PUBLISHED QUARTERLY FINANCIAL DATA: THEIR ADEQUACY FOR INVESTMENT DECISION MAKING

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ABSTRACT

PUBLISHED QUARTERLY FINANCIAL DATA:
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DECISION MAKING

By

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Firms listed with either the New York Stock Exchange or the American Stock Exchange are required by the respective exchange to make quarterly statements available to the public unless such data would be impractical to accumulate or would be misleading to the users. This study provided additional evidence to substantiate the belief that such quarterly data are used in investment decision making and therefore affect the market price of a firm's securities. The primary purpose of this thesis is to evaluate the adequacy, for investment decision making purposes, of the published quarterly financial statements of firms listed on the American Stock Exchange.

This study reveals that firms report comparatively stable performance during the first three quarters of the year. However, the reported fourth quarter results, which represent the difference between audited annual figures and unaudited nine month figures, tend to vary significantly from the reported results of the other three quarters of the same year. This variation is especially evident in the quarterly

net income to net sales ratio and holds even when the dollar amount of sales is comparable in all four quarters of the year. In numerous instances originally reported quarterly net income was subsequently revised and this indicates that the originally reported quarterly data were recognized as being inaccurate. The deviation in the fourth quarter reported results from those of the first three quarters, as well as the numerous revisions of quarterly net income, implies that the first three quarter's data were misstated, and perhaps misleading, and indicates that reliance on quarterly net income figures in determining whether to buy or sell securities is precarious.

The market price of a firm's securities depends to some extent on the firm's reported net income and it is generally conceded that fluctuating earnings are not valued as highly as stable earnings, given the same expected future earnings. As management has more of an opportunity to "manage" quarterly data than annual data this study investigated quarterly financial statements for evidence of "management" of reported quarterly net income. Although the lack of detail reported in quarterly statements places some limitations on this type of investigation there was no evidence to support the hypothesis that the tax rate applied is varied

between quarters for purposes of reporting "desirable" net income after taxes. The current quarter's income statement generally presents the net income for the same quarter of the prior year to enable the reader to evaluate the current quarter's performance by comparing the two net income figures. This leaves open the possibility that the quarterly net income figures are revised with the objective of improving the reader's evaluation of the current quarter's performance. This study provided no evidence that quarterly net income figures were revised with this objective in mind.

While the accuracy of derived annual net income is limited due to the numerous acceptable accounting methods and the estimates necessary in preparing accounting statements, the quarterly net income is subjected to even greater limitations. These limitations result in part from the shortness of the time period being reported on, the lack of a quarterly audit, and the limited effort expended in their preparation. The evidence discloses that reported quarterly net income has been unreliable in the past and there is no indication that it will be more reliable in the near future. Security analysts should be aware of the limitations inherent in reported quarterly net income and should consider these limitations when using quarterly data in making investment decisions.

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By

Gale E. Newell

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Go Get em !

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CHAPTER I

INTRODUCTION

Introduction

One of the major objectives of financial accounting is to prepare an income statement which reports the results of operations for a past period of time. For numerous practical reasons the computation of corporate profits cannot await the termination of the life of the organization. The shareholders and the managers of the business require periodic reports of the firm's performance and of course period measures of income are needed for taxation purposes. The year has become accepted as the accounting period although it is realized, conceptually, that all measures of income for periods less than the life of the firm can only be approximations.

Parties that are interested in financial statements include: stockholders, employees, customers, management, suppliers, tax authorities, regulatory agencies, creditors, and the general public. The published reports should provide the most useful information possible to these groups. In an

article concerning postulates, principles, and research in accounting Gordon stated:

> . . . The primary role of the financial statements, the role peculiar to them, is to test the soundness of the general policies the owner has been following. If the statements indicate that his firm's performance has been good and its position is strong, the owner is reinforced in his policies. If the statements indicate that he is doing poorly, the owner questions his policies, searches for new ones, and the result is that his decisions and the future receipts of the firm are different than they otherwise would have been.[1]

The published financial reports are used in investment decision making and do affect the allocation of resources within our economy. Dyckman, when reviewing the investment decision, recognized the importance of published accounting information on the allocation of resources. He states:

> . . .Financial accounting, then must generate quantitative data which will assist in making investment decisions. And, further, these decisions should facilitate the orderly and intelligent operation of the economic system including the maximization of the contribution of economic resources to society. But does financial reporting, as it is presently constituted, fulfill this objective?
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> If, for example, a firm's securities are selling at a higher price than would be warranted by its economic situation due to financial reporting techniques, new capital may be raised at

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[1]Myron J. Gordon, "Postulates, Principles, and Research in Accounting," The Accounting Review, XXXIX, No. 2 (April, 1964) 257.

> a relatively low price, and through misinformation resources are misallocated.[1]

This suggests that one of the major functions of the financial report is to provide information which will enable investors to allocate their resources to the most desirable alternative(s). As investors use information other than that provided in the financial statements in making investment decisions, it is difficult to determine the precise effect that accounting information has on these decisions. Most decisions to purchase securities are based upon expectations of future performance and the soundness of such decisions are evaluated based on future performance. "The future, unfortunately, is uncertain and cannot be analyzed: future events can only be anticipated or predicted as a result of an analysis performed on the past."[2]

The interim statements, of concern in this study, report on the activities of the firm for periods less than a year; they attempt to fill the financial information void which would exist if only annual data were published. A

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[1]Thomas R. Dyckman, "On the Investment Decision," The Accounting Review, XXXIX, No. 2 (April, 1964) 285.

[2]Robert Eugene Jensen, "A Study of Effects of Alternate Accounting Systems on Security Analysis and Portfolio Selection Decisions" (unpublished Ph.D. dissertation, Stanford University, 1966), p. 1.

primary purpose of published quarterly data is to provide information about the activities of a firm for a particular period. The published quarterly report, as well as the annual report, is used by the investor, the potential investor, or their representatives in making investment decisions and, therefore, these quarterly statements do affect the allocation of resources.[1]

Interim reports have been prepared for many years although their reliability has been questioned. For example, Gilman wrote, in 1939, "It is of course, true that most business organizations do prepare monthly or at least quarterly reports, but these are generally regarded as operating reports for the guidance of operating men and are seldom considered sufficiently reliable in certain respects for general publication."[2]

Despite the questionable reliability of interim reports, the New York Stock Exchange has been advocating, since 1910, the publication of interim data for firms listed on the exchange. By 1939 approximately 90 per cent of the firms

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[1]The effect that published quarterly data can have on the price of securities is illustrated by L. J. Seidler and W. D. Benjes in "The Credibility Gap in Interim Financial Statements," Financial Analysts Journal, Vol. 23, No. 5 (September-October, 1967), 109-15.

[2]Stephen Gilman, Accounting Concepts of Profit (New York: Ronald Press Company, 1939), p. 77.

listed on the New York Stock Exchange were issuing quarterly reports; by 1967 this figure had reached 98 per cent.[1] The practice of issuing quarterly statements became so well accepted that when, in 1962, the American Stock Exchange revised its listing requirements to include such statements, 60 per cent of its listed firms were already publishing them.

Neither the New York Stock Exchange nor the American Stock Exchange require that the interim statements be sent to the stockholders. They do require, however, that the interim statements be published in the public press through newspapers of general circulation in New York and to the news-wire services including Dow Jones & Company, Inc. They also require that interim statements be filed with the stock exchange with which they are listed.[2]

The requirements of the New York Stock Exchange, and the American Stock Exchange, are adhered to by most of the firms listed on the exchanges. Listed firms are exempted from reporting quarterly data only if the publication of such data would be impractical or misleading.

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[1]Letter from Morton B. Solomon, Executive Assistant, New York Stock Exchange, December 28, 1967.

[2]See American Stock Exchange's, "Listing Form L" (revised September 15, 1966) p. 6; and New York Stock Exchange's, New York Stock Exchange-Company Manual," p. A70-A71.

The Securities and Exchange Commission (S.E.C.) also requires that interim statements be filed for firms under its jurisdiction. In 1946 the S.E.C. began requiring quarterly sales data for firms subject to S.E.C. requirements but, due to opposition, it rescinded the requirement on October 9, 1953. Robert E. Taylor's study of this change in the S.E.C.'s requirements indicates that organized pressure was applied by members of the Financial Analysts Federation in opposition to the rescinding of the requirement. The analysts contended that the publication of financial data on an annual basis was too infrequent for them in their investment decision making.[1]

As a result of this pressure the S.E.C. reinstated regulations requiring the filing of interim reports, and on June 23, 1955 they began requiring semiannual, unaudited income statements on form 9-K.[2] Form 9-K provides for the reporting of the following data:

1. Gross sales less discounts, returns and allowances
2. Operating revenues
3. Total of 1 & 2

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[1]Robert E. Taylor, "An Examination of the Evolution, Content, Utility, and Problems of Published Interim Reports," (unpublished Ph.D. dissertation, University of Chicago, 1963) pp. 31-38.

[2]Securities Exchange Act of 1934, Release No. 5189, June 23, 1955, p. 1.

4. Extraordinary items.

5. Net income or loss before taxes on income.

6. Provisions for taxes on income.

7. Net income or loss

8. Special items.

9. Earned surplus items.[1]

The Problem:

The view is widely held that reported interim earnings do affect investment decisions,[2] however, the usefulness, or reliability, of these data for investment decision making is questioned by both analysts and accountants.[3] Problem areas

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[1]Louis H. Rappaport, SEC: Accounting Practice and Procedure (New York: Ronald Press Company, 1963), p. 13-18.

[2]For example see: Albert J. Bows, "Standards for Consistency in Interim Reports," Financial Executive, XXXIV, No. 11 (November, 1966), 24; Robert Doane Neubig, "A Study of the Effect of Periodicity on Certain Interim Corporate Reporting Practices," (unpublished Ph.D. dissertation, The Ohio State University, 1961), p. 24; Seidler and Benjes, "Credibility Gap," p. 109.

[3]For views of selected critics of interim reports see: Cohen, Manuel F., "The SEC and Accountants: Co-operative Efforts to Improve Financial Reporting," from an address given before the 79th annual meeting of the American Institute of Certified Public Accountants, The Journal of Accountancy, Vol. 122, No. 6 (December, 1966) 56-60; Neubig, "Effect of Periodicity" p. 10; Welsch, "Discussion of the Predictive Power" pp. 41-43; Carman G. Blough (editor) "Some of the Dangers Inherent in Quarterly Financial Statements," The Journal of Accountancy, Vol. 95, No. 2 (February, 1953) 222.

encountered in deriving quarterly income include: the allocation of annual fixed costs to the quarters; valuing the inventory at the end of the quarter; the allocation of windfalls or miscellaneous revenues to the quarters; and how to account for needed adjustments which are discovered only at year end.

The seasonal nature of some firm's activities has also been cited as a factor which limits the usefulness of the quarterly statements of these firms, although the possible ". . .misleading effect of such fluctuations can often be overcome by providing adequate comparison data for prior periods."[1] As quarterly statements are unaudited, there is opportunity for the firm to present data which were not derived as a result of following principles acceptable to an independent public accountant. Because they are unaudited there is more of an opportunity for management to "manage" reported quarterly income than there is for them to "manage" reported annual income. If firms take advantage of the absence of an independent audit it may be that reported quarterly income is "managed" by the use of questionable accounting procedures. Manipulating the cut-off dates of

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[1]Frank S. Capon, "The Need for Interim Statements," The Canadian Chartered Accountant, Vol. 67, No. 4 (October, 1955) 279.

revenues and/or expenses is one method of "managing" reported performance.

There is little doubt that if such "management" occurs, and if these statements were audited some, although not all of these discrepancies could be reduced. The cost, however, seems to prohibit a quarterly audit as a prescriptive device and there appears to be no movement afoot advocating quarterly audits.

There is disagreement concerning whether publicly reported quarterly data can be useful in making investment decisions. Although some hold the view that quarterly data are reliable, others contend that the derivation of quarterly income is subject to such a high degree of uncertainty due to the limited time period covered, the lack of effort expended in their preparation, the allocation procedure and the fact that they are unaudited, that they are of limited usefulness and may even be misleading. The opinion is widely held that quarterly data are relied upon in making investment decisions,[1] even though the reliability of such data is openly questioned and the problems inherent in the preparation of such data are well known. If interim data are not reliable and if such data

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[1] See pages 25-29 in Chapter II and pages 37-38 in Chapter III.

are used in making investment decisions, individuals may make ill-advised investments and their resources may be misappropriated.

Objectives of the Study

The objective of this study is to evaluate published quarterly statements as one of the principal financial reports issued by a firm's management. The more specific objectives are (1) to investigate the quarterly information needs of the analysts in their security analysis in order to evaluate current quarterly reports; (2) to investigate the quality of quarterly data as reported to the public and to review the quality of disclosure in such data in order to evaluate their adequacy for investment decision making; (3) to investigate the revision of reported quarterly data in order to evaluate the reliability of such data as initially reported and to isolate the areas that are prone to such revision; and (4) to investigate the problems encountered in preparing quarterly data for publication in order that more meaningful suggestions can be made for improving such data.

Approach to be Used

This study attempts to determine how financial analysts use quarterly data and to discover their needs concerning

quarterly information. Research also includes an examination of published quarterly reports for a sample of firms for the period 1960 to 1968. This examination will be used for evaluating the adequacy of quarterly reports as well as for measuring the frequency and extent of the revision of data included in these reports. The approach used will be:

1. To inquire into the interim information needs of security analysts; and to review their methods or techniques for using quarterly data. A questionnaire, sent to randomly selected Chartered Financial Analysts, is used to accomplish this. The questionnaire is employed in an attempt (1) to determine how important the analysts consider the quarterly report to be in their security analysis; (2) to gain some insight into the needs of analysts concerning such reports; (3) to specify how they use such reports; and (4) to obtain suggestions for increasing the utility of quarterly data to the analysts.

2. To investigate the characteristics of selected publicly reported quarterly data to gain some basis for the evaluation of quarterly reports. This investigation has been undertaken to determine (1) if the fourth quarter often presents a significantly different outlook than do the other three quarters of the year; and (2) if the relationship

between selected income statement items show substantial, unexpected, variations over the quarters of the year.

In resolving the above, the relationship between reported net income and sales has been reviewed for the various quarters to determine if there is a substantial fluctuation between quarters and if a pattern exists. In cases where substantial fluctuations do exist an attempt has been made to determine the causes of such fluctuations.

Data collected in the investigation are used to test if the reported Federal Income Tax/Net Income Before Taxes ratio is affected by discrepancies between "desired" and actual results. The "sign test" is applied to the data for this purpose.

3. To investigate the practice of revising quarterly data. This investigation has been undertaken (1) to determine if quarterly reports, as initially reported, are frequently revised; (2) to determine if initially reported quarterly data are generally overstated or understated; and (3) to provide data for testing if the direction of the revision of prior quarters reported income is affected by the performance of the firm for the quarter under report.

Limitations of this Study:

This study will be limited in that no attempt has been made to determine the precise effect of quarterly information or of certain quarterly reporting practices on investment decisions. It is assumed that reported quarterly data do affect investment decisions and this study attempts to evaluate the adequacy of these data.

This study cannot be considered to be an all-inclusive treatise concerning the adequacy of published quarterly financial data for investment decision making. Many of the specific items that affect quarterly data are buried in aggregate classifications and are not of sufficient detail to permit adequate analysis. For this reason the researcher has been restricted to studying those items that are reported in some detail in the quarterly statements even though they may not be the only problem areas.

This study indicates the effect on quarterly data that certain reporting techniques have had, as well as, in certain cases, the reasons for, or causes of, unexpected results. In isolating the causes of, or reasons for, unexpected relationships, etc., in quarterly reports, direct correspondence with the management of the firm under consideration was required. However, not all firms have responded to such inquiries and

because of this unwillingness to discuss the reasons or causes for such unexpected relationships the inquiry is not all-inclusive.

In this study the revision of quarterly data was used as one indicator of the overstatement or understatement of initially reported quarterly net income. However, if firms failed to revise quarterly data, when subsequent evidence indicated that the initially reported net income was inaccurate, there was no way of determining if the originally reported quarterly data were misstated.

Plan of the Thesis:

Chapter II will provide background information concerning the role that quarterly data play in investment decision making. It will present the limitations of quarterly data, opinions of the critics and advocates concerning the usefulness of quarterly information, and will provide examples indicating the effect that reported quarterly earnings has had on the prices of specific firm's securities.

In Chapter III the manner in which quarterly reports are used will be presented. It will present a summary of the responses to a questionnaire for purposes of establishing the needs and views of Chartered Financial Analysts concerning published quarterly information.

Chapters IV and V will present the results of an investigation concerning the reliability of published quarterly data and Chapter VI will investigate the revision of such data. Specific cases revealed by the investigation will be presented as will the results of tests used to determine if quarterly data are "managed." Chapter VII will summarize the findings of the research and will give recommendations concerning the reporting and the using of quarterly data.

CHAPTER II

THE ROLE OF QUARTERLY DATA IN INVESTMENT DECISION MAKING

Limitations of Quarterly Data:

Quarterly reports contain financial data as well as other information concerning the activities and performance of the reporting firm for a given period. These data provide the management of the firm with an opportunity to inform interested parties of the progress, or lack of it, that has been made over the period in question and to provide them with other information considered relevant to their needs. The reader uses such data as his needs dictate, subject to his opinion concerning their reliability and usefulness to him.

The members of the accounting profession, and it is hoped the users of accounting data, have long recognized that any reporting of corporate profits before the termination of the life of the organization is an approximation.[1] However,

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[1]For example see: John B. Canning, The Economics of Accounting (New York: Ronald Press Company, 1929), p. 1; Gilman, Accounting Concepts of Profits; American Institute of Certified Public Accountants, Accounting Research Bulletin No. 43 (New York, 1929) p. 59; Morton Backer (editor), Modern Accounting Theory, "The Measurement of Business Income Part I - The Matching Concept," (Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1966), pp. 41-71.

even with this limitation on the accuracy of annual data, the annual report has continued to be widely used by investors, potential investors, and their representatives. Quarterly data attempt to report the firm's performance for a much shorter period of time and therefore are subject to even greater limitations.

Although a physical inventory is taken on an annual basis, management may consider it impractical to do so quarterly. Another major problem encountered is that of allocating annual fixed costs (which may or may not be known for the year at the time the interim statement is prepared) to the quarter in question. Included among the costs which can be reasonably approximated for the year but which should be allocated to quarters include: advertising costs, product development costs, charitable contributions, and property taxes. Other annual costs which are more difficult to estimate at the time the quarterly statements are prepared but should be allocated to the quarters for a proper matching of costs with revenues include: bonuses, maintenance and repair expenses, pension accruals, and legal fees. These require that the accountant estimate not only the annual costs but also allocate them to quarters on an appropriate basis. If the yearly estimate is in error then the costs allocated to

the interim periods may result in misleading information being reported.

Some of the problems may be due to the lack of attention that has been given to the preparation and presentation of quarterly data by the accounting profession. Seidler and Benjes state, in commenting on the problems in quarterly data and the lack of precedence in judging practices according to some criteria, ". . . We do not really know what is or is not acceptable alternatives for the simple reason that organized accounting bodies have given little or no thought to their (quarterly statements) problems. There are no official pronouncements, virtually no literature and hence no guidelines. . ."[1]

The quarterly data are presented to the public without being subjected to an independent audit. The firm may, in preparing the quarterly data for publication, be unaware of, or disregard, adjustments that an independent audit would reveal. Such needed adjustments may go unrecorded until required by the auditor performing the annual audit. If these adjustments are applicable to the operations of the first three quarters, it would indicate that inaccurate quarterly data have been released to the public. Thus, making these adjustments only at year-end is insufficient for reliable

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[1]Seidler and Benjes, "Credibility Gap," p. 112.

quarterly reporting. Goldstein states, "picking up these adjustments at the close of the calendar or fiscal year does not eliminate the damage that may have been done during the interim period. Omitting them may result in considerable embarrassment to the accountant."[1] Adjustments, which are inappropriately postponed until year-end, could affect the decisions of many investors and potential investors. Not only those who purchased the stock based on the analysis of quarterly data but also those who sold the stock based on the analysis of such data.

Reliability of Quarterly Data

Norr states, ". . . Analysts are not accountants; They assume that the data included in financial statements are valid. It has been . . . a shock for many of them to discover that the mere choice of accounting methods makes for significant variations in reported earnings."[2] The reliability of selected firm's quarterly data has been questioned, however, by financial analysts. Hal Chefitz, Vice President of Hayden

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[1]Joseph Goldstein, "Interim Statements on a True Accrual Basis," The New York Certified Public Accountant, XXXIV, No. 7 (July, 1953) 429.

[2]David Norr, "Investment Analyst's views of Financial Reporting," Financial Executive, Vol. XXXIV, No. 12 (December, 1966) 22.

Stone, made the following comment concerning the Syntex Corporation:

> I'm concerned, however, about earnings. Syntex may have borrowed from this years' first quarter to make last years' $2.04. In fiscal 1966, they showed $2.01 after saying all year they would do $2. I think they made their $2.01 by borrowing from the first quarter. If you recall, last years' first quarter was very poor.
>
> This year, I think they may have borrowed from the first quarter to show their $2.04. Year-to-year comparisons may be favorable, because they borrowed in both years. . .[1]

While he was not specific concerning how they had borrowed from other quarters, he thought that they had borrowed, recognized that it could be done, and therefore questioned the reliability of the data. The tendency for some firms to report imposing fourth quarter adjustments has not been unnoticed. The following was reported in Barrons, July 14, 1968:

> Frankly, we don't know what to make of Sperry Rand. Judging by the recent action of the stock, a lot of other people don't either. The Company it might be recalled ran into heavy selling in early April, when rumors circulated that it would have to take a big write-off in its fourth fiscal quarter (ending March) which would drop full-year earnings well below street estimates. What made holders particularly nervous at the time was that Sperry, too often in the past, seemed to be rolling along toward a good profit showing, only to run

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[1]Interview with Hal Chefitz, Vice President, Hayden Stone, "No Wonder Drugs," Barrons, November 20, 1967, p. 10.

> into some massive year-end adjustments. Well, as it turned out, there were no charges and the firm made good its estimate.
>
> However, earlier this month, the company painfully disclosed that the reports were premature rather than unfounded; specifically that it would have to take a $6.5 million special write-off against earnings for the first three months of the new fiscal year (representing termination of a navigational system contract with Pan American). . . .[1]

This is evidence of analysts' skepticism regarding the reliability of the quarterly data of this firm. It indicates the effect that adjustments can have on both quarterly and annual data. The effect of such year-end adjustments on fourth quarter data has been so extreme in certain cases that it has resulted in quarterly profits being greater than quarterly sales.

The restatement of prior quarterly data has also been noticed by interested parties. Barrons, on August 14, 1967 reported the following concerning comparison data:

> Super Sleuth vs. Seagrave Corp., Chapter II. Two weeks ago, we probed the mystery of product X via the eyes and ears of Peter DuBois. Well, last week Seagrave reported second quarter net income - and at a first glance, anyway, it was sharply higher than a year ago. At second glance however, it wasn't. As Peter points out, operating earnings actually dropped, to $527,577 from $770,892. However, by restating the June, 1966 quarter to include

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[1]Alan Abelson, "Up and Down Wall Street," Barrons, July 24, 1967, p. 21.

> for the first time a nonrecurring charge, Seagrave was able to show a favorable year-to-year comparison.[1]

The fact that quarterly data are not subject to audit has not escaped those using such data nor has the possible effect of this on the quality of the quarterly data. This is evidenced by a quote in a recent article by Harris concerning the fact that normally the C.P.A. has no responsibility toward published interim reports. He writes: ". . . It is generally taken for granted that an interim audit sufficient to express an opinion is not practical because of time and costs restraints. This means that corporate financial officers, almost without restraint, can fashion earnings patterns during a year."[2]

Several writers have commented on the use of accounting techniques for smoothing annual income.[3] They believe that this is advantageous to the firm and is possible on an annual basis. Because of the greater flexibility that is accepted in reporting quarterly data the opportunity for

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[1]Alan Abelson, "Up and Down Wall Street," Barrons, August 14, 1967, p. 23.

[2]Nelson G. Harris, "Accounting Practices - Impact on Preparation of Annual Reports," Financial Executive, XXXIV, No. 9 (April, 1966) 66, quoted from a comment by the financial editor of a Philadelphia newspaper.

[3]For example see: Gordon, "Postulates, Principles and Research in Accounting,"; and Samuel R. Hepworth, "Smoothing Periodic Income," The Accounting Review, XXVII, No. 1 (January, 1953).

smoothing is much greater in the case of reported quarterly income than in reported annual income. Holton states: ". . . I think the facts are that quarterly earnings are stabilized by accounting techniques much more than annual earnings. . ."[1] If quarterly earnings are, in fact, stabilized the user should be made aware of this in order that he can conduct his analysis accordingly.

Are Quarterly Reports Useful?

Some writers hold the view that with today's sophisticated accounting and communication systems, reliable quarterly data can be made available to investors to enable them to make sound investment decisions.[2] Others question the usefulness of such data in making investment decisions. Carman Blough, in referring to the uncertainties of quarterly data, states: "Accountants seriously question whether statements that are subject to all of these inherent weaknesses would be very useful to anyone attempting to make investment judgments upon the basis of them. They are much more likely

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[1]Thomas L. Holton, Discussion of the Predictive Power of First-Quarter Earnings Reports: A Replication," Empirical Research in Accounting: Selected Studies 1966, p. 38.

[2]C. B. Matheson, "Interim Reporting," The Canadian Chartered Accountant, Vol. 87, No. 5 (November, 1965), 421.

to be misleading in many circumstances. . ."[1]

Seidler and Benjes conclude:

> . . . with no control by the auditors, it becomes easier to justify a 'quick and dirty' job on the interim statements and to defer the work on knotty adjustments to the year end. . .
>
> . . . certainly there is substantial difference between the quality of information in the annual report and in interim statements.[2]

Morton Backer, who has conducted research in the area, states:

> . . . I found many corporate executives admitting that there is a tendency to 'flavor' quarterly earnings reports which, of course, are unaudited. I also found many security analysts who are disturbed about last-quarter adjustments that tend to be abnormal. . . If the market reacts to quarterly reports as it does, and management has complete discretion without independent audit to 'flavor' the results, a disturbing situation obviously exists.[3]

The aforementioned indicates that many users question the usefulness of quarterly data in investment decision making. They hold that they are of questionable reliability and may be misleading.

