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Mohammed Fida Abdul-Moatee Bahjatt

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Major professor

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STOCK MARKET REACTION TO AUDIT OPINIONS CONTAINING REFERENCE TO OTHER AUDITORS: AN EMPIRICAL EVALUATION

by

Mohammed Fida Abdul-Moatee Bahjatt

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ABSTRACT

STOCK MARKET REACTION TO AUDIT OPINIONS
CONTAINING REFERENCE TO OTHER AUDITORS:
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"Shared audit opinions," the practice of refering to other auditors, was criticized by the Commission on Auditors' Responsibilities on the argument that it confuses users about the level of assurance they can derive from it. If the argument of the Commission is true, then a negative reaction to shared opinions might be expected by common stock investors--a major class of users.

The objective of this study was to investigate the stock market reaction, measured by the residual of the market model, to shared opinions. The major hypothesis of the study was that the market reacts negatively to shared opinions.

Two additional hypotheses were developed and tested. The first states that the market reacts to shared opinions more negatively when the portion audited by other auditors is relatively material. The second states that the market reacts more negatively to shared opinions when the subsidiaries examined by other auditors are "foreign" as compared to "domestic" subsidiaries.

Two samples, experimental and comparison, were selected. The

experimental sample included companies which newly received shared opinions and the comparison sample included companies which had newly received "non-shared" opinions. Several filtering criteria were applied, as a control for possible confounding effects. To test for the major hypothesis of the study, the cumulative abnormal returns of both samples were compared during a test period. To test for the other two hypotheses the overall samples were divided into those above and those below the median of a materiality measure and into companies whose audit opinions were shared because the subsidiaries involved were foreign vs. domestic. These divisions allowed for testing the two additional hypotheses by comparing the cumulative abnormal returns of the experimental and the comparison subgroups. Both parametric and nonparametric statistical tests were used.

The test results supported a conclusion of a moderate negative reaction to shared opinions. However, a negative reaction was significant for only the high materiality subgroup, and in the foreign-domestic disaggregation, a negative reaction was significant only for the foreign subgroup. In summary, the results indicate some negative market reaction in general and strongly suggest it when material and/or foreign portions are audited by secondary auditors.

بسم الله الرحمن الرحيم

In the name of Allah the most merciful and the most beneficient

TO

My Mother and Father
whose prayers and sac-
rifice lighted my way

Mohammed

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CHAPTER ONE

Introduction

After four years of extensive study and deliberations, the Commission on Auditors' Responsibilities (Cohen Commission) published its final "Report, Conclusions and Recommendations" regarding the professional responsibilities of independent auditors and ways to improve auditing practice. One area the Commission highlighted for improvement was the reporting practice that involves the work of another auditor. The Commission recommended the elimination of the current practice of referring to other auditors in the audit report of the principal auditor (shared audit opinion). This recommendation was based on the assertion that "the user cannot know the degree of assurance he should derive from the auditor's report" and that "the user may justifiably feel that the responsibility for the audit of the consolidated statements is in a no-man's land" (AICPA, Commission on Auditors Responsibilities, 1978, p. 82).

Financial statements are a major input in the decision making process of many parties, either external or internal to the organization.[1] Audit information derives its value by providing a certain degree of assurance for the accounting information presented in the

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[1]For normative support of this see AICPA (1973, p. 13), and FASB (1978, p. viii). Also for empirical support of this see, for example, Ball and Brown (1968), and Beaver (1968).

financial statements. External parties need assurance that the information presented in the statements is a fair representation of the financial progress and position of the firm under generally accepted accounting principles. This need for fair and accurate representation, coupled with the phenomenon of separation of ownership from management, necessitates the need for a verification process.[2] This is achieved through the auditing function by the independent auditor whose final product is the audit report. If shared audit opinions convey some doubts about the degree of assurance to be derived from this type of audit report, it is conceivable that users might react negatively to its issuance.

Users in this research are limited to the firm's present and potential common stock investors since it is well recognized that they are among the main user groups of financial statements.[3] Indeed, the audit report is typically addressed to the stockholders of the firm.

This research will attempt to address the Commission's assertions empirically by studying the effects, if any, of shared audit opinions on the returns of the stocks involved. This may provide some evidence as to whether or not investors react negatively to the message(s) contained in shared audit opinions.

Shared Audit Opinions

Present generally accepted auditing standards (AICPA 1979, Section 543) permit an auditor to rely on the work of another

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[2]The literature in agency theory presents a clear argument in support of this. See, for example, Ng (1978).

[3]See AICPA (1973, p. 20) and FASB (1978, p. 16).

auditor(s) for part of the audit.[4] At the outset the auditor must decide whether his involvement is sufficient to enable him to serve as the principal auditor and to report as such on the financial statements. In deciding this, the auditor should consider such things as the materiality of the portion of the financial statements he has examined relative to the portion examined by other auditors, the extent of his knowledge of the overall financial statements, and the importance of the components he examined in relation to the enterprise as a whole. (AICPA 1979, Section 543).

If the auditor decides that it is appropriate for him, under the circumstances, to serve as the principal auditor, he must then choose one of the following actions: make no reference to the other auditor(s) in his report; make reference in his report; or qualify his report. The first action (make no reference) should be followed if the principal auditor decides to assume responsibility for the work of the other auditor as though he had performed the work himself. Present standards (AICPA 1979, Sec. 543) suggest that this would usually be the case when:

a) Part of the examination is made by another independent auditor which is an associated or correspondent firm and whose work is acceptable to the principal auditor based on his knowledge of the professional standards and competence of that firm; or

b) The other auditor was retained by the principal auditor and the work was performed under the principal auditor's guidance and control; or

c) The principal auditor, whether or not he selected the other auditor, nevertheless takes steps he considers necessary to satisfy himself as to the other auditor's

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[4]Most of this section is adopted from AICPA (1979, Section 543).

examination and accordingly is satisfied as to the reasonableness of the accounts for the purpose of inclusion in the financial statements on which he is expressing his opinion; or

d) The portion of the financial statements examined by the other auditor is not material to the financial statements covered by the principal auditor's opinion.

The second action (make reference) should be followed if the principal auditor decides not to assume responsibility for the part of the audit done by the other auditor(s). In this case the audit opinion is called a "shared opinion" (Arens and Loebbecke, 1976, p. 645) (This term was used hereinafter). The third action (qualify the report) is usually followed if the principal auditor is unwilling to utilize the work and report of the other auditor(s) and the work is considered material. The principal auditor in this case is therefore, in effect, disclaiming any opinion at all on the "unaudited" portion of the data. This case is very rare in practice.

The following is a typical shared audit opinion.

The Board of Directors and Stockholders, XYZ Co.

We have examined the consolidated balance sheets of XYZ Co. and consolidated subsidiaries as of December 31, 1978 and 1977 and the related consolidated statements of income, stockholders' equity and changes in financial position for the years ended. Our examinations were made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We did not examine the consolidated financial statements of certain consolidated subsidiaries, which statements reflect total assets constituting 12% and 15% and revenues constituting 30% and 36%, in 1978 and 1977, respectively, of the related consolidated totals, after elimination of intercompany transactions. These statements were examined by other auditors whose report thereon has been furnished to us and our opinion expressed herein, insofar as it relates to amounts included for these subsidiaries, is based solely on the report of the other auditors.

> In our opinion, based upon our examinations and the aforementioned report of other auditors, such financial statements present fairly the financial position of XYZ Co. and Consolidated Subsidiaries at December 31, 1978 and 1977 and the results of their operations and changes in their financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

The principal auditor, whether he makes reference or not, is required to make investigation about the independence and professional competence of the other auditor(s). He should also coordinate his activities with those of the other auditor(s) in order to achieve a proper consolidation or combining of accounts in the financial statements. Nevertheless, the principal auditor is not required to disclose the identity of the other auditor(s).

If the principal auditor decides not to make reference, he should consider whether to apply additional procedures to satisfy himself about the adequacy of the other auditor's examination. Paragraphs 12 and 13 of Section 543 suggest that such procedures may include one or more of the following:

a) Visiting the other auditor and discussing his audit.

b) Reviewing his audit program or working papers.

c) In some circumstances, participating in discussions regarding the financial statements, with the management of the components.

The extent of the additional procedures, if any, to be applied is solely a matter of the principal auditor's professional judgment. Paragraph 13 of Section 543 states:

> The determination of the extent of additional procedures, if any, to be applied rests with the principal auditor alone in the exercise of his professional judgment and in no way constitutes a reflection on the adequacy of the other auditor's work. Because the principal auditor in this case assumes responsibility for his opinion on the financial statements

> on which he is reporting without making reference to the other auditor's examination, his judgment must govern as to the extent of procedures to be undertaken.

If the principal auditor decides to make reference to the other auditor, he should disclose the magnitude of the portion of the financial statements examined by the other auditor. Paragraph 7 of Section 543 states that

> This may be done by stating the dollar amounts or percentages of one or more of the following: total assets, total revenues, or other appropriate criteria, whichever most clearly reveals the portion of the financial statements examined by the other auditor.

Despite the standards requiring the principal auditor to consider performing additional procedures if he decides to make reference, paragraph 8 of Section 543 states:

> It should be understood that an auditor's report which makes reference to the report of another auditor is not to be construed as being inferior in professional standing to a report in which no such reference is made.

Even if this "level of assurance" standard is normally achieved in practice, users still may perceive that a possibly lower degree of assurance is provided by a report "with reference" compared with one which has no reference to other auditors.

This study will try to determine users' reaction to the message contained in the shared audit opinion. This will be done by selecting a group of firms who had a "new shared opinion" in any annual report, and compare their common stock return behavior, around the release date of the audit report, to that of a group of companies whose audit reports ceased to be "shared."

It might be helpful to note that the auditing standards governing the use of the work of other auditors have undergone some

changes in the direction of providing better information to the users. Until July 1971 the pertinent rules for shared audit opinions were spelled out in Chapter 10 of Statement on Auditng Procedure (SAP) No. 33, published in 1963 by the Committee on Auditing Procedure of the American Institute of Certified Public Accountants (which was a codification of the original SAP's 32 issued through September 1962). In July 1971 Statement on Auditing Procedure No. 45 superseded Chapter 10 and in November 1972 further revisions occurred. The present rules reviewed above are contained in AICPA 1979, Section 543. Section 543 is reproduced in Appendix A of this study.

The major revisions reflected in the present standards pertained to the following matters:

1. disclosure of a magnitude measure for the portion audited by the other auditor(s). Normally this measure is the percentage of total revenue and/or the percentage of total assets. This disclosure was not required in the 1963 standards except when the principal auditor qualified his opinion.
2. a clear statement of the division of responsibility between the principal and the other auditor(s) is now required.
3. the division of responsibility should be indicated in both the scope and opinion paragraphs, while the previous standards required at a minimum that the divided responsibility be indicated in either the scope or opinion paragraph only.

New Developments

Further revisions in the standards might be forthcoming. The AICPA conducted a public meeting on June 18, 1981, to consider whether there is a need for revising the existing standards related to using the work and report of other auditor(s). This response of the profession came after increasing criticisms of the existing standards and is indicative of an existing problem in that area. The latest criticism which sparked the profession's response came from the Special Committee on Small and Medium Sized Firms (Derieux Committee).[5] This report argues against the existing standards on the basis that they lead to displacement of smaller firms. The Committee believes that the existing standards might be used by principal auditors as a competitive tool to convince clients that a report with reference to another auditor is inferior to a report with no reference, or that to make no reference will require additional work at increased costs.

This study might be able to help the AICPA, in their consideration of the need to revise the existing standards, by testing the hypothesis that investors react negatively to the message contained in the shared audit opinion. It is worthwhile at this point to note that this hypothesis is consistent with the argument of both the Cohen Comission and the Derieux Committee. It is consistent with Cohen Commission position since if investors perceive that shared audit opinions provide lower levels of assurance than unshared opinions then it is quite possible that they react to it negatively. It is also

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[5]For more information about the Derieux Committee's recommendations regarding shared audit opinions, see (AICPA 1981).

consistent with Derieux Committee argument since if investors do react negatively to shared audit opinions then the managements of those companies will tend to eliminate the cause of this negative reaction by engaging the principal auditor to audit materially all parts of the company accounts.

Shared Opinion and Legal Responsibility

AICPA rules recognize the right of the principal auditor to avoid responsibility for the work of other auditors, so long as his report makes clear the divided responsibility.[6] The legal system apparently recognizes that, too.[7]

The principal auditor's legal liability for work performed by another auditor has been directly addressed in one case - Beardsley v. Ernst (47 Ohio, App. 241, 191 N.E. 808, 1934). Even though this case was decided before the development of the case law determining liability under the Securities Acts and accountants' liability has expanded since then, it is still the only case addressing the legal liability of the principal auditor when using the work of another auditor.

In Beardsley v. Ernst, decided in 1934, the principal auditor was held not liable to third parties for a subsidiary's false information included in the consolidated financial statements when their certificate showed that the consolidated statements were based in part on statements from foreign subsidiaries which they did not audit. The certificate read (Causey 1976, p. 188):

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[6]See AICPA (1979, Sec. 543).

[7]This section draws heavily on Causey (1976, pp. 188-189, pp. 252-253.

> We hereby certify that we have examined the books of account and records of International Match Corporation and its American subsidiary company at December 31, 1929, and have received statements from abroad with respect to the foreign constituent companies as of the same date. Based upon our examination and information submitted to us it is our opinion that the annexed consolidated balance sheet sets forth the financial condition of the combined companies at the date stated, and that the related Consolidated Income and Surplus Account is correct.

The plaintiff sued the principal auditor for damages, alleging he had purchased securities in the company because of reliance upon the auditor's certification of consolidated statements for 1929 and 1930. But in deciding for the auditor the Ohio court noted that the language used in the certificate showed clearly that the auditor had not examined the books and records of the foreign subsidiaries (Causey, 1976, p. 189).

Although an auditor may use the work of another auditor and apparently avoid responsibility by appropriate reference to the other auditor, he cannot now rely on unaudited statements when it could materially affect his opinion on the financial statements as a whole. The only choice available to the auditor now in this case is to disclaim any opinion. Failure to disclaim his opinion in such a case could be interpreted as making a statement without knowledge and thus could make him liable to third parties. (Causey, 1976, p. 189).

The recognition by the legal system for the right of the principal auditor to avoid responsibility for the work of other auditor(s) gives some support for the Commission's assertions discussed above. This could have the effect of increasing investors' doubt about future cash returns (from successful civil damage suits) in case of legal disputes involving the principal auditor.

Shared Opinion and Management Fraud

The involvement of more than one auditor in the audit of consolidated financial statements makes it more difficult to detect management fraud. In many cases management fraud is carried out by manipulative non-arm's-length transactions among the consolidated companies or with other related parties (Arens and Loebbecke, 1976, p. 138). For example, if the parent company sells products to a subsidiary company, management may record the price at unreasonably high levels and thus inflate their earnings, while the subsidiary could record at low prices and thus inflating their earnings too. The possibility of this going unnoticed increases if the auditor of the subsidiary accounts is not the same as the parent's auditor.

In recent years, there have been highly publicized cases of management involvement in misrepresentation of financial statements. These cases have had a strong adverse effect on the accounting and auditing profession and caused many criticisms of existing accounting and auditing practices. Many of these were cases involving more than one auditor. The Atlantic Acceptance Corporation and the Equity Funding cases are good examples to illustrate the problems tht can arise where the auditors of some subsidiaries are not the same as the auditor of the parent company.

In the Atlantic Acceptance Corporation case, a financial disaster in Canada resulted from the default of the sixth largest financing company in Canada.[8] A Royal Commissioner (The Hon. M.

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[8]For detailed description and analysis of the Atlantic Acceptance case, see Stamp (1970) and Beedle (1971).

Justice S. H. S. Hughes, of the Supreme Court of Ontario), was appointed to investigate the failure of the Atlantic Acceptance Corporation Ltd. The 2757 page Report of the Royal Commission took four years to complete and cost over $1.1 million.[9] The Commissioner heard 182 witnesses during 128 days of hearing, and the evidence gathered fills over 200 volumes of transcript (Stamp, 1970, p. 303).

The investigation revealed that the default was abetted by management's continuous misrepresentation of financial statements. One part of the financial statements which thus affected, was the loans receivable on the books of some subsidiaries that were examined by auditors other than the principal auditor. In the last certified balance sheet before Atlantic's failure, these receivables amounted to some $45 million of a reported $123 million total loans receivable of the Consolidated company. The misrepresentation occurred in the provision of bad debts, reported at about $2 million when about $20 million was later judged to have been more appropriate. The principal auditor accepted the judgment of the subsidiaries' auditors without any inquiry regarding its supporting evidence or reasoning. This was done as a normal practice in compliance with existing auditing standards. Beedle (1971, p. 64) reports that:

> Evidence at the hearings, revealed by the working papers of the auditors and other testimony, showed that there was a total lack of inquiry or attempt to establish a fair and realistic estimate of a necessary allowance by the auditors of the subsidiaries, that they allowed these figures to be set by the President of the Parent Company....

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[9] See Royal Commission appointed to inquire into the failure of Atlantic Acceptance Corporation Limited (1969).

The highly reputable firm of Deloitte, Plender, Haskins & Sells was the principal auditor involved in auditing the parent company. Their report on the consolidated financial statements for 1964, dated February 10, 1965, read as follows:

> We have examined the consolidated balance sheet of Atlantic Acceptance Corporation, Limited, and subsidiary companies as at December 31, 1964 and the consolidated statements of income and retained earnings for the year ended on that date. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances, except for certain subsidiary companies, whose accounts have been examined and reported on by other chartered accountants.
>
> In our opinion, which insofar as it relates to the amounts included for subsidiary companies whose accounts have not been examined by us is based solely on the reports of other chartered accountants, the accompanying consolidated balance sheet and consolidated statements of income and retained earnings present fairly the financial position of the companies as at December 31, 1964 and the results of their operations for the year ended on that date, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year. (Stamp 1970, p. 305-306). (emphasis added)

Four months after this report was issued the Atlantic Acceptance Corporation defaulted on a routine payment. Despite the apparently very low provision for bad debts by the subsidiaries, which could have been easily detected had the principal auditor performed some investigation about its fairness, the Royal Commissioner stated that:

> There was no doubt about the propriety of the report made by the Deloitte firm on the consolidated statements of Atlantic Acceptance Corporation for the year ended December 31, 1964. (quoted in Stamp 1970, p. 306)

But the Royal Commissioner, realizing that the problem arose partly because of inadequate existing standards of auditing, states that:

> I am in sympathy with the view .... that the auditor of the parent company should not necessarily be the auditor of the subsidiary, and [the] emphasis upon the importance of trust among members of the profession .... Nevertheless, if there is any lesson to be learned from the Atlantic disaster, it is that the auditor of a parent company, in expressing an unqualified opinion on consolidated financial statements, must take full responsibility for the opinions of auditors of subsidiary companies, and that he should be liable, within the framework of the law of agency, for the consequences of their shortcomings (quoted in Beedle 1971, p. 64).

The Commissioner then completed the picture with what amounted to a pronouncement of an auditing standards, with the following words:

> ...., the auditors expressing an opinion upon the consolidated financial statements should rely on the work of other auditors only to the extent that they take responsibility for it, as if the relationship between them were that of principal and agent (quoted in Beedle 1971, p. 64).

The Equity Funding Case provides another good example of the problems that the reliance on the work of other auditors can create. The January 8, 1975 Wall Street Journal described what happened as follows:

> The Equity Funding officials "took advantage of the cracks between the various auditors," one lawyer concludes. He says that auditing doctrine doesn't give an auditor much guidance on when to rely on the work of other auditors and when to check further....
>
> .....
>
> Equity Funding was plagued by the problem of keeping the separate books of the parent company and its subsidiaries reasonably consistent. Because of the fraud, its "intercompany" accounts were continually, and increasingly, out of kilter....
>
> Having more than one auditor eased the juggling act. For instance, as the audit for 1971 approached, Equity Funding Life's books showed that the parent owed it $16 million in premiums supposedly paid on phony insurance policies. To cover this up, the parent company paid the life insurance subsidiary some $16 million in cash raised in a December 1971 public stock offering. But the parent's books recorded the transfer as an investment in commercial paper.

> To reassure the parent company's auditors, the conspirators falsified bank documents to show a purchase of commercial paper. In addition, they gave the paper a "maturity" of February 1972, which fell just as the auditors were completing their work. When this date arrived, the maturity was faked simply by moving the cash back from the subsidiary, recording it on the subsidiary's books as an advance to the parent (Wall Street Journal, January 8, 1975, p. 32).

From the above discussion one can argue that the involvement of more than one auditor in the audit of financial statement increases the likelihood of not detecting management fraud. This may have the effect of increasing investors' doubts about the information presented in the financial statements. This gives further support for investigating a negative effect of shared audit opinions on the returns of the stocks involved.

Motivation of the Study

This study was motivated by the criticisms of the existing practice of allowing principal auditors to refer to their reliance on other auditors' reports if they want to avoid responsibility for the audit of that part. These criticisms are found in three major documents, the Report of the Commission on Auditor's Responsibilities (Cohen Commission Report), the Report of the Canadian Royal Commission, and the Report of the Special Committee on Small and Medium Sized Firms (Derieux Committee). These documents have been discussed previously in some detail, but a summary of the rationale for their criticisms and their suggestions for alternatives is warranted here. The Cohen Commission based its recommendation to eliminate the present method of referring to other auditors on the argument that this type of report conveys some doubts about the level of assurance to be

derived from the audit report by the users. The Cohen Commission report also argued that the users may feel that no one is responsible for the audit of consolidated statements. The Canadian Royal Commission rationale for recommending the elimination of the shared audit opinion practice was also "user oriented", i.e. having the protection of investors as the basic argument.

The Derieux Committee recommendations to revise Section 543 were based on different kinds of concerns--they were concerned mainly about the effects of the standards on the displacement of smaller auditing firms. It is important to note that the Derieux Committee argued that displacement might occur because auditors could use existing standards to convince clients that a report with reference is inferior to one without reference. This argument is exactly the argument of the other documents discussed above.

The Cohen Commission suggests two alternatives to the existing practice of referring to other auditors. The first alternative is to require the principal auditor to do enough additional work so that he need not refer to the other auditor.

The other alternative suggested by the Cohen Commission is:

> to require management to present the reports of the other auditors of material components of the financial statements. If the other auditors' reports are not included, the auditor would take exception to the adequacy of disclosure (AICPA, 1978, p. 82).

The Canadian Royal Commission suggested that the principal auditor "should rely on the work of other auditors only to the extent that they take responsibility for it, as if the relationship between them were that of principal and agent" (Beedle, 1971, p. 64). This recommendation is similar to the first alternative recommended by the

Cohen Commission discussed above.

The Derieux Committee recommends that the standards be revised in a way to encourage principal auditors to rely on the work of other auditors without referring to that reliance, provided that the other auditor has complied with certain quality control standards. The Derieux Committee does not specify the exact means by which their recommendations could be implemented.

To summarize this section, this study was motivated by formal criticisms of the existing standards governing the use of the work of other auditors. These criticisms were mostly based on the argument that the standards make a report with reference to other auditors appear to be inferior to a report with no reference. If that is the case then one would expect to find users' "negative reaction" to this type of report. This study will try to answer this question by studying investors' reaction to shared audit opinions.

Objective, Research Questions and Related Hypotheses

This section will discuss the objectives of the study, the questions this research attempts to answer, and the related research hypotheses.

Objective

Despite the concern for possible deficiencies in existing standards governing shared audit opinions, no researcher has addressed the issue empirically. The objective of this study is to investigate the association between the incidence of shared audit opinions and financial market performance of the related stocks. It is hoped that

the findings of the study may provide evidence on investors' reactions to shared audit opinions and thus may help to infer how investors perceive the message(s) contained in shared audit opinions. This will help to evaluate the merits of revision of existing standards governing shared audit opinions.

Another related objective is to investigate whether the market reacts differently to shared opinions according to two intervening variables. These two variables are called the materiality variable and the foreign vs. domestic variable in this study. The first variable divides the overall samples according to a measure of the size of the subsidiary audited by other auditors, and the second variable divides the overall samples according to whether the subsidiaries audited by other auditors are located in a foreign country or in the United States. The reasons for expecting differential market reaction to shared opinions according to the above intervening variables is discussed in Chapter Three.

Besides the above specific objectives of the study, the study may also provide partial evidence related to the value of auditing in general and the importance of audit related messages in the allocation of resources in the capital market.

Research Questions

To achieve the objectives of the study discussed above, this research has attempted to answer the following research questions, related to the effects of shared opinions on the returns of the stocks involved:

1. Does a portfolio of stocks for firms receiving "new" shared opinions (Sample A) have consistently negative abnormal returns during the test period compared to a portfolio consisting of stocks for firms whose audit opinions ceased to be shared (Sample B?
2. Is there an association between a magnitude measure of the parts audited by other auditors and the abnormal returns of the above portfolios? (In other words, do investors react to the shared opinions according to a materiality measure?)
3. Does the market react differently to shared audit opinions according to whether the subsidiaries audited by other auditors are located in a foreign country or in the United States?

General Hypotheses

Based on the research questions raised above, the following are the general research hypotheses to be tested in the study:

H_1: The abnormal returns of a portfolio of stocks receiving "new" shared opinions (Sample A) is consistently lower than the abnormal returns of a portfolio of stocks whose audit opinions ceased to be shared (Sample B), during a test period.

H_2: Investors react to shared opinions according to a materiality measure.

H_3: Investors react to shared opinions more negatively when the subsidary(ies) audited by other auditor(s) are

located in a foreign country.

To test for general hypotheses two stated above, both experimental and comparison portfolios will be divided into two subgroups according to the relative size of the parts audited by other auditor(s). Tests will be performed to see if there are differences between the abnormal returns of each subgrouping.

Hypothesis three will be tested by dividing the overall samples A and B into two subgroups each, the first to include companies whose subsidiaries audited by other auditors are located in foreign countries (these subgroups will be labeled F). The second will include companies whose subsidiaries audited by other auditors are located in the United States (these subgroups will be labeled D). Hypothesis three will be accepted if the market reaction to subgroup F is more negative than it is for subgroup D.

Chapter Three will discuss the above hypotheses in detail. Operational measures to test these hypotheses will also be developed in that chapter.

Overview of Research Methodology

Two samples were chosen to test the hypotheses of the study. The first sample consists of companies having "new shared opinions" during any year of the study period (1973-1979). The second sample is a group of companies whose audit opinions ceased to be shared during any year of the study period. The first will serve as the experimental sample of the study and the second will serve as a comparison sample.

Modern portfolio theory and the market model were used to

establish a market response measure, defined as the cumulative abnormal return (CAR) after adjusting for risk. This measure was computed for each day and for each sample during the test period (fourteen days before the release of the audit report to fourteen days after).

Before using statistical tests to detect any difference between the two portfolios, the CAR for each experimental portfolio and its corresponding comparison portfolio were plotted to determine if the pattern in the data is consistent with the hypothesized relationships.

To test the hypothesis that investors react to shared opinions according to a materiality measure, the study defines the materiality measure of the part(s) audited by other auditor(s) as the percentage of total assets covered by the other auditor(s) (labeled X). Then both the experimental and comparison sample firms were divided into two subgroups each, according to whether each firm's materiality measure (X) was above or below the median of its group. Statistical tests were applied to determine if differences exist between the subgroups in terms of the mean market response measure of each.

The experimental and comparison samples were also divided into those companies whose audit report is shared because the subsidiary(ies) examined by other auditors were foreign versus domestic. This division was made for two reasons; the first is the concern that the companies in the sample might be biased towards multinational companies. Some studies have indicated that the market might react to multinational companies during certain periods because of events affecting only those companies and hence this might confound the results of this study. The second was to determine if there is differential market reaction based on the above dichotomy. The above division was utilized to

provide further refinement for the results of the analysis.

The study uses both parametric and nonparametric statistical tests to detect any significant differences in the measure of market response employed between the experimental vs. the comparison portfolios.

Contribution of this Study

Answering the above research questions may provide evidence concerning the question raised by the Commission on Auditors' Responsibilities about the effects of shared audit opinions. The results should also provide some evidence to help in deciding whether there is a real need for revising the existing standards for using the work and reports of other auditors.

Besides this general contribution, it is hoped that the study will add to the existing literature on the effects of audit signals on users' behavior by:

1. extending the study of market effects of the audit report to information other than audit qualifications (i.e., shared audit opinion);
2. using a much larger data base (almost all of the prior research studies reviewed in this study used Accounting Trends and Techniques as their data base, which contains only 600 companies as its population). Use of the fairly new computerized NAARS data base provides a much larger population ($N \approx 4000$) than that of Accounting Trends and Techniques. (The NAARS data base is described in a later section of this study.)

3. studying the association between the magnitude of the accounts audited by other auditors and the magnitude of the abnormal return reaction. This will provide some evidence as to the existence of investors' materiality functions in evaluating accounting-auditing signals.

Organization of Remaining Chapters

The remainder of this dissertation is organized into four chapters as follows:

Chapter Two presents a theoretical framework for studying the effect of shared audit opinions on the stock market. The chapter also reviews prior research related to audit signals' effects.

Chapter Three explains the research design and the methodology used to test for stock market reactions to the message contained in shared opinions. Statistical testing procedures are also discussed in the chapter.

Chapter Four presents the results of the data analysis, followed by a discussion and interpretation of the results.

