QUARTERLY INCOME INFORMATION DO NOT INTERACT TO AFFECT THE USERS' PERCEIVED IMPORTANCE OF THE QUARTERLY INCOME INFORMATION FOR MAKING EQUITY INVESTMENT DECISIONS.

This hypothesis is rejected because of the significant BC interaction ($p < .05$, Table 4-12). The means involved in this portion of the analysis are shown in Table 4-16. The simple main effects of the analysis of variance (Table 4-17) indicate that, as in the case of the reliability variable, at all levels of C (lower-than-expected earnings, expected earnings, higher-than-expected earnings), information released by firms which in the past have released accurate information is perceived as being more important than that of firms which have released inaccurate information.

Significant differences in means exist at level B₁ (inaccurate past quarterly information). The Newman-Keuls procedure indicates that both earnings lower than expected and earnings as expected have a significantly greater importance than do earnings reported higher than expected ($p < .05$). The difference between earnings as expected and earnings lower than expected is not significant.

Table 4-17

BC Simple Main Effects: Importance

Source	Degrees of Freedom	Sum of Squares	Mean Square	F Ratio
B (Past Accuracy)	1	6301.24		
BC	2	<u>466.78</u>		
		6768.02		
Simple Main Effects				
B at C ₁ (Lower Than Expected)	1	1962.46	1962.46	12.42***
B at C ₂ ¹ (Same As Expected)	1	984.34	984.34	6.23*
B at C ₃ ² (Higher Than Expected)	1	<u>3821.22</u>	3821.22	24.17***
		6768.02		
Error Term--Pooled BD and BCD	159		158.07	
C (Consistency With Expectations)	2	451.81		
BC	2	<u>466.78</u>		
		918.59		
Simple Main Effects				
C at B ₁ (Inaccurate)	2	632.74	316.37	3.22*
C at B ₂ ¹ (Accurate)	2	<u>285.85</u>	142.92	1.45
		918.59		
Error Term--Pooled CD and BCD	212		98.23	

*p.<.05
 **p.<.01
 ***p.<.001

Finally, no significant differences in Consistency With Expectations means exist in the case of firms which have reported accurate quarterly financial information in the past.

Summary of Results Relating to Importance

None of the hypotheses related to the effect of the Form of Auditor Association on importance was rejected. Table 4-18 summarizes the significant results relating to Past Accuracy and Consistency With Expectations. Although no significant differences were noted, the audit level of the Form of Auditor Association variable is approximately ten points higher than the other three levels of the variable.

The Past Accuracy variable is significant for importance (as it is for reliability). Also, analysis of the significant BC interaction indicates that perceived importance for past-accurate firms exceeds perceived importance for past-inaccurate firms under all three levels of C (earnings lower than expected, earnings as expected, earnings higher than expected). The levels of C at the two levels of B (past-inaccurate quarterly information and past-accurate quarterly information) only differed significantly in the case of firms which had released inaccurate quarterly information in the past. In that instance earnings which were lower than expected and as expected had a significantly greater perceived importance than reported earnings which were higher than had been expected.

Tests of Assumptions

Analysis of variance relies upon the following assumptions:

Table 4-18
 Summary of Significant* Main and Simple
 Main Effects: Importance

Effect	Level of Significance			
	.001	.01	.05	.10
A (Form of Auditor Association)				
A at B ₁ , B ₂				
A at C ₁ , C ₂ , C ₃				
B (Past Accuracy)				
B at A ₁ , A ₂ , A ₃ , A ₄	B ₂ >B ₁			
B at C ₁ , C ₃	B ₂ >B ₁			
B at C ₂			B ₂ >B ₁	
C (Consistency With Expectations)				
C at A ₁ , A ₂ , A ₃ , A ₄				
C at B ₁			C ₁ , C ₂ >C ₃	
C at B ₂				

* Using Newman-Keuls Multiple Comparison Procedure

Note:

(A₁, A₂, A₃, A₄) = (No Auditor Association, Limited Review at Year-End, Limited Review Quarterly, Audit)

(B₁, B₂) = (Accurate Past Quarterly Information, Inaccurate Past Quarterly Information)

(C₁, C₂, C₃) = (Lower Than Expected Income, Same as Expected Income, Higher Than Expected Income)

1. The various covariances between levels of variables are equal and this equality exists at each level of A (Form of Auditor Association).
2. The error term variances are homogeneous.
3. The various observations are drawn from normally distributed populations.
4. The various samples have been selected at random.

The purpose of this section is to describe tests performed to determine the extent to which the above assumptions have been met.

Equality of Covariances

The covariance equality conditions relate only to the repeated measures (factors B and C--Past Accuracy and Consistency With Expectations) and their interactions with the nonrepeated factor (factor A--Form of Auditor Association).

Three sets of covariance matrices are associated with the nonrepeated factor (B at A_1, A_2, A_3 and A_4 ; C at A_1, A_2, A_3 , and A_4 ; BC at A_1, A_2, A_3 and A_4). The covariance conditions require first that each of the three sets of covariance matrices have equal covariances (hereafter, compound symmetry), and second, that the covariance matrix at each level of A must equal that at the other levels of the A factor (hereafter, equality). Kirk (1968, p. 258) suggests tests of the equality and compound symmetry of the covariance matrices. When these tests were performed a violation of the equality condition occurred in both the C and BC matrices ($p < .05$ and $p < .01$), and a compound symmetry violation occurred in the BC matrices ($p < .01$) for both the reliability and importance variables. Additionally, in the case of the C matrices for the importance variable, the compound symmetry condition was violated ($p < .01$).

Geisser and Greenhouse (1958) have provided a "conservative" F ratio which may be used when violations in the compound symmetry assumption are involved. In cases in which the assumptions are violated, F's, as calculated in Tables 4-4 and 4-12, are compared with F table values with modified degrees of freedom.

Kirk (1968, p. 303) shows conservative F degrees of freedom for the design used in this study as:

MS_B	1, $p(n-1)$	= 1,53
MS_{AB}	$(p-1), p(n-1)$	= 3,53
MS_C	1, $p(n-1)$	= 1,53
MS_{AC}	$(p-1), p(n-1)$	= 3,53
MS_{BC}	1, $p(n-1)$	= 1,53
MS_{ABC}	$(p-1), p(n-1)$	= 3,53

In the case of reliability, the only change in significance when using a conservative F is that the C variable (Consistency of Information With Expectations) becomes significant at the .01 level instead of .001. For the importance variable the only change is that the BC interaction falls slightly below the .05 level of significance (approximately .07-.08).

No such correction procedure exists for violations of the equality assumption. The violations are not considered to be a major limitation because the C and BC matrices for which the violation was noted do not affect the significance results relating to Form of Auditor Association.