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[1]Carman G. Blough (editor) "Some of the Dangers Inherent in Quarterly Financial Statements," The Journal of Accountancy, Vol. 95, No. 2 (February, 1953) 222.

[2]Seidler and Benjes, "Credibility Gap," pp. 113-114.

[3]Letter from Morton Backer, Professor of Accounting, University of Massachusetts, dated February 2, 1968.

Are Quarterly Data Used?

If quarterly data are subject to the high degree of uncertainty, as implied by the prior discussion, one might question whether such data are used in investment decision making. If their limitations, due to the shortness of the time period covered, the lack of effort expended in their preparation, the vagueness of the allocation procedure and the fact that they are unaudited, are as severe as indicated it is appropriate to question whether quarterly data play a significant role in investors' decisions.

Welsch, questioned whether quarterly reports are not just a publicity gimmick to be mailed with a proxy statement or a somewhat useless document which is issued only to satisfy certain pressures or to avoid certain criticisms.[1] It does not appear that users consider the quarterly report as such. The view is widely held that reports of interim earnings do affect investment decisions.

Bows commented on the importance of quarterly reports as follows:

> One of the most significant figures released by a corporate financial executive is the interim report of quarterly earnings. It is used first of all to determine the company's basic earnings

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[1]Glenn A. Welsch, "Discussion of the Predictive Power of First-Quarter Earnings Reports," p. 41.

> trend. It is then frequently summarized and compiled with similar reports from other companies in the same industry and used by investors to determine whether there are any significant profit trends in the industry which might change their investment policy. Finally, many of these quarterly earnings reports are carefully studied by analysts, economists, and government officials to determine the vigor of our economy.
>
> The wide interest in earnings indicates a significant amount of securities traded is based on the reports of quarterly earnings. . .
>
> Finally, quarterly earnings reports should be regarded as important as annual reports. It is quite clear that the volume of security trading which takes place based on quarterly reports may be as great as that which results from annual reports. It may even be desirable at some later date for the independent public accountant not only to certify the annual figures but to review the reporting of the quarterly earnings as a check on the fairness of the reported results.[1]

Neubig holds a similar view:

> This interim information is often given as the reason for fluctuations in the stock market. Specific issues of stock rise or fall on the stock market as the result of news that quarterly earnings just reported were higher or lower than had been expected. Current economic predictions are often confirmed or denied by the interim reports of corporations.[2]

Table 2-1 indicates that reported quarterly earnings have, in the past, affected the market price of certain firm's

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[1]Bows, "Standards for Consistency in Interim Reports," p. 24.

[2]Neubig, "Effect of Periodicity on Certain Interim Corporate Reporting Practices," p. 9.

Table 2-1*

PRICE CHANGES IN SELECTED STOCKS FOLLOWING RELEASES OF QUARTERLY REPORTS

Company	Date of Report in Wall St. Journal	Reporting Period	Reported Earnings vs Year Ago	Open-Close	Gain or Loss from Previous Day	Gain or Loss as a % of Market Value
Syntex	12/1/65	1st Q '66	$1.25 vs .38	165-175	22 3/4	14.9%
Evans Products	9/21/66[1]	3rd Q '66	.30 vs .67	27 3/8-23 3/4	- 3 1/2	(12.7%)
Motorola	9/27/66[2]	3rd Q '66	1.10 vs 1.20	142-111	-31	(21.8%)
Rayette	8/6/65	2nd Q '65	.61 vs .64	32-30 1/2	- 2 7/8	(8.6%)
Massey Ferguson	8/26/66	3rd Q '66	.91 vs 1.03	27 1/8-25 3/8	- 1 3/4	(6.4%)
Searle	7/25/66	2nd Q '66	.42 vs .46	48-46 1/4	- 2 3/4	(5.7%)
Syntex	3/1/66	2nd Q '66	.46 vs .23	114 1/2-107 1/2	- 6 1/2	(5.7%)

[1]Preliminary estimate given by president of company.

[2]Preliminary estimate given by president of Motorola to a meeting of the New York Society of Security Analysts. The range of stock action includes a two-day period beginning with the day on which the president gave his talk. On September 27, the day on which the speech was given, the stock opened at 142 and closed at 119 for a loss of $23. On the next day when the news had been disseminated via the press, the stock opened at 119 and closed at 111 for another drop of 8 points.

*Source: Seidler and Benjes, "Credibility Gap," p. 110.

securities. A more recent incident indicating the effect that quarterly data have on stock prices involves Litton Industries. When it was announced that the second quarter results would be substantially lower than expected the price of the stock fell significantly. The effect of the substantially lower than expected earnings and the resulting effect on the price of the stock was noted in Barrons by the following:

> . . . Response to that bombshell was a flood of selling which totaling 304,400 shares, made it the most active stock Tuesday. That day it lost nearly $6 and on Thursday it dropped $5 more to 72. . .[1]

Assuming that quarterly reports are used, do the users make allowances for the limitations inherent in them? This is not an easy question to answer. Biggs believes that users fail to make adjustments to reported net income and states: ". . . unfortunately, investors and most analysts work almost exclusively with earnings as they are reported, making little distinction as to the differences in the quality of these earnings. The obsession is with reported earnings, not what lies behind them. . .[2]

Norr, as reported earlier in this chapter, also holds this view as does Williams. Williams noted that reported net

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[1]H. J. Nelson, "The Trader," Barrons, January 29, 1968, p. 4.

[2]Barton M. Biggs, "Numbers Game," Barrons, July 24, 1967, p. 3.

income is the "universal yardstick" for appraising the value of a firm's securities and that it is trusted by most investors as being an accurate measure of a company's performance. He stated:

> . . . A large segment of the investing public, particularly during periods of rising stock prices, is seldom aware of, or interested in, the accounting policies which produce the earnings figures carried in the financial press. Accordingly, in cases where earnings are overstated, for whatever reason, there is a potential for investor loss.[1]

The above indicates that quarterly data are used in investment decision making and that the reported earnings figure is very significant in the analysis of such data. If quarterly data are used in security analysis, in what way are they used?

Investors, potential investors or their representatives are not generally interested in reported earnings because of their accurate reporting of what has happened for a prior period of time. They, instead, are interested in using such data as a basis for projecting future performance. In regard to the use made of published financial data the Committee to Prepare a Statement of Basic Accounting Theory of the American Accounting Association states:

> Almost all external uses of financial information reported by a profit-oriented firm are

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[1]Williams, "A Look Behind Reported Earnings," p. 40.

> involved in efforts to predict the earnings of the firm for some future period. Such predictions are most crucial in the case of present and prospective equity investors and their representatives - considered by many to be the most important of the user groups. . . The past earnings of the firm are considered to be the most important single item of information relevant to the prediction of future earnings. . .
>
> . . . It is important to emphasize that accountants (with good justification) have avoided the role of forecasters in connection with reports to external users. The committee suggests that accounting information for external users should reflect their needs by reporting measurements and formulations thought to be relevant in the making of forecasts without implying that the information is wholly adequate for such prediction.[1]

The view that quarterly data are used for purposes of predicting future results is commonly accepted.[2] It also seems clear from the nature of the intended reader that financial statements are intended to provide information that is helpful in making rational investment decisions. If quarterly data are used for the above purposes what should the data include or what should be their objective(s)?

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[1]Committee to Prepare a Statement of Basic Accounting Theory, A Statement of Basic Accounting Theory, Evanston, Illinois, American Accounting Association, 1966, pp. 23-24.

[2]For example see: Gordon Shillinglaw, "Concepts Underlying Interim Financial Statements," The Accounting Review, XXXVI, No. 2 (April, 1961) 222; Howard I. Ross, "The Current Crisis In Financial Reporting," The Canadian Chartered Accountant, Vol. 67, No. 4 (October, 1955) 66; Benjamin Graham, David L. Dodd, and Sidney Cottle, Security Analysis: Principles and Techniques (New York: McGraw Hill Book Company, 1963) 106-107.

If financial statements are used by investors as a basis for predicting future performances it appears that the interim report should aid in predicting annual performance. Green and Segall, faculty members at the University of Chicago, attempted to evaluate the ability of quarterly data to improve predictions of annual performance. More specifically, they attempted to research the predictive power of first quarter earnings reports. They employed several different models, which utilize quarterly data, in attempting to predict the annual earnings per share. They concluded, as a result of the study, "that first quarter reports as presently prepared, are of little help in forecasting annual earnings per share."[1] In effect they said that the availability of first-quarter data, as well as prior quarterly data, did not improve the accuracy of the user's prediction of annual income over what it was if only annual data were available.

It is essential that the adequacy of quarterly data be evaluated based on the needs of the users of the information. It is very difficult, if not impossible, to determine the needs of all the users of quarterly data. Therefore, it is necessary that such data attempt to fill as many needs as

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[1]David Green, Jr., and Joel Segall, "The Predictive Power of First-Quarter Earnings Reports," The Journal of Business, Vol. 40, No. 1 (January, 1967) 55.

is practical. Stone believes that "the most effective and efficient report will be achieved when the dominant group is singled out as the focal point of the report."[1] He also says, "specifically, the purpose of the published financial statements is to assist the investor in making his own qualitative judgements about the firm."[2] It does not seem unreasonable to assume that, if the purpose of the reports is to help the investor in his decision making, the user must be competent to understand the data presented. Therefore, we can assume that such statements should be prepared for the investor who has a working knowledge of business methods and terminology.[3]

An inquiry into individual investor needs would be impractical if not impossible and therefore an alternative must be used. As the security analyst often acts as the representative of the investor, it seems that if quarterly reports can satisfy the analysts' needs most of the needs of the investors will also be satisfied. In this paper the attempt

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[1]Donald E. Stone, "The Objective of Financial Reporting in the Annual Report," The Accounting Review, XLII, No. 2 (April, 1967) 333.

[2]Stone, "Objectives of Financial Reporting," p. 335.

[3]Committee on Concepts and Standards Underlying Corporate Financial Statements, "Standards of Disclosure for Published Financial Reports," The Accounting Review, XXX, No. 3 (July, 1955) 400.

will be to evaluate quarterly data using analyst's needs as a guide.

The overall objective of financial information should be to direct resources into the most profitable firms. It should aid in allocating resources to those firms which will be most beneficial to society. Paton says:

> . . . Accounting, by making price data available in a systematic and intelligent manner, is perhaps the principal instrument by which the complex data of the market, as they attach to the participating business, are translated into effective managerial criteria. It is the function of accounting to record values, classify values, and to organize and present value data in such a fashion that the owners and their representatives may utilize wisely the capital at their disposal.[1]

The accountant has not published forecasts of expected performance even though some claim that the accountant is in the very best position to adequately forecast future performance.[2] For example, Shillinglaw says, "Relaxing the present constraints against the reflection of anticipation in financial statements may increase the danger of manipulation but this should not be overemphasized."[3] It is questionable, however, if the analysts want this and questionable

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[1]William Andrew Paton, Accounting Theory (Chicago: Accounting Studies Press, Ltd., 1962) 7.

[2]Ross, "Current Crisis," p. 68.

[3]Shillinglaw, "Concepts Underlying Interim Financial Statements," p. 225.

if the accounting profession is prepared to assume such a responsibility.

This paper will use the needs of the analysts as a basis for evaluating quarterly data. The following chapter will consider how the analysts use such data and will attempt to give some insight into their needs.

CHAPTER III

THE FINANCIAL ANALYSTS AND QUARTERLY DATA

How Are Quarterly Data Used?

The users of published corporate financial data may represent quite different interests. In addition to investors, these users include, among others: creditors (both current and potential), suppliers, and regulatory agencies. In this study, quarterly data are evaluated based on their adequacy for use in investment decision making under the assumption that the investor is one of the primary users of such data. There appears to be no significant conflict between the needs of different investors or between the needs of investors and other users of financial data. For purposes of this study, it is assumed that the needs of the investor are characteristic of the needs of all users.

The opinion that the analyst forms as a result of his analysis of the available information may affect many people. If the data lead him to erroneously recommend the stock as a good buy there is potential for stockholder loss. If he recommends that holders of the issue sell, based on his analysis

of misleading data, the effects may be equally as bad.

It is not the intent of this study to explain specifically the various stock valuation models or to study the components of such models. It is, however, restated here that: "the standard method of valuation of individual enterprises consists of capitalizing the expected future earnings and/or dividends at an appropriate rate of return."[1] Hayes, in a manner very similar to the above, stated that one of the objectives of the investment analysis of a reported earnings stream is, ". . . to portray the results on a basis which seems most probable to resemble the future operation of the company. . ."[2] These statements imply that analysts use reported corporate information to project future performance. These projected earnings are then used to value the firm's securities. If the valuation placed on the stock is different from the current market price of the stock the analysts may recommend the stock as a good buy, or he may recommend it be sold, depending if the market price appears too high, or too low in comparison to calculated value.

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[1]Graham, Dodd, and Cottle, Security Analysis, p. 435.

[2]Douglas A. Hayes, Investment Analysis and Management (New York: Macmillan Company, 1961) 196.

This implies that the adequacy of published corporate information for use by the investor depends upon its usefulness in helping him predict the firm's future performance. The annual data published by the firm provides much of the information for this type of projection, however, available information of any type or from any source may be equally (or more) important. The quarterly report is a source of financial information which supplements annual data and it is used by analysts in their analyses.

Deskin's interviews with financial analysts of mutual funds revealed that quarterly reports do provide information for this purpose. He states that:

> . . . Even though accounting reports are but a small proportion of the information sources, the importance of the information they contain. . . makes them disproportionately important as a source of information. . . The source of quantitative information . . . is . . . annual or quarterly reports as opposed to SEC registration statements or Form 10K.[1]

Albrecht states:

> The financial analyst is concerned not so much with the ultimate consumption of capital stock (a valid concern of the CPA and ultimately, of course of the analyst too) as he is with the

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[1]James Wesley Deskins, "The Uses of Externally Reported Financial Data by Mutual Funds and Their Implications Concerning Financial Accounting Theory," (unpublished Ph.D. dissertation, The University of Texas, 1965), pp. 82-83.

> factors which go to make stock prices. These factors include earnings, dividends, and the creation of future earnings and dividend power. . .[1]

There is, of course, much criticism levied against accounting information and its usefulness to the analyst for projecting future earnings. These criticisms include (1) concern over the multitude of accounting methods or principles which the accountant can use in the preparation of the statements; and (2) concern over the lack of detailed information (or disclosure) included in published reports.[2] The reasons for such criticisms are understandable, ". . . it is somewhat startling to hear the president of a large corporation say that he has no idea what his company's last year's earnings were - that his accountants have told him they can be figured six different ways, all having official sanction."[3]

Morton Backer, who is currently completing research for the National Association of Accountants, also noted this

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[1]Philip E. Albrecht, "Analyst Views Financial Reporting Problems," Financial Executive, XXXIV, No. 9 (September, 1966) 14.

[2]Richard D. Bradish, "Corporate Reporting and the Financial Analyst," The Accounting Review, XL, No. 4 (October, 1965) 757-766.

[3]Howard C. Greer, "The Corporation Stockholder - Accounting's Forgotten Man," The Accounting Review, XXXIX, No. 1 (January, 1964) p. 24 quoting Downing Jenks, President of the Missouri Pacific Railroad, in a newspaper interview.

discontentment and stated:

> During recent years, criticism of external financial reports have mounted in intensity. In a sense these attacks are an attestation of the importance of the accounting function. However, they also reflect growing dissatisfaction with financial statements as a basis for informed investment and credit decisions.[1]

Even though analysts use published financial data for projecting future earnings there is evidence that they do not want the accountant to do this projecting for them. Backer states the following concerning the findings of his study:

> All security investment decisions are concerned with the future. Yet 70% of the analysts interviewed (in NAA study) were opposed to the inclusion by management of formal but condensed budgets in corporate annual reports. These analysts believe that if this were done they would have to explain and justify differences between their expectations for a company and its published budgets or that they might become overly dependent on management's forecasts and neglect verification through independent sources. They also contend that market prices of securities would be influenced by such budgets, which might induce some managements to issue overly optimistic or even deliberately misleading reports. It was also noted that budgeting capability varies among companies.[2]

Although the usefulness of annual reports is criticized by those who use them they, nevertheless, are used.

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[1]Morton Backer, "Financial Reporting and Security Investment Decisions," Financial Executive, XXXIV, No. 12 (December, 1966) 50.

[2]Backer, "Security Investment Decisions," p. 54.

Even though different net income figures can be derived by acceptable, alternative methods, net income of a corporation continues to be ". . . the universal yardstick used in appraising the value of its shares. Most investors place implicit trust in these figures as an accurate measure of a company's performance."[1]

As was previously mentioned, quarterly reports are subject to the same, and more, limitations than are the annual reports. "The comparability of interim reports with annual reports often leaves much to be desired. The differences, if you want to classify them as differences, result from the short period of time covered by interim reports."[2] However, even with their inherent limitations they are used in investment decisions. Seidler and Benjes state:

> . . . During the past several years, an increasing number of individual and institutional investors have striven to maximize investment results in a short period of time. To this class of investors the latest twelve months reported earnings and quarterly earning comparisons to be reported in the near future often assume more significance than earnings reported in an annual report.[3]

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[1]Williams, "A Look Behind Reported Earnings," p. 38.

[2]Ralph A. Martin, "Industry Viewpoint on Reporting Problems," Financial Executive, XXXV, No. 4 (April, 1967) 28.

[3]Seidler and Benjes, "Credibility Gap," p. 109.

Albrecht states:

> . . . Financial analysts would find helpful a relative degree of uniformity in these quarterly statements. For instance, in each statement the analyst would like to see sales, depreciation, interest charges, estimated tax liability, and net income. . . Yet by no means do all companies present such information quarterly, even though it is obviously available.[1]

A questionnaire was used in an attempt to gain some insight into how quarterly data are used and to determine how adequate the analyst views quarterly data for investment decision making purposes.

The Purpose of the Questionnaire:

The questionnaire was used to elicit responses from Chartered Financial Analysts in order (1) to determine what analysts believe the primary objective of quarterly reports should be; (2) to determine how useful quarterly reports are in their security analysis; (3) to determine what they consider to be weaknesses in quarterly reports; (4) to determine which quarterly data they use in their analysis; and (5) to obtain suggestions for improving the usefulness of quarterly reports to the analysts.

The questionnaire was sent to a randomly selected sample of Chartered Financial Analysts who were listed in the

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[1]Philip E. Albrecht, "Analyst Views Financial Reporting Problems," p. 16.

1967 directory of The Financial Analysts Federation. The questionnaire was sent to 150 analysts and was completed and returned by seventy-seven of them. The remainder of this chapter will present the questions and the responses to the questions. It will also discuss their relevance to this study.

It is obvious from the response to question 1 (shown on the following page) that the analysts responding believe that quarterly reported income should be meaningful to users and not just a means of keeping contact with the shareholders. There is no consensus, however, as to whether the primary purpose should be to report the actual income for the quarter as if it were a distinct accounting period in itself or whether the primary purpose should be to allow the user to better predict the annual performance of the firm. Of course, even if the expressed purpose is to report the actual income for the quarter the analyst can, and will, use such information to predict future performance.

If quarterly reports are prepared with the expressed purpose of allowing one to better predict the annual income, the quarterly statement could, as an extreme, present predicted or projected net income. This would require that the accountant, with the help of management, be placed in the position of predicting future performance. It is questionable

Table 3-1

WHAT DO YOU BELIEVE THE PRIMARY PURPOSE OF THE PUBLISHED QUARTERLY INCOME STATEMENT SHOULD BE?

Response	Frequency	%
a. To report the actual income for the quarter as if it were a distinct accounting period in itself.	34	42
b. To present data with the expressed purpose of allowing the user to better predict the annual performance of the firm.	44	54
c. To serve mainly a public relations function with little significance attached to the use of such data for decision making by outsiders.	0	0
d. Other	3	4

whether accountants should assume such responsibility or if their position and training qualify them to adequately perform the task. While it is true that accounting principles used for the reporting of actual results of prior operations are flexible and allow the reported income amount to vary depending upon the methods used, there are no standards or principles for predicting the future. It would give management more of an opportunity to manipulate the price of their stock by their prediction of future performance. However, improving

the user's ability to predict the future performance of the firm must be a primary objective of published quarterly statements.

The past earnings of the firm are considered to be the most important single item of information in predicting future earnings[1] and it appears that it should definitely be included in the quarterly reports. However, this does not mean that it is the only information which is important in predicting future performance. Other data, to supplement reported quarterly income, can be very beneficial in improving the user's ability to predict future performance.

Comments given by respondents to this question included two statements to the effect that the year-to-date figures should be included in quarterly statements and one comment that the data for the latest 12 months should be reported rather than data for a particular quarter. Several respondents noted that a combination of responses a and b would be desirable. Some respondents thought that expected future developments should be commented on in the text of the report.

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[1]Committee to Prepare a Statement of Basic Accounting Theory, A Statement of Basic Accounting Theory, Evanston, Illinois: American Accounting Association, 1966, p. 24.

Table 3-2

HOW USEFUL DO YOU CONSIDER PUBLISHED QUARTERLY REPORTS TO BE IN YOUR ANALYSIS OF THE INVESTMENT QUALITY OF A FIRM'S SECURITIES?

Response	Frequency	%
a. Very useful	35	45
b. Quite useful	28	36
c. Of limited usefulness	14	19
d. Of no usefulness	0	0

The response to this question indicates that analysts do consider quarterly reports to be useful in their analysis (81 percent of the respondents considered the quarterly report to be either very useful or quite useful). None of the respondents considered the quarterly reports to be of no usefulness while only 19 percent considered them to be of limited usefulness.

While this response indicates that quarterly reports are useful, it apparently does not mean that they are as useful as they could, or should, be. This is brought out by their responses to other questions. Replies by five respondents included comments to the effect that their usefulness varies widely depending on the company doing the reporting.

Table 3-3

HOW DOES THE FACT THAT QUARTERLY REPORTS COVER A SHORTER TIME PERIOD THAN DO ANNUAL REPORTS AFFECT THEIR USEFULNESS IN SECURITY ANALYSIS?

Response	Frequency	%
a. It has no significant effect on their usefulness.	28	37
b. It makes them less useful.	36	47
c. It makes them more useful.	12	16
d. It makes the data insignificant for use in security analysis.	0	0

Less than half (47 percent) of those responding to the above question feel that the short time period under report in quarterly statements make them less useful. It is worthwhile to note that no one felt that it made the data insignificant for use in security analysis.

Three out of the twelve who think it makes the data more useful, commented that this was because it was more recent information. This may be what others thought when checking their response but even so they apparently were of the opinion that any limitations due to the shortness of the time period are more than offset by the availability of more current inrormation. The response to this question indicates

Table 3-4

HOW DOES THE FACT THAT QUARTERLY DATA ARE NOT AUDITED AFFECT THEIR USEFULNESS IN SECURITY ANALYSIS?

	Response	Frequency	%
a.	It has no significant effect on their usefulness.	45	59
b.	It makes them less useful.	31	41
c.	It makes them more useful.	0	0
d.	It makes the data insignificant for use in security analysis.	0	0

that the financial analysts are divided concerning whether the short time period does affect the usefulness of quarterly data.

The financial analysts who responded to the questionnaire were divided as to the importance (or lack of importance) of the audit concerning the usefulness of quarterly data for security analysis purposes. Forty-five (59 percent) of those responding felt that the fact that quarterly data were not audited had no significant effect on their usefulness in security analysis. Thirty-one (41 percent) felt that this made the data less useful but no one thought it made the data insignificant for use in their analysis.

Four respondents noted that the effect of this depended on the company reporting. They commented that the audit would be much more useful in the case of the smaller firm with their less sophisticated accounting system then in the case of a larger firm with a qualified accounting staff.

Table 3-5

HOW MUCH CONFIDENCE DO YOU PLACE IN THE ACCURACY OF QUARTERLY INCOME DATA PUBLISHED BY FIRMS THAT ENGAGE IN A SUBSTANTIAL AMOUNT OF MERGER ACTIVITY AS COMPARED WITH DATA PUBLISHED BY FIRMS NOT SO CLASSIFIED?

Response	Frequency	%
a. More confidence	3	4
b. Less confidence	57	76
c. Same degree of confidence	15	20

Firms that engage in a substantial amount of merger activity have a greater incentive to keep the price of their stock high than do firms that are not active in merger activity. In most cases the terms of the merger depend, to some extent, on the market price of the stock of the involved firms. For this reason it is possible that the quarterly reports of firms that engage in a great deal of merger activity

may present somewhat biased data in the hopes of maintaining a high price for their securities.

The responses to this question indicates that most analysts place less confidence in the quarterly reports of merger oriented firms. Of those responding 76 per cent indicated that they have less confidence in the quarterly reports of firms that engage in a substantial amount of merger activity as compared to firms not so classified.

Table 3-6

WHAT WOULD BE THE EFFECT ON THE USEFULNESS OF QUARTERLY REPORTS FOR USE IN YOUR ANALYSIS IF BALANCE SHEETS, ALONG WITH INCOME STATEMENTS, WERE MADE AVAILABLE ON A QUARTERLY BASIS?

Response	Frequency	%
a. Greatly increase their usefulness	34	45
b. Slightly increase their usefulness	38	50
c. Have no effect on their usefulness	4	5

The response to this question indicates that financial analysts believe that a balance sheet presented quarterly, along with the income statement, would improve the usefulness of quarterly reports. While 95 per cent felt that balance sheets would be helpful to some degree only 5 per cent felt

that their inclusion would have no effect on their usefulness.