Chapter Five provides a summary of the research and its major findings. This is followed by a discussion of the limitations of the study. Policy implications of the findings and suggestions for future research concludes the chapter.

CHAPTER TWO

THEORETICAL FRAMEWORK AND REVIEW OF RELATED LITERATURE

The purpose of this chapter is to provide a theoretical basis for the research topic and its methodology. This purpose will be achieved by presenting auditing as a communication process in which investors respond to the messages contained in the audit report. A link will be established between shared opinion messages and users' reactions via the market model.

This chapter will also review the related literature, highlighting some of the limitations of these studies. This review will be limited to those studies addressing the effects of audit signals on the users' behavior and perceptions.

Auditing as a Communication Process

The audit report may be viewed as a communication process which transmits a message(s) to the external users of financial statements. For example, the Committee on Basic Auditing Concepts of the American Accounting Association (1973, p. 21) states that:

> Opinions and evaluations reached at the conclusion of the audit investigation are generally implicitly stated and communicated by means of an audit report. This phase of auditing is fundamentally a communication process.

The sender of the message(s) is the auditor and the receivers are the various users of the audited financial statements.

One aspect of communication is that the sender should consider the impression that receivers derive from the message. This aspect has been recognized by the auditing profession. For example, in the first auditing research monograph initiated by the American Institute of Certified Public Accountants, Carmichael (1972, p. 50) noted that:

> the audit report naturally must be truthful, but the auditor must be concerned with more than literal truth. Since the report is concise, abstract, and, most significantly, one way, the auditor must be cognizant of the impression likely to be drawn by the reader. The communication process permits no dialogue between preparer and user to clarify misimpressions. Consequently the auditor must be aware that a statement may be literally true, yet create an erroneous impression on the reader.

Communication usually influences the behavior of the users in some way or another and thus it is usually not a neutral process. The AAA Committee on Basic Auditing Concepts (1973, p. 51) emphasized this aspect by urging that:

> the auditor needs to ponder the question, what do I want to have happen as the result of this message? A primary purpose of communication is to influence or affect the behavior of the receiver. If the auditor is not clear as to what he wishes the receiver to do or not do as the result of his message, he may not only fail in his purpose to gain the desired effect but, instead, cause the reverse to happen.

The Committee then concludes that "failure to consider this important aspect may be detrimental to the purpose of the audit and jeopardize the entire contribution of the audit process" (p. 52).

The above concepts could be presented by the following figure:

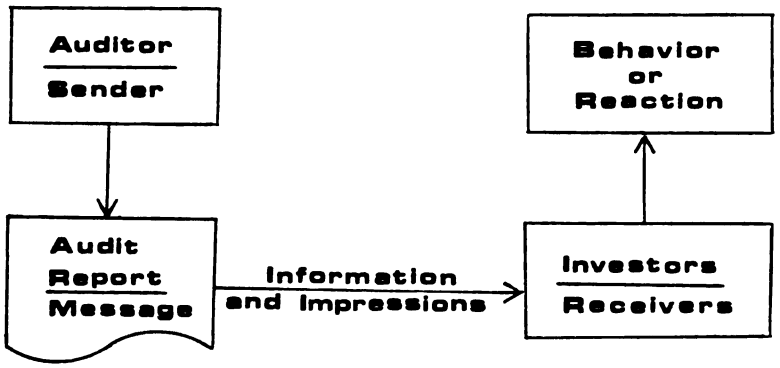


FIGURE 1

Auditing as a Communication Process

The auditing communication process could be applied to shared opinions as follows: When the principal auditor refers to other auditor(s), he might be intending to convey one of two things. First, he might be telling the users of his report that the overall level of assurance may actually be lower than he would demand in order to assume full responsibility; or second, his intent may be merely to partially shift legal responsibility to the other auditor (since auditing standards give him this option) while conveying the normal or "full" level of audit assurance.

Investors receive this message and draw inferences based on their knowledge and beliefs. Since the audit report message is both one-way and concise, users might associate meanings with its message which the auditor did not intend. Hence, the following four basic possibilities might exist in the interpretation of the meaning of the message conveyed by shared audit opinions; that is, investors might interpret the message:

a) as a lower level of assurance than a nonshared opinion, which is the interpretation that the principal auditor intends to convey.

b) as having no effect on the level of assurance, which is the interpretation that the principal auditor intends to convey.

c) as a lower level of assurance than that intended by the principal auditor.

d) as having no effect on the level of assurance while the principal auditor intended to convey a lower level of assurance.

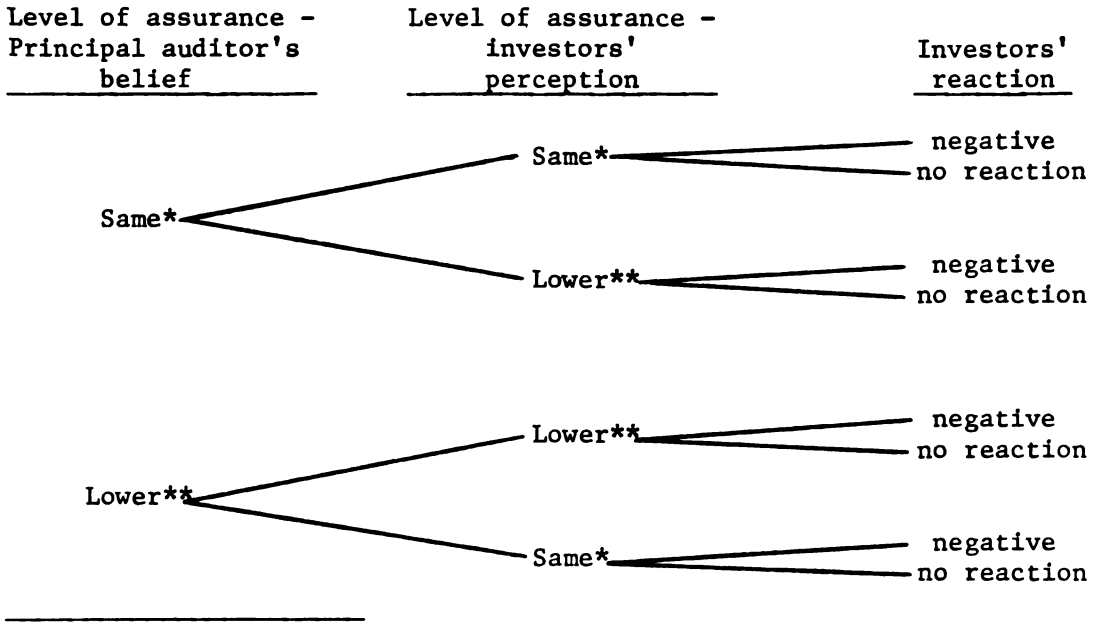
Situations c) and d) clearly would represent a communication problem between investors (message receivers) and the principal auditor (message sender). Situation a) would present a different problem, i.e. investors correctly discounting the value of a shared opinion--a situation that could be avoided by extending the auditor's work as necessary to provide the same assurance as offered by a single auditor engagement. Situation b) is that assumed by AICPA auditing standards.

It is conceivable that investors might react negatively to any of the four situations above. In situations a) and c) it is clear why investors might react negatively since they perceive the level of assurance derived from shared reports to be lower than that without reference to the other auditor(s). Negative reaction in situations b) and d) might be related to the issue of legal responsibility of the principal auditor when using the work of other auditor(s) as discussed in Chapter One. This is because investors might not be able to recover damages from the principal auditor in case of legal disputes involving misrepresentation of the data covered by reports of other auditors.

It is also conceivable that investors might not react at all

to shared opinions. This could be the case if investors are able to increase the level of assurance of the financial statements by means other than the principal auditor's report.

The following diagram represents the different possibilities discussed above.



*Same level of assurance as a report where no reference is made to other auditor(s).

**Lower level of assurance than a report with no reference to other auditor(s).

FIGURE 2

Possible Levels of Assurance Derived from Shared Opinions

This research could not answer all the questions involved in the above communication process. For example, the question of the "true" level of assurance of shared opinions according to the auditor's

belief could not be ascertained in this study. Thus this research will only provide answers to the question of investors' reactions to the shared opinion. It will not shed light on the "correctness" of the reactions. Hence, inferences drawn from this research relate only to investors' perceptions about the message(s) contained in shared opinions. The study hypothesizes that shared opinions could cause negative reaction by investors. Measuring the investors' reaction will be done via the market model, which will be discussed later in this chapter.

Shared Opinions and Investors' Reactions

Users' interpretations of and reactions to audit report messages are important aspects of the audit function, worthy of serious study. The Committee on Basic Auditing Concepts of the American Accounting Association (1973, p. 52) emphasized the importance of considering the effects of audit report messages in the following paragraph:

> In most cases today, the intended effect of the auditor's report is not clear and the effects it does produce are not well known. More consideration needs to be given to this area and greater research needs to be performed. Failure to consider this important aspect may be detrimental to the purpose of the audit and jeopardize the entire contribution of the audit process.

This study hypothesizes that investors perceive a relatively negative message contained in shared audit opinions and react accordingly. The following is a summary of the reasons that support the above hypothesis.

1. Investors may perceive shared opinions as implying a lower level of assurance for the part of the audit performed by the other auditor(s). This is so because

the principal auditor's reference to the other auditor implies that he is unwilling to assume responsibility for that part of the audit. This perception would not be unreasonable since existing auditing standards require the principal auditor who does not make reference (i.e. who accepts full responsibility) to consider and thus often actually perform additional work related to the other auditor's examination.

2. Recognition that the judicial system may not hold the principal auditor liable for the part of the audit done by other auditor(s) if he makes explicit reference. This makes it impossible or at least more difficult to sue the principal auditor for damages from misleading information in the other auditor's portion. Also, if a foreign auditor is involved in the audit of a foreign subsidiary, it might be quite difficult to recover damages from him.
3. The generally accepted practice of not disclosing the identity of the other auditor(s) involved might intensify the uncertainty of the investors. This could be due to investors' associating different levels of quality control with different auditing firms. For example, a foreign auditor of a foreign subsidiary may have (or be perceived as having) a completly different system of quality control than the U.S. auditing firms.
4. As discussed in the previous section, the involvement of more than one auditor may increase the possibility

> of management fraud via fraudulent recording of transactions between the affiliated entities. This belief may be reinforced in the minds of the investors by the highly publicized cases of Atlantic Acceptance and Equity Funding Corporations, where more than one firm was involved in the audit of the consolidated statements.

If investors have lower confidence in the information presented in the financial statements, it is likely that they will revise downward the returns prospects of the companies involved. This will cause investors to lower the prices they are willing to pay for these stocks and hence actually decrease the returns of these stocks after the investors receive the shared opinion message. This could be detected by observing the returns behavior of an appropriate sample of companies receiving shared opinions during a study period around the day the audit report information became known to market participants. The next section will provide the necessary link between shared opinions and market reactions by establishing an operational measure of investors' reaction via the market model.

Measure of Market Response

It has long been argued that auditing performs a social function by helping to efficiently allocate resources via the capital market. The following is one example of such arguments:

> The accounting measurement of income, attested to by the auditor, is reported to the capital market. The capital market, in turn, assigns favorable prices to the securities of the more efficient managements, thus enabling those managements to secure additional resources at favorable terms. Presumably attestation of the reliability

> of managements' representations of their operations is an essential link in this process of resource allocation. (Anderson et al., 1970, p. 525) (emphasis added).

This study will utilize the above argument to establish an operational measure of market response to shared opinions.

Different measures of market response have been utilized in the accounting and finance literature to detect market reactions to "new information." Most of these measures utilize some form of the market model developed by Markowitz (1952 and 1959) and extended by Sharpe (1963). The model can be represented by the following equation:

$$\tilde{R}_{it} = \alpha_i + \beta_i \tilde{R}_{mt} + \tilde{e}_{it}$$

where

$\tilde{R}_{it}$ = the return of security i in period t

$\tilde{R}_{mt}$ = the return on the market portfolio in period t

α_i, β_i = intercept and slope respectively of the linear regression between R_{it} and R_{mt}.

$\tilde{e}_{it}$ = a random variable representing the residual or the portion of security i's return that is independent of R_{mt} and assumed to be $N(0,\sigma^2)$

$$\tilde{R}_{it} = (P_{it} + D_{it})/(P_{i,t-1}) - 1$$

where

P_{it} = the price of security i in period t

$P_{i,t-1}$ = the price of security i in period t-1

D_{it} = the dividends per share on security i in period t

The above model represents an equilibrium relationship between the returns on individual stocks and the market returns. The model basically states that the return of each security in period t is linearly related to the return on the market portfolio in the period.

The slope coefficient, β_i, is used as a measure of the systematic risk of the security. Systematic risk is that portion of a security returns' variability that is related to the general market movement. The random error term ($\tilde{e}_{it}$) is that portion of security i's return that is uncorrelated with the market return and is expected to have a value of zero.

Disequilibrium in the above model for a particular stock could be caused by the flow of information specific to that stock to market participants. In that case, during a market adjustment to that specific information one would expect the residual or disturbance term (e_{it}) to have a nonzero value (either negative or positive depending on whether the market perceives the information as a negative or positive signal).

The above model provides a basis for measuring market reaction to firm's specific events via studying the behavior of the residual term (e_{it}) around the event of interest. This procedure was first used by Ball and Brown (1968) and Fama et al., (1969), and has subsequently been utilized extensively in many other accounting and finance studies.

This study will utilize the above measure of market response, i.e. the residual term (e_{it}) to test for the existence of negative market reactions to the message conveyed by shared audit opinions. The details of the rsearch design and methodology will be the subject of the next chapter.

Review of Literature

The market model has been used widely in the accounting and finance literature to assess market reactions to the release of "new information" on the stock prices of the firms concerned. Despite the assumed importance of the audit report as a means for conveying information to investors and other users of financial statements, only a few studies have addressed this question empirically and their findings are not conclusive. This section reviews only those studies that have addressed the effects of audit report messages on investors' behavior and perceptions.

A very early study is one by Baskin (1970 and 1972). This was a study of the information content of consistency qualifications, which tested for market price reactions to the release of audit reports with consistency qualifications. His experimental sample contained two groups. The first consisted of fifty-eight firms having consistency qualifications, which notified investors of accounting principle changes in their earnings announcements and in their annual reports. The second experimental group consisted of seventy firms that also had consistency qualifications, but these firms reported their accounting principle changes only in their annual reports. Baskin also used a control sample consisting of 126 firms that made no accounting principle changes. All these firms were selected from Accounting Trends and Techniques issued from 1965-1969.

Baskin utilized the residual term generated by the log version of the market model and conducted an analysis of covariance to test the hypothesis of information content. He was unable to find a significant market effect for his experimental groups.

Baskin further divided his experimental groups according to two measures of materiality, hoping to find some evidence to support the hypothesis of information content in consistency qualifications. The first materiality measure was a quantitative measure of the magnitude effect on reported net incomes of the firms in the study. This measure was regressed against the residual term variable to determine if investors reacted differently to consistency qualifications according to the above measure of materiality. Again he was unable to detect any significant association.

Using another measure of materiality based on the type of accounting principle change made by the firms in the study, he divided his experimental sample into eight sub-groups according to eight different types of accounting principle change. He conducted an analysis of covariance, and was unable to detect any significant results to support his hypothesis of differential market reaction to consistency qualifications according to the type of accounting change made.

One limitation of Baskin's study was that it is not possible to separate the market reaction to the consistency qualification per se from the reaction to the accounting change involved. A consistency qualification obviously relates to an accounting change, which itself may cause market reactions. This limitation applies to most of the studies discussed in this section.

Another limitation of Baskin's study is the small population from which he chose the sample for his study. This limitation also applies to most of the studies reviewed in this section, since most of them used Accounting Trends and Techniques as their population. AT&T contains only 600 companies. This study will avoid that

limitation by using the NAARS data base (to be described later) which contains the annual reports of approximately 4,000 companies.

Scott (1974) also used the residual term generated by the log version of the market model to test the "adequacy" of the consistency qualifications disclosures. He considered consistency qualification disclosures to be adequate if they alerted investors that the earnings numbers involved included an "illusionary" element due to the accounting change. Scott tested for this on a sample of 62 firms selected from Accounting Trends and Techniques on the basis of having consistency qualifications in any year during the period 1965-1968. He divided his experimental sample into two groups: those that announced the accounting change with their earnings announcements, and those who announced the accounting change only in their annual reports.

Market reaction tests were conducted for two periods. The first was a period of time surrounding the earnings announcement dates and the second was a period of time surrounding the annual report dates. Market reaction was measured by the abnormal return or the residual term of the market model. Scott hypothesized that the abnormal returns at the earnings announcements period would be greater for the group not disclosing the change in accounting principles than for the group disclosing the change. Scott also hypothesized that the reverse will happen at the time the annual reports were released.

His rationale for the above hypotheses was that investors would perceive the earnings announced for the group not disclosing the change as all "real" earnings, while they would adjust the earnings for the group announcing the change. However, Scott argued that a negative reaction should be detected at the annual report release date

for the group not disclosing the change previously since investors will learn that they have previously reacted to "illusionary" earnings.

Unfortunately, the results of the analysis were opposite to those hypothesized. Scott provided one possible explanation for his results on the basis of a possible existence of a differential reaction to earnings components and the presence of a confirmation effect. This could have happened if investors had perceived earnings produced solely by accounting changes as a more favorable signal than earnings produced by other causes, and the confirmation effect might have arisen when the identity of the cause for earnings change was learned from the annual reports.

From the results, Scott reached a conclusion that market participants react "to the illusionary earnings produced solely by a change in accounting principles" (p. 84). Even though Scott admitted that "the data are difficult to interpret with respect to the primary question which this research sought to answer" (p. 84), he concluded that consistency qualifications do provide information for market participants. The two above conclusions show the difficulties in separating market reactions to auditors' consistency qualifications from the underlying accounting changes. Failure to recognize that caused Scott difficulties in interpreting his results.

In addition to the small population from which Scott's sample was drawn, another limitation was that he did not use control groups. Hence, it is very difficult to conclude that the market reaction was due to the treatment variable (consistency qualification) and not to unspecified general market conditions.

Alderman (1977a and b) extended the above research in two

respects. First, he studied both consistency and uncertainty qualifications. Second, he tested for the effects of the above qualifications on both components of the market model risk, i.e., unsystematic (residual) and systematic (beta) risk.

The second extension, testing for a beta change due to either consistency or uncertainty qualifications, was apparently due to Scott's concern that "the nature of risk changes and their impact on the specification of the market model need additional clarification," (Scott 1974, p. 99). Alderman did not provide a strong theoretical justification for this extension.

Changes in both risk components were measured for each sample company for two 36-month time periods before and after the release of associated audit reports. Chi-square tests were utilized to detect the changes. The analysis found no significant differences in changes of the risk components before and after the audit report or between the samples studied.

Alderman concluded that audit opinions containing either consistency or uncertainty qualifications have no, or little, impact on either risk component and thus are of only marginal informational value to aggregate investor groups.

Even though Alderman used a randomly selected control group for his study in an attempt to avoid some of the limitations in Scott's study, his study still suffers from some limitations. First, the efficient market literature asserts that market reaction to new information is instantaneous and hence should be detected in a matter of days, but Alderman's study used the month as the unit of time for the analysis. This could have the effect of masking a significant

reaction for some days when aggregated with other days when no reaction occurred. Also, the possibility of confounding effects increases with the length of the test period, since many other events and information releases could occur.

The study also failed to recognize the fact that the effects of both consistency and uncertainty qualifications are difficult to isolate from the underlying events (i.e., the accounting change or pending litigation, etc.).

Alderman recognized the limitation of his small sample size, particularly for the uncertainty qualification group (n=20) and suggested that further studies using larger sample sizes are needed before one can reach a final conclusion on the subject. Another limitation of Alderman's study, which he did not recognize, was the determination of the date the audit report was released to the public. He used the date of the audit report as the date for the critical event; however, this is the date when the audit report is addressed to the officials of the company and not the date when it is made available to the public. This limitation might severely affect his results since the semi-strong form of market efficiency (the one having extensive support) deals only with publicly available information.

Shank, et al. (1977) used the market model methodology to test again for market reaction to uncertainty qualifications. They tested for a market reaction on both the beta and the excess return between an experimental group and a control group of firms receiving unqualified opinions. Specifically, they conducted statistical tests to answer the following questions:

1. did the systematic risk measures (betas) of firms

receiving uncertainty qualifications change after receiving the audit opinion?

2. did the variance of the estimated systematic risk (betas) change after the release of the uncertainty qualification?
3. are the market returns of firms having consistency qualifications significantly different from the returns of the control group?

The Wilcoxin matched pairs test was employed to test the first two empirical questions. Significant results (at $\alpha = .05$) were found to affirm the first question, and no significant results were found to support an affirmative answer to the second question.

To answer the third question the authors used a version of the market model methodology. They equated the average beta of both the experimental and control samples to one, then calculated the excess returns between the experimental portfolio vs. the control portfolio. The *a priori* expectation according to portfolio theory is that the returns on the portfolios should be equal since their betas are equated. Shank, et al. accumulated excess returns over their test period and found that the majority of the monthly excess returns prior to the release of the audit report were negative. Their concluding comments were:

> It seems clear that the bad news represented by the uncertainty qualification is being perceived by the market well in advance of the actual release of the opinion. This is indicated by the consistently negative residuals as early as twelve months before the annual report is released. Since this is well before the audit has even begun, much less before the auditors have decided upon the form of their opinion, it cannot be leakage of confidential audit data which is reflected here. More likely the market is becoming increasingly

> aware over these months of the underlying problems in the company's financial situation which will--eventually require the auditor to qualify the opinion. That is, the market is reacting to the same underlying economic phenomena which the auditor reacts to by qualifying his opinion (Shank et al., 1977, p. 18)(emphasis added).

The authors noted a major limitation in their study, which is the difficulty of separating market reactions to uncertainty qualifications from that due to the underlying events which cause the qualifications. They state:

> When the potentially detrimental economic events and the uncertainty qualification always go together, there is no clear way to measure which one is causing the market reaction. Furthermore, it is not really feasible to structure tests of these two factors taken separately. On the one hand, testing market reaction to material unresolved contingencies which do not result in a qualified audit opinion would require a sample of firms for which Generally Accepted Auditing Standards (GAAS) were being violated by the auditors, since GAAS require qualification in such circumstances. Constructing such a sample of firms would not be feasible. On the other hand, testing market reaction to "subject to" opinions which are issued in the absence of underlying material unresolved contingencies also involved sampling from a null set (p. 19)(emphasis added).

Despite recognition of the above limitation the authors concluded that: "The observed results are consistent with the general hypothesis that the capital market does react to the form of the auditor's opinion" (p. 21).

Banks (1979) was motivated by the above arguments of Shank et al. that it is not possible to separate the effects of the underlying event from that of the uncertainty qualification, since generally accepted auditing standards require an uncertainty qualification if a material loss contingency is present. He reviewed the authoritative accounting and auditing standards and argued that qualification of the audit report is only one option available to the auditor, and

hence it is possible to find a sample of firms reporting loss contingencies with an unqualified audit opinion.

This made it possible for him to separate the experimental sample into two subgroups: those firms having loss contingencies and audit opinions qualified for uncertainty and those firms having loss contingencies but with unqualified audit reports. He also divided his sample into two groups according to whether or not the loss contingency was disclosed before the annual report. This enabled him to test whether or not loss contingency reporting conveys information to investors. Banks' study was not only addressing the information content of uncertainty qualifications but also the market reactions to loss contingencies.

He selected his experimental sample from Accounting Trends and Techniques, and used a control sample for his study matched on the basis of industry, fiscal year, sign of unexpected earnings and systematic risk. He used the excess return between his experimental and control samples as his test statistic. The market model was used to provide theoretical justification for the study.

Banks concluded that the initial disclosure of the antecedent events giving rise to contingencies contain information relevant to the market and inferred from that that the occurrence of a loss contingency decreases the market value of the firm (p. 122). He also concluded that the evidence presented does not support the hypothesis that "subject to" opinions have information content.

Banks realized some of the limitations of his study, one of which was the severely small sample size of firms receiving uncertainty qualifications (n=7). He cautioned against his results concerning this

very limited sample. Another limitation Banks acknowledged is that his study used the month as the unit of time for his analysis, which, given the efficient market literature, might be too long to detect a market reaction.

Banks and Kinney (1980) extended the work of Banks (1979), and specifically stated that "the authors ... properly note that one can't use observed stock price reaction to separate the effect of the events from the auditor's opinion on the events since they are concurrent," (p. 25). After discussing the accounting and auditing standards pertaining to loss contingencies, they developed a theoretical argument for testing the market reaction to loss contingencies.

Their study included a sample of 92 firms that disclosed their loss contingencies in annual report footnotes during the period 1969-75. They partitioned their sample into four separate groups according to the following dimensions: whether or not there is prior disclosure in the Wall Street Journal and whether the audit report was uncertainty qualified or unqualified. They then selected a control sample of firms having no loss contingency and matched to the experimental sample on the basis of industry affiliation and sign of unexpected earnings.

Using t tests the authors found that the risk adjusted stock price performance of the ninty-two experimental firms with new contingencies is significantly worse than their control counterpart. They also found that

> The difference between firms is greater for firms with qualified opinions than those with management footnote disclosure only. However, the difference is also greater for firms with announcement in the WSJ (p. 22).

They then assert: "Clearly the audit report is not the only way for

the market to learn of the uncertainties. However, the audit report does confirm the possible importance of uncertainty" (p. 22). They conclude:

> Since the market reactions observed here have largely preceded the release of the audit report, it is difficult to argue that the report (directly caused the reaction or that readers are "confused" by the audit opinion) (p. 23)

One limitation is still present in the Banks and Kinney study, namely the small sample size for two subgroups in their experimental sample. These are the group of firms having uncertainty qualification with prior disclosure in the WSJ (n=7), and the group of firms having uncertainty qualification and no prior disclosure in the WSJ (n=9).

Bailey (1978 and 1981) criticized the use of market-based studies to test for the information effects of the audit report, suggesting that "it is doubtful that issues concerning the informational value of audit reports can be settled solely by the reaction of a securities market" (Bailey, 1978, p. 10). Bailey went on to criticize the existing studies for not having an authoritative support for their hypotheses in the first place, claiming that

> The review of the auditing literature, much of which was authored by committees of the American Accounting Association (AAA) and the American Institute of Certified Public Accountants (AICPA), disclosed no statements to the effect that audit reports are supposed to affect security returns, ... (Bailey 1978, p. 10).

This claim seems to be unwarranted because, as discussed above in a previous section, both the AAA and the AICPA recognize auditing as a communication process which has the potential of influencing users' behavior. Further, it is clear that the behavior of the class of users of financial statements studied, i.e., investors, could substantially affect the returns on a security.

Bailey then used experimental methodology to test for what he calls "credibility effects" of the audit opinion. Credibility was defined as the degree of acceptance of financial statement messages.

He conducted his study on a sample of 395 chartered financial analysts to test for the effects that five different types of audit opinions have on the perceptions of the analysts.[1] The information provided to the analysts contained a description of an existing company together with its comparative financial statements. The statements were modified to accommodate the five different types of audit opinions studied. As a control procedure, some statements were accompanied by an audit report; others were not and were labeled unaudited. He used a questionnaire to test for the analysts' response to the variation in the messages contained in the statements and the audit reports.

His main conclusion was that an audit report has to contain an adverse opinion for it to have an effect on the analysts' forecasts or on their perceptions about the credibility of financial statements. He also concluded that the "perception of the credibility of the source of financial statement messages appears to be unaffected by the structure of the audit report that accompanies the statements" (Bailey 1978, p. 136).

Bailey's study suffers from some limitations. The first is the limited external validity of the study, since he used as his population chartered financial analysts (CFA's) who might not be

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[1]These five types are: unqualified opinion, consistency exception qualified opinions, opinions qualified for failure to apply GAAP, piecemeal opinions and adverse opinions.

representative of other users' behavior. The second limitation in Bailey's study was the lack of real world incentives to the CFA's. This is true of most experimental settings since the conditions of the experiment might differ from real life situations. Bailey recognized this limitation when he states:

> Nothing of value was at stake when the CFAs analyzed the financial information of Vista Electronics. In the absence of an economic incentive, the analysts may have studied the data and evaluated its significance less diligently than they would have had their, or a client's, money been in the balance (p. 139).

A third limitation was present in Bailey's study, namely the low (about 20%) response rate to the mailed questionnaires.

The study closely related to this research is that done in the United Kingdom by Firth (1978). Using the residual term of the market model he tested for the market effects of seven types of audit qualifications.[2] The study was done on a sample of British firms having these types of audit qualifications in the period 1974-75. He also selected a control group consisting of firms that received standard opinions, and calculated the difference between the residuals

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[2]These seven types, under UK auditing standards, are: 1) general qualification where the statements are qualified on the basis that they do not show a "true and fair view" and no detail for the reasons is given in the audit report; 2) Going concern qualifications; 3) Asset valuation qualification; 4) Subsidiary's audit qualifications; ie., when one subsidiary or more is either unaudited or audited by other auditing firm; 5) Statements of Standard Accounting Practice (SSAP) qualifications (equivalent to the U.S. qualifications due to violation of GAAP); 6) SSAP and concur qualifications; ie., when the auditor states that he concurs with the alternative treatment used by the client; 7) Continuing audit qualifications, which are defined as those where the company has received the same type of audit qualification for the previous two years. It was hypothesized in the study that situations 1-3 are expected to produce negative market reaction. For situation 4-5, the hypotheses were exploratory in nature, and situations 6-7 were not expected to produce any market reaction.

of both the experimental and control groups. Firth concluded that certain types of qualified audit reports contain significant information which investors use in their portfolio decisions, and that investors react differently to the various types of audit qualifications.[3]

One type of audit qualification studied was a qualified audit opinion due to subsidiary statements either unaudited or audited by another auditor. Firth found small (insignificant) negative residuals for companies having this type of audit qualifications. His results in this regard could not be taken as conclusive evidence, since his sample size was small (n=15). He also did not consider the magnitude of the subsidiary concerned. His study was done in the British market, which might not extend to the U.S. market.