Likewise, there is no correction factor available for the Newman-Keuls multiple comparison procedure. Thus the results summarized in Table 4-11 relating to significant differences in means of the C factor and

the simple main effects relating to the BC interaction should be treated with caution. Because no violation occurred with respect to the B (Past Accuracy) covariance matrices the variable of primary concern, A at B_1 and B_2 , is not directly affected.

Homogeneity of Error Terms

The design used in this study has a repeated measure on the B (Past Accuracy) and C (Consistency With Expectations) factors. The design has four error terms (D, BD, CD, and BCD), as shown in Tables 4-4 and 4-12. Table 4-19 details the makeup of each of the four error terms for the reliability variable.

Cochran's test of homogeneity of variance (Kirk 1968, pp. 62-63) reveals that the only significant deviation from homogeneity occurs in the BCD interaction term. This significance reaches approximately the .05 level. This result is consistent with the above finding that the BC covariance matrices violate the equality and compound symmetry conditions. This violation is not considered a problem because the BCD interaction is not used in the case of Form of Auditor Association or any of its interactions. The only significant effects in which it is used are the C and BC effects.

Table 20 summarizes the error term analysis for the importance variable. In this case the only violation at the .05 level of significance is the CD error term; BCD is significant at the .10 level. These violations (which, again, are consistent with the above covariance matrices analysis) are not considered important enough to warrant further analysis.

Table 4-19

Analysis of Error Terms: Reliability

D			BD				
Degrees of Freedom	Sum of Squares	Mean Square	Degrees of Freedom	Sum of Squares	Mean Square		
A ₁	12	126.87	10.57	A ₁	12	59.18	4.93
A ₂	15	142.99	9.52	A ₂	15	46.66	3.11
A ₃	14	99.82	7.13	A ₃	14	60.62	4.33
A ₄	12	112.49	9.37	A ₄	12	50.13	4.18
C [#]			.289	C [#]			.298

CD			BCD				
Degrees of Freedom	Sum of Squares	Mean Square	Degrees of Freedom	Sum of Squares	Mean Square		
A ₁	24	10.59	.44	A ₁	24	12.44	.52
A ₂	30	27.85	.93	A ₂	30	28.19	.94
A ₃	28	17.98	.64	A ₃	28	5.58	.20
A ₄	24	21.28	.89	A ₄	24	15.18	.63
C [#]			.320	C [#]			.41*

[#]C represents Cochran's C statistic (the largest mean square divided by the sum of the mean squares).

(A₁, A₂, A₃, A₄) = (No Auditor Association, Limited Review at Year End, Limited Review Quarterly, Audit)

*p.<.05

**p.<.01

Table 4-20

Analysis of Error Terms: Importance

D				BD			
	Degrees of Freedom	Sum of Squares	Mean Square		Degrees of Freedom	Sum of Squares	Mean Square
A ₁	12	17088	1424	A ₁	12	1876	156
A ₂	15	41727	2782	A ₂	15	4631	309
A ₃	14	18989	1356	A ₃	14	6369	455
A ₄	12	18087	1507	A ₄	12	5185	432
C [#]			.393	C [#]			.336

CD				BCD			
	Degrees of Freedom	Sum of Squares	Mean Square		Degrees of Freedom	Sum of Squares	Mean Square
A ₁	24	5176	216	A ₁	24	2383	99
A ₂	30	2266	76	A ₂	30	2246	75
A ₃	28	1221	44	A ₃	28	1061	38
A ₄	24	5090	212	A ₄	24	1381	58
C [#]			.394*	C [#]			.368

[#]C represents Cochran's C statistic (the largest mean square divided by the sum of the mean squares).

(A₁, A₂, A₃, A₄) = (No Auditor Association, Limited Review at Year End, Limited Review Quarterly, Audit)

*p.<.05

**p.<.01

Normally Distributed Populations

No tests of normality were performed. As suggested by Glass and Stanley (1970), "Many years of study have shown clearly that the effects of nonnormality on the nominal level of significance of the F-test are extremely slight....With respect to the problem of a type I error, we can safely conclude that the ANOVA (analysis of variance) assumption of normality is of almost no importance " (p. 372).

Randomly Selected Samples

The subjects were financial analysts for five large banks. Inferences beyond these individuals to the population of financial analysts for other banks or to the population of financial analysts is hazardous at best, since the sample was not randomly selected. However, it should be noted that the analysts were involved in fundamental investment research, as are numerous other financial analysts.⁵ The demographic information presented in Table 4-2 gives further background information pertaining to the respondents.

Although the financial analysts were not selected at random, those in the sample were randomly assigned to the various forms of auditor association and the sequence of the six scenarios was randomized for each respondent.

The random assignment of subjects to the form of auditor association conditions is intended to control the effect of any variable not considered in the experimental design. Thus, for example, if all respondents under one form of auditor association differ on some dimension from other respondents this may serve as an alternate explanation of the differences in

means between treatments. Analysis of covariance can measure whether such differences can alternatively explain a significant treatment effect (Tatsuoka, 1971, Chapter 3). Table 4-21 summarizes results of separate analysis of covariance results using all background and direct opinion questions as covariates to reliability for the form of auditor association variable.⁶ The table indicates that the overall F related to the A effect remains highly significant in all cases after consideration of the respective covariate.⁷ Because of the insignificance of the form of auditor association variable for importance, no analysis of covariance analysis procedures were applied--there was no significance to be "lost" and no a priori reason existed as to why any of the covariates would have an effect on the dependent variable.

Finally, because the analysis of variance does not contain a sequence or carry-over effect, the order of the scenarios was randomly assigned to each respondent.

Summary

Although some violations in the analysis of variance model do exist, they do not appear to present a significant problem to the analysis.

Table 4-21
Covariance Analysis: Reliability

	Adjusted F Ratio	Probability
Background Questions:		
Education	3.92	.01
Formal Accounting Courses	3.98	.01
Chartered Financial Analyst	4.37	.01
Responsibility	3.67	.02
Position	2.92	.04
Experience in Financial Analysis	4.15	.01
Age	3.90	.01
Question 7 of Research Instrument*		
Require Some Form of Auditor Association	2.16	.10
Require Full Quarterly Audits	3.57	.02
Quarterly Statements as Reliable as Annual	14.33	.01
Prior Thought to Auditor Association	2.89	.04
Primary Auditor Responsibility	3.49	.02
Rely More on Auditor Assoc. Statements	3.56	.02
Financial Analyst Can Outperform Market	4.79	.01
Bank of Financial Analyst	3.92	.01

* See Table 4-3 for exact questions asked.

Notes

¹To clarify the discussion, the titles of independent variables are capitalized throughout this and the final chapter.