The potential usefulness of quarterly balance sheets has also been noted in the literature. Seidler and Benjes state:

> The tendency towards taking short cuts in the preparation of interim reports is reinforced by the lack of any requirement, on the part of the SEC or the major stock exchanges, for the presentation of balance sheets at interim dates. Only condensed income statements are required. Though analysts often treat the balance sheet with some degree of disdain, its limitations should not be permitted to obscure its value. Aside from its other functions, the balance sheet operates as a control and discipline over the income statement. For example, a company selling a product with the major part of its sales in the winter should normally show an extremely low inventory balance at the end of the first quarter. If the inventory balance is high one might suspect that the management has failed to write-off now obsolete merchandise or had lower sales than had been expected. In either case the analyst would be interested. If a balance sheet were presented with the quarterly report, there would be some pressure on the company to explain or write-off the high inventory balance. In the absence of a balance sheet, the problem can be conveniently neglected.[1]

Although quarterly balance sheets are considered to be useful by analysts they are not generally included in published quarterly reports. In Taylor's study he found only ninety-six reports (out of 480 analyzed) that had any form of

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[1]Seidler and Benjes, "Credibility Gap," pp. 113-114.

balance sheet included in the quarterly report.[1] A conversation with the Director of the Corporation Room at the University of Maine revealed even more alarming statistics. He stated that in a 1967 survey of the statements of approximately 1,000 firms, which included at least 80 per cent of Fortune's 500, fewer than twenty provided balance sheet information adequate for funds flow analysis on a quarterly basis. He also stated that only five provided balance sheet data adequate for quarterly cash flow analysis.

Table 3-7

IF YOU USE PUBLISHED QUARTERLY DATA IN YOUR SECURITY ANALYSIS, DO YOU HAVE A SYSTEMATIC METHOD FOR ANALYZING THESE DATA?

Response	Frequency	%
a. Yes	36	51
b. No	34	49

The respondents, who indicated that they did use quarterly data in their analysis, were asked to include working papers or give specific methods for using quarterly data.

[1] Taylor, "Evolution, Content, Utility, and Problems of Published Interim Reports," p. 69.

Twenty-seven of those who use a systematic method in analyzing quarterly data commented on the methods used and/or included working papers that they used for such purposes.

The intent of this question is not to discover the specific methods or techniques that are used and present them, but rather to discover the specific items of information that are used by the financial analysts when analyzing quarterly information. The working papers received in response to this request, as well as comments made concerning it, indicate that there are various methods employed, as well as various items of information used, when analyzing quarterly data. Sales, earnings before taxes, taxes, and net income are items of information that were used in almost all cases. It was also frequently stated that the change in the amount of such items was considered important. Items which were mentioned very infrequently included: depreciation, selling and general administration expenses, and research and development expenditures. These items may have been mentioned infrequently only because they are seldom available in quarterly reports and it may not mean that they are considered unimportant. Most of the working papers received, provided space for the recording of quarterly data for the previous several years. In one case there were forms to be filled in with quarterly data for

the last twelve years.

Several respondents stated that they depended to a great extent, on financial services to do this type of analysis. Three of them specifically mentioned Financial Dynamics as the service they used. Although a letter was written to Financial Dynamics inquirying how they use quarterly data in their analysis no response was received.

The response to the question given on the following page indicates that most analysts feel that knowledge of depreciation expenses; other income (expenses); and the provision for Federal Income Tax, on a quarterly basis, are useful to them in their security analysis.

Another question asked was: Which, if any industries (or firms) do you believe publish the most useful quarterly data for your analysis and why?

While the respondents indicated many individual firms that they believed published useful quarterly reports, there was no consensus concerning any particular firm. In fact, the duPont Company was the only firm that was mentioned more than once and it was named by only two respondents.

However, there was more unanimity concerning industries that publish the most useful quarterly reports. Regulated industries, and specifically public utilities, were

Table 3-8

WHAT IS YOUR OPINION CONCERNING THE USEFULNESS (FOR USE IN YOUR SECURITY ANALYSIS) OF THE FOLLOWING REPORTED QUARTERLY INFORMATION: (A) DEPRECIATION EXPENSE; (B) OTHER INCOME (EXPENSES); (C) PROVISION FOR FEDERAL INCOME TAX?

Response	Depreciation Expense		Other Income (Expenses)		Provision for Federal Income Tax	
	Frequency	%	Frequency	%	Frequency	%
a. Very useful	28	37	24	32	41	54
b. Quite useful	28	37	33	44	27	36
c. Of limited usefulness	18	24	18	24	7	9
d. Of no usefulness	2	2	0	0	1	1

mentioned frequently. Also, oils were mentioned several times although not as often as public utilities. Finance companies, autos, and steels were also mentioned more than once. Certain quarterly reports of public utilities and oils will be reviewed in Chapter VII and the findings will be considered in making suggestions concerning the improvement of quarterly reports.

In hopes of gaining some suggestions for improving quarterly reports the question was asked: If you consider the quality of published annual data to be superior to

published quarterly data for use in your analysis, what recommendations do you have for improving quarterly data?

The response to this question was extensive and, in most cases, the recommendations could be implemented with limited cost, either in time or money. The recommendation most often made was that more detail was needed in the quarterly income statement. Often mentioned was the need for reporting depreciation expenses and other income or expenses on a quarterly basis. It was also mentioned that the reporting for taxes on a quarterly basis was inadequate in many cases. The need for a quarterly balance sheet was also emphasized and coincided with the response to question 6 concerning how useful quarterly balance sheets would be.

The above recommendations, as well as others made by the respondents, would not be difficult to implement. In fact they are included in almost all annual reports and in some quarterly reports. It seems that the analysts are not recommending a radical change in quarterly reporting techniques as some firms are providing the quarterly information that the respondents requested. If certain firms or industries can give the analysts what they need, is there any reason why they all can not?

Another recommendation, which was often made by the

respondents, was that they should be more comments or discussion of the data in text form. These comments should explain changes, unusual occurences, and trends. They also believed that a discussion of the general outlook for the firm would be helpful. Again these practices are followed by many firms in their annual reports.

Other recommendations included: breaking down sales by product or area; more information on seasonal and nonrecurring factors; set forth basis for allocation to quarters such major items as depreciation, investment tax credit, etc. Other specific comments were: "It would be useful if the corporation would publish additional financial information if it were greater than x % of the comparable quarter of the prior year;" "Too short a period for too much emphasis anyway;" "No public relations jazz;" "Think different standards should be used for interim reports than for annual reports;" "Companies should follow exact accounting procedures used in annual reports - a number of firms do not;" "In the final analysis it depends mainly on how cooperative top management wishes to be with security analysts."

Summary

The price which buyers are willing to pay for a share of a company's stock depends, to a great extent, on the

estimates of future income for the firm. The analyst uses published financial statements as well as other information in making these estimates. This does not mean that the reports themselves should contain specific estimates of future performance, but it does mean that management should be aware of how the statements are used and should, if practical, provide the user with the additional detail he desires. This is especially true concerning information which is not confidential, is not harmful to the competitive position of the firm, and which is available with little inconvenience to the accountant preparing the statements.

The seventy-seven analysts (51 percent of the sample) responding to the questionnaire indicated that the published quarterly reports are useful to them in their analysis and the majority of them believe the primary purpose of such reports should be to present data with the expressed purpose of allowing the user to better predict the annual performance of the firm. The majority of the respondents do not feel that the lack of an audit affects the usefulness of quarterly data, but they tend to place less confidence in the quarterly data of firms that engage in a substantial amount of merger activity as compared with data published by firms not so classified.

The feeling that the usefulness of quarterly reports

would be increased if balance sheets were presented along with income statements was held by 95 per cent. The majority also felt that the quarterly reporting of depreciation expense, other income (expenses), and the provision for federal income tax would be useful to them.

The respondents stated that more detailed income statements would be helpful in their analysis, as would more comments or textual material concerning the reported figures. These suggestions do not appear to be unreasonable or difficult to comply with. Indeed, more detail is available on a quarterly basis to internal management and much of it could be made available to the public with no threat to the competitive position of the firm. The same is true of other information that could be presented in text form along with the financial statements. The inclusion of a balance sheet, likewise, could be accomplished with limited effort or expense.

CHAPTER IV

FLUCTUATIONS IN QUARTERLY DATA

Introduction

The quarterly statements of selected firms indicate that quarterly data fluctuate widely between quarters, within the same firm. If expectations of the firm's future performance are influenced by quarterly data, this expectation would be significantly affected by the quarter(s) being reviewed. This chapter will provide illustrations of the variations that have occurred in specific firm's quarterly data. They illustrate why there is concern, in specific cases, over the quality of quarterly data and indicate the need for further study concerning their adequacy.

How can Adequacy be Measured?

One problem in evaluating the adequacy of published quarterly data for use in investment decision making is that the external user of such data has little, if any, knowledge of the actual events which lead to the information in the statements. There is usually very little detail included in the quarterly statements and the textual material is limited.

One of the criticisms made frequently in the literature concerning quarterly data is that there are often massive year-end adjustments which are reported in, and therefore affect the results of, the fourth quarter of the year. These adjustments can affect either revenue or expense items, however, there is no indication that the net sales figure is subject to such year-end adjustments. In fact, concerning the sales figure in quarterly statements, Carman Blough stated, "usually the only figure which has any validity is the amount of the sales. . ."[1] Material adjustments which are made at year-end, and therefore affect expected results, should lead the user to question the reliability of the previously reported quarterly data.

The Struthers Wells Corporation noted that the 1966 year-end adjustments were so substantial that prior reported quarterly data were unreliable. In their third quarter, 1967, report they stated, "the figures for the nine months of fiscal 1966 as then reported are not deemed comparable because of year-end adjustments which were material in amount."

If the year-end adjustments do have a significant effect on reported fourth quarter data, the fourth quarter

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[1]Letter from Carman G. Blough dated April 29, 1968 in response to my inquiry concerning his current feelings about the adequacy of quarterly reports for investment decision making.

results should vary from those of the first three quarters. Assuming that net sales figures are not adjusted, but that other revenue and expense items are, the reported net income will be affected (unless such adjustments are offsetting) and therefore, any material adjustments would be reflected in the net income/net sales (N.I./N.S.) ratio. If these adjustments do not exist, are immaterial, or are offsetting, we would expect the N.I./N.S. ratio for a firm whose activity is not seasonal in nature and which adequately allocates fixed costs, to be approximately the same for all four quarters of the year. That is, there would be no reason to expect the fourth quarter to deviate significantly from that of the other three quarters. The following illustrations provide examples of such fourth quarter deviations, as well as other variations in quarterly data, for selected firms. The data from these firms were selected because their fluctuations were substantial and clearly indicate why the quality of quarterly data is sometimes questioned.

Allied Control Company, Inc.

Allied Control provides a good illustration of the variation that occurs in quarterly income statements. The quarterly N.I./N.S. ratio of Allied Control fluctuates widely during the period examined. In particular, the fourth quarter

N.I./N.S. ratio for each of the seven years (1961-1967) studied was greater than the N.I./N.S. ratio for any of the other three quarters of that specific year. This is true even though only in 1965 was the fourth quarter net sales figure higher than that of any of the other three quarters of the year. This deviation is indicated by the scatter diagram and line of best fit as illustrated in Figure 4-1 (applicable computations for the figures illustrated in this chapter are presented in the appendix).[1] The sum of the deviations from the line of best fit are presented in Table 4-1. These figures indicate that the fourth quarter deviates much more from the line than do the other three quarters of the year.

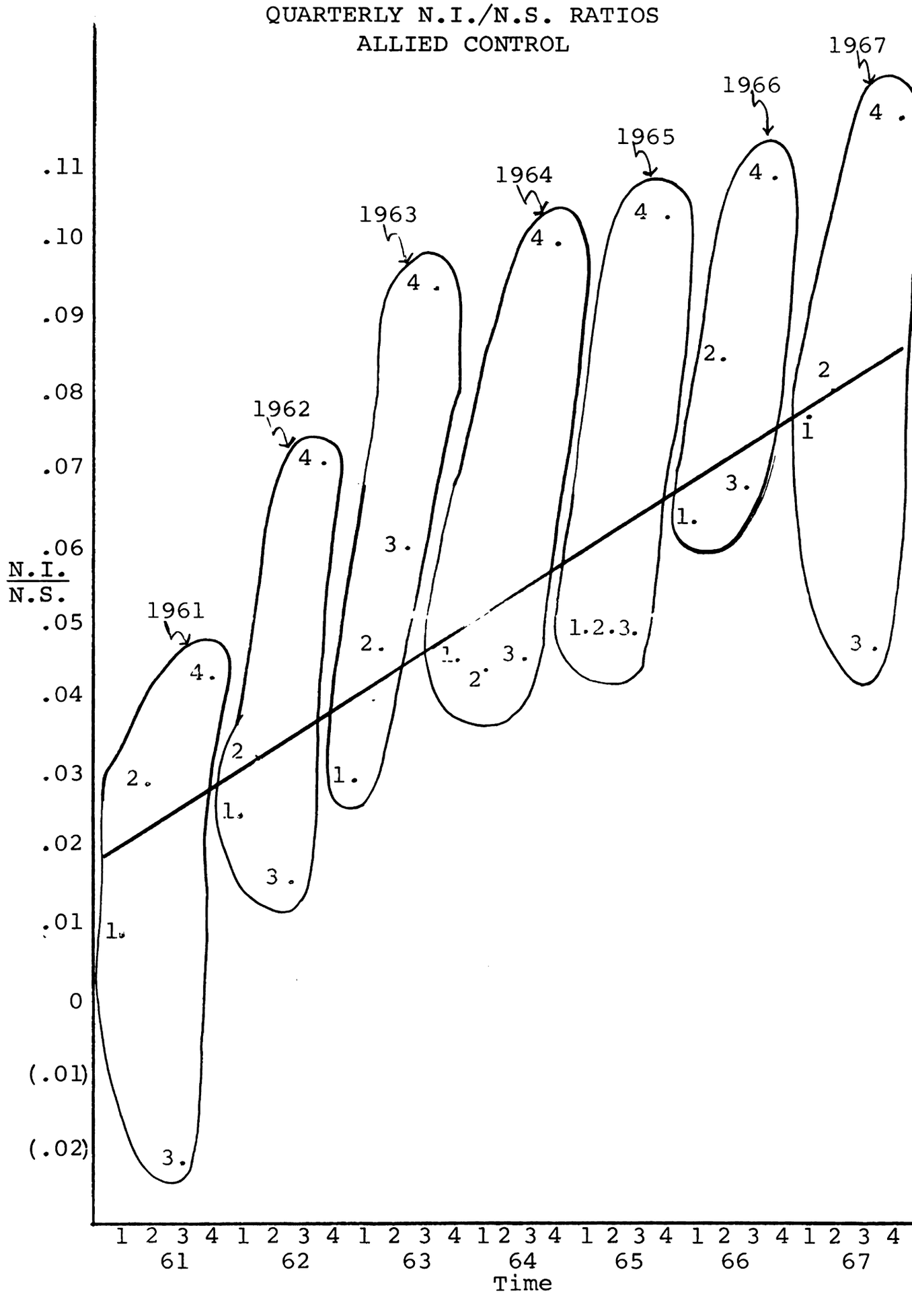
Table 4-1

ALLIED CONTROL COMPANY, INC.
SUM OF DEVIATIONS OF QUARTERLY
N.I./N.S. RATIOS FROM LINE OF BEST FIT

Quarter	Sum of Deviations from Line of Best Fit
First	.0518
Second	.0464
Third	.1600
Fourth	.2314

[1]The line of best fit was constructed using the method of least squares as presented in John R. Riggleman and Ira N. Frisbee, Business Statistics (McGraw-Hill Book Company, Inc., New York, 1951), pp. 302-303.

Figure 4-1
QUARTERLY N.I./N.S. RATIOS
ALLIED CONTROL



The fact that the first three quarter's N.I./N.S. ratios lie in most cases very close to, or below, the trend line while the fourth quarter's N.I./N.S. ratios lie significantly above the trend line may indicate that Allied Control tends to be conservative in its reporting during the year.

H & B American Corporation

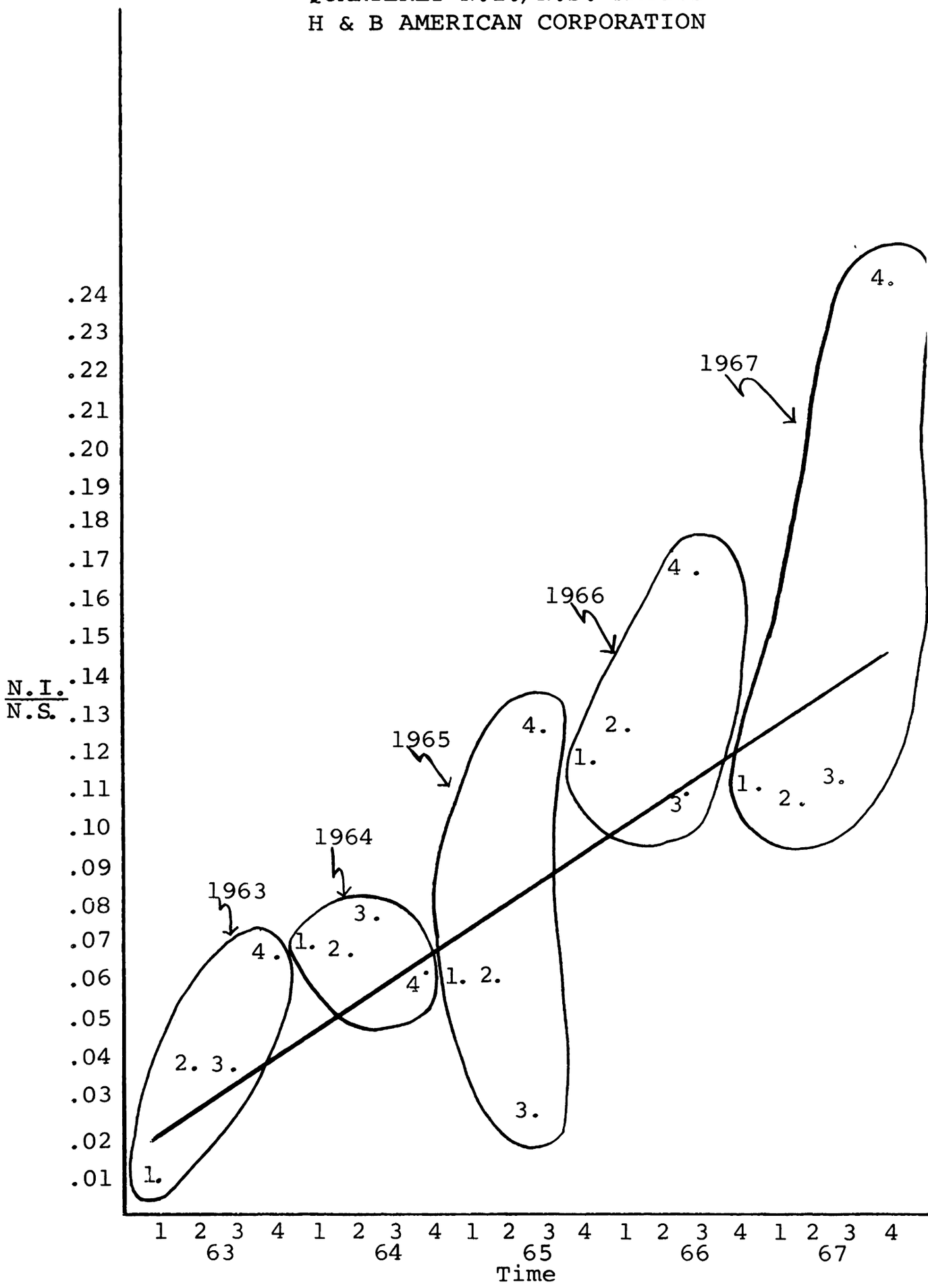
The quarterly results of H & B American, as in Allied Control, vary substantially between quarters with the fourth quarter N.I./N.S. ratios deviating significantly from those of the other three quarters. The scatter diagram and line of best fit presented in Figure 4-2 show this variation. Table 4-2 presents the sum of the various quarters' deviation from the trend line and indicates that the fourth quarter fluctuates much more than that of the other three quarters.

Table 4-2

H & B AMERICAN CORPORATION
SUM OF DEVIATIONS OF QUARTERLY
N.I./N.S. RATIOS FROM LINE OF BEST FIT

Quarter	Sum of Deviations from Line of Best Fit
First	.0885
Second	.1030
Third	.1303
Fourth	.2129

Figure 4-2
QUARTERLY N.I./N.S. RATIOS
H & B AMERICAN CORPORATION



Roxbury Carpet Company

The Roxbury Carpet Company, which was incorporated in 1859, manufactures woven and tufted carpets. Its quarterly data also indicate the wide fluctuations in the N.I./N.S. ratio between the quarters of the year as is indicated in Table 4-3 and Figure 4-3. Note the variations between the

Table 4-3

ROXBURY CARPET COMPANY
NET INCOME/NET SALES RATIOS

Quarter	1961	1962	1963	1964	1965	1966	1967
First	.0001	.0147	.0123	(.0296)	(.0354)	(.0340)	(.0463)
Second	.0135	.0303	(.0020)	(.0689)	(.0744)	(.0273)	(.0159)
Third	.0246	.0322	(.0143)	(.0712)	(.0962)	(.0654)	(.0472)
Fourth	(.0289)	(.0076)	.0355)	.0044	(.0273)	.0298	.0347

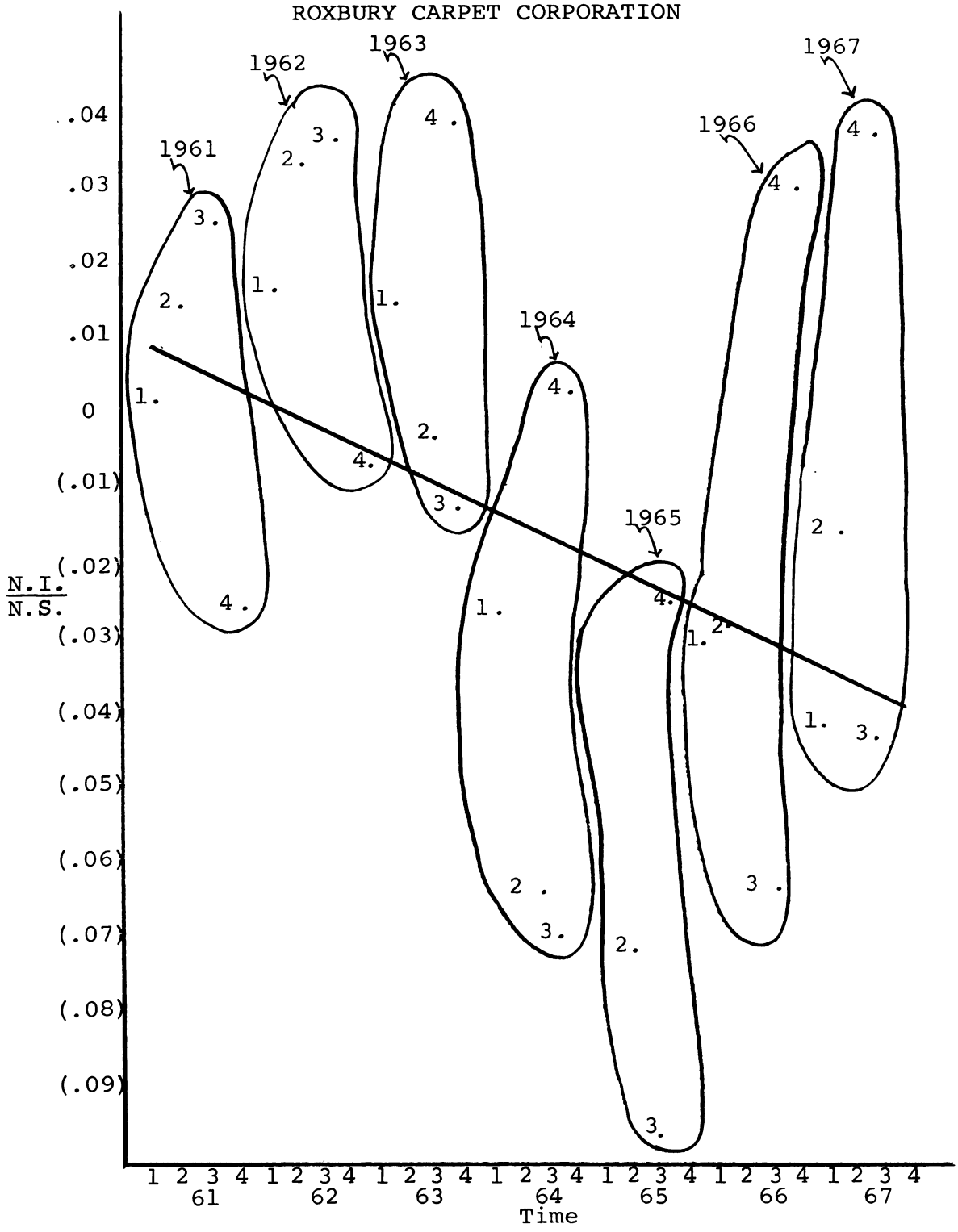
( ) Denotes Net Loss/Net Sales

various quarters and especially the fact that the greatest deviation is always between the third and fourth quarter of each of the years under review.

Huyck Corporation

Huyck Corporation issues one of the more detailed quarterly income statements. A typical example of its quarterly statement is presented in Figure C-1 of the appendix.

Figure 4-3
QUARTERLY N.I./N.S. RATIOS
ROXBURY CARPET CORPORATION



It also presents more textual material in its quarterly statements than do most other firms although it does not publish quarterly balance sheets. Because of this detail it is possible to perform some analysis on these statements that is not possible to perform on other firm's quarterly statements.