Ball et al. (1979) performed a study similar to that done by Firth, using a sample of 117 publicly-held Australian companies. A version of the market model methodology was used to test for market reaction to audit qualifications. They calculated the excess returns between their experimental groups and a market index on the basis that the average beta for their experimental sample was very close to unity (β=1.05). Their experimental sample was divided into eight groups according to eight types of qualifications.[4] They used the t test

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[3]Significant negative residuals were found for the following experimental groups: general qualification group, going-concern qualification group and asset valuation qualification group. The largest negative residual was that of the last group.

[4]The eight qualification types were those related to: 1) depreciation on buildings, 2) valuation of shares in or amounts due from subsidiaries, 3) valuation of other assets -- inventories, investments, land and buildings and sundry receivables, 4) provision for deferred income tax, 6) accounting treatment -- inadequate or incorrect charging of provisions and capitalizations, 7) miscellaneous

and the Wilcoxon Matched-Pairs-Signed Ranks test to test for significant differences between the returns on the experimental groups and a market index.

Their conclusion was that "certain types of audit qualifications are associated with changes in shareholders' assessments of the value of securities" (p. 33). However, their results do not seem to warrant this conclusion since their findings were in the opposite expected direction. For the two groups having significant results, the residuals were significantly positive, while the a priori expectation was that they should be associated with negative residuals.[5]

Ball et al. did not study the effects of shared audit opinions "on the grounds that they would not be expected to convey information which would lead shareholders to revise their expectations about a firm's financial position or profitability" (p. 25). No further arguments were provided to support their expectation. (Recall that this study has provided in previous sections, arguments to support the expectation that shared opinions might convey information which could

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-- inadequate records, noncompliance with the Companies Act, internal control weaknesses, incorrect classifications, etc.; 8) multiple qualifications. These types were then grouped into: a) depreciation on buildings qualifications; b) other 'valuation issues' qualifications; c) remaining qualifications.

[5]The two groups having significant results are a) depreciation on buildings qualifications; and b) other valuation issues qualifications. Ball et al. argue that the positive residuals on these groups might be justified as follows: management's refusal to correct the item which caused the qualification "incurs the cost of time spent in disputation with the auditors, increased time spent on the audit itself, and possible political and litigation costs. Hence, managers who are prepared to incur these costs could conceivably be those who believe that there is a higher likelihood of their action increasing the value of the firm" (p. 29).

lead investors to revise their expectations about the future returns of the firms involved.)

The studies discussed above dealt only with the effects of various audit qualifications primarily on the stock market. In addition, another study done by Fried and Schiff (1981) dealt with the effects of another auditing related signal, namely, market reactions to changing the firm's auditor. This study was motivated partially by the SEC's requirement, issued in 1978, that a detailed description be filed by registrant companies of any disagreements they may have had with their CPAs on accounting and auditing issues in the 19 months prior to the change. In part, the study sought an answer to the question of information content to these disclosure requirements.

Fried and Schiff conducted their study on a sample of 48 firms who changed their auditors during the period 1972-1975. They used a control sample of firms who did not change auditors matched to their experimental sample based on beta and when possible, industry classification. They equated the average beta of their control sample to that of the experimental sample to insure further control on the variation of the returns of both groups. Having controlled for beta level in both groups, they used the differences between actual returns of both groups as their test statistic, under the assumption that any difference between the two groups could be attributed to the treatment effect (i.e., auditor change).

Univariate and multivariate tests were performed at both the individual security (IB) level and at the experiment-wide level (EB). They found significant negative difference associated with auditor changes at the individual security level, but not at the experiment-wide

level. In order to answer the question of the informational value of management-auditor conflict disclosure, they divided their experimental sample into two groups, one a group of firms who disclosed some conflict with their auditors and the others who reported no such conflict. They were unable to find any significant differences between the returns of these two groups. Being unable to find significant results based on the above dichotomy, they further divided their sample into two groups, those who switched to "Big Eight" firms from non-Big Eight and those who switched to the "same size" firm. Again, they were unable to find significant results.

They concluded that their results were "inconsistent with the SEC's requirement for a company to enumerate and describe disagreements with its auditors on accounting and auditing issues" (p. 338). Even though they found negative reaction to the sample of firms changing auditors, they concluded that there is "difficulty in interpreting this result" (p. 339). Their apparent difficulties might have been due to the small sample size resulting from their partitions (hence the inability to find significant results for tests done on these partitions) while having significant results on the sample as a whole.

Table 1, on the following pages, summarizes the relevant research studies in the area of investors' reaction to audit-related messages.

From the above review, it seemed that no study (with the exception of Firth (1978)), has investigated the effects of shared audit opinions on the stock market. The small sample size chosen from the British companies and the insignificant results of Firth's

study for the group of firms having shared audit opinions make any conclusion drawn from these results very tentative. This study will add to the existing literature about the effects of audit report signals on the stock market by investigating the effects of shared audit opinions on the returns of the stocks involved. The study will also avoid some of the limitations present in previous research. One important limitation which applies to most of the studies reviewed above is the inability to separate market reactions to audit qualifications from market reactions to the events causing the qualifications. This study did not have that problem since a shared audit opinion conveys an audit related signal only. By using the NAARS data base the study has also avoided the limitation of the small population from which the samples of previous studies have been drawn.

TABLE 1

RESEARCH ON THE REACTION OF INVESTORS TO AUDIT REPORT MESSAGES

Author	Subject	Methodology	Findings	Limitations
Baskin (1970, 1972)	Market reaction to consistency qualifications	Log version of the market model - residual tests.	No significant market reaction	1) inability to separate treatment from the accounting change 2) small population - AT&T
Scott (1974)	Market reaction to consistency qualifications	Log version of the market model - residual tests	Significant market reaction.	1) inability to separate treatment from the accounting change. 2) small population - AT&T 3) no control group.
Alderman (1977)	Market reaction to consistency and uncertainty qualifications	Market model - residuals and beta tests.	No significant results	1) inability to separate consistency qualifications from accounting changes and uncertainty qualifications from underlying events. 2) small population - AT&T 3) small sample size. 4) long test period.
Shank et al (1977)	Market reaction to uncertainty qualification	Market model - beta tests, test on the variance of beta and excess returns test using iso-beta concept.	1) significant betas change 2) no significant variance of betas change. 3) significant negative excess returns.	1) long test period.
Banks (1979)	Market reaction to uncertainty qualifications	Market model - excess returns tests.	No significant market reaction to uncertainty qualifications.	1) small population - AT&T 2) very small sample size for some subgroups. 3) long test period.

TABLE 1 (Continued)

Author	Subject	Methodology	Findings	Limitations
Banks and Kinney (1980)	Market reaction to uncertainty qualifications	Market model - residual tests.	Significant market reaction.	1) small population - AT&T 2) very small sample size for some subgroups.
Bailey (1978, 1981)	Credibility effects of different types of audit opinions.	Experimental methodology - questionnaire.	Significant results only for adverse opinions.	1) limited external validity - studied only the effects on a group of CFA's. 2) limited internal validity - no real world incentives. 3) low respone rate - 20%
Firth (1978)	Market reaction to seven types of audit qualifications.	Market model - residual tests.	Significant results for only three types.	1) small sample size for some groups.
Ball et al (1979)	Market reaction to three types of audit qualifications.	Market model - excess returns tests.	Significant positive excess returns.	1) results contradictory to expected.
Fried and Schiff (1981)	Market reaction to auditor changes.	Market model - excess returns tests.	1) significant negative excess returns for the overall sample. 2) no significant difference between the excess returns of the group who had disputes and those who had no disputes with their auditors.	1) small sample size for the sub-divisions.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter contains a detailed discussion of the research design and methodological issues of this research. This will include discussions of the sample selection process, data sources, statistical tests, and other related issues.

Sample Selection and Data Base

The following two samples were selected for the purpose of this study:

1. A sample of companies receiving "new" shared opinions for the audit of any year during the period 1973-1979. This sample will serve as the experimental sample and is labeled "Sample A."
2. A sample of companies whose audit reports ceased to be shared for the audit of any year during the period 1973-1979. This sample will serve as a comparison sample and is labeled "Sample B."

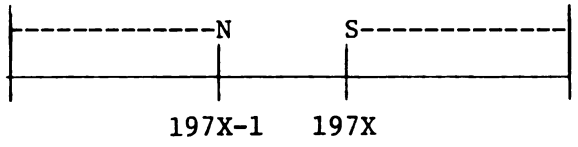
The first group (Sample A) is defined as companies having reference to the audit of other auditors in the principal auditors' reports for the year included in the sample, while no reference was made to other auditor(s) the preceding year. Sample A includes only the first year that the companies received the shared opinion even though they

may have continued to receive such opinions. Subsequent years were excluded on the basis that the market might have discounted this piece of information in valuing its stocks.

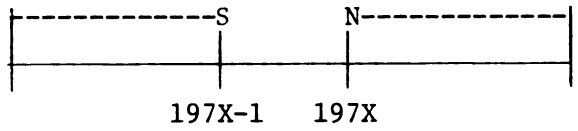
The second group (Sample B) is defined as companies who had reference to other auditor(s) in their audit reports for the year preceding the year included in the sample, and no reference was made to other auditors in the year included in the sample.

For example, Sample A contains the 1979 annual report of a company whose audit report contained reference to other auditor(s) (i.e., a shared opinion), while no reference was made to other auditors in the 1978 report. On the other hand, Sample B contains the 1979 annual report for a company who received a shared opinion for 1978 and a standard, "no-reference" audit report in the experimental year 1979.

The following diagram represents the above two sample groups.



Sample A



Sample B

S = Shared opinion
N = Nonshared opinion
197X = Year included in the sample

FIGURE 3

SAMPLE SELECTION PROCESS

Group B was chosen as a comparison group for the study in order to be able to associate market reaction to the experimental treatment (i.e., shared opinions) and isolate it from random or unspecified conditions. Group B was considered a good comparison group on the grounds that if the market is expected to react negatively to group A's audit reports, then a positive or neutral market reaction might be expected for group B's audit reports. Thus group B has the desirable characteristic of maximizing the expected differences between groups due to the treatment studied.

Companies included in the samples of the study were initially identified using the NAARS data base installed at Michigan State University.[1] Each company identified as having a shared opinion in any year in the 1973-1979 period was reviewed to determine the type of audit opinion it received in every year during that period. This was done by reference to annual report hard copies and microfiche copies. Companies whose audit reports were newly shared were included in Sample A, and companies whose audit reports ceased to be shared were included in Sample B.

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[1] NAARS stands for National Automated Accounting Research System, which was developed through the joint efforts of the AICPA Information Retrieval Committee and Mead Data Corporation. The NAARS data base contains the financial statements, footnotes and auditors' reports from the published annual reports of approximately 4000 companies, starting from balance sheet dates of July 1, 1972. These companies are traded on the New York Stock Exchange, American Stock Exchange or over the counter. The data base is continually updated and includes reports from the most recent 2-3 years. As it stands now, it includes annual reports having balance sheet dates from July 1, 1978 to date. Older files have been accessed by special arrangement with the Mead Corporation.

For detailed description of NAARS, see Mead Data Central (1977), Gale (1978), Leonhardi and Neumann (1977) and Krogstad and Dexter (1979).

The following filtering criteria were then applied to the initial selection of both Samples A and B:

1. Include in the samples only companies whose audit reports are "unqualified". Any company whose audit report contained any type of audit qualification was excluded from the samples.
2. Exlude companies whose stocks were not traded in either the New York Stock Exchange (NYSE) or the American Stock Exchange (AMEX).
3. Exclude companies having significant information released during the (± 14 day) test period. This was determined by searching The Wall Street Journal Index for any firm's specific information, with a judgment being made to their "significance".
4. Exlude companies who did not announce their earnings before the annual report and companies whose earnings figure announced before the annual report were different from that in the annual report by ± 3%.
5. Exlude companies whose annual reports contain separate financial statements for the subsidiaries accompanied by the other auditor's report along with the principal auditor's report.
6. Exlude companies whose shared opinions did not indicate the percentages of total assets audited by the other auditors, since this is the materiality measure used in this study.

The first criterion was included because some previous studies reviewed in this research have shown that audit qualifications might cause market reactions; hence they were excluded in order not to confound the effects of the treatment studied.

The second criterion was deemed necessary, since it is one of the major assumptions of this study that financial statement information in the annual report does not confound the information in the audit report. Material annual report information is expected to be discounted in the market prior to the release of the annual report. This assumption will be discussed in detail later, along with some empirical evidence supporting it. This assumption has been shown not to hold for over the counter (OTC) firms (Grant, 1977). Grant studied the market reaction to the release of earning announcements for a sample of OTC firms and NYSE firms. Grant states:

> OTC investors apparently have few alternative sources from which to acquire information on firms prior to the release of the annual earnings number. Therefore, when the announcement is made, the market reaction to the information contained in the report is significant. On the other hand, a multitude of sources are available on many NYSE firms which presumably supply considerable amounts of information to investors on a more timely basis than that of the annual earnings announcement. Thus, the eventual release of the earnings number provides relatively little additional information (p. 111).

This is not surprising if one takes into consideration the size of OTC firms compared to the size of either NYSE or AMEX firms. OTC firms are typically much smaller and hence interest in their affairs is less diffused.

The third criterion was applied in order to eliminate another source of confounding, namely, the release of significant information other than the shared opinion during the test period. "Significant

information" could be defined either very conservatively as only bankruptcy or liquidation of the company, or very liberally as any news item about the company appearing in the business press. Neither definition of significant information was used here. If the conservative definition were used then it follows that the inclusion of the third criterion is almost meaningless since no company is likely to be excluded on that basis. On the other hand, using the liberal definition will result in excluding almost the entire samples and hence will result in the inability to perform this study. Thus, a tradeoff was thought to achieve a balance between the degree of rigor of the study and the degrees of freedom (i.e., number of companies in the sample).

Significant information was defined for purpose of this study as information widely accepted in the literature to have noticable effect on market returns. These are limited in this study to one or more of the following news items: merger announcements, earnings forecasts for either the next quarter or next year, quarterly earnings announcements, dividend changes, stock or bond offerings. These items were considered to be confounding variables since previous market based studies have shown that these information signals may cause a market reaction. In addition to the above items, one oil company was eliminated because of a major oil discovery affecting the firm, and another company was eliminated because its president resigned during the test period.

The fourth criterion was applied to eliminate a further source of confounding that might occur if the annual report contained "surprise information" not previously disclosed about earnings. The 3% cutoff was set arbitrarily. The fifth criterion was applied as a further refinement on the basis that inclusion in the consolidated report of financial

statements of the subsidiaries, accompanied by their other auditors' reports, might enable investors to derive their desired level of assurance and hence overcome any reaction which the market may otherwise have had to the shared opinion on the consolidated statements.

Finally, the sixth criterion was applied to accommodate this study's materiality hypothesis, which states that investors react to shared opinions according to a materiality measure. The percentage of total assets was chosen as the measure because this is the materiality indicator disclosed in the majority of audit reports.

The following table indicates the disclosure pattern of the sample companies for a materiality measure:

TABLE 2

DISCLOSURE OF MATERIALITY MEASURES

	A	B
No. of companies disclosing only the percentage of total assets (X)	13	7
No. of companies disclosing (X) and the percentage of total revenues (Y)	23	36
No. of companies disclosing X and the percentage of net income (Z)	14	10
No. of companies disclosing X, Y and Z	2	3
	52	56

Applying the above six filtering criteria resulted in the inclusion of fifty-two companies in Sample A and fifty-six companies in Sample B. Nine of these companies are included in both samples but of course for different fiscal years. Inclusion of these nine firms was considered desirable since the best comparison group is a group which is

similar to the experimental group in all characteristics other than the treatment.

Description of the Final Sample

The final sample consisted of fifty-two companies for Sample A and fifty-six companies for Sample B. The following table lists the number of companies according to their fiscal year-ends.

TABLE 3

FISCAL YEARS OF SAMPLE COMPANIES

Year	A	B
1973	10	8
1974	6	6
1975	7	7
1976	7	9
1977	8	10
1978	5	13
1979	9	3
Total number	52	56

The industry membership, as determined by the SIC three digit code, was examined for both samples to determine if there are industry concentrations or if the industry distributions of the two samples differ markedly. This was done because King (1966), among others, found that the market model might be misspecified if an industry effect is present. Industry membership of each sample is presented in Table 4 in the following pages.

TABLE 4

INDUSTRY MEMBERSHIP OF SAMPLE COMPANIES

3-Digit SIC Code	Number of Companies	
	A	B
100	1	-
131	-	1
139	-	1
150	1	1
160	-	1
171	-	1
201	1	-
203	1	1
206	-	1
209	1	-
211	1	-
221	1	1
231	-	1
239	1	-
241	-	1
264	1	-
271	2	1
281	2	3
283	2	1
284	-	1
289	1	2
291	3	2
299	1	-
301	1	-
309	3	1
331	3	3
335	1	1
349	2	1
352	-	1
354	-	1
355	1	-
356	-	1
357	-	1
358	1	-
363	-	1
366	1	1
369	-	3
371	2	1
381	-	1
383	-	1
394	-	1
399	-	1
400	1	-
450	-	1

TABLE 4 (Continued)

3-Digit SIC Code	Number of Companies A	Number of Companies B
471	-	1
489	1	-
492	2	1
508	-	1
509	1	1
531	1	1
533	1	1
541	1	1
566	1	1
591	1	1
598	-	1
614	1	-
621	1	1
640	1	-
671	1	2
679	1	-
791	-	1
801	2	1
Total	52	56

The above table shows that there is no apparent industry concentration in either group and that both groups are very similar in their industry affiliations. This substantial diversity in industry affiliations appears to control quite well against industry effect in either sample.

The size of the companies included in the samples, as measured by the total assets, was also examined to determine if the samples differ in terms of asset size. Size was examined since recent studies by Banz (1981) and others have shown that the market model might be misspecified for small companies. Hence if the proportion of smaller firms in

Sample A is different from that in Sample B, there might be some bias in the findings due to a possible size effect.

The following table presents the asset size distribution of both samples A and B.

TABLE 5

ASSET SIZE DISTRIBUTION OF SAMPLES A AND B

Asset Size (in millions)	Sample A	Sample B
Less than $20	1	-
$ 20 - 70	9	10
$ 71 - 160	11	13
$ 161 - 400	12	10
$ 401 - 990	8	10
$ 991 - 1600	5	6
$1601 - 2300	3	4
$2301 - 6000	2	2
Over $6000	1	1
Total number of companies	52	56
Average asset size (in millions of dollars)	720.6	832.8

The above table shows that both groups have almost the same distribution in terms of asset size and hence size is not expected to be of a major concern in this study. As a further check on the similarity of samples A and B, the average betas of both samples were calculated. Sample A has an average beta of 1.31 and Sample B has an average beta of 1.35. A two sample t test found the two averages not significantly different at any reasonable statistical level of significance.

Appendix B provide the names of the companies included in both Samples A and B. Information about the industry affiliations, fiscal

year end, asset size, materiality measure (X), beta, company auditors, and stock exchange is also provided in Appendix B.

Research Methodology

The basic research methodology of this study involves measuring the impact of shared audit opinion signals on the stock prices of sample companies around the date the audit report was released to the public (day zero). This was achieved by comparing the actual returns of the sample companies during the test period against the expected returns of those companies assuming no shared audit opinions. The market model discussed in some detail in Chapter Two was utilized as the equilibrium expectation model for the returns on the stocks involved. The market model asserts that the expected return on security i during period t is a linear function of the returns on the market in that period.

The market model relationship was presented in Chapter Two by the following equation:

$$\tilde{R}_{it} = \alpha_i + \beta_i \tilde{R}_{mt} + \tilde{e}_{it}$$

The above equation classifies events affecting any security's returns into one of the following: 1) events affecting all securities in the market (e.g., a change in the interest rate), which are reflected in R_{mt}, the market return, and 2) events affecting only the individual security i (e.g., earnings announcements or a dividends change) which are reflected in the residual term e_{it}. The preceding classification of events into market wide events and events peculiar to the individual stocks allows one to control for the effects of general market movements

on security returns and concentrate on the residual term e_{it} to study the effects of certain types of information peculiar to certain companies.

It was emphasized in Chapter Two that the market model represents an equilibrium relationship (i.e., when there are no adjustments to new information) between the returns on the market and the returns of individual stocks. In equilibrium the expected value of the residual e_{it} is zero and hence

$$E(R_{it}) = \alpha_i + \beta_i R_{mt}$$

Any continuous buildup for the residual term e_{it}, which represents the abnormal return over that expected by the market model, could then be attributed to disequilibrium adjustments to new information. In this research the "new information" studied is the shared audit opinions signal. The study hypothesizes that "new" shared audit opinions cause negative effects on security prices during the test period. This could be detected by a continuous negative buildup for the residual e_{it} of Sample A compared to Sample B during the test period.

The residual or abnormal return e_{it} for security i in period t was defined for each security in the samples as

$$e_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}).$$

This residual was calculated for each day during the test period, which extends fourteen trading days before and after the release of the audit report to the public. These residuals or abnormal returns were summed

for each day (t) across all securities in the study samples to yield an average residual in the sample defined as

$$\bar{e}_t = \frac{1}{N} \sum_{i=1}^{N} e_{it}$$

$t = -14,\ldots,0,\ldots,14$

$t = 0$ = the day the audit report was released to the public.

$i = 1,\ldots, N$. Where N = the number of securities in the sample.

Cumulative abnormal returns (CAR), also known as cumulative average residuals, were calculated for every day during the test period to detect the cumulative effects of shared audit opinions on the stock market during the test period. Cumulative abnormal return was defined as

$$CAR_t = \sum_{j=-14}^{t} \bar{e}_j$$

CAR was the variable used in this study to detect market reaction to shared audit opinions.

The parameters of the market model α_i's and β_i's, needed for calculating the residual e_{it}'s, were estimated by ordinary least squares regression (OLS) by regressing the monthly returns of each security in the samples against the market monthly returns index. Using monthly returns instead of weekly or daily returns in estimating the parameters of the market model increases the explanatory power of the model (Beaver, 1968). The return on the market (R_{mt}) was approximated using

the CRSP value weighted index, which is an index of common stock performance where each security in the index is weighted by its market value.

Sixty monthly returns series were used for estimation purposes whenever available. Companies who have less than sixty observations were also included in the samples given that at least twenty-four observations were available. Those companies were included in order not to discard useful information from the study and since their number was small relative to the samples (only nine companies in Sample A and eight companies in Sample B had less than sixty observations available for beta estimation). The number of observations available for this group ranged from twenty-five to fifty-nine observations, and the median number of observations was fifty observations. The periods used for estimation are the sixty months ending the month before the audit report was released to the public, given the restriction that estimation and test periods do not overlap.

Study Time Period

Companies included in both Samples A and B received "changed status" audit reports in at least one of the years between 1973 and 1979. This time period was chosen for two reasons--one, data availability on the NAARS system, and two, auditing standards related to shared audit opinions did not undergo any changes during this period. Each company has its own date in which its audit report was released to the public. Hence, the test period was standardized across all securities in both the experimental and comparison samples, by defining day zero to be the day the audit report was released to the public. The audit reports are usually communicated to

the public either through the annual shareholder reports or through 10-K reports filed with the Securities and Exchange Commission (SEC).

The SEC receives both the shareholder and 10-K reports of registrant companies and keeps them in a public reference room, after stamping on the documents the date each was received at the SEC. This study approximated the date the audit report became public information (day Zero) by subtracting three days from the earlier of the date stamped 1) on the shareholder report, or 2) on the 10-K report.[2] Three days were considered as an average period for mailing and processing the documents.

As a further check on the accuracy of the determined date, Moody's News Reports issues were consulted to see whether annual report information was reported to the public for any company in the samples prior to the date determined by the above mentioned method. If so for any company, then this company was dropped from the sample on the basis that the determined date for the release of the audit report of that company is not an accurate enough approximation.

The test period extended fourteen trading days before and after the day of the event (day Zero). Fourteen days on either side of the event was considered a long enough period to detect a market reaction to shared audit opinions. This is consistent with the literature on efficient markets, which asserts that market reaction to new information is expected to be "instantaneous" (see for example Fama, et. al. 1969).

Also, extending the study period more than fourteen days on

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[2]These documents are accessed to through microfich copies distributed by Disclosure, Inc. on a subscription basis to public libraries and other interested parties.

either side of the event will increase the possibility that other events will confound the treatment effects and hence make it difficult to associate market reaction with the treatment considered.

Cumulative abnormal returns (CAR), as defined previously, were calculated for Samples A and B and their subgroups over the period from t = -14 to t = +14. Also, the abnormal returns were accumulated for the period from day -2 to day +2. This interval of time was considered as a better estimate for the "release date" compared to a single day zero. Then statistical tests were applied to the difference between the CARs of the A and B samples to determine if there are significant negative differences. Statistical testing procedures will be explained in detail at the end of this chapter.

Financial Data Sources

Data on monthly returns of sample companies, used for purposes of regression estimation, was derived from the CRSP daily tapes maintained at Michigan State University. The daily tape rather than the monthly tape was used because the monthly tape contains returns data only for companies listed on the New York Stock Exchange (NYSE), while the daily tape contains returns data on all companies listed on both the New York Exchange (NYSE) and the American Stock Exchange (AMEX). Daily returns were transformed to monthly returns for purposes of estimation. The CRSP value-weighted index used as the market return approximation was also the daily index, since it includes both NYSE and AMEX companies in the index. The daily index was also transformed to a monthly index for purposes of estimating the regression coefficients.

Data on daily returns used for the test period were obtained

directly from the CRSP daily tape. The CRSP value-weighted daily index was also obtained from the CRSP daily tape.

Some Underlying Assumptions

Benston (1967) defines information as a change in expectations about the outcome of an event. Beaver (1968) adds that a signal should not only change expectations to be considered as information, but change expectations sufficiently to induce a change in the decision maker's behavior. In the case of the information presented in shared audit opinions, it is hypothesized in this study that investors will revise downward the prices they are willing to pay for the securities involved. This will lead to a drop in the returns of these stocks during the appropriate period. Therefore, the market response to the information presented in shared opinions could be determined by studying the behavior of the returns on the experimental portfolio compared to the comparison portfolio and by attempting to detect any correlation of abnormal performance with shared opinions. Measuring abnormal returns was done in this study by utilizing the market model relationship, as previously discussed.

This empirical approach to the measurement of market responses hinges on four basic assumptions. First, it assumes that the stock market is efficient in the semi-strong form, i.e., with respect to publicly available information. Second, this approach assumes that the market model specification of the returns generating process is appropriate. Third, the approach assumes that one can isolate market reactions to shared opinions from those due to other information contained in the annual reports which the audit reports accompany. Fourth, the approach

outlined above assumes that shared audit opinions do not represent another economic event(s) of interest to investors -- otherwise investors could be reacting to the economic event(s) and not to shared opinions per se. In this section the appropriateness of the above assumptions will be considered in some detail.

The stock market is defined as efficient in the semi-strong form if it possesses the following characteristics:

1. The prices of the stocks traded at that market reflect all publicly available information and,
2. The prices react to "new" information "instantaneously" and in an unbiased manner.

Extensive evidence exists which supports the hypothesis of a semi-strong efficient capital market.[3] Most of the evidence in the literature is in the form of testing for market reactions to new information to see whether or not the above conditions hold. The first study of that nature was performed by Fama et al. (1969), who examined market reaction to announcements of stock splits. Market reaction to stock splits was expected since stock splits are associated with increased dividends. Fama et al. found a significant market reaction up to the date of the split announcements, after which there was no significant market reaction.

Many studies of market reaction to "new" information followed the Fama study, and most of these provide evidence that the market reacts to economic and financial information in the manner asserted by the efficient market conditions discussed above. These conditions are met because no market reaction was found to occur immediately after the

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[3]For a review of the evidence supporting the efficient market hypothesis, see Fama (1970) and Dyckman, et al. (1975).

announcement and hence the prices of the stocks concerned reflected the information contained in the announcements, as well as any other publicly available information.

Concerning the appropriateness of the market model as a specification of the return generating process, empirical evidence by King (1966) among others indicated that return on the market is the single most important variable influencing security returns. It should be noted that the market model represents an equilibrium relationship between market returns and returns on the individual stocks. Disequilibrium could occur if there is a flow of information about a particular company, which the market perceives as relevant in valuing that firm's shares. This is precisely what enables one to detect a market reaction to certain types of information by observing if the equilibrium relationship presented by the market model has been disturbed during the period in which this information became known to market participants.

The third assumption of this study, that the shared opinion signal is not confounded by other signals or information contained in the annual report, is considered an appropriate assumption for the following reasons.

The earnings number is among the most important pieces of information conveyed to the market. As Ball and Brown (1968, p. 176) noted: "... accounting income numbers capture about half of the net effect of all information available throughout the twelve months preceding their release, ...".