²As suggested by Winer (1971) for the case of approximately equal sample sizes the Newman-Keuls procedure may be adjusted to reflect these differences. The only necessary adjustment is to use the harmonic mean of the cell sizes in place of the actual cell size. In the case of the A factor (form of auditor association) the normal error term is equal to:

$$\sqrt{MS_e/nqr}$$

where: MS_e = the subjects within groups error term

n = number of subjects in each cell (in our case, 13, 15, 16, 13)

q = number of levels of the accuracy variable (2)

r = number of levels of the consistency with expectations variable (3).

The harmonic mean is calculated as:

$$\frac{pqr}{(1/n_1) + (1/n_2) + (1/n_3) + (1/n_4)}$$

where: p = number of levels of the form of association variable (4).

This harmonic mean is substituted into the normal Neuman-Keuls error term for the nqr.

³Because only two levels of the B factor exist, no multiple comparison procedure is necessary to investigate the difference, since the significant F implies that the two means differ significantly.

⁴As an additional analysis the control or no auditor association level and the two limited review levels of the A variable were merged and considered as one level of the A factor. The audit form of association (level 4 in the overall analysis) was run as the alternate level of A. The difference between the audit level and the other three levels run as one was significant at the .04 level.

⁵As a means of comparing whether respondents from different banks perceived differences in importance and reliability, two one-way ANOVAs were run in which the bank of the respondent was used as the independent variable. In both cases no significant differences in means existed.

⁶Note that analysis of covariance does not apply to the B (Past Accuracy) or C (Consistency of Information With Expectations) factors since they are repeated measures under which each subject responded to all levels of each variable.

⁷A significant F indicates that even after the covariate is considered in the analysis there is still a significant A (Form of Auditor Association) main effect.

CHAPTER 5

IMPLICATIONS OF RESEARCH FINDINGS

As stated in Chapter 1, the broad objective of this study was to test user reactions to the concept of varying forms of auditor association with information other than that considered in the conventional annual audit. The specific research objectives were originally stated as:

- I. To test whether the form of auditor association with an accounting report (a summarized quarterly income statement):
 - A. Affects the perceived importance and/or perceived reliability of the report.
 - B. Interacts with the following variables to affect the perceived importance and/or perceived reliability of the report:
 1. The past accuracy of the quarterly income information (hereafter, past accuracy, or accuracy).
 2. Consistency of information with user expectations (hereafter, consistency with expectations, or consistency).
 3. The combination of past accuracy and consistency with expectations.
- II. To test whether the following variables affect the perceived importance and/or perceived reliability of an accounting report (a summarized quarterly income statement):
 - A. The past accuracy of the quarterly income information.
 - B. Consistency of information with user expectations.
 - C. The interaction of past accuracy and consistency with expectations.

The purpose of this chapter is to summarize and discuss the findings of the study related to the above objectives and to discuss certain implications of the results. First, however, the methodology and its limitations are briefly summarized to provide background for the discussion.

Methodology and Limitations

Methodology

Responses of sophisticated users to varying forms of auditor association were gathered through use of a research instrument which systematically manipulated pertinent variables. Responses were analyzed through an analysis of variance.

To consider the issue of varying forms of auditor association the study first analytically considered the current function of the auditor pertaining to annual statements. It was proposed that the nature of the current audit function lends itself to adoption of varying forms of auditor association.

Quarterly financial information was then selected as a vehicle to test the varying forms of the auditor association concept. Literature related to both varying forms of auditor association and quarterly information was reviewed to determine pertinent variables to be tested in the analysis. The empirical study followed.

Limitations

Financial analysts from five banks were selected as subjects for the study. Generalizing to all financial analysts or even to bank financial analysts as a group cannot be theoretically justified.

The study only measured users' perceptions of the effect of auditor association. The actual effect of auditor association on quarterly financial information was not addressed.

As in any study of this nature, only a limited number of variables could be analyzed and only a few levels of each of those variables could be tested.

Finally, because analysts are largely in a position in which auditor association is cost free, the study did not directly consider costs other than a delay in release of the information resulting from the audit. Thus, it is not possible to arrive at conclusions pertaining to the overall desirability of increased reliability and/or importance arising from auditor association.

Summary and Discussion of Research Findings

The research findings will be discussed under two headings--those related to reliability and those related to importance. Because the effect of Form of Auditor Association is of primary concern, the discussion will emphasize that variable. However, when results concern the other two independent variables--Past Accuracy and Consistency of Information With Expectations--they will also be discussed.

Reliability

Respondents in this study clearly perceived an effect of auditor association on the reliability of quarterly financial information. Although there is a significant overall effect of auditor association (as

evidenced by a significant main effect), the effect is most pronounced in certain specific circumstances. The differences between means of the levels of the Form of Auditor Association variable (no association, limited review at year-end, limited review quarterly, audit) are greatest in the case of firms which in the past have released inaccurate information. Table 4-7 shows mean responses under the various forms of auditor association (3.308, 4.688, 5.089, 5.897). As reported in Chapter 4, the following means differ significantly:

$A_4 > A_1$ and $A_3 > A_1$ at the .01 level of significance

$A_2 > A_1$ at .05 level of significance

$A_4 > A_2$ at .10 level of significance.

Basically, the means of all forms of auditor association differ significantly from the control or no auditor association (A_1) level of the variable. Therefore, these users perceive that auditor association will make information more reliable in the case of firms which have released inaccurate information in the past.

The evidence of user ability to differentiate between the three varying forms of auditor association (excluding the control of no auditor condition) is less conclusive. The comparatively weak difference ($p < .10$) between A_2 (limited review at year-end) versus A_4 (audit) indicates that the ability does exist. The differences in reliability between forms of limited review and quarterly limited review and audit are in the expected directions but are not statistically significant.

For firms which have released accurate information in the past the differences in perceived reliability are not significant. These means

(7.179, 7.167, 7.600, 7.795) from Table 4-7, are clearly higher (therefore considered more reliable) in all cases than those for firms which have released inaccurate information in the past (3.308, 4.688, 5.089, 5.897).

Several comments related to the above results are pertinent. First, it appears that when a firm had released accurate information in the past financial analysts in this study did not have complete confidence that the quarterly information was free of accounting errors (this is evidenced by reliability scores in the 7-8 range). Despite this fact, auditor association did not significantly increase the reliability of that information. Furthermore, the differences between inaccurate and accurate means indicate that auditor association in cases of firms with past-inaccurate quarterly results does not bring reliability levels up to those of accurate firms. This result is interesting in the sense that, despite increases in reliability of audited statements for inaccurate firms as compared to those with no auditor association for inaccurate firms (i.e. 5.897 as compared to 3.308--a 72 percent increase), the reliability level is still well below the 7.179 for statements with no auditor association for past-accurate firms. Respondents placed great reliance upon the firms' past history in estimating reliability. However, it should be noted that since the Past Accuracy variable was a repeated measure respondents may have noted it and may possibly have over-reacted to it (see the discussion of demand characteristics in Chapter 1).