The Huyck Corporation is not characterized by seasonality in its sales volume. i.e., there is no case in which the quarterly sales are greater than 30 per cent (or less than 20 per cent) of annual sales.[1]

The Net Income/Net Sales Relationship

The net income reported for the fourth quarter is generally greater (5 out of 6 years) than that for any of the other quarters during the year. This is also reflected in the N.I./N.S. ratios in which 4 of the 6 years the fourth quarter had the highest N.I./N.S. ratio and is especially significant in 1965, 1966, and 1967. This relationship is indicated in Table 4-4 and Figure 4-4.

Taxes in the Quarterly Statements

In addition to the N.I./N.S. ratio, the provision for federal income taxes, as a percent of earnings before taxes,

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[1]This is the criterion used by David Green Jr. for detecting seasonality in "interim Reporting: Direct Costing and Seasonalizing," p. 7.

Figure 4-4
QUARTERLY N.I./N.S. RATIOS
HUYCK CORPORATION

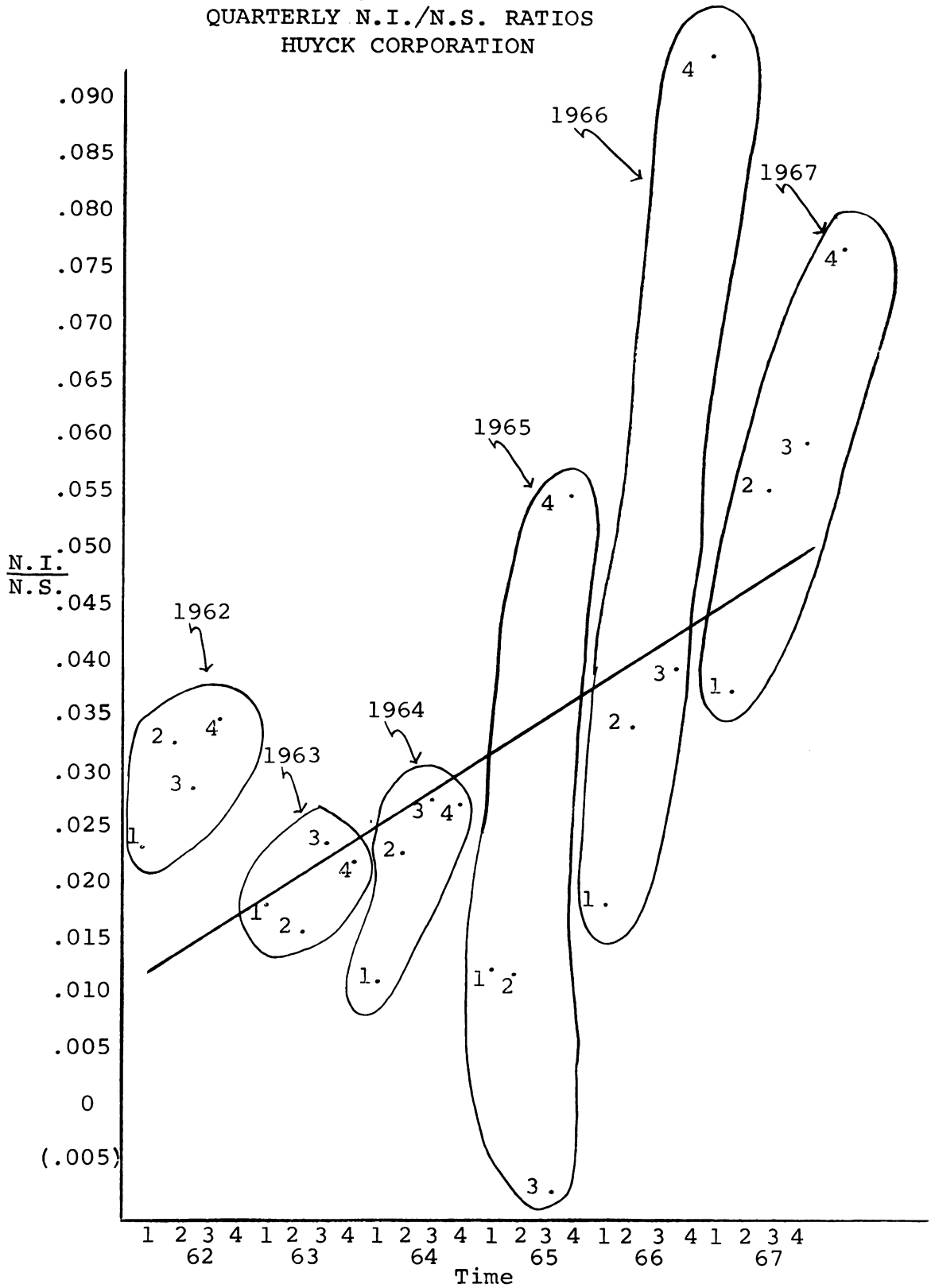


Table 4-4

HUYCK CORPORATION
NET INCOME/NET SALES RATIOS

Quarter	1962	1963	1964	1965	1966	1967
First	.0237	.0169	.0069	.0085	.0199	.0321
Second	.0322	.0114	.0185	.0080	.0271	.0518
Third	.0276	.0227	.0265	(.0059)	.0352	.0563
Fourth	.0332	.0167	.0254	.0512	.0900	.0724

( ) Denotes Net Loss/Net Sales

also fluctuates markedly over the various quarters of the year (see Table 4-5). Again, as in the case of the N.I./N.S. ratio, the fourth quarter tax/net income before tax (tax/NIBT) ratio departs significantly from that of the other three quarters, as well as from the yearly percentages. In fact, for each of the years studied the fourth quarter tax/NIBT ratio is less

Table 4-5

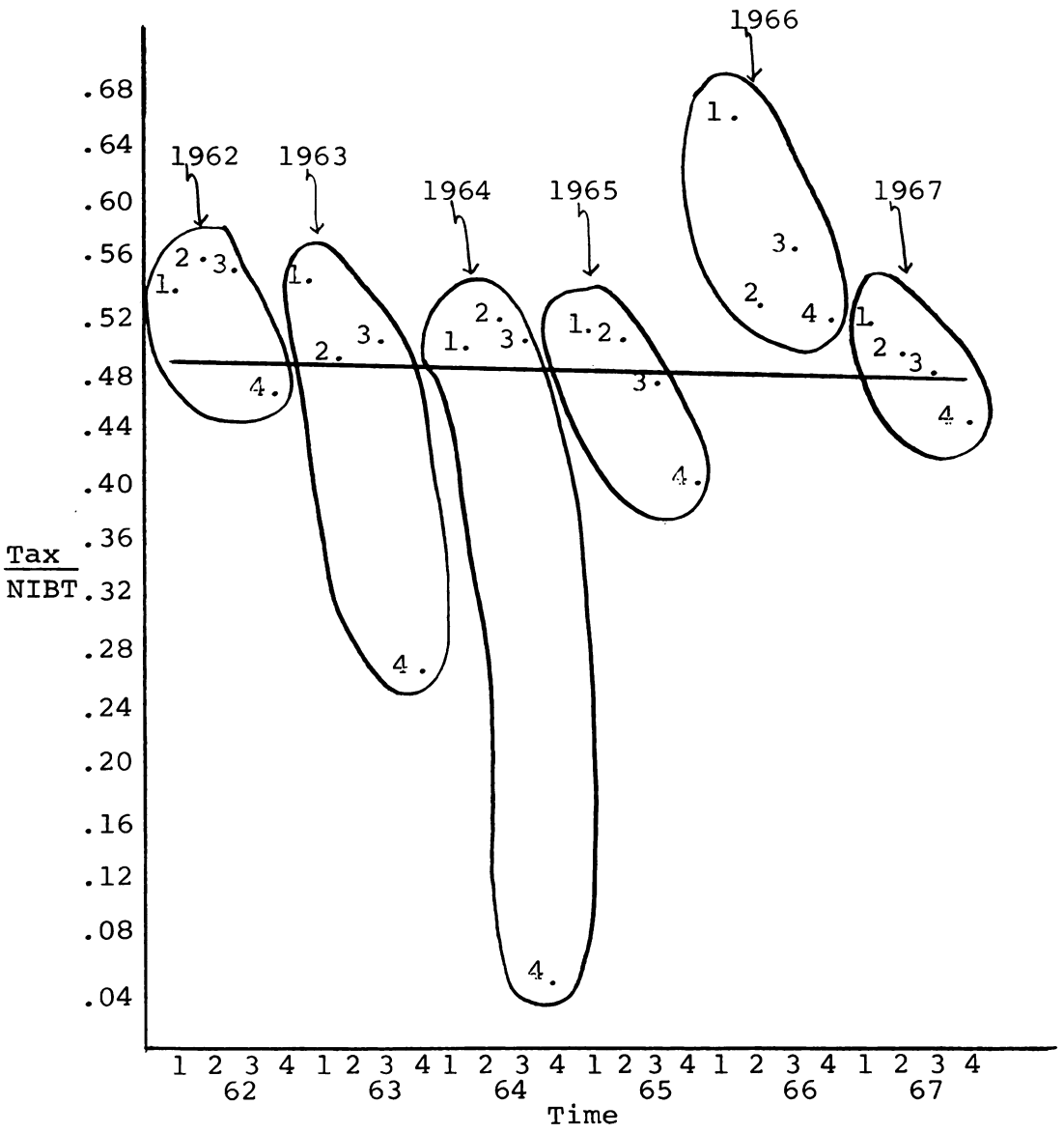
HUYCK CORPORATION
FEDERAL INCOME TAX/NET INCOME BEFORE TAX

Period	1962	1963	1964	1965	1966	1967
1st Quarter	.539	.549	.507	.524	.651	.510
2nd Quarter	.553	.488	.538	.518	.531	.499
3rd Quarter	.548	.513	.513	.469	.564	.479
4th Quarter	.466	.269	.058	.376	.513	.437
Year	.522	.477	.414	.411	.545	.473

than the ratio for any of the other three quarters of the year as well as less than the annual ratio.

The scatter diagram and line of best fit, in Figure 4-5, show the extent of this deviation. The sum of the

Figure 4-5
QUARTERLY TAX/NIBT RATIOS
HUYCK CORPORATION



deviations from the trend line for the various quarters is presented in Table 4-5.1. The extent of the fourth quarter deviation is indicated by the fact that the sum of the deviations of the fourth quarter is greater than the sum of the first three quarters combined.

Table 4-5.1

HUYCK CORPORATION
SUM OF DEVIATIONS OF QUARTERLY
TAX/NIBT RATIOS FROM LINE OF BEST FIT

Quarter	Sum of Deviations from Line of Best Fit
First	.3750
Second	.2230
Third	.2150
Fourth	.8440

Other Income

The tendency for fourth quarter data to deviate from that of the other three quarters is also true of "other income." In every year except 1964 "other income" reported in the fourth quarter was substantially higher than reported in any of the other three quarters of the year. In fact in 1962, 1963, 1965 and 1967 the "other income" reported in the fourth quarter was greater than the "other income" for the

other three quarters combined. This fluctuation is illustrated in Figure 4-6. The sum of the deviations from the trend line for the various quarters indicates that "other income" deviates much more in the fourth quarter than in any of the other three quarters (see Table 4-6).

Figure 4-6
QUARTERLY "OTHER INCOME"
HUYCK CORPORATION

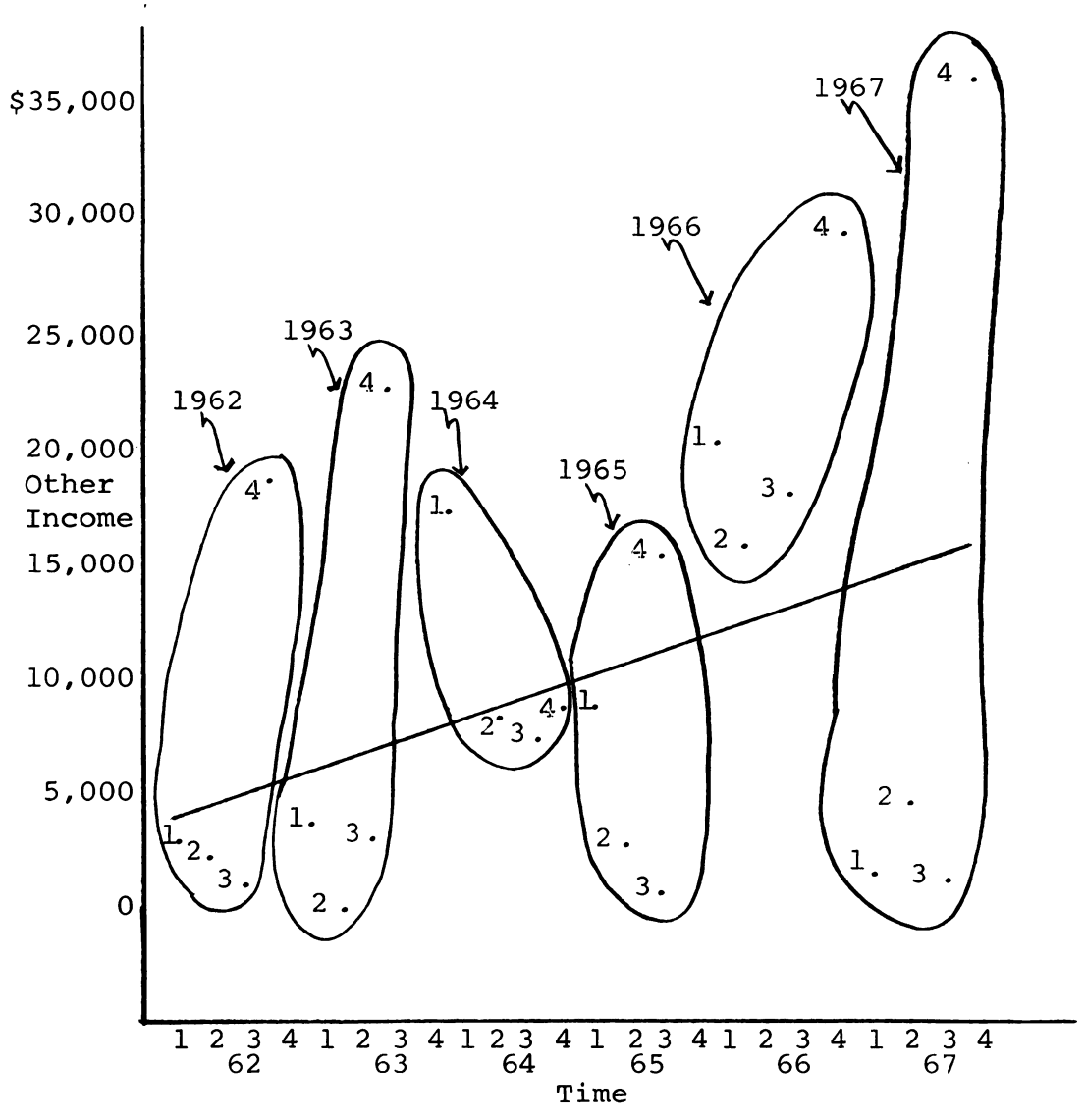


Table 4-6

HUYCK CORPORATION
SUM OF DEVIATIONS OF QUARTERLY
"OTHER INCOME" FROM LINE OF BEST FIT

Quarter	Sum of Deviation from Line of Best Fit
First	$34,514
Second	33,556
Third	42,920
Fourth	67,660

Cubic Corporation

As in the other illustrations, the data of Cubic Corporation reveal that fourth quarter results are quite different from those of the other three quarters of the year. In each of the six years (1961-1967) for which data are available the fourth quarter net income is either higher than that of any of the other three quarters or the net income (net loss) is lower than that of any of the other three quarters. The fourth quarter's net income to net sales percentage also deviates substantially from the annual net income to net sales percentage and from the other quarters' percentages (see Table 4-7). The extent of the deviation is indicated by the dispersion around a line of best fit as illustrated in Figure 4-7.

Figure 4-7
QUARTERLY N.I./N.S. RATIOS
CUBIC CORPORATION

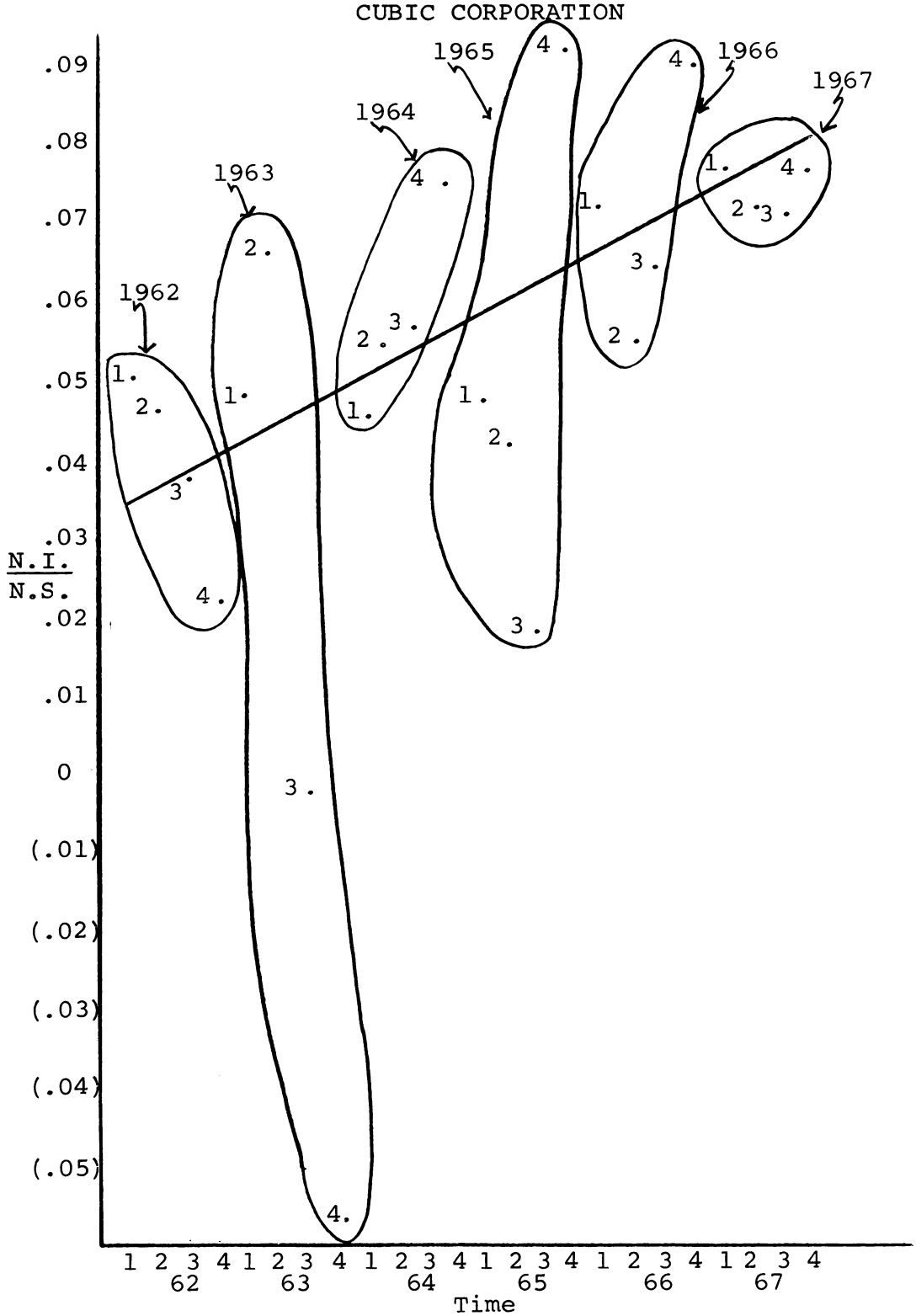


Table 4-7

CUBIC CORPORATION
NET INCOME AS A PERCENT OF NET SALES

Period	1962	1963	1964	1965	1966	1967
1st Quarter	.0502	.0449	.0400	.0429	.0700	.0734
2nd Quarter	.0446	.0619	.0524	.0341	.0436	.0649
3rd Quarter	.0353	(.0069)	.0550	.0167	.0532	.0644
4th Quarter	.0198	(.0570)	.0711	.0897	.0853	.0710
Year	.0381	.0077	.0572	.0507	.0656	.0689

( ) Denotes Net Loss/Net Sales

Depreciation

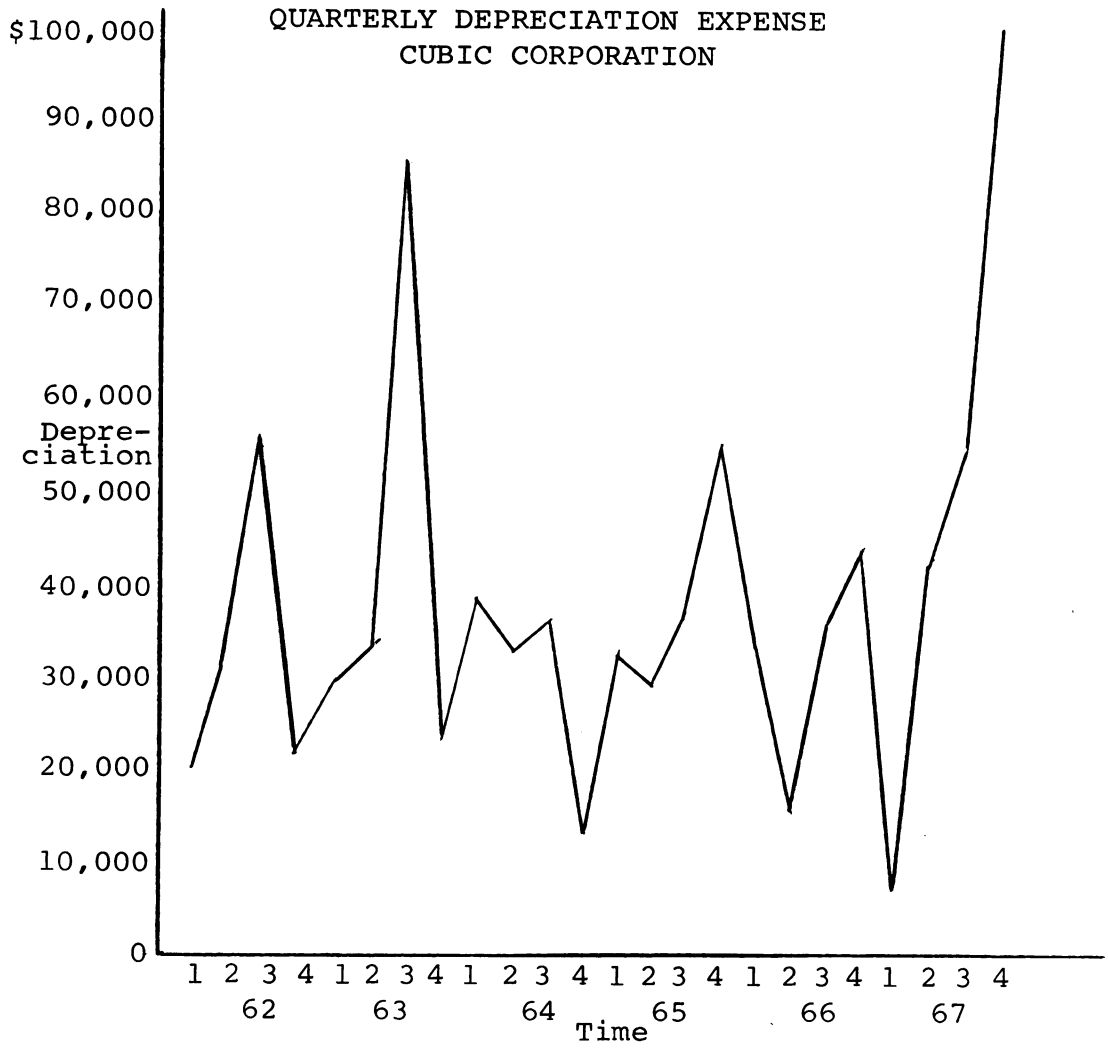
The depreciation charged against revenue on a quarterly basis also varies significantly (see Table 4-8 and Figure 4-8). While there is no explanation given for these

Table 4-8

CUBIC CORPORATION
DEPRECIATION

Period	1962	1963	1964	1965	1966	1967
1st Qtr.	$20,000	$28,000	$37,000	$31,000	$30,000	$ 6,000
2nd Qtr.	30,000	32,000	32,000	29,000	15,000	40,000
3rd Qtr.	56,000	84,000	34,000	34,000	32,000	51,000
4th Qtr.	21,000	23,000	14,000	54,000	43,000	96,800
Total	127,000	167,000	117,000	148,000	120,000	193,800

Figure 4-8
QUARTERLY DEPRECIATION EXPENSE
CUBIC CORPORATION



wide variations, and the lack of detail makes it impossible to determine any specific reasons, it does not appear that it results from an attempt to match depreciation expense against sales. Although it may be impossible to determine the cause(s) for such fluctuations the effect of such variations on net income is apparent.

Great Basin Petroleum

An even more extreme example, which may lead users to question the reliability of quarterly data, is indicated by the reported earnings of Great Basin Petroleum. The data for the fourth quarter of 1961 (as calculated by subtracting the accumulated first nine months data from the annual data) reveals that net income was greater than sales. In fact, fourth quarter reported sales were $58,200 while reported net income was $170,000. This "unusual" phenomenon was due to a decrease in total accumulated expenses of $111,900 between the nine month year-to-date figures and the annual figures. There was no reason given for this reduction. This extreme example suggests that the reported net income in the first three quarters was probably understated and, therefore, misleading to the users.

Reasons for Fluctuations in Quarterly Data

Letters were written to the top financial officers of selected firms attempting to determine the reasons for the substantial variations in their firm's reported quarterly data. Inquiry was made concerning (1) reasons for the fluctuations in the N.I./N.S. ratio; (2) the effect of year-end adjustments; (3) the reliability of quarterly data for use by security analysts; (4) the quarterly provision for federal

income tax; and (5) information regarding quarterly depreciation and miscellaneous income. This inquiry was made although it was realized that the response to these questions might be limited and that any responses might be biased because of the personal involvement of the respondents. In spite of these limitations, the response was satisfactory, although lacking in specific details. In general, the financial officers responding, noted that there were troublesome areas in quarterly reporting but they were also of the opinion that quarterly data were quite useful.