This number is usually released to the market a few weeks before the annual report. Ball and Brown (1968) found that even the earnings announcements information is anticipated and discounted by the market

prior to the date of the announcement. They state that "... in fact anticipation is so accurate that the actual income number does not appear to cause any unusual jumps in the abnormal performance index in the announcement month" (p. 170).

Ball and Brown (1968, p. 176) concluded that:

> ... the annual income report does not rate highly as a timely medium, since most of its content (about 85 to 90 percent) is captured by more prompt media which perhaps includes interim reports.

Interim financial reporting, plus other sources of information such as trade journals, financial analysts' forecasts, new releases and so forth, provide information to the market on a more timely basis than the annual report. This fact and the several market studies strongly support the belief that annual report contents typically are discounted by the market before their release.

Grant (1977) studied the market reaction to the earnings announcements for a sample of NYSE companies and another sample of OTC companies. He found no significant market reaction for the NYSE companies during the week of the earnings announcements, and a significant market reaction to the OTC's earnings announcements. Grant gave the same explanation as the one suggested by Ball and Brown, that is, a multitude of sources provide timely interim information to NYSE market participants, while this is probably much less true for OTC firms. Grant's study was discussed in an earlier section on the justification for excluding OTC firms from the samples.

The fourth assumption of this study pertains to another possible confounding effect. Specifically, this study assumes that investor reaction at the time of the release of shared opinions will not be caused

instead by another concurrent event of interest to investors. It was noted earlier in the literature review section that studies dealing with the effects of either consistency or uncertainty qualifications suffer from the inability to isolate the qualification from the underlying event (i.e., the accounting change or the uncertainty). It is argued here that this study can avoid that problem. Even though "new" shared opinion is typically caused by the acquisition or establishment of a new subsidiary, news of this event will already have been released, and been impounded by the market prior to the release of the annual report. However, the nature of the audit report (shared or unshared) is not publicly known until the financial report is filed. Thus it is possible that the audit message — "newly shared" or "newly unshared" -- is the principal fresh information at the filing date. This message is an auditing related message, and apparently does not represent any other related or confounding event.

The case of a "new" shared opinion resulting from a merger with or acquisiton of another company whose auditor is retained by the merging company, needs further elaboration. It is argued here that this is not a serious confounding effect, since a merger usually involves a long process of negotiation between companies during which there is a high probability that information will be leaked to the market about the merger. Even if the merger is negotiated with complete secrecy, there are news releases when the merger takes place, and the SEC and FTC require filings about the merger.

Mandelker (1974) provides evidence to support the above arguments that the market discounts the information about mergers before the audit report. As a matter of fact, he even found that the market

discounted the merger information a long time before the merger is announced.

Mandelker (1974) studied the effects of mergers on the returns of a merging and merged sample of firms. He used the residual term generated by the market model adjusted for possible risk changes (beta) due to the merger. He found significant positive cumulative average residuals for the merging firms as early as seven months before the merger takes place, but was unable to find any significant results after the merger takes place. Mandelker (1974, p. 330) concluded that:

> Our results, however, are consistent with the hypothesis that anticipatory price movements preceding the effective date of a merger exhaust all available information in mergers. Thus, the stock prices of the constituent firms at the time of the merger already reflect all economic gains expected from the acquisition.

Thus, merger information is expected to be discounted by the market long before release of annual report and audit opinions unless the merger takes place close to the time of the audit report. That possibility is controlled for in this study by excluding from the study samples those firms who announced a merger during the test period.

To summarize, this section has discussed the assumptions underlying the use of the methodology of this study and its appropriateness. These assumptions, given their empirical support and controls in this study's experimental design, seem to be appropriate for purposes of this research.

Disaggregation of the Samples and Sensitivity Analysis

Recently, some market based studies have indicated that the market might react differently to the same accounting signals, according to some "intervening" variables. For example, Harrison (1977)

found that the market reacted differently to accounting change signals depending on whether the accounting change was discretionary or non-discretionary to the firm. Abdel-khalik and McKeown (1978) studied market reaction to the decision of certain companies to switch their method of inventory costing to LIFO. They divided their samples based on the sign of the expected growth in EPS before the announcement of the change. Their results provide evidence supporting the hypothesis of differential market reaction based on the sign of the expected growth in EPS before the announcement of the change as an intervening variable.

Based on the results of the above studies, disaggregation of the samples according to certain intervening variables, which intuitively could be relevant, may be enlightening. This disaggregation will enable us to test for the existence of a negative market reaction to shared audit opinions for different subgroups and to detect any differential market reaction between the subgroups. This study utilizes the concept of differential market reaction in testing for a negative market reaction to shared audit opinions. Two variables were used as potentially relevant intervening variables and hence as a basis of disaggregating the samples in this study. The first is a materiality measure of the portions of consolidated financial statements audited by other auditors. The second is whether the subsidiaries audited by other auditors referred to in the principal auditors' reports are located inside the United States or in a foreign country.

Materiality

Materiality is one of the most debated concepts in accounting theory and practice.[4] The concept asserts that an item should be regarded as material if it is large enough that knowledge of it would influence the decisions or attitude of users of the information (FASB, 1980).

Generally accepted auditing standards pertaining to shared audit opinions, effective during the study period 1973-79, provide a unique opportunity for testing differential market reaction to shared opinions according to a magnitude measure. The standards require the principal auditor, who decides to shift responsibility by "reference," to disclose the size of that portion of consolidated statements audited by the other auditor(s). The standards suggest that auditors use as a measure of size the percentage of total assets, the percentage of total revenues, or any other measure considered by the principal auditor to be more indicative of the size. As indicated previously, auditors of the sample companies of this study used most frequently the percentage of total assets (X) as at least one of the measures of size. Thus this measure was utilized in this research.

To test for differential market reaction according to the materiality measure (X), both Samples A and B were divided into two equal subgroups, an above-median group (H) and below-median group (L). The behavior of the cumulative abnormal return was studied for each experimental subgroup (A_H and A_L) compared to the corresponding

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[4]For a good discussion of the materiality concept and how it could be related to market based studies see O'Connor and Collins (1974).

comparison subgroup (B_H and B_L). The hypotheses of the study is that market reaction for Sample A's H subgroup is more negative than that for the L subgroup. To explain this hypothesis, if shared audit opinions cause negative market reaction, then one would expect the negative reaction be related to the size of the portion of financial statements not audited by the principal auditor.

Foreign vs. Domestic Subsidiaries

The study also disaggregated the two samples into two subgroups each according to whether the subsidiaries audited by other auditors are located in the United States (D) or in a foreign country (F). This was done for two reasons -- one, the concern of a possible confounding effect due to the possibility that the study samples contain a relatively large number of multinational companies (MNC's); and two, to test for differential market reaction based on the above dichotomy.

The possibility that the samples of the study might contain a large number of multinational companies was suspected because multinational companies tend to have subsidiaries in dispersed geographical areas, some of which might not be served by offices of the principal auditors. Or it might be that principal auditors of those companies are quite reluctant to assume responsibility for work performed by other auditors in foreign countries.

The 10-K reports of the companies in the samples were checked to determine whether the subsidiaries audited by other auditors were located in foreign countries or the United States. Only about a third of both samples have shared opinions because other auditors were involved in the audit of foreign subsidiaries. This relatively low proportion

and the nearly equal proportion for both the experimental and comparison groups tend to minimize the bias, if any, due to the presence of multinational companies in the samples. Nevertheless, and for the reason of testing differential reaction, the issue of foreign vs. domestic subsidiaries was included in the analysis of this study.

Differential market reaction might exist because subsidiaries outside the United States could be audited by foreign auditing personnel whose quality control procedures might be inferior to those existing in the United States. Another reason for expecting differential reaction is that it might be more difficult to recover damages from foreign auditors compared to domestic auditors in the event of alleged audit failure. This study hypothesized that the market will react more negatively to shared opinions when the other auditors involved are located in foreign countries.

Sensitivity Analysis

Dividing the samples according to the above mentioned bases into (H) or (L) and (F) or (D) resulted into the following subgroups:

TABLE 6

NUMBER OF COMPANIES IN SAMPLE SUBGROUPS

	A	B
HF	6	6
LF	10	14
F	16	20
HD	20	22
LD	16	14
D	36	36
	52	56

This division provides a basis for sensitivity analysis to determine if the market considers materiality and location of the subsidiaries as relevant intervening variables when evaluating shared opinion signals.

Before proceeding further, it seems necessary to discuss industry and size distributions for each experimental subgroup in relation to its comparison subgroup. Table E1 in Appendix E provides a summary of industry diversification for each subgroup. From the table it is clear that all subgroups are well diversified in terms of industry affiliations, and no subgroup is dominated by certain industries. This diversity in industry composition appears to minimize the possibility of industry effects bias in the subgroups.

Tables E2 and E3 provide summary information about asset size distributions for all subgroups. No material differences seem to exist between the asset size distribution of the experimental subgroups and their corresponding comparison subgroups. Thus, from the tables it seems that the possibility of confounding effects due to differences between the experimental and comparison subgroups in industry diversification and/or asset size distribution is not a serious problem in this study. Hence, this point will not be discussed further.

Sensitivity analysis will proceed in the following manner. First, the study will determine if a negative market reaction exists for shared opinions in general by comparing the cumulative abnormal returns of Sample A to Sample B. If no negative market reaction is detected for A relative to B, this could be because the market reacted more negatively to the (H) subgroup and did not react to the (L) subgroup and hence for the overall sample a negative market reaction could not be

detected. Alternatively, it might be that the market reacted more negatively to shared audit opinions where other auditors referred to in the audit reports were located in foreign countries.

Disaggregating the samples into H and L subgroups enables testing for sensitivity of the results to the materiality variable. This will be achieved by repeating the test of negative market reaction for both subgroups A_H vs. B_H and A_L vs. B_L, to determine whether both subgroups are similar in terms of the market reaction measure employed. Similarity or dissimilarity will be analyzed to determine if the market reacted differently or indifferently to both subgroups.

If the market reacted to subgroup A_H more negatively than to A_L, then the materiality hypotheses will be accepted and the study might conclude that investors do consider the materiality measure when evaluating shared opinion signals. On the other hand, if the cumulative abnormal returns of both comparisons A_H vs. B_H and A_L vs. B_L exhibit similar negative reaction, the study might conclude that investors' reactions to shared opinions, if any, are unaffected by the size of the portions audited by other auditors.

To test for differential market reaction to the location of the subsidiaries audited by other auditors, the (F) vs. (D) disaggregation will be utilized. The cumulative abnormal returns for the A_F subgroup will be compared to the B_F subgroup, and the cumulative abnormal returns of the A_D subgroup will be compared to the B_D subgroup to determine if there are differences in the behavior of abnormal returns of both comparisons.

To add further support and insights into the results, the samples of the study will be dissaggregated further using both

intervening variables concurrently. The behavior of the cumulative abnormal returns for the disaggregated subgroups will be studied by the following comparisons: A_{HF} vs. B_{HF}, A_{HD} vs. B_{HD}, A_{LF} vs. B_{LF} and A_{LD} vs. B_{LD}. These comparisons will enable analysis of the joint effects of shared audit opinions and the two intervening variables used in this study.

Restatement of Research Hypotheses

The following are the major research hypotheses to be tested in this study:

1. General Hypothesis

   The market react negatively to shared audit opinions.

2. Materiality Hypothesis

   The market reacts more negatively to shared audit opinions when the portion of the company audited by other auditors is relatively large.

3. Foreign vs. Domestic Hypothesis

   The market reacts more negatively to shared audit opinions when the subsidiaries audited by other auditors are located outside the United States.

Using symbolic presentation, the following operational hypotheses were developed to test the research hypotheses presented above.

H_{11}: $CAR(A) - CAR(B) < 0$

H_{21}: $CAR(A_H) - CAR(B_H) < 0$

H_{22}: $CAR(A_L) - CAR(B_L) < 0$

H_{31}: $CAR(A_F) - CAR(B_F) < 0$

H_{32}: $CAR(A_D) - CAR(B_D) < 0$

H_{41}: $CAR(A_{HF}) - CAR(B_{HF}) < 0$

H_{42}: $CAR(A_{HD}) - CAR(B_{HD}) < 0$

H_{43}: $CAR(A_{LF}) - CAR(B_{LF}) < 0$

H_{44}: $CAR(A_{LD}) - CAR(B_{LD}) < 0$

Research hypothesis one will be tested by the operational hypothesis H_{11}. To test research hypothesis two, H_{21} and H_{22} will be used; by comparing the results of testing both hypotheses, the question raised in research hypothesis two could be answered. Testing H_{31} and H_{32} may provide a basis for answering general hypothesis three, by comparing results of testing both hypotheses.

To add further insights and support for the results of the study, hypotheses H_{41} to H_{44} were developed. These hypotheses provide a basis for testing the joint effects of all variables in the study. The expectation is that the largest negative reaction should occur for the A_{HF} subgroup. The results for the other three subgroups will provide a basis for judging the relative importance of both intervening variables tested in the study.

Statistical Tests

The study used both parametric and nonparametric tests to test for significant differences in cumulative abnormal returns. Both tests were used since the samples of this study do not constitute random selections and also to avoid assuming a certain distribution for the cumulative abnormal returns (the variable to be tested in this study). Utilizing both types of statistical tests to test the same hypothesis provides higher confidence in the results, because it includes the possibility of different distributional characteristics of the variable to be tested.

The two sample t-test was used as the parametric test, and the Kolmogorov-Smirnov two-sample test (Siegel, 1956) was used as the non-parametric test to test for all the hypotheses of the study.

The Kolmogorov-Smirnov two-sample test is a test of whether two independent samples have been drawn from the same population or from populations with the same distribution (Siegel, 1956). The one-tailed K-S test is used to answer the question of whether or not the values of the population from which one of the samples was drawn are larger or smaller than the values of the population from which the other sample was drawn (Siegel, 1956). The K-S test has high power-efficiency (about 96 percent) for small samples compared to the t-test (Siegel, 1956). This means that when the data satisfies all the assumptions of the t-test, the K-S test will give the same result as the t-test 96 percent of the time.

It should be noted that all hypotheses in the study are directional or one sided hypotheses, and hence all statistical tests used in the analyses are one tailed tests. This is because our expectation is that "new" shared audit opinions could cause negative price reaction, if it causes any reaction at all.

Hence, for all hypotheses tested in the study, the direction is that the cumulative abnormal returns of the experimental Sample (A) is less than that of the comparison Sample (B).

Statistical tests were performed for the CAR in every day during the test period which extends fourteen days before to fourteen days after the audit report was released to the public. If any research hypothesis was not accepted using the daily tests, the abnormal returns from day -2 to +2 were summed and statistical tests were performed on

that sum. This was done because day zero is not determined with complete certainty and is better approximated by that interval. Hence, it is highly possible that the audit report might have became known to the public any day from -2 to +2. This test will be referred to as the "release period" test.

Validity Check

Efficient market research has indicated that the market reacts to new information "instantaneously." This provides a basis for checking the validity of the results of this study by testing for market reaction during a period of time "far enough" from day zero. The residuals or abnormal returns for the experimental and comparison samples will be summed for the period from day +10 to day +14 and differences statistically tested. These tests will be referred to in this study as the validity tests. If statistical tests indicate that differences exist between the abnormal returns of the experimental and comparison samples during this period, then one might question the validity of the results of the study. If statistical tests indicate no significant differences, this will add support to the validity of the results.

CHAPTER FOUR

EMPIRICAL FINDINGS AND RESULTS OF THE ANALYSIS

This chapter presents and analyzes the cumulative abnormal returns of the sample groups during the test period (fourteen trading days before and fourteen days after the release of the audit reports to the public). Statistical tests of significance for the difference between the experimental samples and the corresponding comparison samples are discussed. The chapter concludes with a discussion and interpretation of the empirical findings.

Analysis of Cumulative Abnormal Returns

As explained in the previous chapter, cumulative abnormal returns is the market response measure employed in this study to test for market reaction to shared audit opinions. This variable has been defined previously. All hypotheses of this study are examined by testing for a negative difference between the cumulative abnormal return of the experimental group indicated by the letter (A) and its corresponding comparison group, indicated by the letter (B). Appendix C presents the abnormal returns and the cumulative abnormal returns during the test period for samples A and B and their subgroups.

As also indicated in the preceding chapter, the study groups were disaggregated into appropriate subgroups to test for differential market reaction according to whether the company is in the high

materiality subgroup (H) or in the low materiality subgroup (L). Disaggregation was also done on the basis of whether the subsidiaries audited by other auditors and thus their auditors were located in the United States (D) or in a foreign country (F). The preceding provided a means for testing differential market reaction to shared audit opinions according to those dichotomies.

It should be noted that all hypotheses presented in this chapter are presented in the alternative or research hypothesis, not the null hypothesis, form. The null hypothesis of the study could be thought of as stating that the difference between cumulative abnormal returns of the experimental samples and its corresponding comparison samples are non-negative values.

Statistical Tests of Hypotheses

As mentioned before, the study utilized both parametric and non-parametric statistical tests to test each hypothesis. A parametric test is based on certain assumptions about the population from which the research samples were drawn. Of course, the validity of inferences base on parametric tests depend on the validity of these assumptions.

The parametric test employed in this study is the two sample t-test. One of the main assumptions of using this test is that the variable tested should be normally distributed or does not depart too much from normality. Kurtosis and skewness measures were calculated for the cumulative abnormal returns of the several subgroups of the study during the test period. These calculations indicated that there is some departure from normality as evidenced by either the Kurtosis or skewness measures lying outside the permissible ranges in several

days during the study period.

From the above discussion it seemed that using only a parametric test might not be sufficient to support conclusions about the hypotheses of the study. Therefore, a nonparametric test was also used in this study. To the extent that both tests confirm each other, one can place greater confidence in the results of the analysis. The nonparametric test used in this study is the Kolmogorov-Smirnov (K-S) two sample test. This test has been discussed in Chapter Two. Statistical test results (in terms of one-tailed levels of significance) are presented in Appendix D.

Test of the General Hypothesis

The general hypothesis of the study was stated as follows:

The market reacts negatively to shared audit opinions. This hypothesis was operationalized by hypothesis

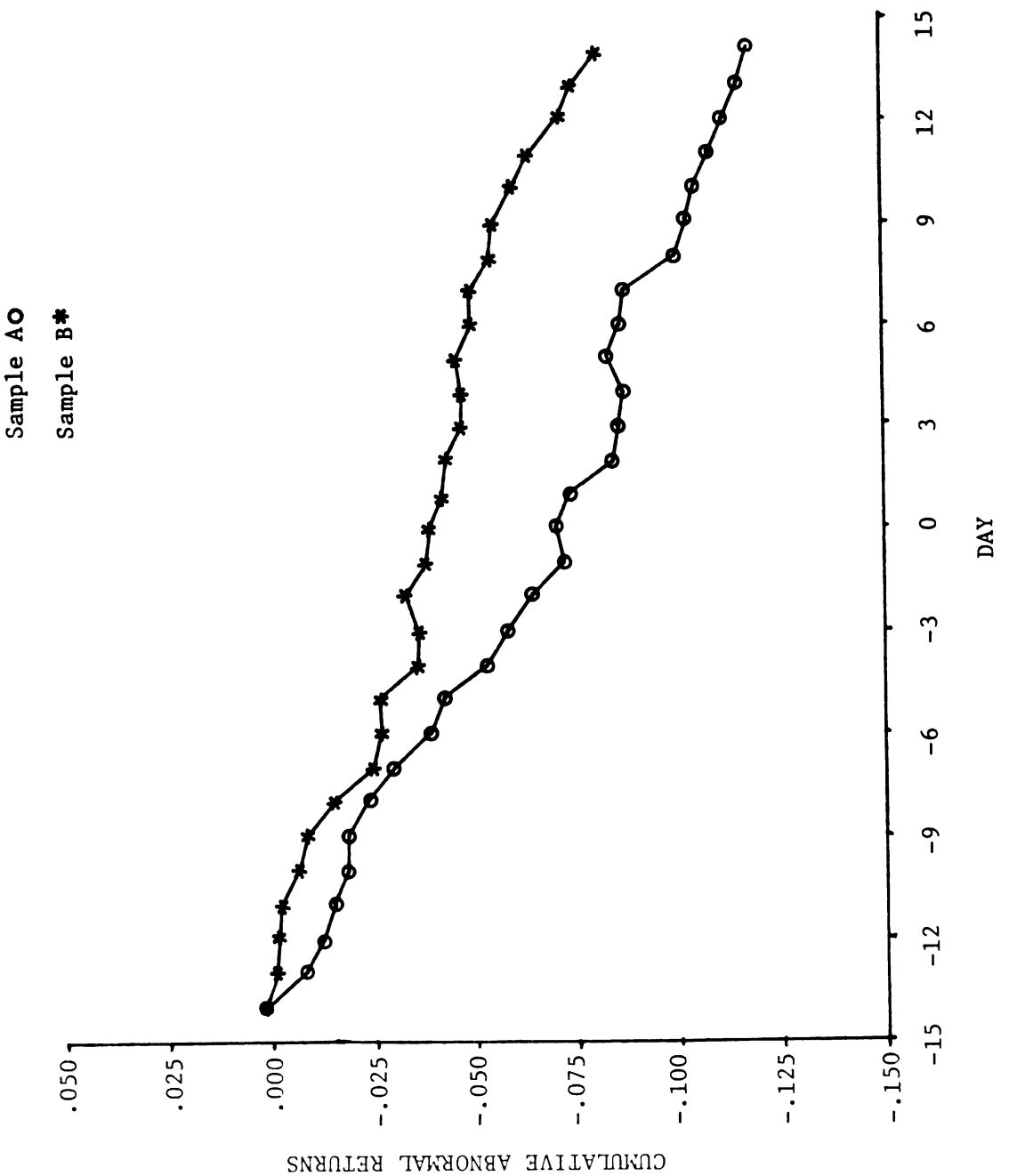
$$H_{11}: \quad CAR(A) - CAR(B) < 0$$

which states that the cumulative abnormal returns for the experimental group A (n=52) is less than that of the comparison group B (n=56) during the test period.

At the beginning it seems appropriate to visually inspect the cumulative abnormal return series for both groups A and B during the test period before discussing the statistical tests for differences between the two series. Figure 4 presents the cumulative abnormal returns for groups A and B. From the data plotted in the figure, it is clear that the cumulative abnormal return series of Sample A is below that of Sample B during the entire test period. The difference

FIGURE 4

CUMULATIVE ABNORMAL RETURNS OF SAMPLES A AND B



between the two series begins as a small difference, increases as day zero approaches, and then this difference tends to stabilize somewhat after day zero, indicating the possibility that shared opinions information was being impounded in the stock prices.

The visual inspection supports the hypothesized direction, since the cumulative abnormal returns of A is less than that of B during every day in the test period, indicating that a negative market reaction might have occurred for the newly shared opinion group. But given the random nature of both series, statistical tests were applied to determine if this visual difference is statistically significant or a random variation.

As mentioned before, both parametric and nonparametric statistical tests were used in testing the hypotheses of this study. The parametric two sample t-test was used to test the hypothesis of the existence of a negative difference between the cumulative abnormal return series of sample A and that of sample B. The t-test results presented in Table D1 in Appendix D, show no statistically significant differences for any day during the test period at any level of significance less than .174.

The Kolmogorov-Smirnov (K-S) two sample test was the nonparametric test used to compare the cumulative abnormal returns of both groups A and B. Significant results at an α of less than .1 are found for days -11, -10, -2, 2, 6, 8, 9, 10, 11, and 13.

Even though significant results are found for some days, these results of the K-S tests do not have any pattern on which to base a reasonable conclusion. This observation, and given that the parametric and the nonparametric results are not consistent with each other,

necessitate conducting another test before drawing inferences from the results.

The abnormal returns for the period from day -2 to day +2 (hereafter termed the "release period") were summed for both groups A and B. This was done because this is the period closest to day zero, and any knowledge and reaction to audit report information might be suspected to occur during this period, if at any time. The two sample t-test and the K-S two sample test were performed to test for a negative difference between the A and B groups in terms of the abnormal returns during the release period. The t-test has a level of significance (P=.135) which is still not significant at the .1 level. But a significance level of .135 is considered a reasonable level and represents an improvement compared to the levels of significance in any single day during the test period.

The result of the K-S test (P=.034) strongly supports the hypothesis of a negative market reaction to shared audit opinions during the release period. Overall, it seems that both the t and the K-S tests are consistent in supporting the hypothesis of negative market reaction to shared audit opinions during the five day period centered around day zero.

In summary, no consistent significant differences were found between the cumulative abnormal return series of samples A and B in any day during the test period. This result might be due to the fact that day zero is an approximation and not an exact day. Day zero might be better determined if we took the interval from day -2 to day +2 as the possible date the audit report became known to the public. Cumulating the abnormal returns of both groups during only that five day

period and testing for a significant difference between samples A and B in the hypothesized direction provided a significant result for the difference between the abnormal returns of both groups. From the above result and the visual inspection, one can conclude that there may well have been a systematic (non-random) negative market reaction to the message contained in shared audit opinions.

Test of the Materiality Hypothesis

The materiality hypothesis was stated as follows:

> The market reacts more negatively to shared audit opinions when the portion audited by other auditors is relatively large.

To operationalize the above hypothesis, both samples A and B were divided into two subgroups each according to the materiality measure used in this study, (X), i.e., the percentage of total assets examined by other auditors. This was done by arranging companies in each sample into a descending order of their (X) measure. The upper half of each sample was labeled the (H) subgroup, and the lower half the (L) busgroup, denoting high or low (X) measures.

The following two operational hypotheses were tested to detect negative market reaction to shared audit opinions for the (H) and (L) subgroups:

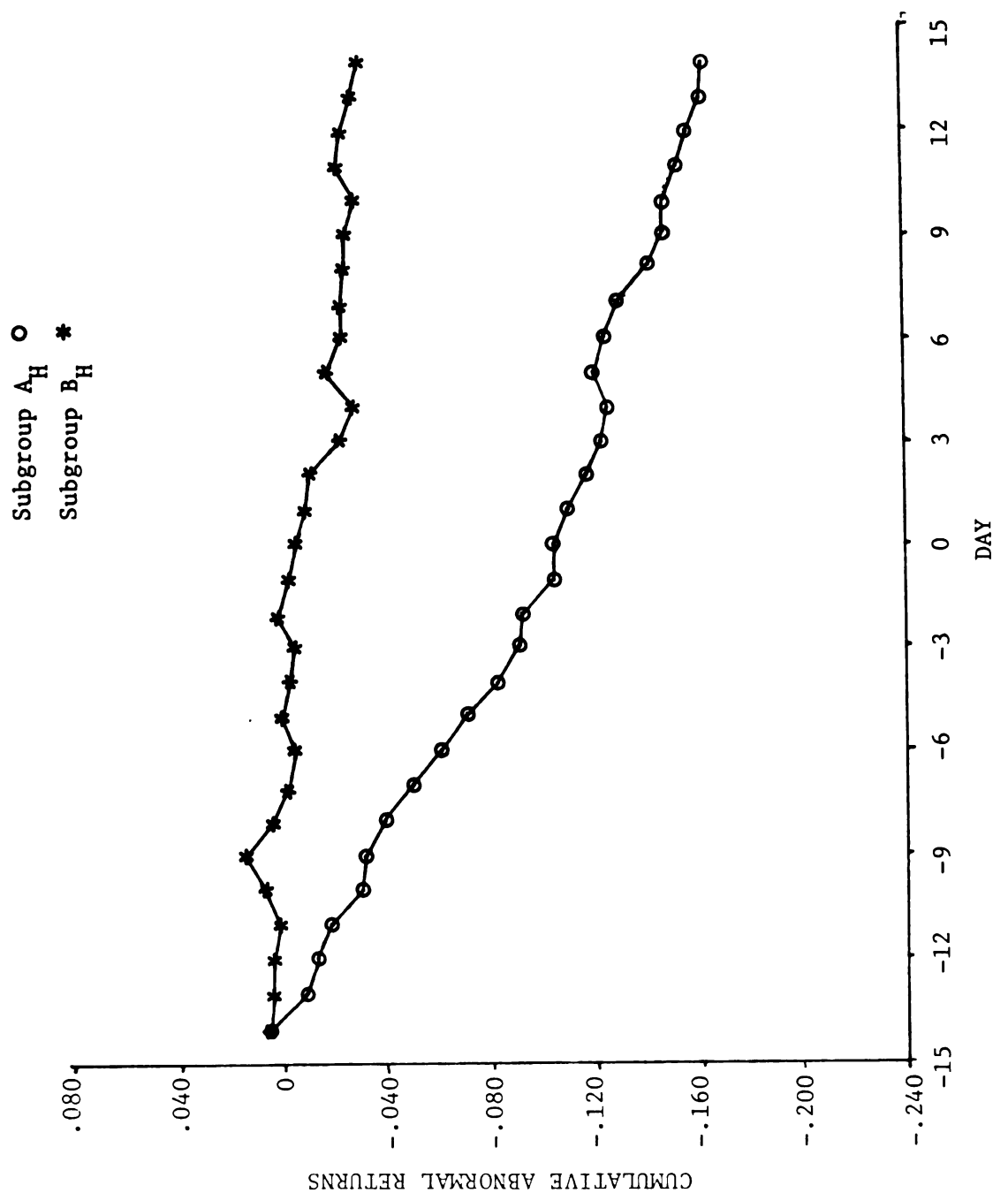
$$H_{21}: \quad CAR(A_H) - CAR(B_H) < 0$$

$$H_{22}: \quad CAR(A_L) - CAR(B_L) < 0$$

Figure 5 represents the cumulative abnormal return series of subgroups A_H (n=26) and B_H (n=28). It is clear from the figure that the cumulative abnormal return series of the A_H subgroup is less than that of the B_H subgroup in every day after day - 14. The behavior of

FIGURE 5

CUMULATIVE ABNORMAL RETURNS OF SUBGROUPS
A_H AND B_H



the CAR series of subgroups A_H and B_H resembles that of samples A and B presented in Figure 4 except that the difference in Figure 5 is more marked than in Figure 4.