Forms of Auditor Association did not interact significantly with either Consistency of Information With Expectations (AC interaction), or with Consistency of Information With Expectations together with Past

Accuracy (ABC interaction). Yet for both accuracy levels, earnings at expected levels were considered more reliable than lower- or higher-than-expected earnings (see Table 4-8). The lack of significance of the AC interaction suggests that CPA association does not significantly affect this difference between reliability of earnings as expected, compared to lower- or higher-than-expected earnings. The insignificance of the ABC interaction indicates, for example, that for firms which released inaccurate information in the past and then release earnings higher than expected, auditor association does not increase reliability more than for a similar firm with earnings at expected levels.

Thus, the reliability results indicate that, although an effect of Form of Auditor Association does exist, it arises predominantly in the case of firms which have released inaccurate information in the past.

Importance

Form of Auditor Association did not have a significant effect on perceived importance by itself or in interaction with the other two variables (Past Accuracy and Consistency of Information With Expectations). The control and two limited review association forms have approximately equivalent means (35.513, 35.156, 32.256) and the audit condition had a mean over ten points higher (45.769) than any of the other three levels of the variable (Table 4-13). Under all circumstances the audit form of association exceeded the other three forms of association. However, because of the variation in replies between subjects, this difference in means becomes statistically significant only at the .21 level.

But the large difference in the audit mean as contrasted with the other three means should not be completely ignored. As noted in Chapter 4, when an additional analysis was run with both forms of limited review merged, the Form of Auditor Association variable was significant at the .04 level. The implication is that while respondents may have been impressed by audits, the limited reviews were not considered to have a major effect on importance.

Still, the following question arises: Given Wyer's model (originally presented in Chapter 2) how can credibility (reliability) of information increase without a corresponding increase in influence (perceived importance)? The model, as simplified in Chapter 2, suggests that the probability of influence is equal to the probability of reception and comprehension times the probability the information is accepted as credible times the probability of yielding given that the information is accepted as credible (or, $P_i = P_r P_{ac} P_{y/ac}$). In this study it seems unlikely that the probabilities of reception and comprehension (P_r) or yielding given that the information is accepted as credible ($P_{y/ac}$) were affected by auditor association (see discussion of these probabilities in Chapter 2). Thus, given an increase in perceived credibility (P_{ac}) it would seem that an increase in influence (as measured by an increase in relative importance) would occur.

Several explanations for the lack of significance of importance are possible. First, as discussed above, there may be an effect on importance which is not strong enough to be statistically isolated with the sample size selected. The great variation in replies is consistent with large individual differences in decision models used by analysts (detailed

analysis of the responses reveals that some analysts allocated as many as 90 points in a specific case to quarterly financial information while others allocated as few as 5). This variation affects the error term of the form of auditor association since a nonrepeated measure uses a between-subjects error term in the F test of its significance. Additionally, as discussed above, because respondents could clearly see that the Past Accuracy of the firms' financial information was a variable (the Past Accuracy variable was a repeated measure) they may well have over-reacted to it at the expense of the nonrepeated variable, Form of Auditor Association.

Another possible explanation is that, despite the perception that the information may not be considered as reliable when it is released, the respondents believe that they can adequately adjust the information to make it more reliable. For example, assume the following replies:

	<u>Reliability</u>	<u>Importance</u>
No Auditor Association	4	30
Limited Review Quarterly	7	30

Perhaps, despite the difference in the reliability, the unaudited information is just as important as that subjected to a limited review because users may be able to use other sources of information to "discount" this information to arrive at more reliable figures.

The time lag in release of audited information may have caused lower responses in importance ratings. While the lag may decrease the importance of the information (because other more timely sources of information may become more important) it is not clear that this time lag would decrease reliability ratings--in fact, the opposite case might hold.

Finally, the dependent variable of perceived importance may be deficient. While Wyer's model specifically deals with the probability of influence, the responses elicited pertain to the expected amount of importance. In Chapter 3 this amount of importance was suggested as an operational definition for the influence which the quarterly information would have. This measure may be inadequate.¹

Also pertaining to perceived importance, allocating 100 points between quarterly financial information and other information may be an inadequate response format. Perhaps users are unable to allocate points meaningfully in such a manner. However, subjects debriefed following a pilot test of the questionnaire suggested that they were used to thinking in such terms. Also, in debriefing discussions with the top investment officers of the five banks, no problems were noted.

Finally, the possibility exists that Wyer's model is misspecified. The hypothesized relationship between credibility and influence may not exist.

Implications

The findings of this study have implications for policy makers (e.g. audit committees of the AICPA) and for researchers who are studying the appropriateness of the concept of varying forms of auditor association.

The users surveyed believe that auditor association with quarterly financial information has an effect on the reliability of such quarterly financial information. However, the perceived effect is largely limited

to cases of firms which in the past have released inaccurate quarterly financial information. When firms have released accurate information, in the past, the perceived effect of auditor association is slight. To the extent that these users are correct, the benefits of requiring auditor association with quarterly information may be limited to information for firms which have produced inaccurate information in the past.

The possibility that the SEC could use the threat of required auditor association for inaccurate firms might be considered. The threat itself might result in more accurate quarterly financial information due to management's desire to minimize the audit fees that would result from association. Additionally, to the extent that users are correct, auditor association with such quarterly information (that of inaccurate firms) will serve to control the accuracy of the information. The effect on the importance of the information to users is less certain.

Table 4-3 presents summary data relating to the direct questions asked of each respondent. Replies to the first question are informative because the great majority of respondents believed that some form of auditor association should be required. This information may be viewed as indicating that the respondents believe that there have been a significant number of problems with quarterly financial information in the past.

The responses to the hypothetical fact situations also indicate that these sophisticated investors do not blindly accept as reliable quarterly financial information with which auditors are associated. These users acknowledge that auditors are limited in the amount of control which they exert over financial statements. The often stated fear of CPAs (see

Chapter 2) that users do not understand the limitations of audits is not substantiated by the results of this study. The results indicate that the respondents perceived a very limited auditor association effect.

Further Research

This study gathered the opinions of a group of sophisticated investors. Their overall viewpoint is that some form of auditor association with quarterly information should be required but that the benefit of the association will be limited. To obtain a more general view of users' perceptions of the effect of varying forms of auditor association, differing types of information may be tested. Areas such as forecasts and audits of management's efficiency are obvious possibilities. The research must first analytically consider variables (independent and dependent) which seem important to the information under consideration. While past accuracy and consistency with prior expectations seemed especially pertinent to quarterly financial information, other variables may be pertinent to other types of information. After this analytical analysis the empirical portion of the research is necessary to measure perceived effects of auditor association on other types of information.