In answer to the question "why does the fourth quarter net income/net sales ratio vary as much as it does from annual?" the Treasurer of Stepan Chemical stated:

> In many cases the fourth quarter is not separately reported and, in effect respresents the difference between the annual figures and the previously reported nine months. As such, it includes the year end adjustments which, depending upon the specific company, may be insignificant or quite material. In the case of Stepan Chemical, the year end adjustments in several of the years which you have studied were quite material. As a result, the N.I./N.S. ratio did vary substantially from the annual ratio.[1]

In a reply to this same question Howard Ridley, Controller of Crowley Milner and Company stated that the following

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[1]Letter dated June 12, 1968 from W. W. Meier, Vice President and Treasurer, Stepan Chemical Company.

were reasons why the net income to net sales ratio varies as much as it does in the fourth quarter:

Year-end Adjustments

(1) Inventory book to physical adjustment. Our (retailers) shrinkage percentage has been on the rise in the past several years and is a most significant adjustment compared to sales and net income. National average for retailers probably is around 1.6%-1.8% of sales. We provide for shrinkage, but usually the actual shrinkage is more than we provided for.

(2) LIFO inventory adjustments made at year-end. This adjustment also cannot be determined until year-end. Again, we provide for this but usually not enough.[1]

The Treasurer of Atlas Corporation stated:

> . . . I wish to advise you that Atlas' fourth quarter results over the past few years have differed from the other three quarters during such years for various reasons, none of which were known at the time of mailing of the first three quarterly reports for each year. . . . In 1966 and 1967 we had some year end adjustments which threw the fourth quarter results out of line with the other quarters of such years. . .[2]

The possible distortion of fourth quarter results due to year-end adjustments was noted by several respondents. These responses include the following:

> . . . the year end adjustments frequently do distort fourth quarter results. The obvious solution is to

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[1]Letter dated June 19, 1968 from Robert T. Marquart, Vice President-Finance and Operations, Crowley, Milner and Company.

[2]Letter dated June 12, 1968 from Walter G. Clinchy, Vice President and Treasurer, Atlas Corporation.

> more accurately anticipate events and give them realistic accounting treatment in prior quarters. In many cases this may be possible, but obviously there are also other situations in which this just is not feasible. Some companies on an internal basis separate the operating results of the fourth quarter from the year end adjustments but this would not be a feasible solution in terms of public distribution or reporting of information.[1]

Another stated:

> As the calendar year and fiscal year near a close, there is a determined effort to exceed prior years sales and profits, thus, an acceleration takes place in the last quarter resulting in higher sales and earnings.
>
> A conservative accounting policy is maintained during the year to prevent year-end surprise adjustments, such as a major inventory adjustment.[2]

The Controller of Crowley, Milner and Company stated:

> I believe that . . . adjustments . . . do and can significantly affect our fourth quarter and year-end results. Inventory and reserve account (inventory, contingency, warranty, etc.) adjustments probably are the two greatest year-end adjustment problems for most companies. The only practical alternatives I can see is spending more time and money to continually analyze the problem areas which require significant year-end adjustments. Such as - monthly or quarterly physical inventories, quarterly or semiannual reserve account computations, etc.[3]

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[1] Letter from W. W. Meier.

[2] Letter dated June 20, 1968 from P. R. Loomis, Vice President/Finance, Cubic Corporation.

[3] Letter from Robert T. Marquart.

Frank Palmer, Controller of Huyck Corporation, stated that in addition to possible fourth quarter variations due to final determination of the tax expense:

> . . . other adjustments, which are reasonably common in industry, are those required to correct for the annual physical inventory and to adjust for routine accruals such as vacation pay and repair costs and several other such spotty costs which we attempt to spread out as well as we can over the year.[1]

In regards to the effect of adjustments on fourth quarter results the Treasurer of Huyck Corporation stated that, "Experience teaches that usually adjustments will cancel each other out so that the net effect is close to zero. In some years, however, everything seems to go to pluses and in other years to minuses, and particularly in the latter an accounting life is not a happy one."[2]

The replies indicated that the appropriate tax rate to be applied is the same for each of the quarters (as well as the year) but gave no reasons for noted fluctuations. They also failed to give any specific reasons for the wide variations (in certain cases) in depreciation expense and miscellaneous income between quarters.

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[1]Letter dated May 13, 1968 from Frank L. Palmer, Controller, Huyck Corporation.

[2]Letter dated January 23, 1968 from Frank C. Lowe, Treasurer, Huyck Corporation.

In spite of the effect of year-end adjustments, which lead one to question the reliability of published quarterly data, the respondents felt that quarterly data are adequate for use by security analysts. The Vice President of Finance of the Cubic Corporation was very emphatic concerning their adequacy. He stated, "Quarterly data are certainly reliable for financial analysts."[1] The Treasurer of Stephan Chemical Company was not quite as emphatic and stated:

> If a company makes a conscientious effort to report accurately on a quarterly basis, I think such information is useful and in most cases reliable for financial analysts. I would hope that such individuals are experienced enough to recognize some of the potential limitations of interim information, but the potential importance of such information probably encourages analysts to want to accept quarterly data as being accurate. In some cases there is indication that some companies use this situation unfairly.
>
> . . . I might comment as a matter of philosophy that some of the interim reporting (quarterly) of publicly owned companies does serve the obvious desirable purpose of providing a recurring communication as to the status of the company. Unfortunately, the financial community generally reacts so strongly to such information that management is under pressure to report "desirable" results. If it is assumed that annual figures which are certified will be reasonably stated, any optimistic or perhaps unduly favorable figures released will have only short term benefits. Nevertheless, whether intentional or otherwise, interim reporting is not always accurate and does pose problems for both the conscientious management and the investor.[2]

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[1]Letter from P. R. Loomis.

[2]Letter from W. W. Meier.

The Controller of Crowley, Milner and Company similarly noted the limitations of quarterly data and stated:

> . . . I believe quarterly figures are useful to the extent that they are understood. A person must realize that significant seasonal fluctuations will greatly affect profit. You just can't take one of our quarters and multiply it times four to get the yearly profit figure. Also, most companies (especially large companies) are consistent in their accounting policies and therefore valid comparisons can be made. . .[1]

Walter G. Clinchy, the Treasurer of Atlas Corporation states that, "despite the deviations in several of our fourth quarter results, I still believe that for business as a whole quarterly data are reliable enough for use by financial analysts."[2] The Controller of the Huyck Corporation stated:

> As you have suggested, the problem of preparing meaningful quarterly reports is a trying one. One must realize that the shorter the period for which a report is prepared the less accurate and meaningful it can be. Also, one must realize that the time consumed and the cost of the preparation of audited data at the end of the year are rather prohibitive for interim reports. Finally, there is the ever-present problem of the risk of misleading shareholders with interim reports. I recognize that it is just as misleading to understate as it is to overstate. I believe you will find that all corporate officers responsible for submission of interim statements feel a strong sense of responsibility to produce the best practical data, and I also suspect that most would prefer to err on the conservative side where precision is not practical. I do believe that interim

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[1]Letter from Robert Marquart.

[2]Letter from Walter G. Clinchy.

> statements, accepted for what they are, can be a useful tool for knowledgeable readers in spite of the acknowledged drawbacks.[1]

Summary

The above comments seem to summarize adequately the opinions of the financial officers concerning quarterly reports. That is, that there are limitations and drawbacks inherent in quarterly data and that adjustments sometimes do affect significantly their reliability. In spite of this, it is their opinion that quarterly data can be useful to analysts if they use such data with consideration for their limitations.

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[1]Letter from Frank L. Palmer.

CHAPTER V

EMPIRICAL ANALYSIS

Introduction

The selected firms' data presented in Chapter IV provide specific examples of wide fluctuations in quarterly data. The responses from the financial officers confirmed that material year-end adjustments are not unusual for their firms and have been responsible for wide fluctuations in reported quarterly net income. These material year-end adjustments often throw the fourth quarter's data out of line from that of the other three quarters and lead the user to question, justifiably, the realiability of quarterly data.

As such adjustments affect income statement items other than net sales, any significant effect will be evident in net income and therefore in the net income to net sales ratio. The first section of this chapter will investigate the quarterly N.I./N.S. ratio for a sample of firms to determine if such fluctuations are a common occurrence. The second section will examine the fluctuations in the quarterly provision for federal income taxes and test if such fluctuations

lead to the reporting of desirable results.

Selection of Firms Studied and Source of Data

There are 400 different U. S. industrial firms which were listed on the American Stock Exchange (A.S.E.) between 1962 and 1968 inclusively. One hundred and ten of these firms were randomly selected and their published financial data analyzed. Letters were written to these 110 firms requesting their published quarterly and annual statements for the period 1958 to 1968. While a majority of the firms responded to the letter, very few sent all the information requested. To obtain quarterly information not sent by the firms, a trip was made to the American Stock Exchange Library in New York where copies of the published data of firms listed on that exchange are filed. In most cases there were no quarterly data available for periods prior to 1962 (when the A.S.E. first began requiring quarterly reports). Twenty-three of the selected firms filed no quarterly reports prior to 1968, or their quarterly reports contained inadequate data for meaningful analysis. In other cases certain quarterly reports were missing from the files. In these instances another letter was sent to the firm in question requesting the data for the missing quarter(s). If this request still failed to secure the required data it was obtained from Moody's Industrial News,

a semi-weekly publication, which reports the published quarterly financial information of most firms.

In most cases firms did not report data for the quarter only. They reported year-to-date figures instead. That is, the first quarter report would cover the first three months of the fiscal year, the second quarter report would cover the first six months of the fiscal year, and the third quarter report would cover the first nine months of the fiscal year. In these cases data for the second quarter were obtained by subtracting the first quarter (first three months) data from the second quarter (first six months) data. Similarly, the third and fourth quarter's data were obtained by finding the difference between the year-to-date figures.

From these available data an investigation was made to determine if fourth quarter data presented a different picture of the firm's performance than did the other three quarters' data. A difference could result from a firm's management being over-conservative or over-optimistic during the first three quarters; it could result from a firm's management being unable to adequately measure revenue or expenses (with the given effort) during the first three quarters; or it could result from appropriate adjustments being made only at year-end closing or when required by the annual audit.

In any case the fourth quarter's reported results may be quite different from those of the first three quarters and this difference would be reflected in the N.I./N.S. ratio.

Method Used to Investigate Quarterly Results

In determining whether there is a variation in reported quarterly results for a particular firm the difference between the annual N.I./N.S. ratio and the quarterly N.I./N.S. ratio for each quarter of that year was calculated. After determining these differences for every year in the study the following approach was used:

1. The points were assigned to each quarter depending upon the difference between the annual N.I./N.S. ratio and the quarterly N.I./N.S. ratios ignoring whether the difference was positive or negative. For example:

Points Assigned To Quarter	
4	The farthest from annual percentage
3	The third closest to annual percentage
2	The second closest to annual percentage
1	The closest to annual percentage

The following illustration indicates the points that would be assigned to the various quarters given the N.I./N.S. ratios:

Period	N.I./N.S.	Difference Between Annual & Quarterly Ratio	Points Assigned
1st Quarter 19x1	.055	.003	1
2nd Quarter 19x1	.064	.012	4
3rd Quarter 19x1	.047	.005	2
4th Quarter 19x1	.042	.010	3
Annual	.052		

2. The total points assigned to each quarter for each firm, using the above criteria, were accumulated.

3. The number of firms in which the first quarter deviates the most from annual, the second deviates the most from annual, etc., was determined using the above criteria.

4. The quarterly data were statistically tested to determine if the fourth quarter data deviate more from annual than do any of the other three quarter's data.

In this study the annual N.I./N.S. ratio is considered to be the "normal" ratio. Using the point assignment procedure presented above, the quarter which has the most points assigned to it was considered to be the quarter which experienced the greatest deviation from normal.

In determining the points assigned to a particular quarter of a particular year, ties were infrequently encountered. In these few cases each quarter was assigned the same number of points. For example, if the annual N.I./N.S. ratio was .07 and the first quarter was .045; second quarter .049; third quarter .079 and the fourth quarter .095 the

points assigned would be:

Quarter	Points Assigned
First	3.5
Second	2
Third	1
Fourth	3.5

Similarly, if after analyzing all of the quarterly (and annual data) of a particular firm, the points assigned to two particular quarters were the same, each would be assigned .5 when calculating the total number of firms in which that particular quarter experienced the greatest deviation.

Results of Inquiry Using the Firms' Fiscal Years

The results indicate (using the aforementioned criteria for determining which quarter deviates the most from "normal") that there is a significant difference between the quarters' reported data. The results of this study are summarized in Table 5-1 for the eighty-seven firms for which sufficient quarterly data were available.

The Binomial Test

The binomial test was used to determine if the findings presented are such that statistically tested conclusions can be made concerning reported quarterly data. This nonparametric test is applicable regardless of the shape of the

Table 5-1

NUMBER OF FIRMS IN WHICH THE VARIOUS QUARTERS EXPERIENCE THE GREATEST DEVIATION FROM "NORMAL" USING THE FIRMS' FISCAL YEAR FOR CALCULATING "NORMAL"

Quarter	Number of Firms in Which the Deviation is Greatest	Percent
First	22	25
Second	11	13
Third	7	8
Fourth	47	54
Total	87	100

population under study and is used to determine whether "it is reasonable to believe that proportions (or frequencies) we observe in our sample could have been drawn from a population having a specified value of p."[1] In the present case the binomial test is used to test the null hypothesis that the fourth quarter N.I./N.S. ratio experiences the greatest deviation from "normal" in 25% of the firms in the population. In the absence of any bias it would be expected that each of the four quarters would deviate the most in 25% of the cases or that the first, second, and third quarters combined would deviate the most in 75% of the cases. The null hypothesis is stated

[1]Sidney Siegel, Nonparametric Statistics: For the Behavioral Sciences (McGraw-Hill Book Company, Inc., New York, 1956) 36.

as:

$$H_o: \quad p_4=.25; \; p_{123}=.75$$

The alternative hypothesis is that the fourth quarter N.I./N.S. ratio will indicate the greatest deviation from normal in more than 25% of the cases. The alternative hypothesis is stated as:

$$H_a: \quad P_4 > .25$$

The probability of finding x observations in one classification and N - x observations in the other classification is given by the formula:

$$P_{(x)} = \binom{N}{X} P^x Q^{n-x}$$

Where:

P = Proportion of cases expected in one of the classifications

Q = 1-P = Proportion of cases expected in the other classification

$$\binom{N}{X} = \frac{N!}{X!\ (n-x)!}$$

However, in the present case we are not concerned with finding the probability of having a certain number of observations falling within a classification, given the expected proportion, but rather with the probability of having a certain number, or more, observations falling within a classification,

given the expected proportion. In other words we sum the probability of the observed value with the probabilities of values even more extreme.[1] Fortunately, there are tables which present these probabilities.[2]

Results

In determining if the results given in Table 5-1 are likely to have come from a population with the before mentioned characteristics, the following values are relevant:

P = .25
Q = .75
N = 87

The classification of the data is presented in Table 5-1.2

Table 5-1.2

GREATEST DEVIATION FROM NORMAL

	Σ of First, Second and Third Quarters	Fourth Quarter	Total
Frequency	40	47	87

[1] Sidney Siegel, Nonparametric Statistics, 37-38.

[2] The tables used in this study are included in: Tables Of The Cumulative Binomial Probability Distribution (Harvard University Press, Cambridge, Massachusetts, 1955) which were compiled by the staff of the Computation Laboratory.

The binomial test was used to determine if it is reasonable to believe that fourth quarter N.I./N.S. experiences the greatest deviation in 25% of the firms in the population given that 47 firms, of the 87 firms studied, reported data in which the fourth quarter deviated the most.

The tables indicate that the chance of 47 out of 88 observations falling into a classification, given the probability of .25 is less than .00001.[1] Therefore, the conclusion is that reported fourth quarter data indicate different performance than do the data of the first three quarters and that the greatest deviation from normal (as represented by the reported N.I./N.S. ratio) occurs in the fourth quarter in more than 25 percent of the firms in the population. Using the tables of the binomial distribution it can be stated with 95 percent confidence that between 42 and 65 percent of the U.S. firms listed on the American Stock Exchange between 1962 and 1968 inclusively reported the greatest deviation from normal (as represented by the reported N.I./N.S. ratio) as occurring in the fourth quarter.[2] This holds

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[1] Tables of the Cumulative Binomial Probability Distribution, p. 156. (As the tables include figures for 86 and 88 observations, but not 87, the figures for 88 were used. This gives a more conservative result than would have been the case if 87 were available)

[2] See Carl A. Bennett and Norman L. Franklin, Statistical Analysis in Chemistry and the Chemical Industry (John Wiley & Sons, Inc., New York: 1954) 603-605.

although there appears to be no reason to expect the deviation from normal of the fourth quarter to be greater than the deviation of any of the other three quarters.

It should also be noted that there is no evidence that the reported earnings of the first three quarters of a year (when there is more opportunity for management) are overstated. Assuming that a "higher" N.I./N.S. ratio is more likely to be the result of an overstatement rather than an understatement of net income, and that a "lower" N.I./N.S. ratio is more likely to be the result of an understatement rather than an overstatement of net income, the findings indicate that the fourth quarters do not tend to be understated. There were 305 instances in which the fourth quarter ratio was either higher or lower than any of the other three quarters of the year. In 171 (56%) of these cases the fourth quarter ratio was the highest and in 134 (44%) was the ratio the lowest. As the fourth quarter data are the difference between audited annual figures and accumulated nine months data, these results imply that the first three quarters' data are not overstated and, if they are biased, tend to be understated.

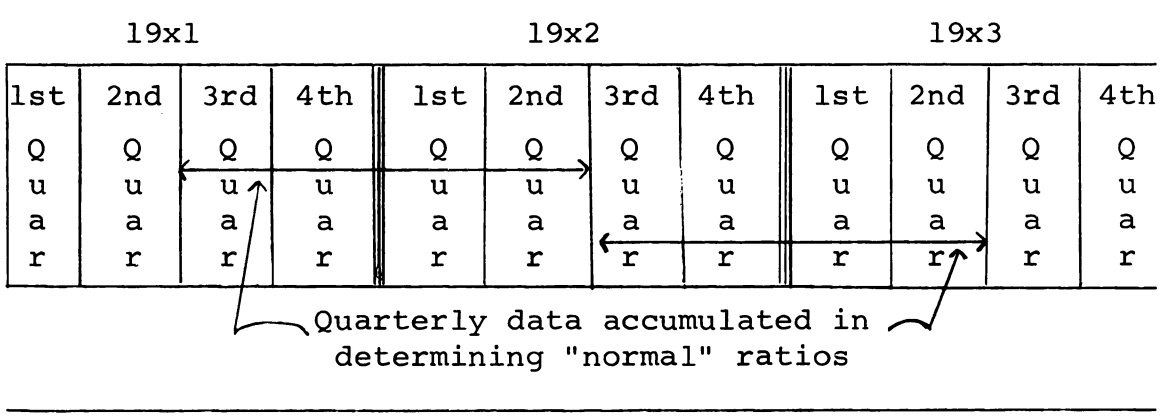
Results of Inquiry Splitting the Firms' Fiscal Year

In the prior analysis there could be a question raised as to a developing trend biasing the results. That is, if the

firms' expenses were either increasing or decreasing in relationship to net sales the results could affect the N.I./N.S. ratio with the fourth quarter being affected more than the other quarters. This could result in the fourth quarter deviating more than the other three quarters because of the facts and not unreliable reporting. In order to eliminate this potential bias, the fiscal year was not used to calculate "normal" but instead, the third and fourth quarters of one fiscal year and the first and second quarters of the following fiscal year were accumulated and considered to be "normal". This is illustrated in Figure 5-1.

Figure 5-1

SPLITTING THE FISCAL YEAR



Using the same criteria as in the earlier test (but changing the period used for calculating the "normal" ratio)

the analysis again indicates that there is a substantial difference between the quarters' reported data. The results using the above "normal" period are presented in Table 5-2 for the 87 firms for which sufficient data were available.

Table 5-2

NUMBER OF FIRMS IN WHICH THE VARIOUS QUARTERS EXPERIENCE THE GREATEST DEVIATION FROM "NORMAL" SPLITTING THE FIRMS' FISCAL YEARS WHEN CALCULATING "NORMAL"

Quarter	Number of Firms in Which the Deviation is Greatest	Percent
Third	16	19
Fourth	45	51
First	10	11
Second	16	19
Total	87	100

Results of Binomial Test

The data are classified in Table 5-2.1. Again the binomial test is used to determine if it is reasonable to believe that fourth quarter N.I./N.S. experiences the maximum deviation in 25% of the firms in the population given that 45 firms, of the 87 firms studied, reported fourth quarter N.I./N.S. which deviated more from normal than any of the other quarters.

Table 5-2.1

GREATEST DEVIATION FROM NORMAL

	Σ of First, Second and Third Quarters	Fourth Quarter	Total
Frequency	42	45	87

The probability of 45, out of 88 observations, falling into a classification given the probability of .25 is less than .00001.[1]

Again the conclusion is that reported fourth quarter data indicate different performance than do the data of the first three quarters and that the greatest deviation from normal (as represented by the N.I./N.S. ratio) occurs in the fourth quarter in more than 25 percent of the firms in the population. It can be stated with 95 percent confidence that between 40 and 63 percent of the firms in the population will report the greatest deviation from normal (as represented by the N.I./N.S. ratio) as occurring in the fourth quarter.[2]

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[1]Again N=88 was used because N=87 is not available in tables.

[2]See Carl A. Bennett and Norman L. Franklin, Statistical Analysis In Chemistry, 603-605.

This holds although there appears to be no reason to expect the deviation from normal of the fourth quarter to be greater than the deviation of any of the other three quarters.

Splitting the Fiscal Year and Eliminating Seasonal Data:

Because total fixed expenses do not vary with production or sales volume it is possible that these charges, as a percentage of quarterly sales, may vary significantly. This would cause the N.I./N.S. ratios to differ between quarters depending upon the amount of sales of the particular quarter. This would be true if annual non-manufacturing fixed expenses are material and are divided equally between quarters.

To eliminate this possible bias the identical analysis was conducted eliminating those years in which fourth quarter sales indicated seasonality. The criterion for determining seasonality is borrowed from Green's paper, "Interim Reporting: Directing Costing and Seasonalizing." Any quarter which reported sales of greater than 30 percent of annual sales (or less than 20 percent of annual sales) Green defined as being subject to seasonality factors.[1] This criterion was applied to every year in the study to determine those fourth quarters

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[1]David Green, Jr., Interim Reporting: Direct Costing and Seasonalizing," p. 7.

which were of a seasonal nature. If they were classified as seasonal the year under review was eliminated from consideration.

Results Adjusting for Seasonality

Using the same time span for the normal period as in the preceding test (i.e., the third and fourth quarter of one year and the first and second quarter of the following year) and eliminating the years in which the fourth quarter is of a seasonal nature gives results similar to the preceding. That is, there is a significant difference between the quarters' reported data. After eliminating seasonal data, as defined above, eighty firms remained in the sample. The results are presented in Table 5-3.

Table 5-3

NUMBER OF FIRMS IN WHICH THE VARIOUS QUARTERS EXPERIENCE THE GREATEST DEVIATION FROM "NORMAL" SPLITTING THE FIRMS' FISCAL YEARS WHEN CALCULATING "NORMAL" AND ELIMINATING SEASONAL DATA

Quarter	Number of Firms in which the Deviation is Greatest	Percent
Third	14	17
Fourth	39	49
First	9	11
Second	18	23
Total	80	100

Results of Binomial Test

The data are classified in Table 5-3.1. Although the percentage of firms in which the fourth quarter reflects the greatest deviation is not quite as large as in the previous two cases, the results of the test are very similar. As before,

Table 5-3.1

GREATEST DEVIATION FROM NORMAL

	Σ of First, Second and Third Quarters	Fourth Quarter	Total
Frequency	41	39	80

the test indicates that it is not reasonable to believe that fourth quarter N.I./N.S. experiences the greatest deviation in 25% of the firms in the population, given that 39 firms out of the 80 firms studied, reported fourth quarter N.I./N.S. which deviated more from normal than did any of the other three quarters. In fact, the tables indicate that the chance of this happening given the probability of .25, is again less than .00001.

The conclusion is that, after eliminating seasonal data, the reported fourth quarter data indicate different performance than do the data of the first three quarters and

that the greatest deviation from normal (as represented by the N.I./N.S. ratio) occurs in the fourth quarter in more than 25 percent of the firms in the population. It can be stated with 95 percent confidence that between 37 and 61 percent of the firms in the population will report the greatest deviation from normal (as represented by the N.I./N.S. ratio) as occurring in the fourth quarter.[1] This holds although the firms' operations do not appear to provide any reason for expecting the deviation from normal of the fourth quarter to be greater than the deviation of any of the other three quarters from normal.

Summary

These findings confirm that fourth quarter reported results (as measured by the N.I./N.S. ratio) do deviate from those of the other three quarters of the year although there appears to be no reason for believing that the firms' actual operating activities cause this deviation. This is true even if those years in which the fourth quarter is subject to seasonal sales activity are eliminated. These findings verify that the problems that are inherent in quarterly reporting

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[1]See Carl A. Bennett and Norman L. Franklin, Statistical Analysis in Chemistry, 603-605.

do affect the reported results and that quarterly statements are limited in their reliability.

Managing Quarterly Data

The Treasurer of the Stepan Chemical Company noted that fourth quarter results "represent the difference between the annual figures and the previously reported nine months."[1] This implies that they represent the difference between the reported data for the first nine months (which were unaudited and vulnerable to "management") and audited annual figures (which are generally assumed to be reliable). If the first nine months data were "managed" we might expect to find the fourth quarter data deviating from the data of the first three quarters. As this deviation was indicated by the facts presented earlier, the question of managing quarterly data will now be investigated.