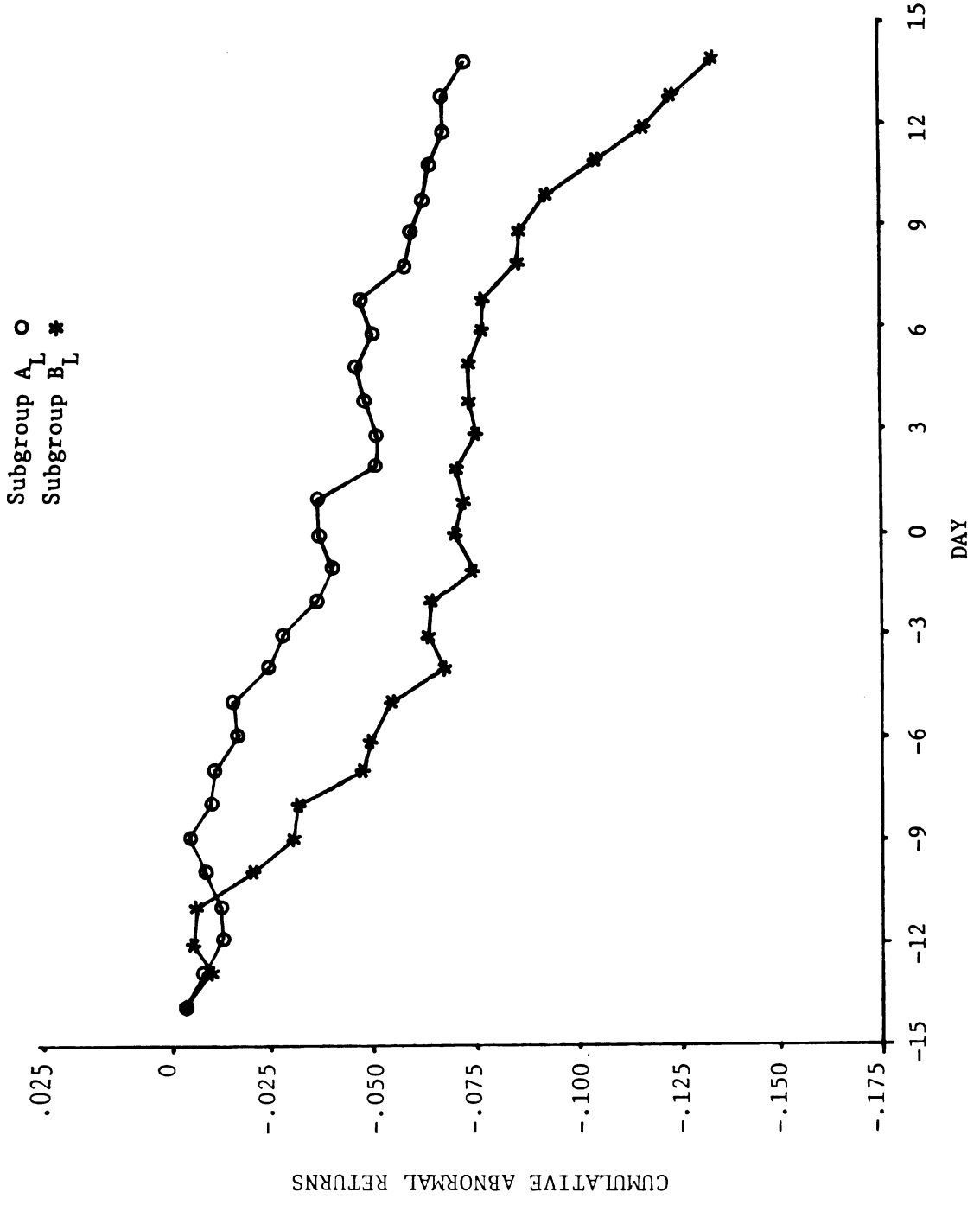
Figure 6 represents the behavior of the CAR series of subgroups A_L (n=26) and B_L (n=28). In contrast to Figure 5, the CAR series of subgroup A_L is greater than that of subgroup B_L in every day after day -11. This indicates that the hypothesized relative direction of the two series is not present for these subgroups. Statistical tests were still conducted to see whether the difference was significant. In particular, if the difference for A_L versus B_L is significant, it will make it very hard to explain the results. But if the difference is not significant, then one might conclude that the difference is random and both subgroups have similar cumulative abnormal return series.

The statistical tests, both parametric and nonparametric, presented in Table D3, failed to detect any statistically significant differences between the CAR series of subgroup A_L and B_L in any day during the test period or for the "release period test" at levels of significance less than .192.

For the difference between subgroup A_H and B_H, the one tailed t-test indicates consistent significant results at any level of significance less than .05 starting from day -5 and up to day zero. The results are even significant up to day 7 at significance levels below or equal to .10. The K-S test indicates almost the same pattern except that the results are significant at levels of significance less than .15. As a matter of fact, the K-S results are significant at levels less than .08 from days -5 to day -1 except day -3 (P=.125). These statistical results are presented in Table D2.

FIGURE 6

CUMULATIVE ABNORMAL RETURNS OF SUBGROUPS
A_L AND B_L



The insignificant results for the (L) subgroups and the significant results for the (H) subgroups give support to the materiality hypothesis. In other words, the results are consistent with a negative reaction to shared opinions where the size of the portion audited by other auditors is large relative to the company as a whole, as indicated by high (X) measures. And, the market does not seem to react noticeably to shared opinions where the other auditors' portion is small relative to the company as a whole.

Test of the Foreign vs. Domestic Hypothesis

This hypothesis was stated as follows:

> The market reacts more negatively to shared audit opinions when the subsidiaries audited by other auditors are located in foreign countries.

To have an operational basis for testing the above hypothesis, samples A and B were each divided into two subgroups according to whether the subsidiaries audited by other auditors were located in the United States (D) or in a foreign country (F). Then the following two operational hypotheses were tested to detect negative market reaction to shared audit opinions.

$$H_{31}: \quad CAR(A_F) - CAR(B_F) < 0$$

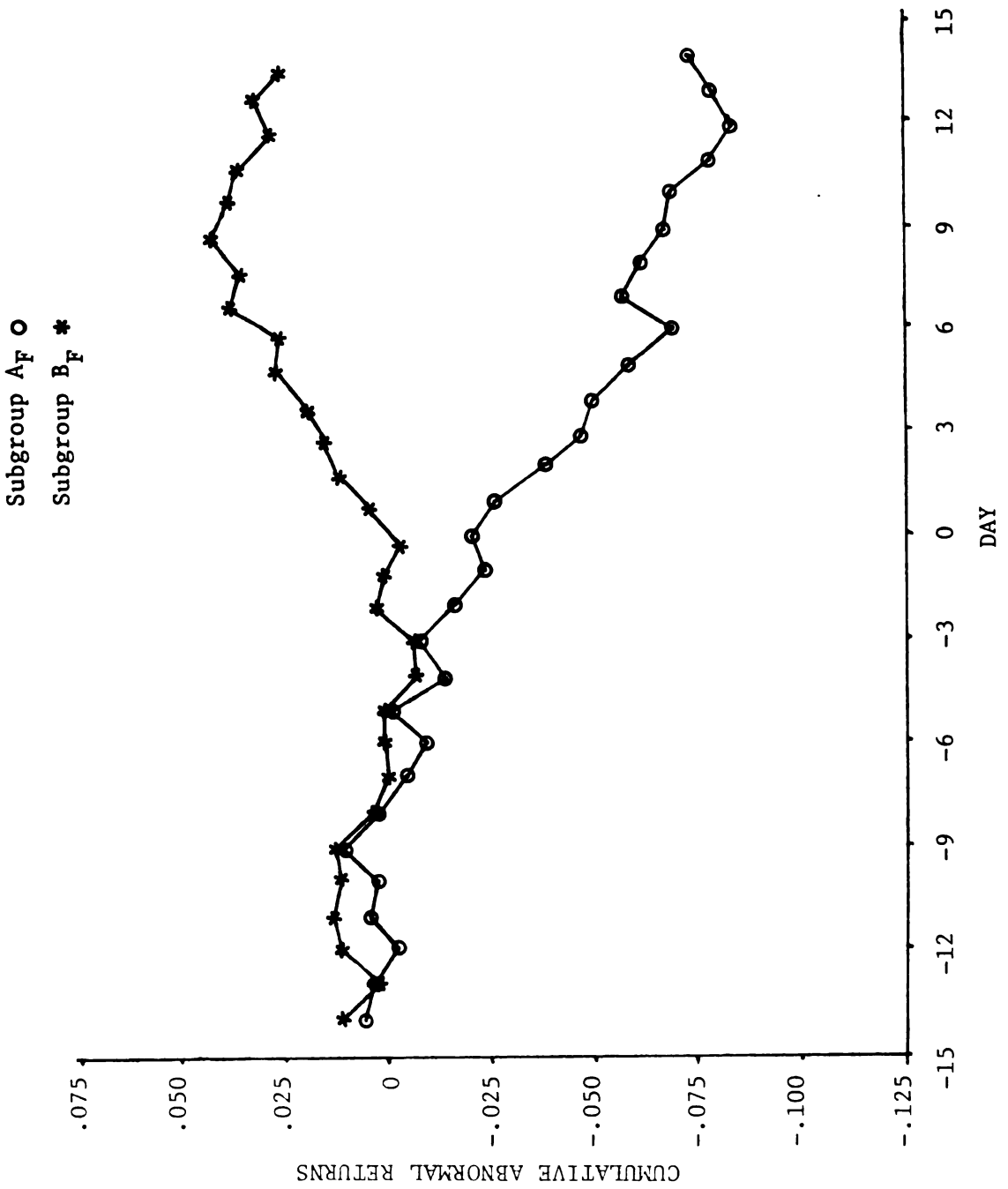
$$H_{32}: \quad CAR(A_D) - CAR(B_D) < 0$$

The behavior of the two subgroups (F) and (D) was compared to detect a differential market reaction between the two.

Figure 7 represents the cumulative abnormal return series of the experimental subgroup A_F (n=16) and its corresponding comparison subgroup B_F (n=20). The figure indicates that the CAR of the A_F

FIGURE 7

CUMULATIVE ABNORMAL RETURNS OF SUBGROUPS
A_F AND B_F



subgroup is below that of the B_F subgroup, in every day after day -14. Moreover, the difference between the two series begins as a small difference which then increases after day -12. Further, the CARs of subgroup A_F declines rapidly in contrast to a continuous increase for the B_F subgroup.

The visual picture of Figure 7 represents an ideal behavior of the (CAR) if the market reacts negatively to shared opinions. Even so, this visual picture should be supported by statistical tests of significance.

Neither the t nor the K-S tests performed on the daily CAR's series indicated significant results at any level of significance less than .15 for the negative differences between the A_F and B_F subgroups for any day during the test period. Table D4 presents the statistical results for this comparison. However, as mentioned previously, these results should be supplemented by similar test of significance for the release period.

Here, both the t and the K-S tests indicate that there is a significant negative difference between the two subgroups A_F and B_F at a significance level of almost .05. (The actual level of significance for the t-test is (.045) and for the K-S test it is (.051)).

The significant results from the "release period" testing hypothesis, H_{31}, lend support to a conclusion that the market reacts negatively to shared audit opinions when the subsidiaries audited by other auditors are located in foreign countries. To reach a conclusion on differential market reaction to shared opinions between the U.S. vs. foreign dichotomy, an examination of the CAR series for the A_D and B_D subgroups is called for. If the market shows similar

negative reaction to "domestic" shared opinions, in the same magnitude as it did for the "foreign" subgroup, then a conclusion might be reached that there is no different market reaction based on the F vs. D dichotomy. On the other hand, if the market did not react to the (D) subgroup, or if a negative market reaction in a less apparent magnitude than that of the (F) subgroup were detected, then a conclusion might be reached that the market reacts more negatively to shared audit opinions for the (F) subgroup.

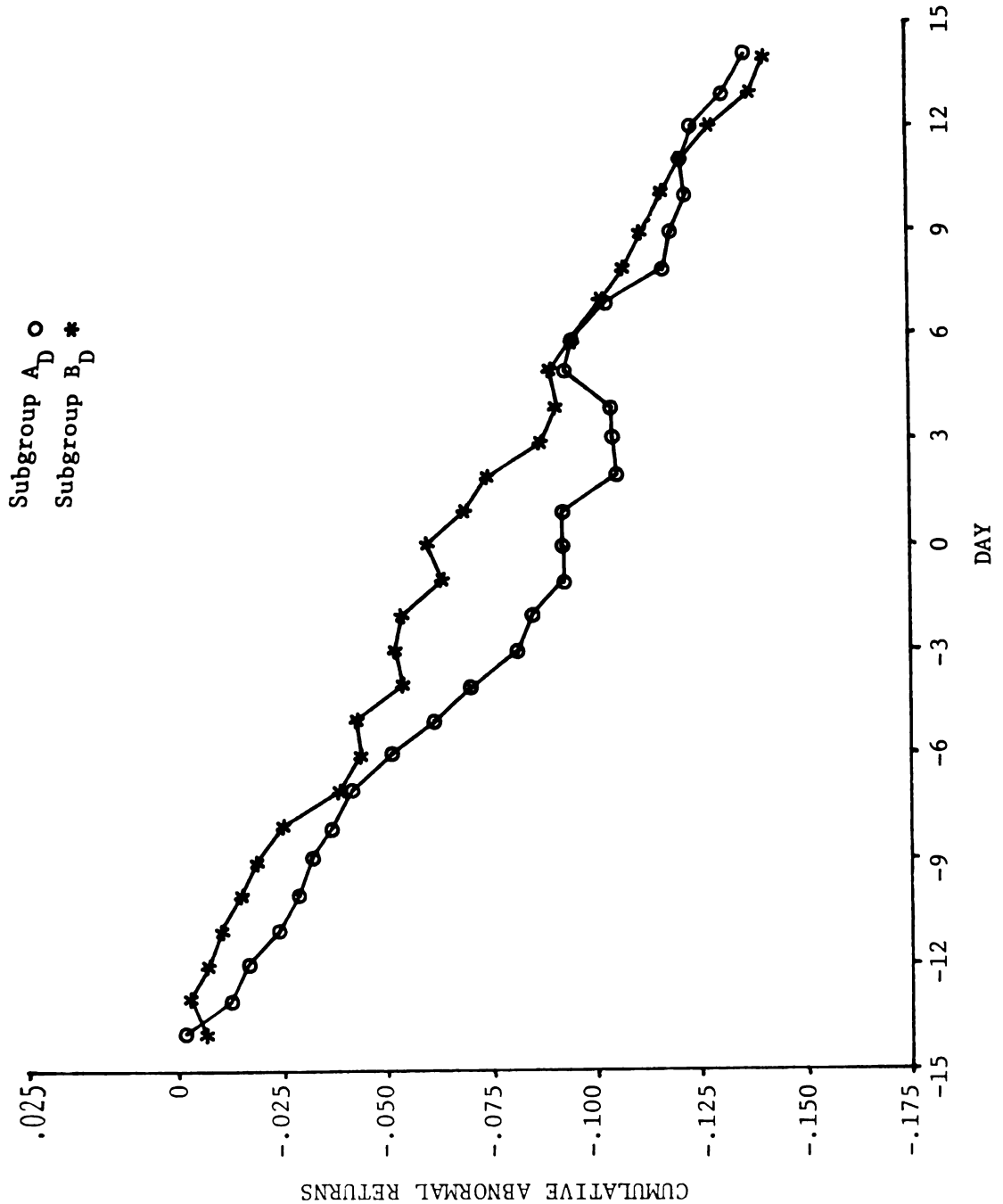
Figure 8 indicates that the CAR series for subgroup A_D (n=36) is generally more negative than that of B_D (n=36) during the test period (except for days - 14, 6, 11, 12, 13, and 14). Furthermore, as day zero approaches, the difference gets larger, indicating a possible negative reaction to shared audit opinions for this subgroup. After day three, the gap between the two subgroups becomes smaller, indicating the possible impounding of shared audit opinions signals in the stock prices of the companies involved.

The statistical tests performed for the difference between A_D and B_D do not support the conclusions that could be reached by the visual inspection alone. Both the t and K-S tests indicate no significant results (Table D5) for any day during the test period. The above results were also supported by the t and K-S tests performed to detect significance for the release period. In other words, a significantly different negative market reaction does not seem to exist between the "domestic" experimental and comparison subgroup.

The significant results between the (F) subgroups, contrasted with the insignificant results between the (D) subgroups, tend to support the hypothesis of differential market reaction to shared

FIGURE 8

CUMULATIVE ABNORMAL RETURNS OF SUBGROUPS
A_D AND B_D



audit opinions according to whether the sample companies lie in the (F) or (D) subgroups. To conclude, the results of this section tend to support the hypothesis that the market reacts more negatively to shared audit opinions when the subsidiaries involved and thus their auditors, are located in foreign countries in contrast to domestic subsidiaries.

Further Tests

The experimental and comparison samples were further disaggregated into HF, HD, LF and LD subgroups by using both variables concurrently. This allowed for additional testing, at lower levels of aggregation, of the conclusions reached above.

Four operational hypotheses were developed to test for negative market reaction for each subgroup:

$$H_{41}: \quad CAR(A_{HF}) - CAR(B_{HF}) < 0$$

$$H_{42}: \quad CAR(A_{HD}) - CAR(B_{HD}) < 0$$

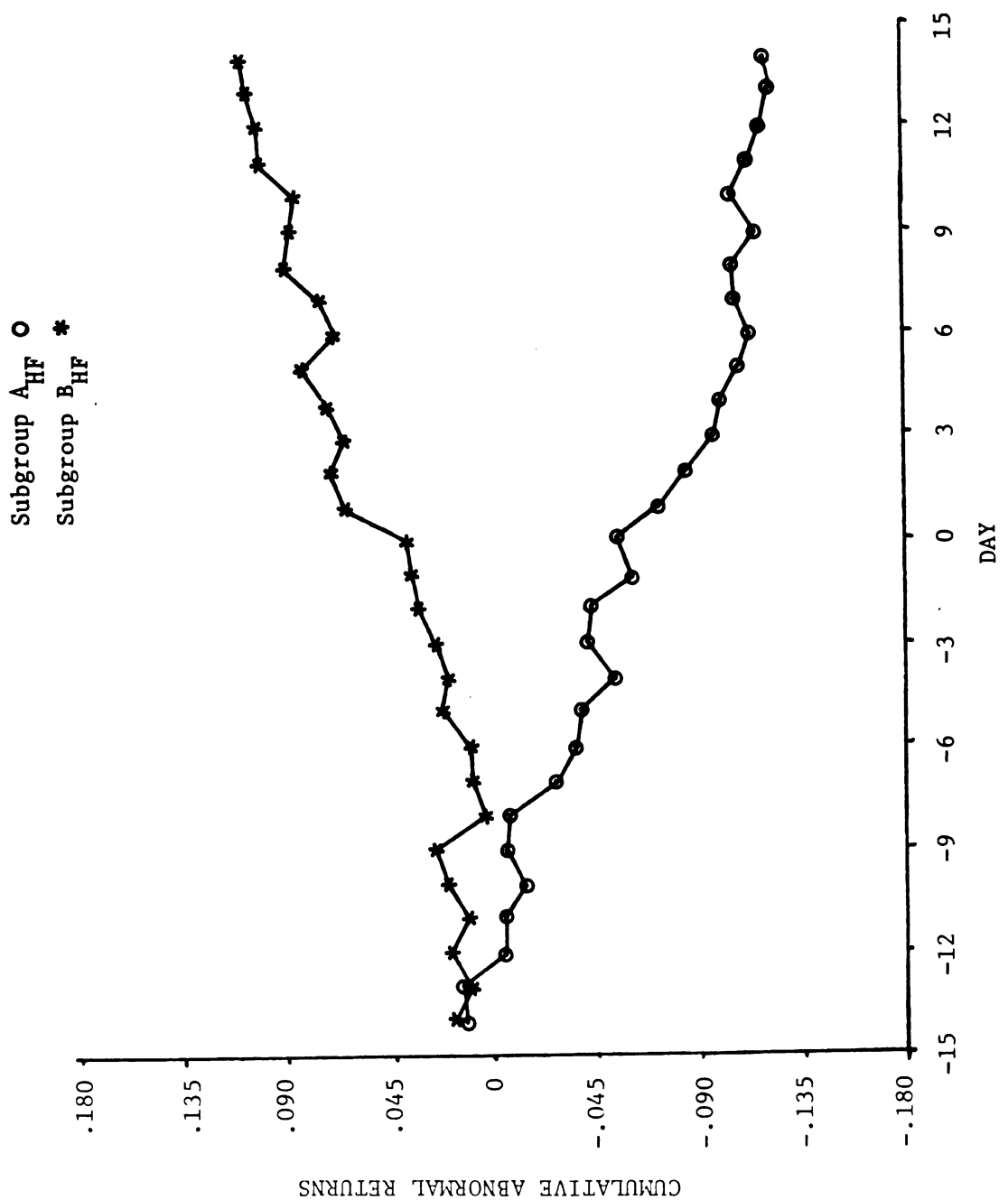
$$H_{43}: \quad CAR(A_{LF}) - CAR(B_{LF}) < 0$$

$$H_{44}: \quad CAR(A_{LD}) - CAR(B_{LD}) < 0$$

By comparing the results of testing each of the above four hypotheses, conclusions may be supported regarding the sensitivity of the results to each of the intervening variables used in this study, and to the interactive nature of these variables. For the interactive effect, the results will only be suggestive in nature. This is because the statistical tests employed are not capable of providing clear-cut conclusions in that matter. The behavior of the cumulative abnormal returns of the above four subgroups is presented in Figures 9 through 12.

FIGURE 9

CUMULATIVE ABNORMAL RETURNS OF SUBGROUPS
A_{HF} AND B_{HF}



Statistical results of testing the above hypotheses are also presented in Table D5 through D9 in Appendix D.

Testing hypotheses H_{41} did not indicate significant results in any day during the test period at any level of significance less than .10 under either the t or the K-S tests. The t-test, however, indicates levels of significance of less than .15 after day zero and up to day 6. The K-S test does not support the t-test results.

Tests of significance for the sum of the residuals during the release period indicate highly significant results for both the t (P=.03) and the K-S (P=.02) tests at levels of significance less than .05. It is important to indicate here that the levels of significance for the release period tests are of more significance for the HF subgroups than for either the H subgroup or the F subgroup taken alone. This result suggests that the market reacts more negatively when the companies involved are in the "material foreign" (H and F) subgroup, which supports the conclusion that both the H and F signals for shared audit opinions have an additive effect on the returns of the stocks involved. These conclusions should be regarded with caution, however, due to the small sample size of both A_{HF} (n=6) and B_{HF} (n=6) subgroups.

On the other hand, the inability to find any significant results during any day in the test period might be explained by the small sample sizes of the HF subgroups of both experimental and comparison samples. Small sample size works against a finding of statistical significance, even though the differences might be large in absolute terms.

Hypothesis H_{42} test results indicate significant negative differences between the CAR of A_{HD} (n=20) and B_{HD} (n=22) from day -6

FIGURE 10

CUMULATIVE ABNORMAL RETURNS OF SUBGROUPS
A_{HD} AND B_{HD}

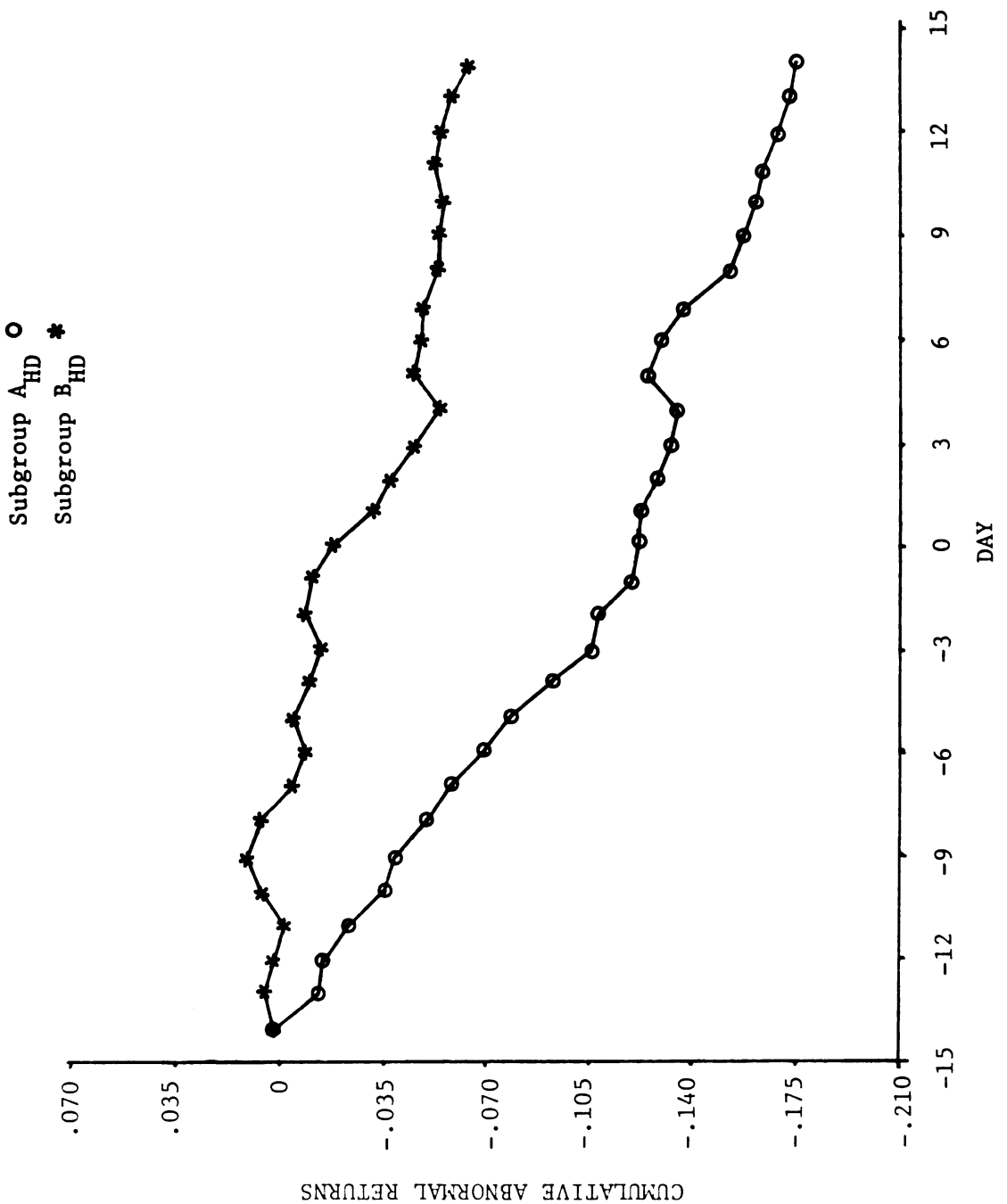
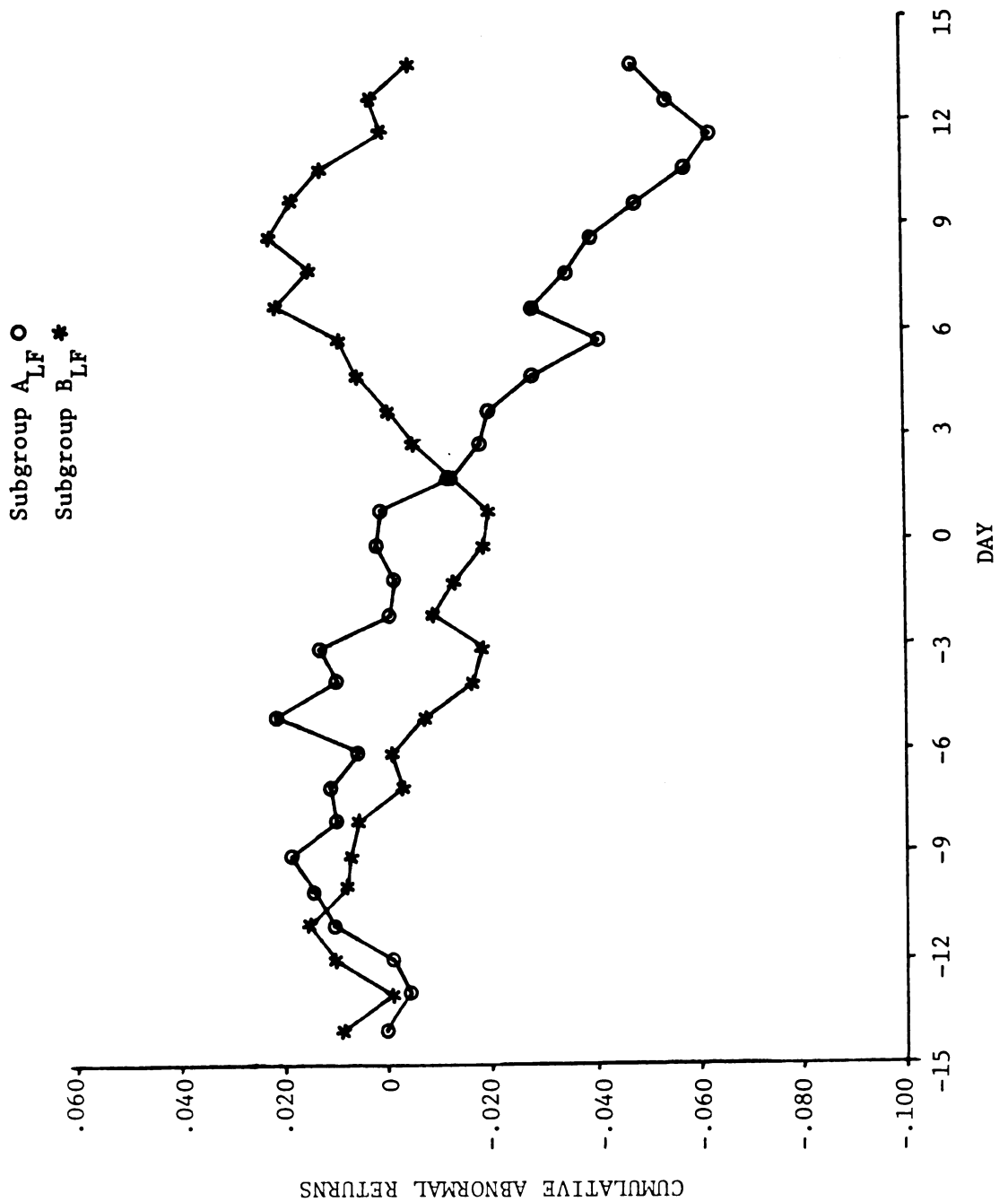


FIGURE 11

CUMULATIVE ABNORMAL RETURNS OF SUBGROUPS A_{LF} AND B_{LF}



up to day zero at levels of significance less than .1 using the t-test. However the K-S test does not support the results of the t-test, since no significant results were found (except for day -5).