It seems possible to actually place the respondent in an artificially created or laboratory decision-making position when doing this type of research. The respondent might be asked to actually "make investments" in firms for situations in which pertinent variables have been manipulated. A human information processing approach using within- and between-subject responses may be possible. The advantage of placing the respondent in an actual decision-making position is that, instead of opinions, actual behavior may be analyzed--albeit laboratory-type behavior.

Research is needed on the actual control exerted by auditors (increase in the accuracy of information--see Chapter 2) as opposed to perceptions of control. This area would, of course, be limited to information with which the auditor is already involved. At least two types of analysis are possible. First, it may be possible to measure audit effect on information indirectly by noting time series properties of accounting numbers with and without auditor association. For example, perhaps quarterly earnings for nonseasonal firms for each quarter more closely approximate one another when there is auditor involvement than when there is no auditor involvement.

A second type of analysis would be to measure directly whether auditors are exerting control over specific corporate information. It may be possible, for example, to use some measure of the actual adjusting journal entries under the types of limited reviews now being conducted. Since the size and importance of adjustments varies, a weighting scheme for them would have to be developed.

Notes

¹It might seem that respondents answered importance questions using a frame of reference of how important the information would be if it were considered perfectly reliable. Since respondents considered information released by "accurate" firms to be more important than that of "inaccurate" firms (the Past Accuracy variable was significant), this simple explanation is ruled out.

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APPENDIX A
COVER LETTERS ACCOMPANYING INSTRUMENT

Dear Financial Analyst:

The financial reporting practices of publicly owned corporations are constantly being examined in the hope of finding ways to increase the value of this service to investors. In an effort to improve this service, we are conducting a study of the extent to which users consider quarterly financial information released under various circumstances for making common stock equity investment decisions.

In the past independent auditors ("CPA's") have had little formal association with quarterly financial statements. But currently the American Institute of Certified Public Accountants has proposed certain "limited review" type procedures which first became effective for the year 1976.

In this study we are asking you to answer questions relating to quarterly income statement information. We wish to determine your reaction to quarterly information released in the past, when there was no auditor association with the quarterly financial information. IN THE ATTACHED QUESTIONNAIRE YOU ARE TO ASSUME THAT THE QUARTERLY INCOME STATEMENT INFORMATION, AS IN THE PAST, HAS NOT BEEN AND WILL NOT BE SUBJECTED TO A LIMITED REVIEW.

There are no "right" or "wrong" answers to the questions in this study. Your responses should reflect your judgment based on the information available. Completion of the questionnaire should take approximately 15 minutes of your time. Please do not discuss the questions with other financial analysts until all have completed the questionnaire.

The information you provide will, of course, be held in the strictest confidence and used only in an anonymous summary form as a basis for a statistical analysis. If you want a copy of the results of the study, we will be most happy to send one to you.

We thank you for your participation in this study.

Sincerely,



Kurt Pany

Dear Financial Analyst:

The financial reporting practices of publicly owned corporations are constantly being examined in the hope of finding ways to increase the value of this service to investors. In an effort to improve this service, we are conducting a study of the extent to which users consider quarterly financial information released under various circumstances for making common stock equity investment decisions.

In the past, independent auditors ("CPA's") have had little formal association with quarterly financial statements. But, currently, the American Institute of Certified Public Accountants has suggested "limited review" procedures relating to quarterly financial information which first became effective for the year 1976. The review procedures, as outlined in the appropriate standards for limited reviews, are of a general, overall nature and consist primarily of comparisons of relationships between various accounts with prior periods, reading of minutes of stockholder and board of director meetings, and inquiries of corporate officers relating to the existence of accounting changes and their proper application in the quarterly financial information. As such, the review only includes detailed testing of supporting data in cases in which the auditor, through the above procedures, finds information to be significantly inconsistent with expectations.

The review may be performed, at the option of the corporation involved, either voluntarily on a quarterly basis before the information is released or on a required basis at year end when summary quarterly information is included in the audited annual financial statements. As an alternative to a limited review, corporations may elect full audits (similar in scope to year end audits) of their quarterly financial information. Thus, three different forms of auditor association are possible:

1. A limited review voluntarily selected on a quarterly basis.
2. A limited review as required at year end.
3. A full audit (similar in scope to a year end audit) voluntarily selected on a quarterly basis.

In this study we are asking you to answer questions relating to quarterly income statement information. THE QUARTERLY INCOME STATEMENTS MENTIONED IN THE ATTACHED QUESTIONNAIRE HAVE BEEN SUBJECTED VOLUNTARILY TO A LIMITED REVIEW PRIOR TO THEIR RELEASE (association form "1" above). Because of the limited extent of the procedures, the report issued by the auditors disclaims any overall opinion on the income statement involved; however, it states that all adjustments found (if any) during the limited review have been reflected in the quarterly income statement information presented.

There are no "right" or "wrong" answers to the questions in this study. Your responses should reflect your judgment based on the information available. Completion of the questionnaire should take approximately 15 minutes of your time. Please do not discuss the questions with other financial analysts until all have completed the questionnaire.

The information you provide will, of course, be held in the strictest confidence and used only in an anonymous summary form as a basis for a statistical analysis. If you want a copy of the results of the study, we will be most happy to send one to you.

We thank you for your participation in this study.

Sincerely,

A handwritten signature in cursive script that reads "Kurt Pany".

Kurt Pany

Dear Financial Analyst:

The financial reporting practices of publicly owned corporations are constantly being examined in the hope of finding ways to increase the value of this service to investors. In an effort to improve this service, we are conducting a study of the extent to which users consider quarterly financial information released under various circumstances for making common stock equity investment decisions.

In the past, independent auditors("CPA's") have had little formal association with quarterly financial statements. But, currently, the American Institute of Certified Public Accountants has suggested "limited review" procedures relating to quarterly financial information which first became effective for the year 1976. The review procedures, as outlined in the appropriate standards for limited reviews, are of a general, overall nature and consist primarily of comparisons of relationships between various accounts with prior periods, reading of minutes of stockholder and board of director meetings, and inquiries of corporate officers relating to the existence of accounting changes and their proper application in the quarterly financial information. As such, the review only includes detailed testing of supporting data in cases in which the auditor, through the above procedures, finds information to be significantly inconsistent with expectations.

The review may be performed, at the option of the corporation involved, either voluntarily on a quarterly basis before the information is released or on a required basis at year end when summary quarterly information is included in the audited annual financial statements. As an alternative to a limited review, corporations may elect full audits(similar in scope to year end audits) of their quarterly financial information. Thus, three different forms of auditor association are possible:

1. A limited review voluntarily selected on a quarterly basis.
2. A limited review as required at year end.
3. A full audit(similar in scope to a year end audit) voluntarily selected on a quarterly basis.