Motives for Managing Net Income

Every company is aware of the market price of its stock and likewise every company is aware of the influence that reported net income can have on the market price. It is generally conceded that fluctuating earnings are not valued as highly as stable earnings, given the same expected earnings,

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[1]Letter from W. W. Meier.

ceteris paribus. For this reason some hold that management uses the flexibility allowed by accounting methods to manage reported income.

Hammel and Hodes, in discussing the factors that influence price-earnings ratios, stated:

> . . .Companies with a history of highly volatile earnings tend to trade at lower price-earnings multiples than other comparable companies whose growth in earnings have been more stable around a basic trend. The empirical evidence shows that this . . . holds even when the volatile and more stable companies have achieved a similar trend growth rate over a long period of years. . .[1]

Myron Gordon stated as a theorem that ". . . management should within the limits of its power, i.e., the latitude allowed by accounting rules, (1) smooth reported income and, (2) smooth the rate of growth in income. . ."[2] In elaborating on why management would ever reduce reported income Gordon stated:

> It may be wondered, how does the downward smoothing of the rate of growth benefit the management of a corporation? Accounting practices that reduce the reported rate of growth when a corporation is highly successful create "hidden reserves" and allow reporting a higher rate of growth than otherwise during "the seven lean years". . .

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[1]John E. Hammel and Daniel A. Hodes, "Factors Influencing Price-earnings Multiples," Financial Analysts Journal, Vol. 23, No. 3 (May-June, 1967) 91.

[2]Myron J. Gordon, "Postulates, Principles and Research in Accounting," p. 262.

> . . . To elaborate, insofar as two or more alternative bases of valuation are allowed for a transaction, management will make the choice as follows: If the choice is just relevant to the current year's income, the choice will be the one that raises (lowers) income if it is below (above) the trend line for the year. If the valuation choice will influence income for a number of years in the future, the prediction is that a corporation with a high (low) rate of growth in income will make the choice that lowers (raises) the rate of growth in income.[1]

Hepworth also elaborated on the desirability of reporting a stable income over time. He said:

> A less tangible, but perhaps more fundamentally important type of advantage of a relatively stable level of periodic income lies in the area of management relations with investors and workers. Certainly the owners and creditors of an enterprise will feel more confident toward a corporate management which is able to report stable earnings than if considerable fluctuations of reported earnings exist. . . A sharp increase in reported profits is very likely to produce the feeling in the minds of the members of the working force that they should participate to a greater extent in such profits, with existing demands for wage increases, strikes and general industrial unrest . . . It would seem that the maintenance of a relatively stable level of periodic income might do much to reduce the effects of "waves of optimism and pessimism" on the level of business activity.[2]

Chambers also commented on the effect that alternative accounting methods could have on the price of a firm's stock.

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[1] Ibid.

[2] Samuel R. Hepworth, "Smoothing Periodic Income," p. 34.

He stated, ". . . suppose that there are alternative sets of rules which may be adopted and abandoned at the option of management. It will then be possible at some times to influence favorably the valuation of stockholders, actual and potential, and at other times to influence favorably the valuations of bondholders, actual and potential. . ."[1]

The aforementioned views concerning the motives for managing income are applicable to both quarterly and annual earnings. Seidler and Benjes stated: "It has always been widely understood that some companies may have a definite interest in presenting reported incomes which are either higher or lower than income which might be arrived at from completely unbiased viewpoints."[2] They also noted that management of income is much easier in quarterly reports than it is in annual reports.

As these quarterly reports are unaudited the firm has some opportunity to "manage" most items used to calculate net income. While no one accuses management of completely ignoring the facts in quarterly statements, Thomas Holton makes the accusation that quarterly earnings are stabilized

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[1]Raymond J. Chambers, Accounting, Evaluation and Economic Behavior, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1966), p. 281.

[2]Seidler and Benjes, "Credibility Gap," p. 111.

by accounting techniques although noting that he is unable to prove this.[1]

One problem that a researcher faces in attempting to investigate "management" of net income on a quarterly basis is the lack of detail in quarterly reports. This is true in the statements themselves as well as in footnotes and textual material. However, the provision for federal income tax is one very potent means of "managing" income and it is often present in the quarterly income statement. The following section will investigate the fluctuations in the federal income tax to net income before taxes ratio for evidence of "management."

Federal Income Taxes and "Managing" Net Income

As no independent audit is performed on quarterly statements there is more opportunity for management to "manage" quarterly income than annual income. The quarterly provision for federal income tax provides management with one opportunity for managing reported earnings. However, if a firm does not use interperiod tax allocation (base the tax expense on the current year's published financial data) but charges as

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[1]Thomas L. Holton, "Discussion of the Predictive Power of First-Quarter Earnings Reports: A Replication," Empirical Research in Accounting: Selected Studies 1966, 38.

expense the amount currently payable to the government, it may be difficult to determine if the tax provision is used to "manage" reported income. It is possible, although unlikely, that significant fluctuations in the quarterly tax ratios which appear to "manage" net income may be caused by the difference between financially reported net income before taxes and taxable income per the tax return.[1] The fact that this is a possibility required that the analysis be broken down according to (1) firms that allocate taxes; and (2) firms that do not allocate taxes.

A firm's performance is often evaluated by comparing currently reported quarterly net income with reported net income for the same quarter of the prior year. "Most interim reports are presented by comparing the interim results for a

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[1]The following is an extreme example of such possible fluctuations within a given year:

	Per Financial Statements			Per Tax Return	
Quarter	Tax Expense	Net Income Before Taxes	Tax NIBT	Net Income Before Taxes	Tax NIBT
First	$105,000	$250,000	.42	$210,000	.50
Second	120,000	250,000	.48	240,000	.50
Third	140,000	300,000	.467	280,000	.50
Fourth	130,000	400,000	.325	260,000	.50
Year	$495,000	$1,200,000	.413	$990,000	.50

Although the Tax/NIBT per the financial statements varied widely the Tax/NIBT per the tax return was stable over the four quarters.

particular period of one year with the same period of the preceding year."[1] The comparison between these periods is emphasized in both the financial and textual portions of quarterly reports and provides management with an incentive to report net income as high as (and preferably higher than) income for the same quarter of the prior year.

There appears to be no reason for the federal income tax/net income before tax (tax/NIBT) on a quarterly basis to deviate erratically from an annual basis.[2] Accordingly the

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[1]Neubig, "Effect of Periodicity," p. 34.

[2]The letters from the financial officers (see Chapter IV) stated that the estimated effective annual tax rate is applied in each quarter of that year. This procedure was verified in a discussion with a partner of one of the large certified public accounting firms.

Another acceptable method for computing taxes is given by formulae 1 and 2 below. If formula 1 was used for computing quarterly taxes, and if the income subject to taxes varies significantly between the four quarters of the year, the tax ratio could also vary.

1.

$$\text{Quarterly Tax Provision} = .22\left(\text{Quarterly Income Subject to Taxes}\right) + .26\left[\left(\text{Quarterly Income Subject to Taxes}\right) - 6{,}250\right]$$

2.

$$\text{Annual Tax Provision} = .22\left(\text{Annual Income Subject to Taxes}\right) + .26\left[\left(\text{Annual Income Subject to Taxes}\right) - 25{,}000\right]$$

The following is an example of such possible variations:

Quarter	Income Subject To Taxes	Tax	Tax/NIBT
First	$200,250	$ 94,495	.4719
Second	200,250	94,495	.4719
Third	300,250	142,495	.4746
Fourth	300,250	142,495	.4746
Annual	$1,001,000	$473,980	.4735

While the quarterly tax/NIBT ratio may vary in cases such as the above the effect is generally limited. In the following analysis it is assumed that the annual tax rate is applicable in each quarter of that year.

sign test can be used to determine if this percentage varies depending upon the difference between the net income for the quarter under review and for the same quarter of the preceding year. In this analysis an assumption is made that one of management's objectives is to minimize any unfavorable difference between the current quarter's income and income for the same quarter of the prior year.

The sign test will be used to determine if the quarterly tax/NIBT varies from annual tax/NIBT:

1. To "improve" net income in situations where the application of the annual tax rate would have resulted in net income less than that of the same quarter of the prior year.

2. To "reduce" net income in situations where the application of the annual tax rate would have resulted in net income being greater than that of the same quarter of the prior year.

In determining whether it "improves" or "reduces" results, a comparison has been made between quarterly tax/NIBT and annual tax/NIBT. In this analysis, the federal income tax will be considered to "improve" if the tax charged (credited) on a quarterly basis increases net income after taxes over, or reduces net loss after taxes under, what it would have been if the annual tax percentage had been used. Similarly, the federal income tax will be considered to "reduce" if the tax charged (credited) on a quarterly basis

reduces net income after taxes under, or increases net loss after taxes over, what it would have been if the annual tax percentage had been used. The criteria for determining whether the quarterly tax/NIBT "improves" or "reduces" net income after taxes is presented in Figure 5-2.

Statistical Test to be Used

The statistical test used in determining if the fluctuations in the quarterly tax/NIBT ratio affect quarterly net income in the manner stated above is the sign test. This is a nonparametric test "which is based on the signs of the observed differences (that is, whether they are positive or negative) instead of their actual magnitudes."[1] This test is especially applicable to the present case because it does not require that the observations be independent.[2] In the proposed test, the observations are not independent as the amount of tax charged in one period (and therefore the tax/NIBT) may affect the amount of tax charged in a subsequent period (and therefore the tax/NIBT). For example, if the first quarter income statement shows only a $50,000 tax provision, but actually $75,000 should have been charged, one, two, or

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[1]John E. Freund, Modern Elementary Statistics, (Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1967) 317.

[2]Ibid.

Figure 5-2

CRITERIA FOR DETERMINING IF FEDERAL INCOME TAX IMPROVES OR REDUCES NET INCOME AFTER TAXES

	ANNUAL			
QUARTER	TAX EXPENSE NET INCOME BEFORE TAXES	TAX CREDIT NET LOSS BEFORE TAXES	TAX CREDIT NET INCOME BEFORE TAXES	TAX EXPENSE NET LOSS BEFORE TAXES
If the Tax Expense Net Income Before Taxes is....	Greater - Tax is used to "reduce" Less - Tax is used to "improve"	Greater - Tax is used to "reduce" Less - Tax is used to "improve"	Either Greater or less the Tax is used to "reduce"	Either Greater or less the Tax is used to "improve"
If the Tax Credit Net Loss Before Taxes is....	Greater - Tax is used to "improve" Less - Tax is used to "reduce"	Greater - Tax is used to "improve" Less - Tax is used to "reduce"	Either Greater or less the Tax is used to "reduce"	Either Greater or less the Tax is used to "improve"
If the Tax Credit Net Income Before Taxes is....	Either Greater or less the Tax is used to "improve"	Either Greater or less the Tax is used to "improve"	Greater - Tax is used to "improve" Less - Tax is used to "reduce"	Either Greater or less the Tax is used to "improve"
If the Tax Expense Net Loss Before Taxes is....	Either Greater or less the Tax is used to "reduce"	Either Greater or less the Tax is used to "reduce"	Either Greater or less the Tax is used to "reduce"	Greater - Tax is used to "reduce" Less - Tax is used to "improve"

HOW TO READ TABLE: (Row 1, Column 1) If the quarterly tax expense/net income before tax ratio is greater than the annual tax expense/net income before tax ratio the result will be to reduce net income after taxes under what it would have been if the annual tax percentage had been used; etc.

possibly all three of the remaining quarterly net income after taxes will be affected as the annual statement will reflect the "correct" amount of tax owed.

As not all firms in the study reported quarterly data which included a provision for federal income taxes, this portion of the study was limited to the data of fifty-four firms. Thirty-five of these firms allocated taxes while nineteen did not.

These data will be used to determine if the quarterly tax rate is greater than the annual tax rate as often as it is less than annual tax rate. The sign test is used to test the null hypothesis that the quarterly tax/NIBT is greater than the annual tax/NIBT as often as it is less than the annual tax/NIBT in situations where:

1. The current quarter's net income would have been greater than that for the same period of the prior year if the annual rate had been used (against the alternative hypothesis that the probability of the quarterly tax/NIBT being greater than annual tax/NIBT in such cases is greater than .50)

2. The current quarter's net income would have been less than that for the same period of the prior year if the annual rate had been used (against the alternative hypothesis that the probability of the quarterly tax/NIBT being less than annual tax/NIBT in such cases is greater than .50).

This test will not prove or disprove that taxes were <u>used</u> by management to "manage" quarterly net income. It will

enable one to say (with a given degree of confidence) that had the annual tax rate been used the net income would have been higher (lower) than that actually reported in the type of situation tested. The test does not allow one to conclude the reasons for the variations in the tax/NIBT ratio, only that they did or did not exist in the situations tested.

The fourth quarter provision for taxes is the difference between audited annual figures and unaudited nine month figures and, therefore, management has no opportunity to "manage" the amount of taxes reported. For this reason, the following analysis applies only to the quarterly tax provisions in each of the first three quarters of the year.

Results of Test

The classification of the quarterly data in those cases where the net income would have been greater than that of the same quarter of the prior year if the annual tax rate had been used is presented in Table 5-4. In terms of the tax/NIBT ratio there were many more cases in which the quarterly tax/NIBT was greater than the annual tax/NIBT ratio.

As the number of observations (quarters included in the study) is greater than 25, the formula for the normal approximation (corrected for continuity) can be used.[1] This

[1]Siegel, Nonparametric Statistics, p. 72.

Table 5-4

QUARTERS IN WHICH THE NET INCOME WOULD HAVE BEEN GREATER THAN FOR THE SAME QUARTER OF THE PRIOR YEAR IF THE ANNUAL TAX RATE HAD BEEN APPLIED

	Quarterly Tax/NIBT Greater Than Annual Tax/NIBT	Quarterly Tax/NIBT Less Than Annual Tax/NIBT
Tax Allocating Firms	163	80
Non-Allocating Firms	67	30

formula is:

$$Z = \frac{(x - .5) - \frac{1}{2}N}{\frac{1}{2}\sqrt{N}}$$

Where Z = Measure of significance when referred to table of observed probabilities associated with values as extreme as observed values of Z in the normal distribution.

X = Observed number of quarters in which the quarterly tax/NIBT is greater than annual tax/NIBT.

N = Total number of quarters for which tax data were analyzed.

Substituting these values into the formula we obtain:

Tax Allocating Firms

$$Z = \frac{(163 - .5) - \frac{1}{2}(243)}{\frac{1}{2}\sqrt{243}}$$

$$= 5.2564$$

Non-Allocating Firms

$$Z = \frac{(67 - .5) - \frac{1}{2}(97)}{\frac{1}{2}\sqrt{97}}$$

$$= 3.6511$$

As both of these Z values are greater than 1.64 (critical value for a level of significance of .05) the null hypothesis can be rejected and the alternative (that the probability of the quarterly tax/NIBT ratio being greater than annual in cases where the quarterly net income would have been greater than that of the same quarter of the prior year if the annual rate had been used, exceeds .50) can be accepted at a level of significance of .05 for both the allocating and non-allocating firms.

Table 5-5

QUARTERS IN WHICH THE NET INCOME WOULD HAVE BEEN LESS THAN FOR THE SAME QUARTER OF THE PRIOR YEAR IF THE ANNUAL TAX RATE HAD BEEN APPLIED

	Quarterly Tax/NIBT Greater Than Annual Tax/NIBT	Quarterly Tax/NIBT Less Than Annual Tax/NIBT
Tax Allocating Firms	75	79
Non-Allocating Firms	30	28

Table 5-5 presents the findings regarding quarters in which the net income would have been less than that of the same quarter of the prior year if the annual tax rate had been used. Substituting the above values into the formula given

on page 116, the following is obtained:

Tax Allocating Firms	Non-Allocating Firms
$Z = \frac{(79 - .5) - \frac{1}{2}(154)}{\frac{1}{2}\sqrt{154}}$	$Z = \frac{(28 - .5) - \frac{1}{2}(58)}{\frac{1}{2}\sqrt{58}}$
$= .2415$	$= -.3937$

As these values are less than $Z_{0.05} = 1.64$ (the critical value at the .05 significance level) there is no evidence to reject the null hypothesis and therefore the conclusion is that there is no reason to believe that the quarterly tax/NIBT is less than annual in cases where the quarterly net income would have been less than that of the same quarter of the prior year if the annual tax rate had been used.

Restrictions on Quarterly Tax Percentage Deviating from Annual

If a particular quarter's tax/NIBT ratio deviates (either planned or otherwise) from the annual percentage a subsequent quarter's tax/NIBT will have to deviate in the opposite direction. This places a restriction on the use of taxes for "managing" net income for all the four quarters of the year. However, if taxes are used to "manage" reported quarterly earnings, we would expect that this would be especially evident in the first quarter's data, as at this point of time there are no restrictions due to past provisions for

quarterly taxes.

Analysis of First Quarter Taxes

The classification of first quarter data in which the net income would have been greater than that of the same quarter of the prior year if the annual tax rate had been used is presented in Table 5-6. Substituting these values into the

Table 5-6

FIRST QUARTERS IN WHICH THE NET INCOME WOULD HAVE BEEN GREATER THAN FOR THE SAME QUARTER OF THE PRIOR YEAR IF THE ANNUAL RATE HAD BEEN APPLIED

	Quarterly Tax/NIBT Greater Than Annual Tax/NIBT	Quarterly Tax/NIBT Less Than Annual Tax/NIBT
Tax Allocating Firms	55	28
Non-Allocating Firms	17	13

formula given on page 116, the following is obtained:

Tax Allocating Firms

$$Z = \frac{(55 - .5) - \frac{1}{2}(83)}{\frac{1}{2}\sqrt{83}}$$

$$= 2.8509$$

Non-Allocating Firms

$$Z = \frac{(17 - .5) - \frac{1}{2}(30)}{\frac{1}{2}\sqrt{30}}$$

$$= .5475$$

As the calculated Z value of 2.8509 for the tax allocating firms exceeds 1.64 the null hypothesis is rejected

and the alternative can be accepted at a level of significance of .05. Namely, that the probability that the first quarter's tax/NIBT being greater than annual, in cases where the quarterly net income would have been greater than that of the first quarter of the prior year if the annual rate had been used, exceeds .50.

The Z value of .5475 is less than 1.64 and therefore there is no evidence to reject the null hypothesis for the non-allocating firms. For these firms the conclusion is that there is no reason to believe that the first quarter's tax/NIBT is greater than annual in cases where the first quarter's net income would have been greater than that of the same quarter of the prior year if the annual tax rate had been used.

Table 5-7 presents the findings regarding first quarters in which the net income would have been less than that of

Table 5-7

FIRST QUARTERS IN WHICH THE NET INCOME WOULD HAVE BEEN LESS THAN FOR THE SAME QUARTER OF THE PRIOR YEAR IF THE ANNUAL TAX RATE HAD BEEN USED

	Quarterly Tax/NIBT Greater Than Annual Tax/NIBT	Quarterly Tax/NIBT Less Than Annual Tax/NIBT
Tax Allocating Firms	24	27
Non-Allocating Firms	9	9

the same quarter of the prior year if the annual tax rate had been used. Substituting the above values into the formula given on page 116 the following is obtained:

Tax Allocating Firms	Non-Allocating Firms
$Z = \frac{(27 - .5) - \frac{1}{2}(51)}{\frac{1}{2}\sqrt{51}}$	$Z = \frac{(9 - .5) - \frac{1}{2}(18)}{\frac{1}{2}\sqrt{18}}$
$= .2801$	$= -.2358$

These give results similar to those obtained when data from all four quarters are used. Namely, that there is no evidence to reject the null hypothesis and therefore the conclusion is that there is no reason to believe that the first quarters' tax/NIBT is less than annual in cases where the first quarters' net income would have been less than that of the same quarter of the prior year if the annual tax rate had been used for either the allocating or the non-allocating firms.

Summary

Tax Allocating Firms

On the basis of the above analysis and tests it is concluded that the quarterly tax/NIBT ratio, in cases where the current quarter's net income would have been greater than for the same quarter of the prior year if the annual rate had been used, tends to be greater than the annual tax/NIBT ratio.

This results in a reduction in net income under what it would have been if the annual tax rate had been used. However, the evidence does not indicate that quarterly taxes tend to increase net income in cases when the current quarter's net income would have been less than for the same quarter of the prior year if the annual tax rate had been used.

Non-Allocating Firms

The evidence indicates that the quarterly tax/NIBT ratio, in situations where the current quarter's net income would have been greater than for the same quarter of the prior year if the annual rate had been used, tend to be greater than the annual tax/NIBT ratio, if data from all four quarters are analyzed. However, if data from only the first quarters are analyzed there is no indication that the quarterly tax rate is greater than the annual rate in such situations. There is no evidence that quarterly taxes tend to increase net income in cases where the current quarter's net income would have been less than for the same quarter of the prior year if the annual rate had been used.

Conclusions

The findings presented in this chapter indicate that fourth quarter data depict a different image of the firm's

performance than do the other three quarters of the year. This variation is reflected in net income and implies that the reliability of reported quarterly net income is questionable. The findings also demonstrate that the quarterly tax rate tends to be higher than the annual tax rate when considering those quarters in which the application of the annual rate would have resulted in net income being higher than for the same quarter of the prior year. This may not indicate that accountants use taxes to "manage" net income after taxes but only that they are following a conservative approach i.e., report in such a manner that net income will be conservatively reported.

The evidence supports the opinions of the top financial officers that fourth quarter data are often out of line with those of the other three quarters. Accordingly, the user of quarterly data should be aware of this tendency and consider the limitations of quarterly data when using them.

CHAPTER VI

THE REVISION OF QUARTERLY DATA

Because of the audit performed on a firm's annual statements and the accompanying auditor's certificate, the assumption can be made that the annual statements are presented in accordance with "generally accepted accounting principles." However, if the annual audit reveals that certain material adjustments must be made, how should the effects of such adjustments be reported and/or disclosed? If prior quarters' data are affected, the problem of presenting the effects of the adjustments becomes particularly pertinent. This same problem exists in terms of required adjustments discovered subsequent to the issuance of any interim report. In this respect, Neubig questioned firms on the methods of reporting a material adjustment which was discovered in the second quarter that affected profits of the first quarter. He found that a majority reflected the adjustment in the second quarter earnings with no explanation of its nature.[1] This suggests

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[1]Neubig, "The Effects of Periodicity," p. 50.

that in many situations quarterly data are not revised even though subsequent findings indicate that such revisions should be made.

As was indicated in the previous chapter, there are substantial variations between fourth quarter data and date of the first three quarters. It also appears that year-end adjustments are often responsible for these differences. If the failure to make appropriate adjustments during the year results in the fourth quarter data varying considerably from that of the other three quarters, it implies that the other quarters' data were misstated and that they possibly should be revised to rectify this misstatement. As opposed to revising quarterly data to "improve" it, there may be an incentive for management to revise the same quarter of the prior year's net income so that comparing the two periods' statements makes the current quarter's performance appear better than if the revision had not been made.

The desirability of issuing prior data with the current statement is generally conceded. In fact, Capon stated: "Financial statements without comparative figures are not usually helpful."[1] In commenting on what financial analysts

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[1]Frank S. Capon, "The Need For Interim Statements," The Canadian Chartered Accountant, Vol. 67, No. 4 (October, 1955) 280.

want in the financial statements, Richard Bradish stated, "Comparative statements are one important way to aid in the examination of financial data by permitting a ready comparison of the results of current operation with those of prior years."[1] Moskowitz noted the usefulness of comparative figures in minimizing the seasonal effect in certain businesses. He stated: "The accountant may minimize the distortions in interim operating results by presenting comparative figures for the corresponding prior interim period."[2]

As stated in Chapter V, the quarterly statements often compare the current quarter's performance with the performance of the same period of the preceding year. Therefore, management can affect the reader's evaluation of the firm's performance for the current quarter by revising the originally reported data for the same quarter of the prior year.

Revising Quarterly Data:

The Accounting Principles Board has recognized that in certain instances prior period adjustments are warranted.

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[1]Richard D. Bradish, "Corporate Reporting and the Financial Analysts," The Accounting Review, Vol. XL, No. 4 (October, 1965) 759.

[2]Harvey D. Moskowitz, "Improving Interim Reports of Seasonal Businesses by Allocation of Fixed Costs," The New York Certified Public Accountant, Vol. XXXVII, No. 2 (February, 1967) 118.

In these instances they state, ". . . When comparative statements are presented, corresponding adjustment should be made of the amounts of net income (and the components thereof) and retained earnings balances (as well as other affected balances) for all of the periods reported therein, to reflect the retroactive application of the prior period adjustments. . ."[1]

While the Accounting Principles Board refers to restatement of annual data (no specific statement has been released regarding the revision of quarterly data) it is recognized that in certain cases quarterly data may require revision. In fact, if the noted fourth quarter deviations are due to year-end adjustments, as it appears, then the prior quarters' data may frequently need adjusting. In regards to the revision of quarterly data Bows stated:

> It is quite clear that the purpose of quarterly earnings reports is to provide interested parties with information that will enable them to make consistent comparisons of a company's operating results. With the help of these reports they can exercise precise judgements in determining the progress of the company. It is important for the financial executive to apply sophisticated techniques to both the current and past quarterly earning reports to keep them consistent. Consistency of reporting prevents the investor from becoming confused by distortions which have nothing to do with the basic operating trends of the business.

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[1]Accounting Principles Board, Reporting the Results of Operations. Opinion No. 9, New York: American Institute of Certified Public Accountants, 113.

> To provide for consistency, the financial executive should not hesitate to restate prior reports for significant amounts relating to the outcome of uncertainties and for changes in corporate structure, capitalization, and accounting practice and principles.[1]

The following two cases provide examples of the revision of quarterly data. The potential effect of the failure of a firm to report accurately the original published quarterly data will be investigated following the presentation of the cases. The revising of quarterly data for purposes of influencing the user's evaluation of the firm's performance will also be investigated.