The inconsistency between the t and the K-S tests necessitates conducting the statistical tests for the sum of the residuals during the period from day -2 to +2 (release period). Neither the t nor the K-S tests indicated any significant results at any level of significance.

The results for testing for negative market reaction for subgroups HF and HD confirm the findings of the previous section, i.e., the market reacts more negatively when the subsidiaries involved are located in foreign countries.

The results of testing hypotheses H_{43} did not indicate any significant results at any level of significance for any day during the test period under either the t or the K-S tests. The above results were also supported by testing the sum of the residuals for the release period. Again, neither statistical test indicated significant results. The insignificant results for the LF subgroup could be interpreted as the market not reacting to shared audit opinions when the other auditor's portion is relatively small even though the subsidiaries involved and thus their auditors are located in foreign countries.

However, it is important to note the behavior of the cumulative abnormal returns for the LF subgroups presented in Figure 8 and compare it to that of the L subgroup presented in Figure 3. The behavior of the CAR for the L subgroups is not in the expected direction (i.e., the CAR of the A_L subgroup is always above that of the B_L subgroup).

Although the behavior of the CAR for the LF subgroups begins as random variation, after day two the CAR of subgroup A_{LF} (n=10) always lies below subgroup B_{LF} (n=14). This comparison appears to indicate that the market might have reacted negatively to the F signal even though the overall reaction for the LF subgroup is not statistically significant.

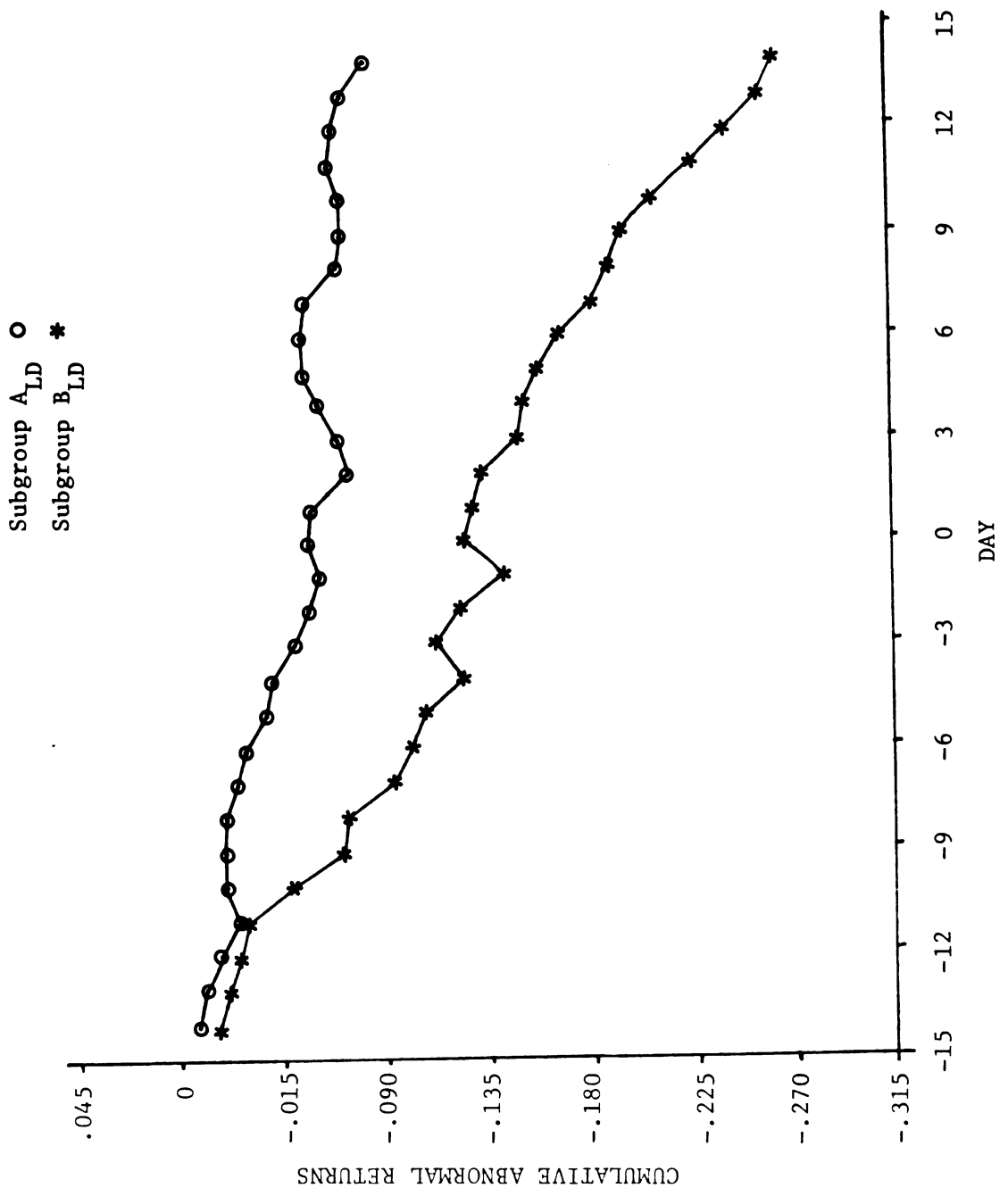
Again, no significant results were found for the LD comparison tested by hypothesis H_{44}. Neither the t nor the K-S test indicated any significant difference between the A_{LD} (n=16) and the B_{LD} (n=14) subgroups for any day during the test period. Tests for the sum of the residuals from day -2 to day +2 (release period) also did not indicate any significant differences between the LD subgroups. Thus, the results of testing hypotheses H_{43} and H_{44} are consistent with a conclusion that the market does not seem to react to shared opinions when the parts examined by the other auditors are relatively small. These results support the materiality hypothesis discussed in the previous section.

To summarize this section, it seems that market reaction is most clearly negative to shared opinions when the companies involved are in the HF subgroup. This reaction occurs particularly over the period from day -2 to day +2. The market seems to react negatively also to the HD subgroup, but the timing of this market reaction seems to precede that for the HF subgroup (significant results were found for the HD subgroup starting from day -6 and up to day zero). The inconsistency between the parametric and nonparametric tests tends to make tentative any conclusions regarding the HD subgroup.

The market does not seem to react to shared opinions when the

FIGURE 12

CUMULATIVE ABNORMAL RETURNS OF SUBGROUPS
A_{LD} AND B_{LD}



companies involved are in the L subgroup. This result holds regardless of whether those companies are in the LF or LD subgroups, even though there is a distinct pattern for each of these subgroups. Overall, the results of this section tend to support the hypothesis that the market uses both intervening variables (the materiality variable and the foreign vs. domestic variable) consistently when evaluating and reacting to the signals of shared audit opinions.

Validity Test Results

As explained in Chapter Three, a validity test was used in this study. This test compares the sum of the abnormal returns of the experimental vs. comparison samples and their corresponding subgroups during the five day period from day +10 to day +14. No difference is expected during this period if the results of the study are valid. This is because market reaction to shared opinions, if any, is expected to be "instantaneous," and thus within a few days (10 arbitrarily used here) the market should have discounted all information in that signal.

The following table present the results of the two tailed tests of significance for the difference between sample A and B and their corresponding subgroups:

TABLE 7

VALIDITY TEST RESULTS

Comparison	D*	α_t	α_{K-S}
A-B	.012	.503	.432
A_H-B_H	-.010	.673	1.000
A_L-B_L	.032	.218	.395
A_F-B_F	.010	.738	.712
A_D-B_D	.014	.529	.690
A_{HF}-B_{HF}	-.003	.912	1.000
A_{HD}-B_{HD}	-.008	.766	.990
A_{LF}-B_{LF}	.021	.583	.395
A_{LD}-B_{LD}	.047	.214	.576

*D represents the difference between the abnormal return of the experimental (sub)group A and its corresponding comparison (sub)group B, during the period from day +10 to day +14.

Overall, the validity test results for all comparisons indicate no significant differences. These results give some support to the validity of the results of this study. The major limitation on the validity of the results, is the possibility of confounding information contained in the annual reports along with the shared audit opinion. However, the effects of this limitation is minimized by applying the several filtering criteria to the study samples.

Analysis of Beta

The beta coefficients of the market model are considered as a measure of the systematic risk of the securities involved. A security with a beta coefficient greater than one is considered a risky security

compared to the market risk, and a security with a beta coefficient less than one is considered a less risky security compared to the risk of the market as a whole. By definition, the market has a beta coefficient of one. Table 8 summarizes some information about the betas of samples A and B.

TABLE 8

SUMMARY OF BETA INFORMATION

	A	B
Mean	1.31	1.35
S.D.	.47	.51
Median	1.28	1.33
Maximum	2.42	2.68
Minimum	.39	.30
% of betas greater than one	79	73

It is clear from the table that both groups A and B have a mean and median beta greater than one. Also, a majority of companies in both samples have betas greater than one and thus the high beta is not the result of only a few firms having extreme beta values.

A simple t test, to determine whether either beta mean is significantly greater than one, shows that both are highly significant (at levels of significance less than .005). Another t test indicated no significant difference between the two groups' means at any reasonable level of significance.

These results might support a conclusion that companies that received shared audit opinions are, on average, risky companies

compared to the market risk. A speculative explanation for why the above result emerged is that principal auditors are reluctant to assume full audit responsibility for the parts not audited by them when the companies involved are risky companies. Of course, this explanation cannot be supported completely by the results of this research alone and can only be studied by a different experimental design.

The experimental design should involve constructing a control group of companies who have other auditors involved in part of the audit, but no reference to them was made in the principal auditors' reports. Then, by comparing the average betas of both groups one might reach a conclusion about whether principal auditors tend to issue shared audit opinions when the companies involved have high risk measures.

Shank and Murdock (1978) provided partial evidence related to the above issue, but studied different types of audit signals. In their study of the comparability in the application of reporting standards among auditing firms, they found that the incidence of a qualified audit opinion is related to a risk measure (beta). In other words, they found that high beta companies tend to receive significantly more qualified opinions than low beta companies. Of course, it could not be concluded from their results whether auditors use beta measures in their audit decisions or that beta itself captures the information used by auditors in arriving at opinion qualification decisions.

The Shank-Murdock study nevertheless provides a speculative explanation of why might the sample companies of this study have beta

averages significantly greater than one. This is because shared opinion wording constitutes a sort of audit qualification, even though it is not defined as such by the auditing profession. Of course, the above speculation could be supported only by further studies having experimental designs specifically tailored to that issue.

Another issue related to beta is worth discussing at this point, namely, the issue of beta stationarity. Using market model residuals to test for market reaction assumes that the average betas of the experimental group (A) and the comparison group (B) remain relatively stable over time. A significant shift in beta during the test period might render the results of this study invalid. This is because the residuals of the market model might not be indicative of a market response measure to shared opinions but rather could reflect a change in beta levels.

The short test period (twenty nine trading days) minimizes this possibility; further, the samples excluded those companies having significant information releases (which might cause beta shifts) during the test period. Nevertheless, some possibility still exists for a beta shift. To shed light on the issue of whether events during the test period caused any shift in sample companies' beta estimates, moving average betas were calculated for the six months following the last month used for estimating beta in this study (month zero).

The following table presents the results:

TABLE 9

POST-TEST MOVING AVERAGE BETAS

Sample	Month 0	1	2	3	4	5	6
A	1.31	1.30	1.29	1.31	1.30	1.32	1.33
B	1.35	1.37	1.32	1.27	1.35	1.33	1.34

The table suggests no systematic pattern for beta changes of either group. The increase and decrease in beta levels of both groups indicates that the changes in betas seem to be random in nature. Of course, the above table is merely suggestive data. A formal testing of beta shift is beyond the scope of this study.

To conclude, the assumption of beta stationarity during the study period seems to be reasonable, given the short test period and the behavior of beta for the six months following the estimation period.

Discussion of the Results

Nine operational hypotheses were tested in this study. The first was the general hypothesis of the study that the market reacts negatively to shared audit opinions. To test this hypothesis, the behavior of the CAR of the experimental group (A) was compared to that of the comparison group (B). The behavior of the CAR's indicates that Sample A's CAR is more negative than that of Sample B during the entire test period. The parametric t-test did not indicate any significant difference in any paarticular day during the test period,

while the K-S nonparametric test indicated significant results in some days during the test period. The inconsistency between the parametric and nonparametric tests necessitated another test, which was a test of the behavior of the abnormal returns from day -2 to +2. The later test indicated moderate significance using the parametric t-test (P=.135) and high significance for the K-S nonparametric test (P=.034).

The above results tend to render the conclusion "market reaction is negative for shared audit opinions" a moderate and tentative one. In search of stronger evidence for the market effects of shared audit opinions, both the experimental and comparison samples were disaggregated on the bases of two variables thought to be of relevance to the expected reaction process. These two variables were called the materiality variable and the foreign vs. domestic variable.

Disaggregation was done because overall sample averages could mask significant information regarding the market reaction process to shared opinions. Disaggregation was first done using one variable at a time, hence the overall samples were divided into two equal high (H) and low (L) subgroups according to the materiality variable and into companies with foreign (F) and domestic (D) subsidiaries.

The results of the above disaggregation strongly support the hypothesis that the market reacts negatively to shared audit opinions when the portion audited by other auditors is relatively material. The results also indicate no particular market reaction to shared opinions when the portions involved have low materiality measures (L).

The test results based on the foreign vs. domestic disaggregation also indicate different CAR behavior for subgroups (F) and (D). In particular, the results of the statistical tests support the

hypothesis that the market reacts negatively to shared audit opinions when the subsidiaries involved are located in foreign countries (subgroup F). The behavior of CAR's for the domestic (D) subgroup displays some negative reaction around the day the audit report was released to the public (day zero). However, this reaction seems to be very small since the statistical tests were unable to detect statistically significant reaction.

The overall samples were then divided into four subgroups each, using both the materiality and the foreign vs. domestic variables (HF, HD, LF and LD subgroups). Testing for a negative market reaction for each subgroup supported the previous hypotheses that the market uses both the materiality and the foreign vs. domestic variables in evaluating shared opinion signals. Nevertheless, the empirical results are not without inconsistency, particularly when comparing the results of the HF subgroups to the HD subgroups. Based on the findings mentioned above, the HF subgroup should be expected to have more negative reaction than that of the HD subgroup. This conclusion does not seem to be supported from testing the CAR's for every day during the test period, which indicates that for some days around day zero the HD subgroup had higher levels of significance than that of the HF subgroup.

The above paradox could be explained by the number of companies (n) in each subgroup. From Table 6, on page 80, it is clear that the HF subgroup is a much smaller sample than the HD (the number of companies in the HF subgroups of both samples A and B is less than a third that in the corresponding HD subgroups). To investigate this paradox further, statistical tests were conducted to test for

differences in the abnormal returns during the period closest to day zero, i.e., the day -2 to day +2 release period. The parametric and nonparametric tests indicated very high levels of significance for a negative difference between the A_{HF} and B_{HF} subgroups. The t-test has a level of significance (P=.032) and the K-S test (P=.016) which are the highest levels of significance among all subgroupings studied. This finding, plus the fact that the sample size of the HF subgroups is very small compared to other subgroupings, indicate that the results seem to be consistent with other findings of the study.

The evidence found in this study of differential market reaction based on disaggregation according to intervening variables (materiality and the foreign vs. domestic) might give some explanation as to the inconsistent results of previous studies of market reaction to audit report signals, reviewed herein. Some of the studies of market reaction to qualified audit opinions found significant negative reaction, others found no significant reaction, and still others tried to explain the existence of a positive market reaction. It is possible that if these studies used appropriate intervening variables to disaggregate their samples, different conclusions might have been reached. The only study reviewed in this research that used sample subgroup disaggregation was that of Baskin (1970 and 1972), who disaggregated his sample according to a magnitude of qualification measure and according to a type of qualification classification. Unfortunately, he was unable to find any significant differences among the different subgroups.

In summary, the findings of this study are consistent with negative market reaction to shared audit opinions, particularly when

the portion audited by other auditors is relatively large or when the subsidiaries involved are located in a foreign country, or both. These conclusions support the idea that the market reacts differently to the same signal, subject to relevant intervening variables. The results also tend to indicate that investors do react to audit opinion messages, when they are sufficiently "non-standard," in valuing the stocks of the firms.

CHAPTER FIVE

SUMMARY AND CONCLUSIONS

This concluding chapter will present a summary of the objective of the study, the hypotheses, research methodology, and the findings of the research. The chapter will also discuss the limitations present in this study. Finally, it concludes with discussion of policy implications of the research findings followed by suggestions for further research.

Objective of the Study

The objective of this study was to investigate whether the message conveyed by shared audit opinions causes a negative stock market reaction. This objective was motivated by existing criticisms of the practice of referring to other auditors in the principal auditors' reports. The Commission on Auditors' Responsibilities was particularly critical of that practice on the belief that shared audit reports confuse the users of these reports.

Research questions raised to pursue the major objective of the study were:

1. Are the abnormal returns of companies receiving newly shared opinions consistently lower than the abnormal returns of companies whose audit opinions ceased to be shared, during the period around the

public release of the audit reports?

2. Does the market react more negatively (in terms of the abnormal return measure) to shared audit opinions when the size of the portions audited by other auditors are relatively large?
3. Does the market react more negatively to shared audit opinions (in terms of the abnormal return measure) when the subsidiaries involved are located in a foreign country compared to subsidiaries located in the United States?

Research Methodology and Hypotheses

Two samples were selected for purpose of this study. A sample of companies receiving newly shared opinions compared to previous year (Sample A) and a sample of companies whose auditors discontinued the shared audit report wording compared to previous year (Sample B). Sample A served as the experimental group while Sample B served as a comparison group.

The familiar market model research methodology was used to determine if the market reacted negatively to shared audit opinions. This methodology involves measuring abnormal returns during a test period around the release of the audit reports to the public. Several filtering criteria were applied to the initial samples to provide better control for events which could confound the effects of shared opinions.

Cumulative abnormal returns were calculated for each sample for every day during the test period (extending from fourteen trading

days before to fourteen trading days after the release of audit reports to the public). The sum of the abnormal returns were also calculated for another "release date" test period (five trading days centered on the assumed release date), which is the period in which audit report information could have become known to market participants.

The overall samples A and B were disaggregated into several subgroups to test the sensitivity of the results to two variables (materiality and foreign vs. domestic). The materiality variable divided samples A and B into two equal number subgroups of companies, those whose portions audited by other auditors were above (H) and below (L) the median materiality measure for each of the A and B samples. The materiality measure used was the percentage of total assets audited by the other auditors, denoted herein as (X),

The second variable used to disaggregate the overall samples was the foreign vs. domestic variable. This variable divided both samples A and B into companies whose subsidiaries audited by other auditors were located in foreign countries (F) and companies whose subsidiaries were located in the United States (D).

These subgroupings were used to observe whether there are differential market reactions between the different subgroups according to the variable(s) used as the basis for disaggregation.

Nine operational hypotheses were developed and tested in this study. All hypotheses were designed to detect negative market reactions to shared audit opinions, for the various subgroups.

Parametric and nonparametric tests were employed in testing each hypothesis. The parametric test was the two sample t-test and

the nonparametric test was the Kolmogorov-Smirnov two sample test. All tests sought to determine the statistical significance of any negative differences between the cumulative abnormal returns of the experimental group and the comparison group during the test period. The tests were repeated for the difference between each experimental subgroup and its corresponding comparison subgroup.

Research Findings and Interpretations

Appendix D presents the results of the statistical tests performed on the hypotheses of the study. Each hypothesis is designed to detect negative market reaction to shared opinions applied to a different level of disaggregation of the overall samples by the materiality variable and the foreign vs. domestic variables. Expecting a negative market reaction to shared opinions is not unreasonable since it may convey a lower level of assurance and/or investors might not be able to recover damages from the principal auditors in cases of legal disputes involving misrepresentation of the data covered by the other auditors.

The empirical results of the study do indicate that the cumulative abnormal returns of the experimental sample (A) are lower than those of the comparison sample (B) during the test period. However, the differences are not statistically significant in any particular day during the test period. But when the abnormal returns during the "release date" period (from day -2 to day +2) are summed, significant results are shown. This is probably because the day the audit report information became known to market participants may better be approximated by the five day interval instead of a single "day zero."

Results for testing the hypotheses of negative market reaction to shared audit opinions for each materiality subgroup suggested (in terms of statistical significance) that the market might be reacting negatively to shared audit opinions for the high materiality subgroup, while no statistically significant differences exist between the low materiality experimental and comparison subgroups.

These results support the materiality hypothesis of this study, which asserts that the market reacts more negatively to shared audit opinions when the portions audited by other auditors are relatively large. The hypothesis and the empirical results supporting the hypothesis are in line with the materiality literature which asserts that an item should be regarded as material if knowledge of it would influence the decisions of informed investors.

The second disaggregation variable divided both the experimental and comparison samples into companies whose subsidiaries audited by other auditors were located in foreign countries (F) and companies whose subsidiaries were located in the United States (D). This division was considered relevant for two reasons, one as a mechanism to control for any possible systematic differences between companies who have foreign vs. domestic (U.S.) subsidiaries, and two, to address arguments presented in Chapter Two that a negative reaction could be more expected for the foreign subgroup because of legal liability and quality control issues. It was suggested there that it might be more difficult to recover damages in legal disputes involving other foreign auditors. Also, audit quality control of auditing firms operating in foreign countries might be less than those operating in the United States, at least in the minds of investors. These factors

might cause investors to react more negatively to shared opinions involving foreign subsidiaries.

The empirical results are consistent with the hypothesis that the market reacts more negatively to shared audit opinions involving foreign subsidiaries. No significant results were found when comparing domestic subgroups (A_D and B_D) while a significant negative difference was found between the abnormal returns of subgroups A_F and B_F.

The samples of the study were disaggregated further into HF, HD, LF, and LD subgroups, using both the materiality and the foreign vs. domestic variables concurrently. The results of testing for differences between the abnormal returns of the experimental subgroups and their corresponding comparison subgroups support the conclusions reached above. The highest levels of significance for the difference in abnormal returns for the release period was found for the HF subgroups. The sum of the abnormal returns during that period for subgroup A_{HF} was significantly lower than that of the B_{HF} subgroup.

Significant results were also found for the negative difference between the cumulative abnormal returns of subgroup A_{HD} and that of subgroup B_{HD} up to day zero. For subgroups LF and LD, no statistically significant results were found between the A and B subgroups.

In summary, it can be concluded that this study's results generally behaved as if the market were reacting negatively to shared opinions. However, the market reaction seems to be clearly evident only when the amounts audited by the other auditors are material relative to the company as a whole and/or when the subsidiaries involved are located in foreign countries. The highest negative market reaction

to shared opinions occurred when both the amounts covered by the other auditors are material and the subsidiaries involved are located in foreign countries.

The above results are consistent with a premise that market participants consider audit report information in investment decisions. The evidence underscores the care that auditors and standard setters should exercise in crafting the messages they send to investors and other users via the audit report.

Research Limitations

The results of any piece of empirical research depend on the appropriateness of the assumptions made for the study. The several assumptions made for this study were argued previously as being necessary and appropriate for purposes of this research. Nevertheless, some of these assumptions warrant discussion here since they represent possible limitations on the conclusions of this study.

The assumption that the market model is an appropriate specification of the return generating process has undergone several criticisms. King (1966) indicated that even though the return on the market was found to be the single most important factor influencing security returns, an industry effect was present. Banz (1981) indicated that the market model might be misspecified for smaller companies. As to this study, it was argued in Chapter Three that industry and size effects are not of major concern because the experimental and comparison samples are not dominated by certain industries or by smaller companies. Furthermore, the size distributions of both the experimental and comparison sample companies are quite similar.

Another assumption of the study, which has been challenged recently by Bailey (1982), is the assumption that audit report information can be isolated from other confounding information contained in the annual reports. Bailey argued that this assumption may never be warranted (despite controls of the type utilized in this study). However, this study has argued and presented evidence to support the above assumption.

Another limitation present in this study, as with all other market based studies, is that the evidence presented is indirect in nature. To determine investors' reactions to shared opinions, abnormal returns, an indirect surrogate, were used. A more direct approach might complement the results of this study. This could be achieved by a survey questionnaire asking different user groups about their perception of and reaction to shared opinions. (Questionnaire research is subject to its own limitations, of course.)

Finally, there are several limitations relating to the samples of the study. First, the companies in this study were not randomly selected. Second, the experimental and control samples were not specifically matched on any basis (e.g., size or industry) to assure their complete similarity.

Matching was not applied for several reasons. Matching between the experimental and comparison groups was not feasible since the groups were not large enough to find sufficient paired matches between them. An alternative would have been to use a control group consisting of companies which never had shared opinions. This matching strategy was also considered to be less desirable for several reasons. First, there might be relevant similar characteristics between companies

which receive shared opinions; second, it is difficult to find two companies similar in all relevant variables; and third, it would have reduced the sample sizes to the point that statistical or other analysis of the comparative behavior of the different subgroups of this study would have been meaningless due to the very small sample size of some subgroups. Thus this study utilized as the comparison group for the experimental sample of companies which received "new" shared audit opinions, a group of companies whose audit opinions ceased to be shared. This comparison group was thought to be sufficient and the best available alternative.

The results of this study should be interpreted keeping the above limitations in mind to avoid unwarranted conclusions. It is important, however, to note that most of these limitations are present in most empirical work.

Policy Implications

It was suggested at the outset that the findings of this study might help the Auditing Standards Board (ASB) in its consideration of existing standards on involvement of other auditors, and more specifically, of existing or revised guidance on audit report reference to other auditors. How might the findings of this study help the Auditing Standards Board? And what are the policy implications, if any, that could emerge from this study and its findings?

Since this is the first empirical study addressing shared opinion market effects, its conclusions should be regarded as tentative. Also, the study has addressed only the apparent reaction of investors, not the "true" quality of shared audits (as compared to single firm

audits) and thus the level of assurance which the principal auditor properly does or should intend to convey. The only general conclusion from the evidence here is that the results are consistent with a negative investors' reaction to a shared opinion signal, particularly when the portion audited by the other auditors is relatively large or when the subsidiaries involved and their other auditors are foreign or both.

However, many other questions are yet to be answered in order to arrive at clear-cut policy implications. As noted on page 28, there are several possible combinations of actual situations and investors' perceptions. The ASB policy actions should consider them all.

If the observed reaction to shared opinions is "correct" due to "true" lower levels of assurance derived from shared opinions compared to nonshared opinions, then the policy implication arguably might be to require that principal auditors increase their achieved level of assurance for the work done by other auditors to a degree sufficient to assume full responsibility and hence issue a nonshared or "no reference" opinion. If this were impossible or not economically feasible, then policy guidance might require principal auditors to make this point clear rather than merely to shift responsibility to the other auditors, as implied by the present shared opinion wording. Conversely, shared audits may typically be, in fact, of a quality equal to unshared ones. Then the negative reaction to shared audit opinions would be due to investors' misconception of the meaning of shared opinion messages, properly intended by principal auditors. In this case, a quite different policy implication might emerge. If investors misinterpret shared opinion messages as conveying lower levels of assurance, then a policy implication might be to retain

shared opinions while attempting to educate the users about the real meaning, whatever that is, of shared audit opinion wording.