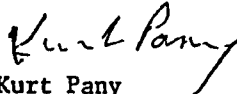
In this study we are asking you to answer questions relating to quarterly income statement information. THE QUARTERLY INCOME STATEMENTS MENTIONED IN THE ATTACHED QUESTIONNAIRE HAVE NOT BEEN SUBJECTED TO A LIMITED REVIEW PRIOR TO THEIR RELEASE (association form "2" above). However, the information will be reviewed at year end when summary quarterly information is included in the audited annual financial statements.

There are no "right" or "wrong" answers to the questions in this study. Your responses should reflect your judgment based on the information available. Completion of the questionnaire should take approximately 15 minutes of your time. Please do not discuss the questions with other financial analysts until all have completed the questionnaire.

The information you provide will, of course, be held in the strictest confidence and used only in an anonymous summary form as a basis for a statistical analysis. If you want a copy of the results of the study, we will be most happy to send one to you.

We thank you for your participation in this study.

Sincerely,


Kurt Pany

Dear Financial Analyst:

The financial reporting practices of publicly owned corporations are constantly being examined in the hope of finding ways to increase the value of this service to investors. In an effort to improve this service, we are conducting a study of the extent to which users consider quarterly financial information released under various circumstances for making common stock equity investment decisions.

In the past, independent auditors("CPA's") have had little formal association with quarterly financial statements. But, currently the American Institute of Certified Public Accountants has suggested "limited review" procedures relating to quarterly financial information which first became effective for the year 1976. The review procedures, as outlined in the appropriate standards for limited reviews, are of a general, overall nature and consist primarily of comparisons of relationships between various accounts with prior periods, reading of minutes of stockholder and board of director meetings, and inquiries of corporate officers relating to the existence of accounting changes and their proper application in the quarterly financial information. As such, the review only includes detailed testing of supporting data in cases in which the auditor, through the above procedures, finds information to be significantly inconsistent with expectations.

The review may be performed, at the option of the corporation involved, either voluntarily on a quarterly basis before the information is released or on a required basis at year end when summary quarterly information is included in the audited annual financial statements. As an alternative to a limited review, corporations may elect full audits(similar in scope to year end audits) of their quarterly financial information. Thus, three different forms of auditor association are possible:

1. A limited review voluntarily selected on a quarterly basis.
2. A limited review as required at year end.
3. A full audit(similar in scope to a year end audit) voluntarily selected on a quarterly basis.

In this study we are asking you to answer questions relating to quarterly income statement information. THE QUARTERLY INCOME STATEMENTS MENTIONED IN THE ATTACHED QUESTIONNAIRE HAVE BEEN SUBJECTED VOLUNTARILY TO A FULL AUDIT(SIMILAR IN SCOPE TO A YEAR END AUDIT) PRIOR TO THEIR RELEASE(association form "3" above). The auditors involved have performed all tests which they have considered necessary and have issued a report which in each case states that in the opinion of the auditors, the quarterly income information presents fairly the results of operations in conformity with generally accepted accounting principles for quarterly information.

There are no "right" or "wrong" answers to the questions in this study. Your responses should reflect your judgment based on the information available. Completion of the questionnaire should take approximately 15 minutes of your time. Please do not discuss the questions with other financial analysts until all have completed the questionnaire.

The information you provide will, of course, be held in the strictest confidence and used only in an anonymous summary form as a basis for a statistical analysis. If you want a copy of the results of the study, we will be most happy to send one to you.

We thank you for your participation in this study.

Sincerely,

A handwritten signature in cursive script that reads "Kurt Pany".

Kurt Pany

APPENDIX B
INSTRUCTIONS FROM INSTRUMENTS

SURVEY OF OPINION ON SELECTED
QUARTERLY FINANCIAL INFORMATION

Instructions

In order to avoid confusion that may render the study less useful, please make your decisions in the following context:

- A. All firms are commercial manufacturing firms listed on the New York Stock Exchange which are releasing the following first quarter income statement information: sales, provision for income taxes, extraordinary items, effects of changes in accounting principles and estimates, net income and earnings per share(primary and fully diluted).
- B. As in the past, there is no independent auditor association with the quarterly information.
- ✓ C. Each firm's income statement information is being released three weeks after the end of the first quarter.
- D. A material amount is defined to be that which a reasonable investor might consider important in making an investment decision.

In the following six fact situations you are asked two questions.

First, you are asked to evaluate the importance of the quarterly income statement information to your common stock equity investment decision by allocating 100 points between "Quarterly Income Statement Information" and "Other Information" you generally have available. When considering "Other Information," all items you normally utilize in making an investment are to be considered (e.g., annual historical financial statements, stock market risk measures, industry information, investment services, financial forecasts, etc.).

Second, you are asked to evaluate the extent to which you would rely on the information presented on a scale from 0 to 10. An item rated 0 would be considered low in reliability(i.e. you would have no confidence that the quarterly information was free of accounting errors) in your analysis. An item rated 10 would be considered high in reliability(i.e. you would have complete confidence that the quarterly information was free of accounting errors). Consider the intermediate points 1 through 9 as representing equal increases from 0 to the highest degree of 10.

We recognize that your decisions may be influenced by factors not outlined in the assumptions above and in the following fact situations. If you will reflect your judgment as you would exercise it in a typical situation, your reply will aid us in obtaining an approximation of the relative importance of and the extent to which you would rely on the quarterly information. For your convenience each of the six situations is printed on a separate page and summary instructions are repeated after each situation.

SURVEY OF OPINION ON SELECTED
QUARTERLY FINANCIAL INFORMATION

Instructions

In order to avoid confusion that may render the study less useful, please make your decisions in the following context:

- A. All firms are commercial manufacturing firms listed on the New York Stock Exchange which are releasing the following first quarter income statement information: sales, provision for income taxes, extraordinary items, effects of changes in accounting principles and estimates, net income and earnings per share(primary and fully diluted).
- B. In the past there has been no independent auditor association with the quarterly information. This year, as discussed in the accompanying letter, the quarterly information has been subjected voluntarily to a limited review prior to its release. Because of the limited extent of the procedures, the report issued by the auditors disclaims any overall opinion on the income statement involved; however, it states that all adjustments found(if any) during the limited review have been reflected in the quarterly income statement information presented.
- C. Each firm's income statement information is being released three weeks after the end of the first quarter.
- D. A material amount is defined to be that which a reasonable investor might consider important in making an investment decision.

In the following six fact situations you are asked two questions.