The Cerro Corporation

The published quarterly reports of Cerro Corporation provide information that enables the reader to compare quarterly performances. For example, the first quarter data for a given year is published along with the first quarter data of the preceding year enabling the reader to compare the results of the two quarters. Cerro Corporation has frequently revised its previously reported net income figure for a particular quarter when releasing the data for comparison purposes. During a three year period (1958-1960) the reported

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[1]Bows, "Standards for Consistency in Interim Reports." 24.

net income in nine out of the twelve quarters was revised although the annual net income was never revised. The original, and revised, figures are presented in Table 6-1.

Table 6-1

CERRO CORPORATION
REVISIONS OF PUBLISHED QUARTERLY NET INCOME

Period	Initially Reported Net Income	Subsequently Revised Net Income Same Period	Difference	Percentage Change
1st Qtr., 1958	$ 172,600	$ 116,200	$ (56,400)	33%
2nd Qtr., 1958	447,900	390,200	(57,700)	13%
3rd Qtr., 1958	1,867,300	1,746,000	(121,300)	6%
4th Qtr., 1958	1,481,000	1,716,400	235,400	16%
1st Qtr., 1959	895,700	902,700	7,000	1%
2nd Qtr., 1959	1,680,900	1,673,900	(7,000)	1%
3rd Qtr., 1959	2,582,400	2,582,400	0	0
4th Qtr., 1959	2,843,000	2,843,000	0	0
1st Qtr., 1960	2,273,100	2,273,100	0	0
2nd Qtr., 1960	2,459,600	2,936,000	476,400	19%
3rd Qtr., 1960	2,362,500	2,615,000	252,500	11%
4th Qtr., 1960	2,287,800	1,558,900	(728,900)	32%

( ) Denotes a downward revision

No reason was given for the revision of net income for any of the 1958 or 1959 quarters. In fact, no acknowledgement was made in the quarterly reports to draw the reader's attention to the fact that the comparison figures given for

the same quarter of the prior year were any different from those originally reported.

Acknowledgement was made in the 1961 second quarter's report concerning the fact that the 1960 second quarter's figures issued for comparison purposes were different from those originally reported. The reference stated:

> The 1960 earnings shown are somewhat higher than those previously published as a result of reallocating to the first half of 1960 items of income previously recognized in the second half of the year.[1]

The fact that such revision occurred and, in some cases, the significant amount of the difference, indicates that the potential for, as well as the consequences of, misleading the users of such data should be considered. The lack of adequate disclosure concerning such revisions should, likewise, be considered.

In response to inquiry concerning why the net income of Cerro Corporation was revised the Assistant Controller did not give specific reasons but stated "The decision to revise previously reported quarterly financial data depends on the materiality of the change. An example of such events that would make it necessary to revise previously reported data,

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[1]Cerro Corporation, Interim Report, Six months ended June 30, 1961.

would be the pending 10% surcharge tax".[1]

Varo Incorporated

Varo Incorporated is another firm that has often revised its reported quarterly net income. The extent of these quarterly revisions is presented in Table 6-2 (The annual net income was never revised during this period). Varo has generally not given the reason(s) for such revisions and in most cases it makes no reference at all to the revision of quarterly data. The only time if did specifically refer to a revision was in the report for the third quarter ending January 31, 1967 in which it referred to the revision of third quarter, 1966 data. The reference to the revision stated: "For comparison purposes federal taxes on income have been reduced by $96,891."

Even if revisions are sometimes made to quarterly data to make two sets of statements more comparable, it is expected that these revisions would also improve the accuracy of the data. Assuming that revisions are made to increase the accuracy of quarterly data, the above illustrations indicate the apparent differences between the reliability of quarterly earnings and annual earnings. The illustrations also

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[1]Letter dated June 19, 1968 from H. E. Ferdinand, Assistant Controller, Cerro Corporation.

Table 6-2

VARO INCORPORATED
REVISIONS OF PUBLISHED QUARTERLY NET INCOME

Period	Initially Reported Net Income	Subsequently Revised Net Income Same Period	Difference	Percentage Change
1st Qtr., 1961	$ 54,600	$ 46,800	(7,800)	14%
2nd Qtr., 1961	35,000	35,000	0	0
3rd Qtr., 1961	35,600	19,600	(16,000)	45%
4th Qtr., 1961	21,600	45,400	23,800	110%
1st Qtr., 1964	18,000	20,500	2,500	14%
2nd Qtr., 1964	116,700*	114,100*	2,600	2%
3rd Qtr., 1964	4,000	6,500	2,500	62%
4th Qtr., 1964	101,800	94,200	(7,600)	7%
1st Qtr., 1966	109,500	109,500	0	0
2nd Qtr., 1966	164,000	164,000	0	0
3rd Qtr., 1966	193,500	282,700	89,200	46%
4th Qtr., 1966	277,000	187,800	(89,200)	32%
1st Qtr., 1967	184,400	181,600	(2,800)	2%
2nd Qtr., 1967	242,000	237,900	(4,300)	2%
3rd Qtr., 1967	289,800	296,900	7,100	2%
4th Qtr., 1967	68,800	68,800	0	0

* Denotes a net loss

( ) Denotes a downward revision of net income

indicate the lack of disclosure in the reports concerning the specific reasons for such revisions.

Are Quarterly Data Frequently Revised?

The firms included in the sample published a total of 918 quarterly statements in which data for the same quarter

of the prior year were included for comparison purposes. In 126, of these 918, quarters (14%) the comparative net income given for the same quarter of the prior year was different from that which was originally reported. Some of these 126 revisions were due to mergers and acquisitions; however, in 76 of the revisions there was either no reason given for the revision, or the reason given merely implied that the original figures were incorrect. Some of the reasons given for such revisions are:

1. To reflect income tax readjustment
2. To reflect retroactive adjustments
3. To reflect start-up costs
4. To reflect the fact that the established reserve was not needed
5. To reflect retroactive bad debt adjustments
6. To reflect year-end adjustments.

The following discussion and analysis will not be concerned with revisions resulting from mergers, acquisitions, or a change in the relationship with a subsidiary, but will be concerned with those revisions for which no explanation was given, or the explanation was of the type given in 1 through 6 above.

If no revisions are made to the annual data of a firm, any revisions made to quarterly data will cancel themselves out over the four quarters of the year. That is, no matter

how a given amount is divided into four quarters, the total of the four quarters will remain the same. As the evidence indicates that significant fourth quarter adjustments are common, and annual revisions are rare, the following analysis will be directed toward the first three quarter's data which were revised for reasons other than a merger or acquisition. As the first three quarter's data are prepared without being subject to audit, it is in these three quarters where misstatements are most likely to occur.

Predicting Annual Earnings

As it is reasonable to believe that more information enables management to prepare more accurate statements, it is assumed in this study that the revised figures are more accurate than the originally reported figures. If this is true, it would be expected that the revised quarterly data are "better" than the originally reported data. As one measure of the usefulness of quarterly data is their ability to aid in the prediction of annual earnings one would expect that the revised data, if published instead of the original figures, would be better predictors than were the original data. As stated earlier in this paper, Green and Segall tested if first-quarter earnings were adequate predictors of annual earnings and concluded that they are of little help in forecasting

annual earnings per share.[1] Brown and Niederhoffer found it puzzling that the additional knowledge of first-quarter earnings, approximately one-fourth of annual earnings, was of no benefit in predicting the annual outcome.[2] They tested to see if additional quarterly earnings (i.e., 2nd and 3rd quarter earnings), or additional predictor models would affect the predictive ability of quarterly earnings. They tested the predictive ability of the quarterly earnings data of 519 firms which were available on the Standard and Poor's Compustat Tape.

While Green and Segall found that the earnings for the previous year were the best predictor of annual results, Brown and Niederhoffer found that using quarterly data in two of their interim predictor models gave results superior to this annual predictor model in every test performed. These two models are:

1. The sum of earnings over the most recent four quarters.
2. Earnings for last year plus four times the difference between the average quarterly earnings up to the end of this quarter of this year and this quarter of last year.[3]

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[1]Green and Segall, "The Predictive Power of First-Quarter Earnings Reports," 55.

[2]Brown and Niederhoffer, "The Predictive Content of Quarterly Earnings," 2.

[3]Brown and Niederhoffer, "The Predictive Content of Quarterly Earnings," 5.

Revised Data and Prediction

The two interim models given above were used in this study to empirically test if the revised quarterly net income, if known when the original quarterly report was first published, would have enabled the user to more accurately predict annual earnings than was possible using the originally reported quarterly net income.

For each quarter for which the originally reported net income was revised subsequently (for purposes other than merger, acquisitions, etc.) the net income predicted by applying the original data to each of the models, and the net income predicted by applying the revised data to each of the models, was calculated. These predicted annual earnings were then compared with the actual reported net income for the year in question and the original and revised quarterly data were classified according to their usefulness in predicting the annual net income. In this analysis the data (original or revised) which lead to a predicted net income nearest to the actual annual net income was considered to be the data which lead to the best prediction. The results of this investigation are presented in Table 6-3.

These results indicate that the revised data (when applied to the two predictor models discussed) did not give

Table 6-3

DATA LEADING TO THE BEST PREDICTION OF ANNUAL NET INCOME

Interim Model	Originally Reported Quarterly Data	Revised Quarterly Data
1	23	34
2	35	23
Total	58	57

better results than did the original, presumably less correct, data. In fact, the original data lead to the better prediction in 58 cases while the revised data lead to the better prediction in only 57 cases.

As these revised data do not seem to be "better" data (assuming ability to predict annual performance is an acceptable criterion for determining "better" data and assuming the presented interim predictor models are adequate) than the originally reported data the question is why are they revised? It is possible that the decision to revise quarterly data is influenced by other considerations, one of which may be the opinion that the reader might form concerning the firm's performance as a result of comparing current quarter's net income with net income for the same quarter of the prior year.

Users' Opinions and the Revision of Data

The revision of quarterly net income can lead the reader to presume (when comparing current reported net income against the reported net income for the same quarter of the prior year) that the firm has improved its performance over that of the prior year when, in fact, the "apparent" improvement is only the result of the downward revision of prior quarter's net income. Although the year-end audit certifies to the fair presentation of the annual net income, management has an opportunity to reallocate this income to the various quarters when presenting it for comparison purposes. It is possible that such reallocation is made to the various quarters with the intent of presenting the best possible picture to statement readers. For example, in periods where the current quarter's net income is lower than that originally reported for the same quarter of the prior year, management might improve the reader's opinion of the firm's performance by revising downward the net income for this prior quarter when presenting it for comparison purposes.

Results of Inquiry Regarding Revisions

There is a limitation concerning the use of the revision of prior year's quarterly data for influencing reader's opinion as the total net income for the four quarters is

certified by the annual audit. For example, if the first three quarters' data of the prior year are revised downward the fourth quarter's data of that year must be revised upward. In other words, there is no choice regarding the direction of the revision of fourth quarter net income. For this reason the following analysis applies only to the revision of the first three quarters' data.

Table 6-4 presents the findings regarding the direction of the revision made to the first three quarter's net incomes when the current quarter's net income was less than the originally reported net income for the same quarter of the prior year.

Table 6-4

DIRECTION OF REVISION WHEN THE CURRENT QUARTER'S NET INCOME IS LESS THAN THE ORIGINALLY REPORTED NET INCOME FOR THE SAME QUARTER OF THE PRIOR YEAR

	Net Income Revised Upward	Net Income Revised Downward
Frequency	14	15

The results of this inquiry indicate that there is no evidence that management used the revision of prior quarters' data as a means of improving the picture of the firm's

performance in quarters where the firm's net income is less than for the same quarter of the prior year.

Direction of Revisions

The first three quarter's revised net incomes tend to be higher than the originally reported net incomes. Table 6-5 presents the figures for the first three quarters' originally reported and the revised quarterly income (excluding revisions resulting from mergers, acquisitions, etc.) for the 87 firms in the study for which such information was available. As these figures indicate there is a significant difference, in dollars, between reported and revised quarterly net incomes for these firms which revised quarterly net income. It appears that management is conservative in its original reporting of the first three quarter's net incomes. In fact, the accumulated revised quarterly net incomes for the first three quarters is 33% greater than the originally reported net income.

Table 6-5

NET INCOME FOR THE FIRST THREE QUARTERS WHICH WERE SUBJECTED TO REVISION

	As Originally Reported	As Revised
Accumulated Net Income	$20,603,900	$27,403,800

This conservatism is also indicated in the number of revisions upward as opposed to downward. Of those 41 periods in which the quarterly revisions did not cancel themselves out at the end of the first three quarters, twenty-six of the revisions were upward and only fifteen were downward (see Table 6-6). This again indicates that the originally reported quarterly net income is more likely to be conservatively stated than overstated.

Table 6-6

DIRECTION OF REVISIONS

	Revision Upward	Revision Downward
Frequency	26	15
Percentage	63%	37%

Conclusions

Quarterly data are frequently revised with no explanation given as to the reason for the revision. There are also numerous cases where the explanations given for the revisions imply that the originally reported net incomes were inaccurate. There is no evidence, however, to lead one to suspect that the originally reported quarterly net incomes are

overstated. In fact, it appears that if anything they tend to be conservatively reported.

Likewise, this study provided no evidence to lead one to believe that quarterly data are revised in order to improve the readers' image of the firm's performance for the current quarter. Although there is no evidence to support the opinion that the revised quarterly data are any better than the originally reported data in terms of predicting the annual net income, it appears that these data are revised because subsequent information reveals that the originally reported data were inaccurate.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

This study has been an inquiry into the adequacy of published quarterly data for investment decision making. The major stock exchanges require that listed firms publish quarterly statements and make them available to the public press. Although the reliability of these published quarterly data has been questioned, the evidence indicates that such data are used in investment decision making. The analysis in this study applies only to industrial firms located in the United States which were listed on the American Stock Exchange, and therefore any conclusions reached are, in the strictest sense, applicable only to these firms.

Quarterly Data: Are They Used?

The evidence indicates that published corporate financial data are used by those making investment decisions. This is implied by several writers in the field[1] and was confirmed by those financial analysts responding to the questionnaire.

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[1] See Chapter II of this thesis.

Eighty-one percent of the analysts responding to the questionnaire felt that published quarterly reports were either very useful or quite useful in their analysis concerning the investment quality of a firm's securities. Only nineteen percent felt that quarterly reports were of limited usefulness and no one thought they were completely useless for this purpose. As these analysts feel quarterly data are useful in their analysis, it is presumed that they use these data in their analysis.

Although analysts believe that quarterly data are useful they are not satisfied with the published quarterly statements. Ninety-five percent of the respondents to the questionnaire noted that the usefulness of quarterly reports for purposes of security analysis would be increased if balance sheets, along with the income statements, were made available on a quarterly basis. The respondents also stated that the lack of detail in quarterly statements limited the usefulness of quarterly income statements in their analysis.

The respondents cited several firms and industries which they felt published the most useful quarterly data. A comparison revealed that the most noticeable differences between those cited quarterly statements and the "ordinary" quarterly statement examined in this analysis was in the

detail included in the income statement, as well as in the quantity of textual material, footnotes, and other comments relating to the statements. Every one of the cited firms included a letter to the stockholders which explained the progress (or lack of progress) during the quarter and compared the current performance with that of the same period of the prior year. Also, a large number of these firms included notes to the financial statements while this was rare in the "ordinary" case. Although these statements were more detailed than were the "ordinary" statements there were very few instances where a balance sheet was included.

Quarterly Data: Are They Useful?

It is felt generally that more information is better than less information and, as quarterly statements do contain information it could be assumed that they are beneficial to the users of published financial data. In the case of quarterly data, however, more information could be worse than less information if "more" information is inaccurate or is misleading. Inaccurate and/or misleading information may lead the user of the information to make inappropriate decisions that he would not have made if he had had access to accurate information or had ignored the published quarterly information.

The evidence indicates that quarterly data often are inaccurate and their reliability is therefore questionable. The findings in this study for the U.S. industrial firms listed on the American Stock Exchange between 1961 and 1968 indicate that the available quarterly data often fluctuate widely between quarters and that the fourth quarter deviates significantly from those of the other three quarters. As the fourth quarter data represent the difference between audited annual figures and unaudited nine month figures, this discrepancy in fourth quarter data from those of the first three quarters implies that the first three quarters' data were misstated and maybe misleading. The numerous cases in which originally reported quarterly net income were subsequently revised also indicates that the originally reported quarterly data were inaccurate.

This study verified that the quarterly tax to net income before tax ratio for those firms which allocate taxes was higher than the annual tax ratio in situations where the application of the annual percentage would have resulted in net income being higher than for the same quarter of the prior year. That is, it caused reported net income to be lower than would have been the case if the annual tax ratio had been used and in these cases tended to smooth net income between the

current quarter and for the same quarter of the prior year.

The findings, however, provided no evidence that the quarterly tax percentage was lower than the annual percentage in situations where application of the annual tax rate would have caused net income to be lower than that of the same quarter of the prior year. A lower quarterly, than annual, tax percentage in these situations would have tended to smooth net income between the current quarter and for the same quarter of the prior year. It seems that if management were going to "manipulate" earnings they would be more inclined to "manipulate" to increase net income in situations where net income would otherwise be below that anticipated by outsiders, than to reduce net income in situations where net income would otherwise be above that anticipated by outsiders. This leads to the conclusion that the reported provision for federal income tax is not used to "manipulate" quarterly earnings, but that the tax rate tends to be higher than the annual rate actually applicable. This probably reflects management tendency to be conservative rather than optimistic in its reporting during the first three quarters and to take action which leads to a reporting of a conservative net income. Further evidence that the first three quarters' net income do not tend to be overstated is revealed by the findings that in those

situations in which the fourth quarter deviated more from annual than did the other three quarters the fourth quarter's net income to net sales ratio was highest in 56 percent of the cases and lowest in only 44 percent of the cases.

Another possible method by which management might "manipulate" the readers' opinions concerning the firm's performance is through the revision of prior quarters' data. The comparison between the current quarter's net income and reported net income for the same quarter of the prior year provides the reader of the statement with one reference for evaluating performance, and presumably an increase in net income over that of the prior year's quarter is viewed more favorably by the reader than is a decrease. For this reason, if management were trying to "manipulate" data to convey a favorable picture, they might try to revise downward the net income for the same quarter of the prior year when presenting these data for comparison purposes. Once again there is no evidence that management revised net income with this thought in mind. In fact, most of the revisions of the first three quarter's net incomes resulted in a higher net income. This again points to the possibility that management tends to take action which understates, rather than overstates, quarterly net income.

The Effect of Unreliable Quarterly Data on Investment Decision Making

Even though this study revealed no evidence of "manipulation" by management, the excessive deviation of fourth quarter data from those of the other three quarters' data indicates that the quarterly data are often inaccurate. As it has been established that they are used in investment decision making and that they are often inaccurate, what is the potential effect?

If quarterly data are often inaccurate the use of such data in investment decision making may lead to inappropriate decisions. As the same data are, presumably, used by the buyer (and the potential buyer), as well as the seller (and the potential seller), of the firm's securities the possibility that this will cause one of the parties to make a favorable purchase (sale) is offset by the unfavorable sale (purchase) of the other party. The use of such data by the parties involved may cause the sequel of such a transaction to depend more upon the direction of the inaccuracy than upon the analysis of the reported data themselves. This lack of accurate information certainly hinders the optimum allocation of the investor's resources.

While certain items used in determining net income are often subjected to year-end adjustments, and therefore it

implies that the prior quarter's reported net income is misstated, there are other items that are not subject to such adjustments. The sales figure is one of these types of data. It does not seem unreasonable to assume that the dollar amount of sales for a given quarter would be useful to the prospective user of such data. For this reason it is concluded that quarterly data can be of some help to the user if he is aware of their limitations and does not place too much confidence in the derived net income.

Recommendations

Accounting should play a utilitarian role in our society. Any recommendations for changing reporting practices or techniques should, accordingly, be directed toward helping the users achieve their objectives.

Although it may be impossible to report completely reliable quarterly data with the time and effort now allocated to their preparation, there are additional data that can be reported with little, if any, additional cost or effort. The financial analysts responding to the questionnaire stated that the lack of detail was one of their major criticisms of quarterly data. This lack of detail is evidenced by the fact that some quarterly income statements give only the net sales and the net income figure and possibly net income per share.

The majority of the surveyed firms' quarterly income statements were of the following form:

Net Sales	xxx
Net Income Before Federal Income Taxes	xxx
Provision for Federal Income Taxes	xxx
Net Income	xxx

If accountants have quarterly data in a form that enables them to compute the tax expense and allows them to derive net income, it indicates that data in addition to that disclosed are available for publication. The same components that are used to compute annual net income are needed to compute quarterly net income and should be made available to the public as are the annual data. Also, if accountants have data available which enables them to determine quarterly net income, the data necessary for the preparation of a quarterly balance sheet must likewise be available and should be published. Management should not object to these proposals by arguing that they will provide too much information to their competitors. As these recommendations do not require that more quarterly detail be published than is currently published in the annual report, there is no reason to suspect that the firm's competitive position will be harmed.

There is little doubt that additional effort on the part of accountants preparing quarterly data and/or a quarterly audit by an independent auditor could improve the

reliability of quarterly data. It is also recognized that the "improvement" of quarterly data via either route could be costly. While a quarterly audit by an independent auditor would probably reduce the work involved in, and therefore the cost of, the subsequent annual audit the additional expense would never-the-less be substantial. For this reason the quarterly audit appears to be impractical as a means of improving quarterly data.

While there is no assurance that additional effort by the accountant preparing quarterly data will improve the data, quite possibly it would do so. Probably more importantly, the detail included in quarterly reports should be the same as in the annual report. This should include the detail in the balance sheet as well as in the income statement. The footnotes should be used in the same manner as they are used in the annual report with the additional function of explaining how, where applicable, costs are allocated to quarters. Any unusual material fluctuations, such as the tax/NIBT ratio, between quarters or between the quarters and annual should be explained.

If subsequent findings have revealed that the originally reported quarterly net income was materially in error it should be revised when presented for comparison purposes.

However, any revision of this type should be noted and the items that were revised which change net income should be identified. The reason for the failure to be aware of such information when the data were originally published should also be stated.

The problems involved in preparing completely reliable quarterly data are substantial and probably insurmountable, however, the above recommendations are practical to implement and will increase the usefulness of reported quarterly data. The publishing of a quarterly balance sheet; a more detailed income statement including full disclosure of unusual items, revisions, and allocation procedures, will provide the financial analysts with the same quantity of information on a quarterly basis as on an annual basis. Noting the volume of stock transactions which are affected by quarterly data implies that financial analysts should not have to be content with a very limited quantity of quarterly data on top of the limited quality due to the shortness of the time period being reported on in quarterly statements.

The wide fluctuations in quarterly data revealed by this study emphasize the limitations of quarterly statements. The accountant preparing these statements should convey to the users the lack of precision inherent in reported quarterly

net income. One method of doing this would be to report net income as falling within a range. For example, quarterly net income could be reported at $1,500,000 ± $200,000. The Committee to Prepare a Statement of Basic Accounting Theory commented on the possibility of using multiple valuations in annual reporting and stated that, "the use of such non-deterministic measures is likely to become a part of an expanded accounting discipline of the future."[1] In view of the recognized lack of precision in reported quarterly net income it seems that the application of this concept to quarterly net income should be given serious consideration.

The users of accounting information should be aware of the lack of precision in annual data resulting in part from the multitude of acceptable accounting methods and in part from the fact that a large part of the accounting process involves estimates which are not capable of being scientifically determined. They should also be aware that the shorter time period being reported on in the quarterly reports compounds the problem of this estimating and therefore further limits the ability of the accountant to prepare "accurate" statements.

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[1]Committee to Prepare a Statement of Basic Accounting Theory, Statement of Basic Accounting Theory, p. 65.

The evidence presented in this study indicates that quarterly data are often inaccurate and suggests that the potential mis-advising from the use of such data is significant. As this paper has indicated, reported quarterly net income is often unreliable and therefore many of the items that are used in its determination must also be unreliable. The sales figure, however, is probably dependable and it therefore gives a good indication of the trend of sales revenues. However, the apparent discrepancies in reported net income, and the lack of detail in most cases concerning the other income statement items, makes relying upon quarterly income figures for investment decision-making precarious.

The Independent Auditor

Although the independent auditor only certifies that the published annual data are "fairly presented" the quarterly statements also provide the public with information about the firm. While the cost of a quarterly audit may be prohibitive, the inspection of the four quarter's data, at the time of the annual audit would not be nearly as costly. True, the inspection would be "after the fact" and would not improve the data already reported, but if this review could isolate the items which had unusual variations and could determine the reason(s) for such variations the subsequent reports could probably be

improved. Any noted items which were reported inaccurately could then be revised when presented for comparison purposes.

At approximately the same time that the annual statement is published the firm should release the data for each of the four quarters of the year (which total to the annual figures). These figures need not be included as part of the annual statement, as inclusion could imply that the independent auditor had certified these quarterly statements, but could be made available as a separate report. Although the quarterly figures would not be certified by the independent auditor they would be his estimate of what actually had happened during each of the four quarters of the year. In some cases these figures would be the same as originally published by the firm. The publication of these figures would indicate to the users the pattern of business activity during the year. Any discrepancies between these figures and originally released figures would indicate how reliable the firm's published quarterly data have been in the past and would provide some basis for evaluating the reliability of subsequent quarterly data.

This study has indicated that the reported quarterly data of certain firms (for example, those illustrated in Chapter IV) appear to fluctuate much more than expected and

the pattern of such fluctuations lead one to question the reliability of the data. Other firm's reported quarterly data fluctuate very little and the discrepancy between the fourth quarter's data and the data of the other three quarters is insignificant. This study has provided no insight as to why certain firms' quarterly data fluctuate much more than others. It does not appear that such fluctuations occur only within certain industries but rather that the fluctuations occur in certain firms in many different industries.