An argument against eliminating shared opinions is that investors are entitled to disclosure about the auditing process. The involvement of other auditors in the audit of the financial statements might be useful information for some users. This argument could support a policy change of simply rewording the shared audit opinion message to indicate clearly the involvement of other auditors and the judgment of the principal auditors about the quality of their audits.

Another complicating factor for policy decisions is the legal environment. If the ASB were to conclude that shared opinions should be eliminated, this would appear as a shifting of the responsibility for the entire audit to the principal auditor (even though it is not entirely clear even now whether reference to other auditors will entirely absolve the principal auditor of liability for the other auditor's faults). This might be the case, unless the courts recognize the principal's right to rely (assuming reasonable surveillance) on the other auditor's work and hold that auditor responsible for any substandard work that was his alone. However, this legal outcome appears to be unsure. Thus, elimination of shared opinions would create pressure on principal auditors to solicit the work of the other auditors involved. Such a result would be against the spirit of discouraging the displacement of smaller firms, as urged by the Derieux Committee.

In summary, this study provides tentative support for the idea that some policy action might be needed in the area of shared audit opinion standards. If the negative reaction to shared audit

opinions is caused by misunderstanding of investors to the meaning of shared opinions message, it may be advisable to educate the users about the meaning of shared audit opinions. If negative market reaction is due to "true" lower levels of assurance in shared audits (and audit reports) compared to nonshared audits, the best policy action might be to require principal auditors to improve the level of assurance so that they can assume full responsibility and not refer to the other auditors. In any event, the evidence of this research has indicated that investors do not seem to believe that material (especially foreign) sharing of audits results in "normal" audit assurance, contrary to the assumption implicit in professional auditing standards that "an audit is an audit."

Further studies are needed to provide guidance for the decision of the best policy action to follow.

Suggestions for Further Research

Further research in the area of users' reaction to shared audit opinions message could follow either of two avenues. The first is to confirm the existence of negative reaction to shared audit opinions, while the second is to investigate the reasons for the existence of such negative reaction.

The first objective of confirming the existence of negative market reaction to shared audit opinions could be achieved by replicating the study, using another comparison group of companies receiving "unqualified" opinions with no reference to other auditors and testing this study's hypotheses by using similar methodology. Another way to test for the existence of negative reaction to shared audit opinions is

to conduct survey questionnaire research asking user groups such as financial analysts, bankers, etc., whether they consider shared audit opinion as a negative message.

The second objective of investigating the reasons for the existence of negative reaction to shared audit opinions could be achieved by conducting surveys asking users why they consider shared audit opinions as a negative sign. Another related project would be to attempt to determine why auditors issue shared audit opinions, whether they regard shared audits to be of standard or inferior quality, and whether they intend the shared opinion to give a negative signal to users. Comparison of auditors' and users' perceptions would have policy implications, such as the proper response to any misunderstanding between auditors and users.

Two other suggestions for research emerge as a result of this study. The first is to investigate whether beta levels are related in any way to shared audit opinions. This suggestion emerged because this study found that both the experimental and comparison samples have a significantly higher beta levels than the average or market beta. The other suggestion is to investigate whether the claim of the Diereux Committee, that shared audit opinions tend to work toward displacement of subsidiary auditors by principal auditors, is warranted. If it were found that displacement occurs more often if shared opinions are issued compared to nonshared opinions, one might be able to conclude that displacement of subsidiary auditors is related to the incidence of shared audit opinions. This result would not be surprising if a negative reaction exists to shared audit opinions, since managements will try to eliminate the cause of the negative reaction.

In general, the results of this study do suggest that a problem might exist in shared audit reporting and/or in the audit itself. But further empirical investigation is needed in the area of shared audit opinion effects before unambiguous policy recommendations can be offered.

APPENDICES

APPENDIX A

AUDITING STANDARDS GOVERNING SHARED AUDIT OPINIONS - SECTION 543

AU Section 543

Part of Examination Made by Other Independent Auditors

Issue date, unless otherwise indicated: November, 1972

.01 Following are guidelines for reporting on financial statements when the independent auditor (referred to herein as the principal auditor) utilizes the work and reports of other independent auditors who have examined the financial statements of one or more subsidiaries, divisions, branches, components, or investments included in the financial statements presented.

Principal Auditor's Course of Action

.02 The auditor in this situation may have performed all but a relatively minor portion of the work, or significant parts of the examination may have been performed by other auditors. In the latter case, he must decide whether his own participation is sufficient to enable him to serve as the principal auditor and to report as such on the financial statements. In deciding this question, the auditor should consider, among other things, the materiality of the portion of the financial statements he has examined in comparison with the portion examined by other auditors, the extent of his knowledge of the overall financial statements, and the importance of the components he examined in relation to the enterprise as a whole.[1]

.03 If the auditor decides that it is appropriate for him to serve as the principal auditor, he must then decide whether to make reference in his report[2] to the examination made by another auditor. If the principal auditor decides to assume responsibility for the work of the other auditor insofar as that work relates to the principal auditor's expression of an opinion on the financial statements taken as a whole, no reference should be made to the other auditor's examination. On the other hand, if the principal auditor decides not to

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[1] Nothing in this section should be construed to require or imply that an auditor in deciding whether he may properly serve as principal auditor, without himself auditing particular subsidiaries, divisions, branches, components, or investments of his client, should make that decision on any basis other than his judgment regarding the professional considerations as discussed in paragraphs .02 and .10.

[2] See paragraph .09 for example of appropriate reporting when reference is made to the examination of other auditors.

assume that responsibility, his report should make reference to the examination of the other auditor and should indicate clearly the division of responsibility between himself and the other auditor in expressing his opinion on the financial statements. Regardless of the principal auditor's decision, the other auditor remains responsible for the performance of his own work and for his own report.

Decision Not to Make Reference

.04 If the principal auditor is able to satisfy himself as to the independence and professional reputation of the other auditor (see paragraph .10) and takes steps he considers appropriate to satisfy himself as to the other auditor's examination (see paragraph .12), he may be able to express an opinion on the financial statements taken as a whole without making reference in his report to the examination of the other auditor. If the principal auditor decides to take this position, he should not state in his report that part of the examination was made by another auditor because to do so may cause a reader to misinterpret the degree of responsibility being assumed.

.05 Ordinarily, the principal auditor would be able to adopt this position when:

a. Part of the examination is made by another independent auditor which is an associated or correspondent firm and whose work is acceptable to the principal auditor based on his knowledge of the professional standards and competence of that firm; or

b. The other auditor was retained by the principal auditor and the work was performed under the principal auditor's guidance and control; or

c. The principal auditor, whether or not he selected the other auditor, nevertheless takes steps he considers necessary to satisfy himself as to the other auditor's examination and accordingly is satisfied as to the reasonableness of the accounts for the purpose of inclusion in the financial statements on which he is expressing his opinion; or

d. The portion of the financial statements examined by the other auditor is not material to the financial statements covered by the principal auditor's opinion.

Decision to Make Reference

.06 On the other hand, the principal auditor may decide to make reference to the examination of the other auditor when he expresses his opinion on the financial statements. In some situations, it may be impracticable for the principal auditor to review the other auditor's work or to use other procedures which in the judgment of the principal auditor would be necessary for him to satisfy himself as to the other

auditor's examination. Also, if the financial statements of a component examined by another auditor are material in relation to the total the principal auditor may decide, regardless of any other considerations, to make reference in his report to the examination of the other auditor.

.07 When the principal auditor decides that he will make reference to the examination of the other auditor, his report should indicate clearly, in both the scope and opinion paragraphs, the division of responsibility as between that portion of the financial statements covered by his own examination and that covered by the examination of the other auditor. The report should disclose the magnitude of the portion of the financial statements examined by the other auditor. This may be done by stating the dollar amounts or percentages of one or more of the following: total assets, total revenues, or other appropriate criteria, whichever most clearly reveals the portion of the financial statements examined by the other auditor. The other auditor may be named but only with his express permission and provided his report is presented together with that of the principal auditor.[1]

.08 Reference in the report of the principal auditor to the fact that part of the examination was made by another auditor is not to be construed as a qualification of the opinion but rather as an indication of the divided responsibility between the auditors who conducted the examinations of various components of the overall financial statements; in addition, it should be understood that an auditor's report which makes reference to the report of another auditor is not to be construed as being inferior in professional standing to a report in which no such reference is made.

.09 An example of appropriate reporting by the principal auditor indicating the division of responsibility when he makes reference to the examination of the other auditor follows:

> We have examined the consolidated balance sheet of X Company and subsidiaries as of December 31, 19...., and the related consolidated statements of income and retained earnings and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting reports and such other auditing procedures as we considered necessary in the circumstances. We did not examine the financial statements of B Company, a consolidated subsidiary, which statements reflect total assets and revenues constituting 20 percent and 22 percent, respectively, of the related consolidated totals. These statements were examined by other auditors whose report thereon has been furnished to us, and our opinion expressed herein, insofar as it relates to the amounts included for B Company, is based

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[1] As to filings with the Securities and Exchange Commission, see Rule 2-05 of Regulation S-X.

solely upon the report of the other auditors.

In our opinion, based upon our examination and the report of other auditors, the accompanying consolidated balance sheet and consolidated statements of income and retained earnings and changes in financial position present fairly . . .

When two or more auditors in addition to the principal auditor participate in the examination, the percentages covered by the other auditors may be stated in the aggregate.

Procedures Applicable to Both Methods of Reporting

.10 Whether or not the principal auditor decides to make reference to the examination of the other auditor, he should make inquiries concerning the professional reputation and independence of the other auditor. He also should adopt appropriate measures to assure the coordination of his activities with those of the other auditor in order to achieve a proper review of matters affecting the consolidating or combining of accounts in the financial statements. These inquiries and other measures may include procedures such as the following:

a. Make inquiries as to the professional reputation and standing of other auditor to one or more of the following:

   (i) The American Institute of Certified Public Accountants, the applicable state society of certified public accountants and/or the local chapter, or in the case of foreign auditor, his corresponding professional organization.

   (ii) Other practitioners.

   (iii) Bankers and other credit grantors.

   (iv) Other appropriate sources.

b. Obtain a representation from the other auditor that he is independent under the requirements of the American Institute of Certified Public Accountants and, if appropriate, the requirements of the Securities and Exchange Commission.

c. Ascertain through communication with the other auditor:

   (i) That he is aware that the financial statements of the component which he is to examine are to be included in the financial statements on which the principal auditor will report and that the other auditor's report thereon will be relied upon (and, where applicable, referred to) by the principal auditor.

(ii) That he is familiar with accounting principles generally accepted in the United States and with the generally accepted auditing standards promulgated by the American Institute of Certified Public Accountants and will conduct his examination and will report in accordance therewith.

(iii) That he has knowledge of the relevant financial reporting requirements for statements and schedules to be filed with regulatory agencies such as the Securities and Exchange Commission, if appropriate.

(iv) That a review will be made of matters affecting elimination of intercompany transactions and accounts and, if appropriate in the circumstances, the uniformity of accounting practices among the components included in the financial statements.

(Inquiries as to matters under a, and c (ii) and (iii) ordinarily would be unnecessary if the principal auditor already knows the professional reputation and standing of the other auditor and if the other auditor's primary place of practice is in the United States.)

.11 If the results of inquiries and procedures by the principal auditor with respect to matters described in paragraph .10 lead him to the conclusion that he can neither assume responsibility for the work of the other auditor insofar as that work relates to the principal auditor's expression of an opinion on the financial statements taken as a whole, nor report in the manner set forth in paragraph .09, he should appropriately qualify his opinion or disclaim an opinion on the financial statements taken as a whole. His reasons therefor should be stated, and the magnitude of the portion of the financial statements to which his qualification extends should be disclosed.

Additional Procedures Under Decision Not to Make Reference

.12 When the principal auditor decides not to make reference to the examination of the other auditor, in addition to satisfying himself as to the matters described in paragraph .10, he should also consider whether to perform one or more of the following procedures:

a. Visit the other auditor and discuss the audit procedures followed and results thereof.

b. Review the audit programs of the other auditor. In some cases, it may be appropriate to issue instructions to the other auditor as to the scope of his audit work.

c. Review the working papers of the other auditor, including his evaluation of internal control and his conclusions as to other significant aspects of the engagement.

.13 In some circumstances the principal auditor may consider it appropriate to participate in discussions regarding the accounts with management personnel of the component whose financial statements are being examined by other auditors and/or to make supplemental tests of such accounts. The determination of the extent of additional procedures, if any, to be applied rests with the principal auditor alone in the exercise of his professional judgment and in no way constitutes a reflection on the adequacy of the other auditor's work. Because the principal auditor in this case assumes reponsibility for his opinion on the financial statements on which he is reporting without making reference to the other auditor's examination, his judgment must govern as to the extent of procedures to be undertaken.

Long-Term Investments

.14 With respect to investments accounted for under the equity method, the auditor who uses another auditor's report for the purpose of reporting on the investor's equity in underlying net assets and its share of earnings or losses and other transactions of the investee is in the position of a principal auditor using the work and reports of other auditors. Under these circumstances, the auditor may decide that it would be appropriate to refer to the other auditor's examination in his report on the financial statements of the investor. (See paragraphs .06-.11.) When the work and reports of other auditors constitute a major element of evidence with respect to investments accounted for under the cost method, the auditor may be in a position analogous to that of a principal auditor.

Qualifications in Other Auditor's Report

.15 If the opinion of the other auditor is qualified, the principal auditor should decide whether the subject of the qualification is of such nature and significance in relation to the financial statements on which the principal auditor is reporting that it would require qualification of his own report. If the subject of the qualification is not material in relation to such financial statements and the other auditor's report is not presented, the principal auditor need not make reference in his report to the qualification; if the other auditor's report is presented, the principal auditor may wish to make reference to such qualification and its disposition.

Restated Financial Statements of Prior Years Following a Pooling of Interests

.16 Following a pooling-of-interests transaction, an auditor may be asked to report on restated financial statements for one or more prior years when other auditors have examined one or more of the entities included in such financial statements. In some of these situations the auditor may decide that he has not examined a sufficient portion of the financial statements for such prior year or years to

enable him to serve as principal auditor (see paragraph .02). Also, in such cases, it often is not possible or it may not be appropriate or necessary for the auditor to satisfy himself with respect to the restated financial statements. In these circumstances it may be appropriate for him to express his opinion solely with respect to the compilation of such statements; however, no opinion should be expressed unless the auditor has examined the statements of at least one of the entities included in the restatement for at least the latest period presented. The following is an illustration of appropriate reporting on compilation which can be presented in an additional paragraph of the auditor's report following the standard scope and opinion paragraphs covering the consolidated financial statements for the current year:

> We previously examined and reported upon the consolidated statements of income and changes in financial position of XYZ Company and subsidiaries for the year ended December 31, 19 , prior to their restatement for the 19..... pooling of interests. The contribution of XYZ Company and subsidiaries to revenues and net income represented percent and percent of the respective restated totals. Separate financial statements of the other companies included in the 19 restated consolidated statements of income and changes in financial position were examined and reported upon separately by other auditors. We also have reviewed, as to compilation only, the accompanying consolidated statements of income and changes in financial position for the year ended December 31, 19 , after restatement for the 19..... pooling of interests; in our opinion, such consolidated statements have been properly compiled on the basis described in Note A of notes to consolidated financial statements.

.17 In reporting on the compilation of restated financial statements as described in the preceding paragraph, the auditor does not assume responsibility for the work of other auditors nor the responsibility for expressing an opinion on the restated financial statements taken as a whole. His review is directed toward procedures which will enable him to express an opinion only as to proper compilation. These procedures include checking the compilation for mathematical accuracy and for conformity of the compilation methods with generally accepted accounting principles. For example, the auditor should review and make inquiries regarding such matters as the following:

a. Elimination of intercompany transactions and accounts.

b. Combining adjustments and reclassifications.

c. Adjustments to treat like items in a comparable manner, if appropriate.

d. The matter and extent of presentation of disclosure matters in the restated financial statements and notes thereto.

The auditor should also consider the application of procedures contained in paragraph .10.

Predecessor Auditor

[.18] [Superseded by Statement on Auditing Standards No. 7, effective November 30, 1975.] (See section 315.)

APPENDIX B

STUDY SAMPLES

TABLE B1

NEW SHARED OPINION GROUP - SAMPLE A

Company Name	3-Digit SIC Code	Fiscal Year End	Asset Size (millions of dollars)	Materiality Measure (X) in %	β	Sub-Auditor	Principal Auditor	Stock Exchange
Acton Corp.	489	12/31/79	108.423	39	1.97	D	A. Young	AMEX
Allegheny Ludlum Industries	331	12/30/79	1140.165	6.5	1.20	D	P.M. Mitchell	NYSE
Amerace Corp.	309	12/31/75	182.580	18	.88	D	E & Ernst	NYSE
American Safety Equipment	239	12/31/73	45.358	23	2.18	F	S & Seidman	AMEX
APCO Oil Corp.	291	12/31/73	150.666	6	1.72	D	P.M. Mitchell	NYSE
Armstrong Rubber Co.	301	9/30/73	203.599	7	1.02	D	E & Ernst	NYSE
Ashland Oil Inc.	291	9/30/75	1973.000	3	.94	D	E & Ernst	NYSE
Associated Spring Corp.	349	12/31/73	100.424	7	1.02	F	E & Ernst	NYSE
Beverly Enterprises	801	12/31/77	60.850	8	1.44	D	A. Young	AMEX
Coca Cola Bottling Co. of N.Y.	209	12/31/79	315.438	1	1.38	F	E & Whinney	NYSE
Copeland Corp.	358	9/30/75	88.775	3	1.17	F	E & Ernst	NYSE
Dart Industries	281	12/31/78	1792.084	15	1.72	D	P. Waterhouse	NYSE
E. F. Hutton Group, Inc.	621	12/31/77	1593.795	10	2.38	D	A. Andersen	NYSE
EECO, Inc.	366	12/31/77	10.918	19	2.42	D	A. Young	AMEX
Federal Co.	201	6/3/78	224.404	18	1.09	D	A. Andersen	NYSE
Fidelity Union Ban-Corporation	671	12/31/74	1628.209	20	.77	D	P.M. Mitchell	NYSE
Filmways Inc.	271	2/28/78	121.454	35	1.46	D	A. Andersen	NYSE
Firstmark Corp.	614	12/31/76	299.992	1.4	1.60	D	A. Young	AMEX
Fluor Corp.	150	10/31/77	970.793	22	1.38	D	A. Young	NYSE
Foote Mineral Corp.	331	12/31/76	138.650	3	.39	F	A. Andersen	AMEX
Frank B. Hall & Co. Inc.	640	12/31/78	661.361	24	1.06	F	T. Ross	NYSE
G. D. Searle & Co.	283	12/31/73	577.332	23	1.01	D	A. Andersen	NYSE

TABLE B1 (Continued)

Company Name	3-Digit SIC Code	Fiscal Year End	Asset Size (millions of dollars)	Materiality Measure (X) in %	β	Sub-Auditor	Principal Auditor	Stock Exchange
General Cable Corp.	335	12/31/76	499.819	32	1.16	D	A. Young	NYSE
General Educational Services	271	3/31/76	45.442	43	1.33	D	P.M. Mitchell	AMEX
Gerber Products Co.	203	3/31/74	173.558	5	.62	F	E & Ernst	NYSE
Globe Industries Inc.	299	12/31/76	24.173	3	.96	F	A. Andersen	AMEX
Gloucester Engineering Co.	355	6/30/75	25.779	16	1.37	D	A. Andersen	AMEX
Heck's Inc.	531	12/31/78	198.531	20	1.78	D	H & Cranstann	NYSE
Houston Natural Gas Corp.	492	7/31/77	1258.739	18	1.51	D	H & Sells	NYSE
Jewel Companies Inc.	541	1/31/76	769.851	5	1.37	F	T. Ross	NYSE
Kay Corp.	509	12/31/79	249.640	4	.63	F	A. Young	AMEX
Knight Ridder Inc.	264	12/31/74	476.079	36	1.29	D	E & Ernst	NYSE
Manor Care Inc.	801	5/31/79	61.931	29	1.91	D	A. Andersen	AMEX
Maremont Corp.	371	12/31/75	192.083	12	1.74	F	A. Andersen	NYSE
Monogram Industries Inc.	309	6/30/76	152.827	6	1.42	D	H & Sells	NYSE
Morse Shoe Inc.	566	12/29/73	76.968	15	1.59	D	P.M. Mitchell	NYSE
Nortek Inc.	221	12/31/73	52.413	2	1.51	D	A. Andersen	AMEX
NVF Co.	331	12/31/77	240.501	10	1.09	D	P. Waterhouse	NYSE
Pacific Holding Corp.	289	12/31/77	141.831	6	1.34	D	A. Andersen	AMEX
Peoples Drug Stores	591	9/24/77	100.351	31	2.02	D	A. Andersen	NYSE
Placer Development Ltd.	100	12/31/73	208.109	24	1.17	F	P. Waterhouse	AMEX
R. J. Reynolds Industries, Inc.	211	12/31/79	6421.900	20	.47	D	E & Whinney	NYSE
Rohm & Haas Co.	281	12/31/73	815.955	14	1.20	F	P.M. Mitchell	NYSE
S. W. Industries Inc.	309	12/31/75	23.712	4	.47	F	A. Andersen	AMEX
Schering Plough Corp.	283	12/31/79	1592.699	14	1.26	F	D.H. & Sells	NYSE
Sheller Globe Corp.	371	9/30/74	233.746	24	1.53	D	A. Young	NYSE
Southern Pacific Co.	400	12/31/79	5025.00	6	.75	D	D.H. & Sells	NYSE

TABLE B1 (Continued)

Company Name	3-Digit SIC Code	Fiscal Year End	Asset Size (millions of dollars)	Materiality Measure (X) in %	β	Sub-Auditor	Principal Auditor	Stock Exchange
Southern Union Co.	492	12/31/77	408.654	5	1.20	D	P.M. Mitchell	NYSE
Standard Oil Co. (Ohio)	291	12/31/75	4220.443	11	.56	D	E & Ernst	NYSE
Standard Shares Inc.	679	2/28/79	113.673	55	1.01	D	D.H. & Sells	AMEX
W. T. Grant	533	1/31/74	1252.983	2	1.77	F	E & Ernst	NYSE
Worcester Control Group	349	8/31/74	25.810	6	1.08	D	C. Lybrand	AMEX

TABLE B2

DISCONTINUED SHARED OPINION GROUP - SAMPLE B

Company Name	3-Digit SIC Code	Fiscal Year End	Asset Size (millions of dollars)	Materiality Measure (X) in %	β	Sub-Auditor	Principal Auditor	Stock Exchange
Aero Flow Dynamics Inc.	508	12/31/74	22.826	39	1.67	D	A. Andersen	AMEX
Alco Standard Corp.	509	9/30/74	401.257	5	1.09	F	E & Ernst	NYSE
Amerace Corp.	309	12/31/77	191.877	20	.91	D	E & Ernst	NYSE
AMP Inc.	369	12/31/78	661.454	28	1.37	F	A. Andersen	NYSE
Anglo Co. Ltd.	139	9/30/75	46.018	11	.50	D	P. Waterhouse	AMEX
Ashland Oil Inc.	291	9/30/78	2886.029	2	1.09	D	E & Ernst	NYSE
Baker International Corp.	352	9/30/78	889.193	27	.74	D	D.H. & Sells	NYSE
Bank of Virginia Co.	671	12/31/78	2120.062	28	1.11	F	E & Ernst	NYSE
Bundy Corp.	331	7/31/77	76.239	10	1.00	F	E & Ernst	NYSE
C. Brewer & Co. Ltd.	206	12/26/76	294.633	35	.30	D	P.M. Mitchell	AMEX
Carter Hawley Hale Stores, Inc.	531	1/28/78	911.706	9	.78	F	P. Waterhouse	NYSE
Castle & Cook Inc.	203	12/29/73	567.655	22	1.12	D	H & Sells	NYSE
Castleton Industries Inc.	791	12/31/75	41.026	16	.75	D	E & Ernst	AMEX
Colt Industries Inc.	331	12/31/76	941.302	14	1.18	D	A. Andersen	NYSE
Dart Industries Inc.	281	12/31/79	1907.245	15	1.01	D	P. Waterhouse	NYSE
Dexter Corp.	289	12/31/78	233.255	25	1.50	D	C. Lybrand	NYSE
Donaldson Lufkin & Jenrette Inc.	621	12/31/78	2340.023	14	2.13	D	P.M. Mitchell	NYSE
F. W. Woolworth & Co.	533	1/31/76	2173.086	20	1.12	D	P. Waterhouse	NYSE
Ferro Corp.	289	12/31/77	254.744	28	1.61	F	P.M. Mitchell	NYSE
Fidelity Union Ban-Corporation	671	12/31/76	977.347	23	.82	D	P.M. Mitchell	NYSE
Fischer & Porter Co.	381	12/31/76	105.970	12	2.01	F	A. Young	AMEX

TABLE B2 (Continued)

Company Name	3-Digit SIC Code	Fiscal Year End	Asset Size (millions of dollars	Materiality Measure (X) in %	β	Sub-Auditor	Principal Auditor	Stock Exchange
Foote Mineral	335	12/31/77	142.584	3	.39	F	A. Andersen	AMEX
General Electric Co.	369	12/31/77	13696.800	10	1.30	D	P.M. Mitchell	NYSE
Great Lakes Chemical Corp.	281	12/31/76	50.474	2	1.66	D	E & Ernst	AMEX
Hasbro Industries	394	12/26/76	52.783	7	1.53	F	P.M. Mitchell	AMEX
Health Chem Corp	284	12/31/79	44.715	4	2.43	D	T. Ross	AMEX
High Voltage Engineering Corp.	366	12/25/76	37.723	11	2.03	F	C. Lybrand	NYSE
Home Oil Co. Ltd.	131	12/31/77	494.547	5	1.51	F	T. Riddell	AMEX
Houston Natural Gas Corp.	492	7/31/78	1411.373	18	1.43	D	D.H. & Sells	NYSE
Humana Inc.	801	8/31/75	310.908	10	1.85	D	C. Lybrand	NYSE
L. E. Myers Co.	171	12/31/74	49.716	6	1.89	F	M. Lafrentz	NYSE
Magic Chef	363	6/30/73	139.139	34	1.87	D	H & Sells	NYSE
Manhattan Industries	231	1/31/78	125.644	12	1.93	D	C. Lybrand	NYSE
McKee Corp.	150	12/31/77	152.562	3	1.33	F	E & Ernst	NYSE
Morse Shoe Inc.	566	12/29/78	139.835	14	1.36	D	P.M. Mitchell	NYSE
New York Times Co.	271	12/31/77	297.018	4	.86	F	H & Sells	AMEX
Parker Hannifin Corp.	349	6/30/73	218.470	12	.91	D	C. Lybrand	NYSE
Parker Pen Co.	399	2/29/76	104.996	24	1.43	F	A. Andersen	NYSE
Peoples Drug Stores, Inc.	591	9/30/78	117.193	31	1.86	D	M. Lafrantez	NYSE
Perini Corp.	160	12/31/74	130.301	28	.86	D	A. Andersen	AMEX
Pitney Bowes Inc.	357	12/31/73	342.149	6	1.56	D	P. Waterhouse	NYSE
Polaroid Corp.	383	12/31/73	1067.226	24	1.93	F	P.M. Mitchell	NYSE
Rohm & Haas Co.	281	12/31/75	1092.037	14	1.33	F	P.M. Mitchell	NYSE
Ruddick Corp.	541	9/28/75	73.542	28	.66	D	H & Sells	AMEX
Sheller Globe Corp	371	9/30/75	241.416	24	1.98	D	A. Young	NYSE

TABLE B2 (Continued)

Company Name	3-Digit SIC Code	Fiscal Year End	Asset Size (millions of dollars)	Materiality Measure (X) in %	β	Sub Auditor	Principal Auditor	Stock Exchange
Shulman Transport Enterprises	471	12/31/75	23.345	2	.59	F	T. Ross	AMEX
Southwest Forest Industries	241	12/31/73	293.545	12	1.87	D	P. Waterhouse	NYSE
Studebaker Worthing Inc.	369	12/31/76	826.310	55	1.22	D	E & Ernst	NYSE
Suburban Propane Gas	598	9/30/73	155.031	17	1.55	D	A. Young	NYSE
Trans World Airlines	450	12/31/74	2007.864	3	2.68	F	H & Sells	NYSE
U.S. Industries Inc.	354	12/31/78	863.227	7	1.09	D	E & Whinney	NYSE
United Merchants & Manufacturers	221	6/30/74	1066.720	19	1.10	F	S. Leidesdorf	NYSE
United Refining Co.	291	12/31/73	87.586	15	1.84	D	C. Lybrand	AMEX
Upjohn Co.	283	12/31/79	1403.734	8	1.15	F	C. Lybrand	NYSE
Vulcan Inc.	331	12/31/73	35.489	39	.90	D	T. Ross	AMEX
Walter Kidde & Co. Inc.	356	12/31/78	1299.809	27	1.59	D	A. Andersen	NYSE