First, you are asked to evaluate the importance of the quarterly income statement information to your common stock equity investment decision, by allocating 100 points between "Quarterly Income Statement Information" and "Other Information" you generally have available. When considering "Other Information," all items you normally utilize in making an investment are to be considered (e.g., annual historical financial statements, stock market risk measures, industry information, investment services, financial forecasts, etc.).

Second, you are asked to evaluate the extent to which you would rely on the information presented on a scale from 0 to 10. An item rated 0 would be considered low in reliability(i.e. you would have no confidence that the quarterly information was free of accounting errors) in your analysis. An item rated 10 would be considered high in reliability(i.e. you would have complete confidence that the quarterly information was free of accounting errors). Consider the intermediate points 1 through 9 as representing equal increases from 0 to the highest degree of 10.

We recognize that your decisions may be influenced by factors not outlined in the assumptions above and in the following fact situations. If you will reflect your judgment as you would exercise it in a typical situation, your reply will aid us in obtaining an approximation of the relative importance of and the extent to which you would rely on the quarterly information. For your convenience each of the six situations is printed on a separate page and summary instructions are repeated after each situation.

SURVEY OF OPINION ON SELECTED
QUARTERLY FINANCIAL INFORMATION

Instructions

In order to avoid confusion that may render the study less useful, please make your decisions in the following context:

- A. All firms are commercial manufacturing firms listed on the New York Stock Exchange which are releasing the following first quarter income statement information: sales, provision for income taxes, extraordinary items, effects of changes in accounting principles and estimates, net income and earnings per share(primary and fully diluted).
- B. In the past there has been no independent auditor association with the quarterly information. This year, as discussed in the accompanying letter, the quarterly information has not been subjected to a limited review prior to its release. However, the information will be reviewed at year end when summary quarterly information is included in the audited annual financial statements.
- C. Each firm's income statement information is being released three weeks after the end of the first quarter.
- D. A material amount is defined to be that which a reasonable investor might consider important in making an investment decision.

In the following six fact situations you are asked two questions.

First, you are asked to evaluate the importance of the quarterly income statement information to your common stock equity investment decision by allocating 100 points between "Quarterly Income Statement Information" and "Other Information" you generally have available. When considering "Other Information," all items you normally utilize in making an investment are to be considered (e.g., annual historical financial statements, stock market risk measures, industry information, investment services, financial forecasts, etc.).

Second, you are asked to evaluate the extent to which you would rely on the information presented on a scale from 0 to 10. An item rated 0 would be considered low in reliability(i.e. you would have no confidence that the quarterly information was free of accounting errors) in your analysis. An item rated 10 would be considered high in reliability(i.e. you would have complete confidence that the quarterly information was free of accounting errors). Consider the intermediate points 1 through 9 as representing equal increases from 0 to the highest degree of 10.

We recognize that your decisions may be influenced by factors not outlined in the assumptions above and in the following fact situations. If you will reflect your judgment as you would exercise it in a typical situation, your reply will aid us in obtaining an approximation of the relative importance of and the extent to which you would rely on the quarterly information. For your convenience each of the six situations is printed on a separate page and summary instructions are repeated after each situation.

SURVEY OF OPINION ON SELECTED
QUARTERLY FINANCIAL INFORMATION

Instructions

In order to avoid confusion that may render the study less useful, please make your decisions in the following context:

- A. All firms are commercial manufacturing firms listed on the New York Stock Exchange which are releasing the following first quarter income statement information: sales, provision for income taxes, extraordinary items, effects of changes in accounting principles and estimates, net income and earnings per share(primary and fully diluted).
- B. In the past there has been no independent auditor association with the quarterly information. But this year, as discussed in the accompanying letter, the quarterly information has been subjected voluntarily to a full audit(similar in scope to a year end audit) prior to its release. The report issued states that in the opinion of the auditors, the quarterly income information presents fairly the results of operations in conformity with generally accepted accounting principles for quarterly information.
- C. Each firm's income statement information is being released six weeks after the end of the first quarter(in the past, when there was no audit, the information was released three weeks after the end of the first quarter).
- D. A material amount is defined to be that which a reasonable investor might consider important in making an investment decision.

In the following six fact situations you are asked two questions.

First, you are asked to evaluate the importance of the quarterly income statement information to your common stock equity investment decision by allocating 100 points between "Quarterly Income Statement Information" and "Other Information" you generally have available. When considering "Other Information," all items you normally utilize in making an investment are to be considered (e.g., annual historical financial statements, stock market risk measures, industry information, investment services, financial forecasts, etc.).

Second, you are asked to evaluate the extent to which you would rely on the information presented on a scale from 0 to 10. An item rated 0 would be considered low in reliability(i.e. you would have no confidence that the quarterly information was free of accounting errors) in your analysis. An item rated 10 would be considered high in reliability(i.e. you would have complete confidence that the quarterly information was free of accounting errors). Consider the intermediate points 1 through 9 as representing equal increases from 0 to the highest degree of 10.

We recognize that your decisions may be influenced by factors not outlined in the assumptions above and in the following fact situations. If you will reflect your judgment as you would exercise it in a typical situation, your reply will aid us in obtaining an approximation of the relative importance of and the extent to which you would rely on the quarterly information. For your convenience each of the six situations is printed on a separate page and summary instructions are repeated after each situation.

APPENDIX C
HYPOTHETICAL FACT SITUATIONS

SITUATION

Jenner Corporation has released its first quarter income statement information. This information is in accordance with your prior expectations relating to net income. However, in the past, quarterly reports have often not reflected numerous events for which Jenner has had to make various corrections and adjustments at year end. This year, as described in the accompanying letter and instructions, there is a CPA firm associated with the information presented.

Please indicate:

- a. The relative importance to your equity investment decision of the information in the paragraph above("Quarterly Income Statement Information") and other information which you generally have available ("Other Information(Non-Quarterly Income Statement)") by allocating 100 points between them.

IMPORTANCE: _____ Quarterly Income Statement Information
 + _____ Other Information(Non-Quarterly Income Statement)
 100

- b. The extent to which you would rely on the information presented on a scale from 0(low reliability--you would have no confidence that the quarterly information was free of accounting errors) to 10(high reliability--you would have complete confidence that the quarterly information was free of accounting errors).

RELIABILITY: 0 1 2 3 4 5 6 7 8 9 10
 low high

SITUATION

Jones Manufacturing has issued a quarterly income statement with results of operations for its first quarter. In the past, Jones' quarterly statements have been quite inaccurate in the sense that when annual earnings figures have been released they have incorporated numerous adjustments and corrections which have affected the quarterly results, but have not been discovered until year end. The information in this quarter's results is surprising to you as net income is materially higher than you had expected.