The fact that such fluctuations do occur in reported quarterly data; the lack of detail in published quarterly statements, and knowing that quarterly statements are unaudited, should give the reader of quarterly reports a feeling of uneasiness of which he is not aware of when reading the annual statement. While some of the criticisms of presenting reported quarterly data can be reduced by including more detail, much of it appears to be due to the shortness of the reporting period and to the inevitable estimates which are required in all accounting statements. The firm should emphasize those quarterly data which are not subject to estimates and year-end adjustments (such as sales), and to deemphasize quarterly data which are often subject to adjustment. The users of quarterly data should be aware that the evidence

indicates that quarterly income tends to be imprecise and perhaps misleading and, accordingly, they should be hesitant in placing a great deal of reliance on it when predicting the firm's future performance.

APPENDIX A

RANDOMLY SELECTED FIRMS

1. Aberdeen Petroleum Corporation
2. Acme Missiles & Construction Corporation
3. Aero-Flow Dynamics, Inc.
4. Aluminum Company of America
5. Allied Control Company, Inc.
6. Alloys Unlimited, Inc.
7. Alsco, Inc.
8. American-International Aluminum Corporation
9. Anthony Pools, Inc.
10. American Beverage Corporation
11. Apollo Industries, Inc.
12. Astrex, Inc.
13. Atlas Corporation
14. Avien, Inc.
15. Baker Industries, Inc.
16. Banner Industries, Inc.
17. Beck (A. S.) Shoe Corporation
18. Brad Foote Gear Works, Inc.
19. Carnation Company
20. Castle (A. M.) & Company
21. Century Electric Company
22. Circuit Foil Corporation
23. Clark Cable Corporation
24. Clarostat Manufacturing Company, Inc.
25. Colonial Sand & Stone Company, Inc.
26. CompuDyne Corporation
27. Crowley, Milner & Company
28. Curtis Mathes Manufacturing Company
29. Daryl Industries, Inc.
30. Day Mines, Inc.
31. Dixilyn Corporation
32. Drug-Fair-Community Drug Company, Inc.
33. Duraloy Company
34. Duro-Test Corporation
35. Eastern Can Company, Inc.
36. Edo Corporation
37. Electronics Corporation of America
38. Emenee Corporation
39. Esquire, Inc.
40. Esquite Radio & Electronics, Inc.

41. Falcon Seaboard Drilling Company
42. Felmont Oil Corporation
43. Fresnillo Company
44. General Alloys Company
45. Goldfield Corporation
46. Gordon Jewelry Corporation
47. Great Basins Petroleum Company
48. H & B American Corporation
49. Hastings Manufacturing Company
50. Helena Rubinstein, Inc.
51. Hercules Galion Products, Inc.
52. Higbie Manufacturing Company
53. Hoe (R.) & Company, Inc.
54. Hofmann Industries, Inc.
55. Industrial Plywood Company, Inc.
56. Inland Homes Corporation
57. Intex Oil Company
58. Jetronic Industries, Inc.
59. Kaiser Industries Corporation
60. Kay Jewelry Stores, Inc.
61. Kingsford Company
62. L'Aiglon Apparel, Inc.
63. Lithium Corporation of America, Inc.
64. Louis Sherry, Inc.
65. Lundy Electronics & Systems, Inc.
66. Lynch Corporation
67. Mangel Stores Corporation
68. Maule Industries, Inc.
69. McCulloch Oil Corporation of California
70. Milo Electronics Corporation
71. Molybdenum Corporation of America
72. Movielab, Inc.
73. Muter Company
74. National Alfalfa Dehydrating & Milling Company
75. National Bellas Hess, Inc.
76. National Video Corporation
77. Packer's Super Markets, Inc.
78. Pall Corporation
79. Park Chemical Company
80. Pentron Electronics Corporation
81. Phillips Screw Company
82. Piasecki Aircraft Corporation
83. Plum & Atwood Brass & Copper Corporation
84. Prentice-Hall, Inc.
85. Resistoflex Corporation

86. Rodney Metals, Inc.
87. Rogers Corporation
88. Roosevelt Raceway, Inc.
89. Roxbury Carpet Company
90. Rusco Industries, Inc.
91. Salem-Brosius, Inc.
92. Simmons-Boardman Publishing Corporation
93. Southland Royalty Company
94. Stanley Aviation Corporation
95. Stelma, Inc.
96. Stepan Chemical Company
97. Stephan Company
98. Struthers Wells Corporation
99. Technical Operations, Inc.
100. Tel-A-Sign, Inc.
101. Thompson-Starrett Company, Inc.
102. Thorofare Markets, Inc.
103. U. S. Rubber Reclaiming Company, Inc.
104. Varo, Inc.
105. Victoreen Inc.
106. Viewlex, Inc.
107. Vinco Corporation
108. Vikoa, Inc.
109. Wentworth Manufacturing Company
110. Zapata Off-Shore Company

March 15, 1968

Are the data published in quarterly income statements adequate for use in security analysis? Can we increase the usefulness of published quarterly data to financial analysts for their investment decisions?

This is of concern to both analysts and accountants and is a problem which I am investigating for my Ph. D. dissertation research at Michigan State University. In order to evaluate the adequacy of these reports for investment decision making it is necessary to determine the needs of the statement users and to specify the purposes for which the reports are used. For purposes of this study I am assuming that financial analysts represent the statement users and that their needs should be considered.

As you are a Chartered Financial Analyst, your opinions and ideas are needed, both as a basis for evaluating current quarterly reports and to provide a guideline for any suggested revisions in these reports. Your assistance, by answering the enclosed questionnaire, will be very helpful in this respect. Of course, all information given by you will be kept in confidence as I want to use it only to provide a basis for evaluating quarterly reports and recommending changes.

Space is available after each question for any additional comments you desire to make. These comments will be greatly appreciated as will any suggestions concerning this research project. Please indicate on the questionnaire if you would like a summary of the results of this survey.

Thank you for your consideration.

Sincerely yours,

Gale E. Newell

APPENDIX B

QUESTIONNAIRE

QUARTERLY DATA QUESTIONNAIRE

PLEASE INDICATE YOUR OPINION BY CHECKING ONE RESPONSE FOR EACH QUESTION.

1. What do you believe the primary purpose of the published quarterly income statement should be?
   a. To report the actual income for the quarter as if it were a distinct accounting period in itself. ( )
   b. To present data with the expressed purpose of allowing the user to better predict the annual performance of the firm. ( )
   c. To serve mainly a public relations function with little significance attached to the use of such data for decision making by outsiders. ( )
   d. Other ( )

2. How useful do you consider published quarterly reports to be in <u>your</u> analysis of the investment quality of a firm's securities?
   a. Very useful ( )
   b. Quite useful ( )
   c. Of limited usefulness ( )
   d. Of no usefulness ( )

3. How does the fact that quarterly reports cover a shorter time period than do annual reports affect their usefulness in security analysis?
   a. It has no significant effect on their usefulness. ( )
   b. It makes them less useful. ( )
   c. It makes them more useful. ( )
   d. It makes the data insignificant for use in security analysis. ( )

4. How does the fact that quarterly data are not audited affect their usefulness in security analysis?
   a. It has no significant effect on their usefulness. ( )
   b. It makes them less useful. ( )
   c. It makes them more useful. ( )
   d. It makes the data insignificant for use in security analysis. ( )

5. How much confidence do you place in the accuracy of quarterly income data published by firms that engage in a substantial amount of merger activity as compared with data published by firms not so classified?
   a. More confidence ( ) b. Less confidence ( )
   c. Same degree of confidence ( )

6. What would be the effect on the usefulness of quarterly reports for use in <u>your</u> security analysis if balance sheets, along with income statements, were made available on a quarterly basis?
   a. Greatly increase their usefulness ( )
   b. Slightly increase their usefulness ( )
   c. Have no effect on their usefulness ( )

7. If you use published quarterly data in your security analysis, do you have a systematic method for analyzing these data?
   a. Yes ( ) b. No ( )

   If yes, what are the specific methods (i.e. standardized forms, formulae, working papers, etc.)? (It would be greatly appreciated if these standardized procedures, would be made available to the researcher and be returned with the questionnaire)

8. What is your opinion concerning the usefulness (for use in <u>your</u> security analysis) of the following reported quarterly information.
   A. Depreciation expense:
      a. Very useful ( ) c. Of limited usefulness ( )
      b. Quite useful ( ) d. Of no usefulness ( )
   B. Other income (expenses):
      a. Very useful ( ) c. Of limited usefulness ( )
      b. Quite useful ( ) d. Of no usefulness ( )
   C. Provision for Federal Income Tax:
      a. Very useful ( ) c. Of limited usefulness ( )
      b. Quite useful ( ) d. Of no usefulness ( )
   <u>Comments</u>:

9. Which, if any, industries (or firms) do you believe publish the most useful quarterly data for <u>your</u> analysis and why?

10. If you consider the quality of published annual data to be superior to published quarterly data for use in <u>your</u> security analysis, what recommendations do you have for improving quarterly data?

Sign here if you desire a summary of this survey:

_____

APPENDIX C

SUPPLEMENTARY TABLES AND FIGURE

Table C-1

CALCULATIONS FOR DETERMINING THE LINE OF BEST FIT
LEAST SQUARES METHOD
ALLIED CONTROL COMPANY, INC. (N.I./N.S.)

Quarter (X)		N.I./N.S. (Y)	Time Deviations of Each Quarter From Middle Quarter (x)	Squares of x Deviations (x^2)	xY	Trend Ordinates	Deviations of Actual From Line of Best Fit
1		.0086	-14	196	-.1204	.0173	-.0087
2	61	.0266	-13	169	-.3458	.0197	-.0069
3		-.0245	-12	144	.2940	.0221	-.0466
4		.0429	-11	121	-.4719	.0245	.0184
1		.0222	-10	100	-.2220	.0269	-.0047
2	62	.0295	- 9	81	-.2655	.0293	.0002
3		.0144	- 8	64	-.1152	.0317	-.0173
4		.0666	- 7	49	-.4662	.0341	.0325
1		.0232	- 6	36	-.1392	.0365	-.0133
2	63	.0431	- 5	25	-.2155	.0389	.0042
3		.0563	- 4	16	-.2252	.0413	.0150
4		.0897	- 3	9	-.2691	.0437	.0460
1		.0405	- 2	4	-.0810	.0461	-.0056
2	64	.0378	- 1	1	-.0378	.0485	-.0107
3		.0376	0	0	0	.0509	-.0133
4		.0930	1	1	.0930	.0533	.0397
1		.0424	2	4	.0828	.0557	-.0133
2	65	.0427	3	9	.1281	.0581	-.0154
3		.0430	4	16	.1720	.0605	-.0175
4		.0973	5	25	.4865	.0629	.0344
1		.0603	6	36	.3618	.0653	-.0050
2	66	.0754	7	49	.5278	.0677	.0077
3		.0628	8	64	.5024	.0701	-.0073
4		.1014	9	81	.9126	.0725	.0289
1		.0737	10	100	.7370	.0749	-.0012
2	67	.0760	11	121	.8360	.0773	-.0013
3		.0367	12	144	.4404	.0797	-.0430
4		.1136	13	169	1.3632	.0821	.0315
1	68	.0427	14	196	.5978	.0845	-.0418
		1.4755		2,030	4.9164		

Average

$\frac{N.I.}{N.S.} = .0509$

Sum Of The Deviations of Actual From Line of Best Fit

1st Quarter (excluding 1968)	.0518
2nd Quarter	.0464
3rd Quarter	.1600
4th Quarter	.2314

Table C-2

CALCULATIONS FOR DETERMINING THE LINE OF BEST FIT
LEAST SQUARES METHOD
H & B AMERICAN CORPORATION (N.I./N.S.)

Quarter (X)		N.I./N.S. (Y)	Time Deviations of Each Quarter From Middle Quarter (x)	Squares of x Deviations (x^2)	xY	Trend Ordinates	Deviations of Actual From Line of Best Fit
1		.0091	-9.5	90.25	-.0865	.0196	-.0105
2		.0390	-8.5	72.25	-.3315	.0261	+.0129
3	63	.0361	-7.5	56.25	-.2708	.0326	+.0035
4		.0676	-6.5	42.25	-.4394	.0391	+.0285
1		.0700	-5.5	30.25	-.3850	.0456	+.0244
2		.0693	-4.5	20.25	-.3119	.0521	+.0172
3	64	.0784	-3.5	12.25	-.2744	.0586	+.0198
4		.0522	-2.5	6.25	-.1305	.0651	-.0129
1		.0502	-1.5	2.25	-.0753	.0716	-.0214
2		.0504	- .5	.25	-.0252	.0781	-.0277
3	65	.0219	+ .5	.25	+.0110	.0846	-.0627
4		.1244	+1.5	2.25	+.1866	.0911	+.0333
1		.1095	+2.5	6.25	+.2738	.0976	+.0119
2		.1148	+3.5	12.25	+.4018	.1041	+.0107
3	66	.1042	+4.5	20.25	+.4689	.1106	-.0064
4		.1654	+5.5	30.25	+.9097	.1171	+.0483
1		.1033	+6.5	42.25	+.6520	.1236	-.0203
2		.0956	+7.5	56.25	+.7170	.1301	-.0345
3	67	.0987	+8.5	72.25	+.8390	.1366	-.0379
4		.2330	+9.5	90.25	2.2135	.1431	+.0899
Total		1.6931		655.00	4.3428		

Average

$\frac{\text{N.I.}}{\text{N.S.}} = +.0846$

Table C-3

CALCULATIONS FOR DETERMINING THE LINE OF BEST FIT
LEAST SQUARES METHOD
ROXBURY CARPET COMPANY (N.I./N.S.)

Quarter (X)		N.I./N.S. (Y)	Time Deviations of Each Quarter From Middle Quarter (x)	Squares of x Deviations (x^2)	xY	Trend Ordinates	Deviations of Actual From Line of Best Fit
1		.0001	-13.5	182.25	-.0014	.0087	-.0086
2	61	.0135	-12.5	156.25	-.1688	.0069	.0066
3		.0246	-11.5	132.25	-.2829	.0051	.0195
4		-.0289	-10.5	110.25	.3035	.0033	-.0322
1		.0147	- 9.5	90.25	-.1397	.0015	.0132
2	62	.0303	- 8.5	72.25	-.2576	-.0003	.0306
3		.0322	- 7.5	56.25	-.2415	-.0021	.0343
4		-.0076	- 6.5	42.25	.0494	-.0039	-.0037
1		.0123	- 5.5	30.25	-.0677	-.0057	.0180
2	63	-.0028	- 4.5	20.25	.0126	-.0075	.0047
3		-.0143	- 3.5	12.25	.0500	-.0093	-.0050
4		.0355	- 2.5	6.25	-.0888	-.0111	.0244
1		-.0296	- 1.5	2.25	.0444	-.0129	-.0167
2	64	-.0689	- .5	.25	.0345	-.0147	-.0542
3		-.0712	.5	.25	-.0356	-.0165	-.0547
4		.0044	1.5	2.25	.0066	-.0183	.0227
1		-.0354	2.5	6.25	-.0885	-.0201	-.0153
2	65	-.0744	3.5	12.25	-.2604	-.0219	-.0525
3		-.0962	4.5	20.25	-.4329	-.0237	-.0725
4		-.0273	5.5	30.25	-.1502	-.0255	-.0018
1		-.0340	6.5	42.25	-.2210	-.0273	-.0067
2	66	-.0273	7.5	56.25	-.2048	-.0291	.0018
3		-.0654	8.5	72.25	-.5559	-.0309	-.0345
4		.0298	9.5	90.25	.2831	-.0327	.0625
1		-.0463	10.5	110.25	-.4862	-.0345	-.0118
2	67	-.0159	11.5	132.25	-.1829	-.0363	.0204
3		-.0472	12.5	156.25	-.5900	-.0381	-.0091
4		.0347	13.5	182.25	.4685	-.0399	.0746
Total		-.4606		1,827.00	-3.2042		

Average

$\frac{N.I.}{N.S.} = -.0165$

Sum Of The Deviations of Actual From Line of Best Fit

1st Quarter	.0903
2nd Quarter	.1708
3rd Quarter	.2296
4th Quarter	.2219

Table C-4

CALCULATIONS FOR DETERMINING THE LINE OF BEST FIT
LEAST SQUARES METHOD
HUYCK CORPORATION (N.I./N.S.)

Quarter (X)		N.I./N.S. (Y)	Time Deviations of Each Quarter From Middle Quarter (x)	Squares of x Deviations (x^2)	xY	Trend Ordinates	Deviations of Actual From Line of Best Fit
1		.0237	-11.5	132.25	-.2726	.0120	.0117
2	62	.0322	-10.5	110.25	-.3381	.0136	.0186
3		.0276	- 9.5	90.25	-.2622	.0151	.0125
4		.0336	- 8.5	72.25	-.2856	.0167	.0169
1		.0169	- 7.5	56.25	-.1268	.0183	-.0014
2	63	.0114	- 6.5	42.25	-.0741	.0199	-.0085
3		.0227	- 5.5	30.25	-.1249	.0215	.0012
4		.0167	- 4.5	20.25	-.0752	.0231	-.0064
1		.0069	- 3.5	12.25	-.0242	.0247	-.0178
2	64	.0185	- 2.5	6.25	-.0463	.0263	-.0078
3		.0265	- 1.5	2.25	-.0398	.0279	-.0014
4		.0254	- .5	.25	-.0127	.0295	-.0041
1		.0085	.5	.25	.0043	.0310	-.0225
2	65	.0080	1.5	2.25	.0120	.0326	-.0247
3		-.0059	2.5	6.25	.0148	.0342	-.0401
4		.0512	3.5	12.25	.1792	.0358	.0143
1		.0119	4.5	20.25	.0536	.0374	-.0255
2	66	.0271	5.5	30.25	.1491	.0390	-.0107
3		.0352	6.5	42.25	.2288	.0406	-.0054
4		.0900	7.5	56.25	.6750	.0422	.0478
1		.0321	8.5	72.25	.2729	.0438	-.0117
2	67	.0518	9.5	90.25	.4921	.0453	.0065
3		.0563	10.5	110.25	.5912	.0469	.0094
4		.0724	11.5	132.25	.8326	.0485	.0333
Total		.7019		1,150.00	1.8231		

Average

$\frac{N.I.}{N.S.} = .0295$

Sum Of The Deviations of Actual From Line of Best Fit

1st Quarter	.0906
2nd Quarter	.0768
3rd Quarter	.0700
4th Quarter	.1228

Table C-5

CALCULATIONS FOR DETERMINING THE LINE OF BEST FIT
LEAST SQUARES METHOD
HUYCK CORPORATION (TAX/NIBT)

Quarter (X)		Tax/NIBT (Y)	Time Deviations of Each Quarter From Middle Quarter (x)	Squares of x Deviations (x^2)	xY	Trend Ordinates	Deviations of Actual From Line of Best Fit
1		.539	-11.5	132.25	-6.199	.4876	.051
2	62	.553	-10.5	110.25	-5.807	.4872	.066
3		.548	- 9.5	90.25	-5.206	.4869	.061
4		.466	- 8.5	72.25	-3.961	.4865	-.021
1		.549	- 7.5	56.25	-4.118	.4862	.063
2	63	.488	- 6.5	42.25	-3.172	.4859	.001
3		.513	- 5.5	30.25	-2.822	.4855	.027
4		.269	- 4.5	20.25	-1.211	.4852	-.216
1		.507	- 3.5	12.25	-1.775	.4848	.022
2	64	.538	- 2.5	6.25	-1.345	.4845	.053
3		.513	- 1.5	2.25	- .770	.4842	.029
4		.058	- .5	.25	- .029	.4838	-.426
1		.524	.5	.25	.262	.4835	.041
2	65	.518	1.5	2.25	.777	.4832	.035
3		.469	2.5	6.25	1.173	.4828	-.014
4		.376	3.5	12.25	1.316	.4825	-.106
1		.651	4.5	20.25	2.930	.4821	.169
2	66	.531	5.5	30.25	2.921	.4818	.049
3		.564	6.5	42.25	3.666	.4815	.083
4		.513	7.5	56.25	3.848	.4811	.032
1		.510	8.5	72.25	4.335	.4808	.029
2	67	.499	9.5	90.25	4.741	.4804	.019
3		.479	10.5	110.25	5.030	.4801	-.001
4		.437	11.5	132.25	5.026	.4798	-.043
Total		11.612		1,150.00	- .390		

Average

$\frac{\text{Tax}}{\text{NIBT}} = .4838$

Sum Of The Deviations of Actual From Line of Best Fit

1st Quarter	.375
2nd Quarter	.223
3rd Quarter	.215
4th Quarter	.844

Table C-6

CALCULATIONS FOR DETERMINING THE LINE OF BEST FIT
LEAST SQUARES METHOD
HUYCK CORPORATION (OTHER INCOME)

Quarter (X)		Other Income (Y)	Time Deviations of Each Quarter From Middle Quarter (x)	Squares of x Deviations (x^2)	xY	Trend Ordinates	Deviations of Actual From Line of Best Fit
1		$ 3,600	-11.5	132.25	- 41,400	4,161	- 561
2	62	2,000	-10.5	110.25	- 21,000	4,652	- 2,652
3		1,100	- 9.5	90.25	- 10,450	5,143	- 4,043
4		18,100	- 8.5	72.25	-153,850	5,634	12,466
1		2,800	- 7.5	56.25	- 21,000	6,125	- 3,325
2	63	- 700	- 6.5	42.25	4,550	6,616	- 7,316
3		2,200	- 5.5	30.25	- 12,100	7,107	- 4,907
4		22,000	- 4.5	20.25	- 99,000	7,598	14,402
1		15,500	- 3.5	12.25	- 54,250	8,089	7,411
2	64	7,500	- 2.5	6.25	- 18,750	8,580	- 1,080
3		5,500	- 1.5	2.25	- 8,250	9,071	- 3,571
4		7,400	- .5	.25	- 3,700	9,562	- 2,162
1		7,500	.5	.25	3,750	10,053	- 2,553
2	65	1,100	1.5	2.25	1,650	10,544	- 9,444
3		- 400	2.5	6.25	- 1,000	11,035	-11,435
4		14,200	3.5	12.25	49,700	11,526	2,674
1		19,000	4.5	20.25	85,500	12,017	6,983
2	66	15,000	5.5	30.25	82,500	12,508	2,492
3		17,000	6.5	42.25	110,500	12,999	4,001
4		28,700	7.5	56.25	215,250	13,490	15,210
1		300	8.5	72.25	2,550	13,981	-13,681
2	67	3,900	9.5	90.25	37,050	14,472	-10,572
3		0	10.5	110.25	0	14,963	-14,963
4		36,200	11.5	132.25	416,300	15,454	20,746
Total		$229,500		1,150.00	564,550		

Average Other Income = $9,562

Sum Of The Deviations of Actual From Line of Best Fit

1st Quarter	$34,514
2nd Quarter	33,556
3rd Quarter	42,920
4th Quarter	67,660

Table C-7

CALCULATIONS FOR DETERMINING THE LINE OF BEST FIT
LEAST SQUARES METHOD
CUBIC CORPORATION (N.I./N.S.)

Quarter (X)		N.I./N.S. (Y)	Time Deviations of Each Quarter From Middle Quarter (x)	Squares of x Deviations (x^2)	xY	Trend Ordinates	Deviations of Actual From Line of Best Fit
1		.050	-11.5	132.25	-.5750	.034	.016
2		.045	-10.5	110.25	-.4725	.036	.009
3	62	.035	- 9.5	90.25	-.3325	.038	-.003
4		.020	- 8.5	72.25	-.1700	.040	-.020
1		.045	- 7.5	56.25	-.3375	.042	.003
2		.062	- 6.5	42.25	-.4630	.044	.018
3	63	-.007	- 5.5	30.25	.0385	.046	-.053
4		-.057	- 4.5	20.25	.2565	.048	-.105
1		.040	- 3.5	12.25	-.1400	.050	-.010
2		.052	- 2.5	6.25	-.1300	.052	0
3	64	.055	- 1.5	2.25	-.0825	.054	.001
4		.071	- .5	.25	-.0355	.056	.015
1		.043	.5	.25	.0215	.058	-.015
2		.034	1.5	2.25	.0510	.060	-.026
3	65	.017	2.5	6.25	.0425	.062	-.045
4		.090	3.5	12.25	.3150	.064	.026
1		.070	4.5	20.25	.3150	.066	.004
2		.044	5.5	30.25	.2420	.068	-.024
3	66	.053	6.5	42.25	.3445	.070	-.017
4		.085	7.5	56.25	.6375	.072	.013
1		.073	8.5	72.25	.6205	.074	-.001
2		.065	9.5	90.25	.6175	.076	-.011
3	67	.064	10.5	110.25	.6720	.078	-.014
4		.071	11.5	132.25	.8165	.080	-.009
Total		1.120		1,150.00	2.3120		

Average

$\frac{\text{N.I.}}{\text{N.S.}} = .056$

Sum Of The Deviations of Actual From Line of Best Fit

1st Quarter	.049
2nd Quarter	.088
3rd Quarter	.133
4th Quarter	.188

Figure C-1

HUYCK CORPORATION
AND SUBSIDIARY COMPANIES
CONSOLIDATED STATEMENT OF EARNINGS

	Three Months Ended		Year Ended
	March 31 1966	March 31 1965	Dec. 31 1965
Net sales	$8,266,781	$7,332,074	$29,882,754
Other income	18,984	7,503	22,353
	8,285,765	7,339,577	29,905,107
Costs and expenses:			
Cost of goods sold (excluding deprec.)	5,796,111	5,286,696	21,059,658
Depreciation	373,934	367,695	1,357,067
General and administrative	773,930	692,706	2,994,407
Selling & advertising	951,651	787,483	3,310,716
Interest charges	108,804	73,438	309,100
	8,004,430	7,208,018	29,030,948
Earnings before estimated taxes on income	281,335	131,559	874,159
Estimated taxes on income	183,000	69,000	359,000
Net earnings	$ 98,335	$ 62,559	$ 515,159
Earnings per Common share (based on average shares outstanding during the periods)	$.09	$.05	$.52
Common shares outstanding at end of periods	835,106	834,984	835,106

Interim results are subject to year-end adjustments and audit.

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