APPENDIX C

ABNORMAL AND CUMULATIVE ABNORMAL RETURNS FOR SAMPLES A AND B AND THEIR DISAGGREGATIONS

TABLE C1

ABNORMAL AND CUMULATIVE ABNORMAL RETURNS -
SAMPLES A AND B

Day	Sample A			Sample B		
	A.R	S.D	CAR	A.R	S.D	CAR
-14	.001	.035	.001	.001	.033	.001
-13	-.008	.027	-.007	-.002	.031	-.001
-12	-.005	.030	-.012	.001	.037	.000
-11	-.003	.029	-.015	-.002	.026	-.002
-10	-.004	.030	-.019	-.003	.034	-.005
-9	.001	.036	-.018	-.002	.035	-.007
-8	-.006	.033	-.024	-.007	.033	-.014
-7	-.006	.033	-.030	-.010	.024	-.024
-6	-.008	.023	-.038	-.002	.022	-.026
-5	-.004	.038	-.042	.000	.033	-.026
-4	-.010	.030	-.052	-.009	.036	-.035
-3	-.006	0.37	-.058	.001	.034	-.034
-2	-.006	.025	-.064	.003	.030	-.031
-1	-.008	.035	-.072	-.006	.036	-.037
0	.002	.028	-.070	.000	.041	-.037
1	-.002	.031	-.072	-.004	.032	-.041
2	-.011	.025	-.083	-.001	.026	-.042
3	-.002	.036	-.085	-.007	.027	-.049
4	.000	.023	-.085	.000	.028	-.049
5	.004	.034	-.081	.004	.032	-.045
6	-.005	.031	-.086	-.004	.027	-.049
7	-.001	.031	-.087	.000	.027	-.049
8	-.012	.026	-.099	-.004	.023	-.053
9	-.004	.029	-.103	.000	.024	-.053
10	-.002	.029	-.105	-.004	.027	-.057
11	-.003	.027	-.108	-.004	.035	-.061
12	-.004	.034	-.112	-.007	.023	-.068
13	-.002	.035	-.115	-.004	.029	-.072
14	-.002	.035	-.117	-.006	.027	-.078

TABLE C2

ABNORMAL AND CUMULATIVE ABNORMAL RETURNS - SUBGROUPS A_H AND B_H

Day	Subgroup A_H			Subgroup B_H		
	A.R.	S.D	CAR	A.R	S.D	CAR
-14	.006	.043	.006	.006	.033	.006
-13	-.013	.023	-.007	.001	.036	.007
-12	-.006	.030	-.013	-.001	.030	.006
-11	-.006	.029	-.019	-.004	.020	.002
-10	-.011	.025	-.030	.007	.034	.009
-9	-.002	.033	-.032	.006	.041	.015
-8	-.007	.041	-.039	-.010	.037	.005
-7	-.011	.034	-.050	-.006	.021	-.001
-6	-.012	.023	-.062	-.003	.024	-.004
-5	-.009	.030	-.071	.005	.036	.001
-4	-.014	.033	-.085	-.004	.036	-.003
-3	-.006	.032	-.091	-.003	.040	-.006
-2	-.003	.020	-.094	.006	.033	.000
-1	-.012	.041	-.106	-.001	.022	-.001
0	-.001	.028	-.107	-.004	.023	-.005
1	-.004	.034	-.111	-.006	.035	-.011
2	-.007	.022	-.118	-.003	.024	-.014
3	-.005	.041	-.123	-.009	.021	-.023
4	-.003	.014	-.126	-.002	.028	-.025
5	.005	.039	-.121	.007	.025	-.018
6	-.005	.029	-.126	-.005	.025	-.023
7	-.004	.032	-.130	.001	.021	-.022
8	-.013	.028	-.143	.000	.026	-.022
9	-.005	.030	-.148	.000	.023	-.022
10	.000	.029	-.148	-.002	.029	-.024
11	-.004	.029	-.152	.004	.036	-.020
12	-.005	.033	-.157	-.001	.021	-.021
13	-.006	.022	-.163	-.002	.028	-.023
14	.000	.035	-.163	-.004	.028	-.027

TABLE C3

ABNORMAL AND CUMULATIVE ABNORMAL RETURNS - SUBGROUPS A_L AND B_L

Day	Subgroup A_L			Subgroup B_L		
	A.R.	S.D	CAR	A.R	S.D	CAR
-14	-.004	.024	-.004	-.004	.032	-.004
-13	-.004	.031	-.008	-.005	.027	-.009
-12	-.004	.031	-.012	.002	.044	-.007
-11	.000	.029	-.012	.000	.031	-.007
-10	.003	.034	-.009	-.013	.030	-.020
-9	.003	.039	-.006	-.009	.028	-.029
-8	-.004	.023	-.010	-.003	.030	-.032
-7	-.002	.032	-.012	-.015	.027	-.047
-6	-.005	.023	-.017	-.002	.021	-.049
-5	.001	.046	-.016	-.005	.030	-.054
-4	-.007	.026	-.023	-.014	.036	-.068
-3	-.005	.042	-.028	.004	.027	-.064
-2	-.009	.029	-.037	-.001	.027	-.065
-1	-.003	.028	-.040	-.010	.046	-.075
0	.004	.028	-.036	.004	.053	-.071
1	-.001	.030	-.037	-.002	.030	-.073
2	-.014	.028	-.051	.002	.028	-.071
3	.000	.032	-.051	-.005	.032	-.076
4	.003	.029	-.048	.002	.029	-.074
5	.002	.029	-.046	.000	.038	-.074
6	-.004	.034	-.050	-.003	.029	-.077
7	.003	.031	-.049	-.001	.031	-.078
8	-.011	.024	-.060	-.008	.018	-.086
9	-.002	.028	-.062	-.001	.026	-.087
10	-.003	.029	-.065	-.007	.024	-.094
11	-.001	.025	-.066	-.012	.032	-.106
12	-.003	.035	-.069	-.012	.023	-.118
13	.000	.028	-.069	-.007	.031	-.125
14	-.004	.036	-.073	-.008	.026	-.133

TABLE C4

ABNORMAL AND CUMULATIVE ABNORMAL RETURNS - SUBGROUPS A_F AND B_F

Day	Subgroup A_F			Subgroup B_F		
	A.R.	S.D	CAR	A.R	S.D	CAR
-14	.005	.033	.005	.010	.039	.010
-13	-.002	.027	.003	-.008	.024	.002
-12	-.005	.030	-.002	.009	.030	.011
-11	.007	.030	.005	.002	.032	.013
-10	-.001	.030	.004	-.002	.020	.011
-9	.007	.031	.011	.001	.023	.010
-8	-.007	.023	.004	-.007	.034	.003
-7	-.007	.029	-.003	-.004	.017	-.001
-6	-.006	.020	-.009	.002	.022	.001
-5	.009	.057	.000	.000	.023	.001
-4	-.014	.021	-.014	-.008	.031	-.007
-3	.006	.052	-.008	.001	.015	-.006
-2	-.009	.029	-.017	.008	.021	.002
-1	-.007	.027	-.024	-.001	.019	.001
0	.003	.030	-.021	-.004	.028	-.003
1	-.007	.032	-.028	.007	.033	.004
2	-.012	.025	-.040	.007	.026	.011
3	-.008	.022	-.048	.003	.026	.014
4	-.003	.025	-.051	.006	.031	.020
5	-.008	.020	-.059	.007	.029	.027
6	-.011	.029	-.070	-.002	.027	.025
7	.011	.027	-.059	.012	.019	.037
8	-.004	.024	-.063	-.002	.023	.035
9	-.006	.022	-.069	.007	.028	.042
10	-.001	.036	-.070	-.004	.019	.038
11	-.009	.020	-.079	-.001	.028	.037
12	-.005	.034	-.084	-.007	.026	.030
13	.003	.029	-.081	.002	.029	.032
14	.006	.027	-.075	-.006	.026	.026

TABLE C5

ABNORMAL AND CUMULATIVE ABNORMAL RETURNS - SUBGROUPS A_D AND B_D

Day	Subgroup A_D			Subgroup B_D		
	A.R	S.D	CAR	A.R	S.D	CAR
-14	-.001	.036	-.001	-.005	.027	-.005
-13	-.011	.027	-.012	.001	.035	-.004
-12	-.005	.031	-.017	-.004	.041	-.008
-11	-.007	.028	-.024	-.004	.022	-.012
-10	-.005	.031	-.029	-.004	.040	-.016
-9	-.002	.038	-.031	-.003	.041	-.019
-8	-.005	.036	-.036	-.006	.033	-.025
-7	-.006	.035	-.042	-.014	.027	-.039
-6	-.009	.025	-.051	-.005	.022	-.044
-5	-.010	.025	-.061	.000	.038	-.044
-4	-.009	.033	-.070	-.010	.039	-.054
-3	-.011	.027	-.081	.001	.041	-.053
-2	-.004	.023	-.085	-.001	.034	-.054
-1	-.008	.038	-.093	-.009	.043	-.063
0	.001	.028	-.092	.002	.048	-.061
1	-.001	.031	-.093	-.010	.031	-.071
2	-.010	.025	-.103	-.005	.026	-.076
3	.000	.041	-.103	-.013	.026	-.089
4	.001	.021	-.102	-.004	.026	-.093
5	.009	.037	-.093	.002	.034	-.091
6	-.002	.032	-.095	-.005	.027	-.096
7	-.006	.032	-.101	-.007	.028	-.103
8	-.015	.027	-.116	-.005	.022	-.108
9	-.002	.031	-.118	-.004	.021	-.112
10	-.002	.026	-.120	-.005	.031	-.117
11	.000	.030	-.120	-.006	.039	-.123
12	-.004	.034	-.124	-.006	.021	-.129
13	-.006	.024	-.130	-.008	.029	-.137
14	-.006	.038	-.136	-.006	.028	-.143

TABLE C6

ABNORMAL AND CUMULATIVE ABNORMAL RETURNS - SUBGROUPS A_{HF} AND B_{HF}

Day	Subgroup A_{HF}			Subgroup B_{HF}		
	A.R	S.D	CAR	A.R	S.D	CAR
-14	.013	.046	.013	.016	.053	.016
-13	.000	.025	.013	-.007	.015	.009
-12	-.019	.035	-.006	.008	.029	.017
-11	.001	.037	-.005	-.007	.026	.010
-10	-.009	.032	-.014	.010	.022	.020
-9	.009	.033	-.005	.004	.015	.024
-8	-.001	.021	-.006	-.021	.036	.003
-7	-.022	.022	-.028	.006	.010	.009
-6	-.008	.019	-.036	.002	.028	.011
-5	-.002	.031	-.038	.011	.018	.022
-4	-.015	.025	-.053	-.001	.026	.021
-3	.012	.034	-.041	.004	.018	.025
-2	-.003	.028	-.044	.007	.026	.032
-1	-.017	.017	-.061	.005	.023	.037
0	.004	.037	-.057	.001	.024	.038
1	-.015	.032	-.072	.027	.035	.065
2	-.012	.018	-.084	.007	.017	.072
3	-.012	.015	-.096	-.006	.030	.066
4	-.003	.018	-.099	.008	.037	.074
5	-.009	.018	-.108	.008	.013	.082
6	-.004	.024	-.112	-.014	.024	.068
7	.006	.028	-.106	.008	.015	.076
8	.001	.019	-.105	.014	.027	.090
9	-.010	.027	-.115	-.001	.029	.089
10	.010	.049	-.105	-.002	.024	.087
11	-.007	.017	-.112	.010	.028	.097
12	-.005	.033	-.117	.002	.032	.099
13	-.006	.015	-.123	.002	.030	.101
14	.005	.015	-.118	.002	.021	.103

TABLE C7

ABNORMAL AND CUMULATIVE ABNORMAL RETURNS - SUBGROUPS A_{HD} AND B_{HD}

Day	Subgroup A_{HD}			Subgroup B_{HD}		
	A.R	S.D	CAR	A.R	S.D	CAR
-14	.003	.044	.003	.003	.026	.003
-13	-.017	.021	-.014	.003	.040	.006
-12	-.002	.028	-.016	-.003	.031	.003
-11	-.008	.027	-.024	-.003	.018	.000
-10	-.012	.023	-.036	.006	.037	.006
-9	-.005	.033	-.041	.006	.045	.012
-8	-.009	.045	-.050	-.008	.037	.004
-7	-.007	.037	-.057	-.009	.022	-.005
-6	-.013	.024	-.070	-.004	.023	-.009
-5	-.011	.030	-.081	.004	.040	-.005
-4	-.013	.035	-.094	-.005	.038	-.010
-3	-.011	.030	-.105	-.005	.044	-.015
-2	-.003	.018	-.108	.006	.035	-.009
-1	-.011	.046	-.119	-.003	.022	-.012
0	-.002	.027	-.121	-.006	.023	-.018
1	-.001	.034	-.122	-.014	.030	-.032
2	-.006	.023	-.128	-.006	.025	-.038
3	-.003	.046	-.131	-.009	.018	-.047
4	-.003	.013	-.134	-.005	.025	-.052
5	.010	.043	-.124	.007	.028	-.045
6	-.005	.030	-.129	-.003	.025	-.048
7	-.007	.033	-.136	-.001	.022	-.049
8	-.017	.030	-.153	-.004	.026	-.053
9	-.004	.031	-.157	.000	.022	-.053
10	-.003	.021	-.160	-.002	.031	-.055
11	-.003	.032	-.163	.002	.038	-.053
12	-.004	.034	-.167	-.002	.018	-.055
13	-.005	.024	-.172	-.003	.028	-.058
14	-.002	.039	-.174	-.005	.030	-.063

TABLE C8

ABNORMAL AND CUMULATIVE ABNORMAL RETURNS - SUBGROUPS A_{LF} AND B_{LF}

Day	Subgroup A_{LF}			Subgroup B_{LF}		
	A.R	S.D	CAR	A.R	S.D	CAR
-14	.000	.023	.000	.008	.034	.008
-13	-.004	.029	-.004	-.009	.027	-.001
-12	.003	.025	-.001	.010	.031	.009
-11	.011	.026	.010	.006	.034	.015
-10	.003	.030	.013	-.007	.018	.008
-9	.006	.031	.019	-.001	.026	.007
-8	-.010	.025	.009	-.002	.032	.005
-7	.001	.031	.010	-.009	.018	-.004
-6	-.004	.022	.006	.002	.021	-.002
-5	.016	.069	.022	-.005	.024	-.007
-4	-.013	.020	.009	-.010	.034	-.017
-3	.003	.062	.012	-.001	.015	-.018
-2	-.013	.030	-.001	.009	.019	-.009
-1	-.001	.031	-.002	-.004	.018	-.013
0	.003	.027	.001	-.006	.030	-.019
1	-.002	.033	-.001	-.001	.029	-.020
2	-.012	.029	-.013	.007	.029	-.013
3	-.006	.026	-.019	.006	.025	-.007
4	-.003	.030	-.022	.005	.030	-.002
5	-.007	.022	-.029	.006	.034	.004
6	-.015	.032	-.044	.003	.027	.007
7	.014	.027	-.030	.013	.021	.020
8	-.007	.027	-.037	-.009	.019	.011
9	-.005	.020	-.042	.009	.028	.020
10	-.008	.026	-.050	-.005	.018	.015
11	-.010	.022	-.060	-.006	.027	.009
12	-.005	.037	-.065	-.011	.023	-.002
13	.009	.034	-.056	.002	.030	.000
14	.007	.033	-.049	-.009	.028	-.009

TABLE C9

ABNORMAL AND CUMULATIVE ABNORMAL RETURNS - SUBGROUPS A_{LD} AND B_{LD}

Day	Subgroup A_{LD}			Subgroup B_{LD}		
	A.R	S.D	CAR	A.R	S.D	CAR
-14	-.006	.025	-.006	-.017	.026	-.017
-13	-.004	.033	-.010	-.001	.027	-.018
-12	-.008	.035	-.018	-.005	.055	-.023
-11	-.006	.030	-.024	-.006	.028	-.029
-10	.003	.037	-.021	-.020	.039	-.049
-9	.001	.044	-.020	-.019	.027	-.068
-8	-.001	.022	-.021	-.005	.027	-.073
-7	-.004	.033	-.025	-.022	.033	-.095
-6	-.005	.025	-.030	-.005	.022	-.100
-5	-.009	.020	-.039	-.005	.036	-.105
-4	-.003	.030	-.042	-.018	.039	-.123
-3	-.010	.024	-.052	.010	.037	-.113
-2	-.006	.028	-.058	-.011	.031	-.124
-1	-.005	.028	-.063	-.017	.064	-.141
0	.004	.030	-.059	.015	.070	-.126
1	.000	.029	-.059	-.002	.033	-.128
2	-.016	.028	-.075	-.004	.028	-.132
3	.004	.035	-.071	-.017	.035	-.149
4	.006	.028	-.065	-.002	.028	-.151
5	.008	.031	-.057	-.006	.043	-.157
6	.003	.035	-.054	-.009	.030	-.166
7	-.005	.032	-.059	-.016	.034	-.182
8	-.013	.023	-.072	-.007	.017	-.189
9	.000	.033	-.072	-.012	.019	-.201
10	.000	.032	-.072	-.009	.031	-.210
11	.004	.026	-.068	-.019	.037	-.229
12	-.002	.035	-.070	-.013	.025	-.242
13	-.006	.023	-.076	-.016	.031	-.258
14	-.012	.036	-.088	-.006	.026	-.264

APPENDIX D

STATISTICAL RESULTS FOR THE DIFFERENCE (D) BETWEEN THE CUMULATIVE ABNORMAL RETURNS OF SAMPLES A AND B AND THEIR DISAGGREGATIONS

TABLE D1

STATISTICAL RESULTS FOR A vs. B COMPARISON

Day	D	α_t	α_{K-S}
-14	.0001	.507	.185
-13	-.0061	.231	.266
-12	-.0117	.174	.304
-11	-.0130	.183	.070
-10	-.0137	.207	.056
-9	-.0110	.301	.225
-8	-.0097	.342	.136
-7	-.0057	.417	.174
-6	-.0114	.347	.136
-5	-.0156	.312	.255
-4	-.0168	.316	.158
-3	-.0233	.274	.142
-2	-.0317	.226	.078
-1	-.0335	.233	.165
0	-.0320	.249	.194
1	-.0309	.267	.182
2	-.0409	.213	.083
3	-.0366	.253	.122
4	-.0366	.264	.122
5	-.0364	.277	.102
6	-.0368	.283	.070
7	-.0376	.288	.102
8	-.0451	.259	.068
9	-.0484	.203	.083
10	-.0457	.271	.098
11	-.0441	.287	.098
12	-.0415	.304	.131
13	-.0401	.316	.098
14	-.0367	.335	.142

TABLE D2

STATISTICAL RESULTS FOR A_H vs. B_H COMPARISON

Day	D	α_t	α_{K-S}
-14	-.0006	.479	.303
-13	-.0142	.129	.317
-12	-.0192	.141	.402
-11	-.0214	.127	.275
-10	-.0396	.030	.093
-9	-.0471	.041	.178
-8	-.0435	.083	.147
-7	-.0486	.080	.184
-6	-.0571	.055	.159
-5	-.0711	.033	.068
-4	-.0806	.031	.036
-3	-.0841	.041	.125
-2	-.0931	.038	.078
-1	-.1039	.035	.042
0	-.1001	.045	.141
1	-.0990	.054	.141
2	-.1030	.055	.141
3	-.0993	.075	.141
4	-.1000	.081	.141
5	-.1018	.089	.220
6	-.1014	.100	.251
7	-.1066	.100	.159
8	-.1188	.088	.165
9	-.1243	.086	.165
10	-.1226	.096	.243
11	-.1305	.093	.259
12	-.1337	.093	.259
13	-.1376	.092	.243
14	-.1340	.102	.259

TABLE D3

STATISTICAL RESULTS FOR A_L vs. B_L COMPARISON

Day	D	α_t	α_{K-S}
-14	.0007	.531	.378
-13	.0017	.566	.226
-12	.0045	.600	.260
-11	.0046	.583	.237
-10	.0118	.672	.118
-9	.0244	.775	.389
-8	.0235	.743	.471
-7	.0365	.808	.659
-6	.0334	.771	.646
-5	.0389	.781	.578
-4	.0460	.796	.524
-3	.0367	.727	.457
-2	.0285	.666	.471
-1	.0354	.688	.530
0	.0350	.682	.599
1	.0362	.678	.464
2	.0201	.598	.248
3	.0252	.614	.260
4	.0260	.611	.260
5	.0282	.613	.248
6	.0270	.605	.248
7	.0301	.611	.159
8	.0275	.600	.159
9	.0264	.591	.248
10	.0300	.600	.354
11	.0408	.630	.248
12	.0491	.650	.354
13	.0556	.663	.248
14	.0588	.668	.378

TABLE D4

STATISTICAL RESULTS FOR A_F vs. B_F COMPARISON

Day	D	α_t	α_{K-S}
-14	-.0052	.338	.459
-13	.0006	.521	.542
-12	-.0140	.199	.296
-11	-.0091	.332	.487
-10	-.0084	.358	.281
-9	-.0018	.473	.569
-8	-.0010	.489	.493
-7	-.0038	.458	.537
-6	-.0112	.392	.498
-5	-.0019	.485	.522
-4	-.0078	.442	.522
-3	-.0023	.485	.522
-2	-.0199	.379	.364
-1	-.0256	.354	.432
0	-.0180	.402	.492
1	-.0313	.343	.492
2	-.0503	.267	.205
3	-.0615	.231	.205
4	-.0703	.217	.319
5	-.0848	.187	.205
6	-.0939	.176	.319
7	-.0943	.187	.205
8	-.0963	.189	.205
9	-.1094	.170	.205
10	-.1067	.188	.319
11	-.1143	.178	.319
12	-.1121	.191	.319
13	-.1109	.203	.319
14	-.0992	.235	.356

TABLE D5

STATISTICAL RESULTS FOR A_D vs. B_D COMPARISON

Day	D	α_t	α_{K-S}
-14	.0037	.688	.252
-13	-.0086	.220	.252
-12	-.0091	.295	.490
-11	-.0124	.253	.106
-10	-.0138	.270	.106
-9	-.0124	.332	.252
-8	-.0110	.365	.106
-7	-.0030	.467	.252
-6	-.0075	.423	.168
-5	-.0178	.332	.252
-4	-.0167	.358	.168
-3	-.0285	.285	.252
-2	-.0321	.278	.168
-1	-.0316	.300	.252
0	-.0332	.294	.349
1	-.0242	.353	.349
2	-.0293	.329	.168
3	-.0166	.408	.252
4	-.0119	.437	.252
5	-.0046	.477	.350
6	-.0009	.496	.252
7	-.0005	.498	.350
8	-.0099	.456	.350
9	-.0079	.466	.252
10	-.0052	.479	.350
11	.0009	.504	.350
12	.0035	.514	.350
13	.0060	.523	.350
14	.0057	.521	.350

TABLE D6

STATISTICAL RESULTS FOR A_{HF} vs. B_{HF} COMPARISON

Day	D	α_t	α_{K-S}
-14	-.0033	.456	.500
-13	.0040	.575	.584
-12	-.0233	.234	.447
-11	-.0155	.354	.447
-10	-.0338	.183	.221
-9	-.0284	.249	.221
-8	-.0087	.434	.221
-7	-.0368	.252	.221
-6	-.0462	.244	.221
-5	-.0599	.226	.221
-4	-.0743	.196	.221
-3	-.0669	.235	.221
-2	-.0761	.228	.221
-1	-.0974	.188	.221
0	-.0946	.208	.221
1	-.1364	.142	.221
2	-.1548	.122	.221
3	-.1613	.130	.221
4	-.1722	.128	.221
5	-.1897	.113	.221
6	-.1803	.143	.221
7	-.1818	.156	.221
8	-.1951	.155	.221
9	-.2041	.152	.221
10	-.1929	.181	.221
11	-.2095	.168	.221
12	-.2162	.173	.221
13	-.2246	.169	.221
14	-.2224	.179	.221

TABLE D7

STATISTICAL RESULTS FOR A_{HD} vs. B_{HD} COMPARISON

Day	D	α_t	α_{K-S}
-14	-.0001	.499	.230
-13	-.0197	.096	.127
-12	-.0182	.198	.464
-11	-.0234	.141	.314
-10	-.0417	.049	.219
-9	-.0529	.055	.314
-8	-.0540	.078	.127
-7	-.0524	.108	.198
-6	-.0607	.084	.230
-5	-.0750	.049	.067
-4	-.0833	.050	.113
-3	-.0902	.058	.127
-2	-.0992	.056	.198
-1	-.1068	.058	.143
0	-.1029	.069	.219
1	-.0897	.106	.375
2	-.0898	.114	.363
3	-.0832	.149	.375
4	-.0810	.163	.363
5	-.0781	.187	.449
6	-.0803	.190	.477
7	-.0866	.184	.409
8	-.0990	.163	.351
9	-.1034	.161	.351
10	-.1045	.165	.464
11	-.1100	.165	.351
12	-.1122	.165	.363
13	-.1149	.166	.464
14	-.1111	.184	.387

TABLE D8

STATISTICAL RESULTS FOR A_{LF} vs. B_{LF} COMPARISON

Day	D	α_t	α_{K-S}
-14	-.0074	.276	.394
-13	-.0029	.419	.394
-12	-.0095	.319	.259
-11	-.0048	.426	.500
-10	.0052	.569	.607
-9	.0116	.624	.674
-8	.0040	.536	.515
-7	.0141	.615	.854
-6	.008	.560	.674
-5	.0288	.671	.674
-4	.0266	.648	.674
-3	.0302	.647	.607
-2	.0080	.537	.607
-1	.0105	.546	.607
0	.0199	.582	.674
1	.0197	.577	.674
2	.0004	.502	.674
3	-.9120	.456	.674
4	-.0198	.433	.674
5	-.0327	.397	.550
6	-.0507	.351	.550
7	-.0495	.360	.674
8	-.0482	.366	.674
9	-.0621	.338	.674
10	-.0650	.338	.674
11	-.0695	.331	.674
12	-.0638	.349	.674
13	-.0569	.370	.674
14	-.0411	.408	.674

TABLE D9

STATISTICAL RESULTS FOR THE A_{LD} vs. B_{LD} COMPARISON

Day	D	α_t	α_{K-S}
-14	.0111	.878	.575
-13	.0085	.698	.631
-12	.0058	.582	.456
-11	.0051	.561	.732
-10	.0281	.753	.732
-9	.0485	.833	.732
-8	.0526	.829	.732
-7	.0700	.857	.732
-6	.0705	.843	.732
-5	.0664	.811	.732
-4	.0809	.830	.732
-3	.0611	.750	.712
-2	.0662	.746	.712
-1	.0788	.761	.592
0	.0676	.726	.712
1	.0699	.721	.592
2	.0583	.682	.329
3	.0795	.723	.329
4	.0870	.731	.329
5	.1014	.751	.329
6	.1133	.769	.329
7	.1240	.777	.329
8	.1185	.762	.329
9	.1300	.773	.559
10	.1384	.781	.575
11	.1614	.807	.592
12	.1717	.812	.592
13	.1821	.818	.712
14	.1767	.805	.712

APPENDIX E

INDUSTRY AND SIZE DISTRIBUTIONS OF SAMPLE SUBGROUPS

TABLE E1

INDUSTRY DIVERSIFICATION OF
SAMPLE SUBGROUPS

Subgroup	No. of Companies	No. of Industries
A_H	26	22
B_H	28	24
A_L	26	20
B_L	28	27
A_F	16	16
B_F	20	19
A_D	36	30
B_D	36	31
A_{HF}	6	6
B_{HF}	6	6
A_{HD}	20	19
B_{HD}	22	21
A_{LF}	10	10
B_{LF}	14	14

TABLE E2

ASSET SIZE DISTRIBUTION OF SAMPLE A's SUBGROUPS

Asset Size (in millions)	Subgroup							
	A_H	A_L	A_F	A_D	A_{HF}	A_{HD}	A_{LF}	A_{LD}
Less than $20	1	-	-	1	-	1	-	-
$20 - 70	4	5	3	6	1	3	2	3
$71 - 160	5	6	3	8	-	5	3	3
$161 - 400	6	6	5	7	2	4	3	3
$401 - 990	6	2	3	5	2	4	1	1
$991 - 1,600	1	4	2	3	1	-	1	3
$1,601 - 2,300	2	1	-	3	-	2	-	1
$2,301 - 6,000	-	2	-	2	-	-	-	2
Over $6,000	1	-	-	1	-	1	-	-
Total number of companies	26	26	16	36	6	20	10	16
Average asset size (in millions of dollars)	668.684	772.522	415.798	856.072	585.928	693.511	313.720	1,059.274

TABLE E3

ASSET SIZE DISTRIBUTION OF SAMPLE B's SUBGROUPS

Asset Size (in millions)	Subgroup							
	B_H	B_L	B_F	B_D	B_{HF}	B_{HD}	B_{LF}	B_{LD}
Less than $20	-	-	-	-	-	-	-	-
$20 - 70	3	7	4	6	-	3	4	3
$71 - 160	7	6	5	8	1	6	4	2
$161 - 400	5	5	2	8	1	4	1	4
$401 - 990	5	5	4	6	1	4	3	2
$991 - 1,600	5	1	3	3	2	3	1	-
$1,601 - 2,300	3	1	2	2	1	2	1	-
$2,301 - 6,000	-	2	-	2	-	-	-	2
Over $6,000	-	1	-	1	-	-	-	1
Total number of companies	28	28	20	36	6	22	14	14
Average asset size (in millions of dollars)	649.378	1,185.675	571.613	977.959	879.200	586.699	439.790	1,592.796

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