Please indicate:

- a. The relative importance to your equity investment decision of the information in the paragraph above ("Quarterly Income Statement Information") and other information which you generally have available ("Other Information(Non-Quarterly Income Statement)") by allocating 100 points between them.

IMPORTANCE: _____ Quarterly Income Statement Information
 + _____ Other Information(Non-Quarterly Income Statement)
 100

- b. The extent to which you would rely on the information presented on a scale from 0(low reliability--you would have no confidence that the quarterly information was free of accounting errors) to 10(high reliability--you would have complete confidence that the quarterly information was free of accounting errors).

RELIABILITY: 0 1 2 3 4 5 6 7 8 9 10
 low high

SITUATION

Jones Manufacturing has issued a quarterly income statement with results of operations for its first quarter. In the past, Jones' quarterly statements have been quite inaccurate in the sense that when annual earnings figures have been released they have incorporated numerous adjustments and corrections which have affected the quarterly results, but have not been discovered until year end. The information in this quarter's results is surprising to you as net income is materially higher than you had expected. As discussed in the accompanying instructions and letter, Jones has a CPA firm associated with the quarterly information.

Please indicate:

- a. The relative importance to your equity investment decision of the information in the paragraph above("Quarterly Income Statement Information") and other information which you generally have available ("Other Information(Non-Quarterly Income Statement)") by allocating 100 points between them.

IMPORTANCE: _____ Quarterly Income Statement Information
 + _____ Other Information(Non-Quarterly Income Statement)
 100

- b. The extent to which you would rely on the information presented on a scale from 0(low reliability--you would have no confidence that the quarterly information was free of accounting errors) to 10(high reliability--you would have complete confidence that the quarterly information was free of accounting errors).

RELIABILITY: 0 1 2 3 4 5 6 7 8 9 10
 low high

SITUATION

Jackson Corporation has released its first quarter income statement; the statement shows materially lower net income than you had expected. In the past, the quarterly figures released by Jackson have seldom needed to be adjusted or corrected at year end.

Please indicate:

- a. The relative importance to your equity investment decision of the information in the paragraph above ("Quarterly Income Statement Information") and other information which you generally have available ("Other Information (Non-Quarterly Income Statement)") by allocating 100 points between them.

IMPORTANCE: _____ Quarterly Income Statement Information
 + _____ Other Information (Non-Quarterly Income Statement)
 100

- b. The extent to which you would rely on the information presented on a scale from 0 (low reliability--you would have no confidence that the quarterly information was free of accounting errors) to 10 (high reliability--you would have complete confidence that the quarterly information was free of accounting errors).

RELIABILITY: 0 1 2 3 4 5 6 7 8 9 10
 low high

SITUATION

Z Corporation has in the past released quarterly income statements which have required few adjustments or corrections at year end as final results have been consistent with the information released on a quarterly basis. This year the first quarter's income statement has what you consider to be a materially higher than expected net income. The firm has CPA's associated with the quarterly information in the form described in the accompanying letter and instructions.

Please indicate:

- a. The relative importance to your equity investment decision of the information in the paragraph above("Quarterly Income Statement Information") and other information which you generally have available ("Other Information(Non-Quarterly Income Statement)") by allocating 100 points between them.

IMPORTANCE: _____ Quarterly Income Statement Information
 + _____ Other Information(Non-Quarterly Income Statement)
 100

- b. The extent to which you would rely on the information presented on a scale from 0(low reliability--you would have no confidence that the quarterly information was free of accounting errors) to 10(high reliability--you would have complete confidence that the quarterly information was free of accounting errors).

RELIABILITY: 0 1 2 3 4 5 6 7 8 9 10
 low high

APPENDIX D
OTHER QUESTIONS

8. What is the highest level of formal education that you have completed?
- High School.....1
- Some College, less than a degree earned..2
- Bachelor Degree.....3
- Master Degree.....4
- Ph. D. Degree.....5
- Other(Please Specify)
- _____6
9. How much formal educational training in accounting have you completed?
- None.....1
- Between 1 and 3 courses.....2
- More than 3 courses.....3
10. Are you a CFA?
- Yes.....1
- No.....2
11. What is the general level of your responsibility for financial decisions?
- Make portfolio decisions.....1
- Recommend policy decisions.....2
- Recommend issues.....3
12. What is your position or your title in your firm? _____
- _____
13. For how many years have you been in financial analysis? _____
14. What is your age? _____
15. What is your name?(Voluntary) _____

7. Indicate the extent to which you agree or disagree with the following:

	<u>Strongly</u> <u>Agree</u>	<u>Agree</u>	<u>Slightly</u> <u>Agree</u>	<u>Slightly</u> <u>Disagree</u>	<u>Disagree</u>	<u>Strongly</u> <u>Disagree</u>
Some form of auditor association should be required with all quarterly corporate financial information before it is released to the public.....1	2		3	4	5	6
Full quarterly audits should be required of all quarterly corporate financial information before it is released to the public.....1	2		3	4	5	6
In the past, when there was no auditor association, the information in quarterly corporate financial reports was as reliable as the information in audited annual reports.....1	2		3	4	5	6
Before receiving this questionnaire I had given considerable thought to the issue of auditor association with quarterly corporate financial information.....1	2		3	4	5	6
When dealing with annual corporate financial information the auditor's primary responsibility is to prepare the financial statements.....1	2		3	4	5	6
All other things considered equal, I would rely more on a quarterly financial statement with which an auditor is associated than one in which no auditor association is present.....1	2		3	4	5	6
A good financial analyst, without access to inside information, can consistently outperform the market.....1	2		3	4	5	6

VITA

Name: Kurt Joseph Pany
Date of Birth: March 31, 1946

Education

1953-1964 Public School, Montgomery, Minnesota
1964-1965 St. Olaf College, Northfield, Minnesota
1965-1968 University of Arizona
1969-1971 University of Minnesota
1973-1978 University of Illinois at Urbana-Champaign

Degrees

B.S. - 1968 University of Arizona
Major: Accounting

M.B.A.- 1971 University of Minnesota
Major: Management

Experience

1968-1969 Staff Accountant, Arthur Andersen & Co., Minneapolis
1969-1971 Teaching Assistant, Department of Accounting, University of Minnesota
1971-1973 Staff Accountant, Touche Ross & Co., Phoenix
1973-1976 Teaching Assistant, Department of Accountancy, University of Illinois at Urbana-Champaign
1977 Visiting Lecturer, Department of Accountancy, University of Illinois at Urbana, Champaign

Professional Certification and Scholastic Honors

Certified Public Accountant (Arizona)
Minnesota Businessmen's Fellowship
American Accounting Association Doctoral Fellowship
Haskins and Sells Foundation Fellowship Award
Arthur Andersen & Co. Foundation Doctoral Fellowship