Order Number 9405520

Market evaluation of discovery of distorted earnings signals: Empirical tests of changes in cash flow expectations, riskiness, and earnings quality hypotheses

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MARKET EVALUATION OF DISCOVERY OF DISTORTED EARNINGS SIGNALS: EMPIRICAL TESTS OF CHANGES IN CASH FLOW EXPECTATIONS, RISKINESS, AND EARNINGS QUALITY HYPOTHESES

By

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A dissertation submitted to the Graduate Faculty in Business in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1993

This manuscript has been read and accepted for the Graduate Faculty in Business in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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ABSTRACT

MARKET EVALUATION OF DISCOVERY OF DISTORTED EARNINGS SIGNALS: EMPIRICAL TESTS OF CHANGES IN CASH FLOW EXPECTATIONS, RISKINESS, AND EARNINGS QUALITY HYPOTHESES

By

Amal El-Sabbagh

Adviser: Prof. Steven Lustgarten

This study examined how discovery of distorted earnings leads equity investors to revise securities value. Little effort has been devoted to the discovery that prior earnings were in error. This study, therefore, enhances the evidence in this area. Using an informational perspective, the purpose was to examine the association between the disclosure and the change in securities price, riskiness, and earnings informativeness.

The study required use of the Dow Jones News Service data base, CRSP tapes, Compustat tapes, NAARS data base, Moody's, and annual reports. Securities abnormal returns were estimated under the CAPM. The results provide evidence of a statistically significant adverse market impact, regardless of the direction of the correction and regardless of the cause of the misrepresentation. Also, the results provide evidence of the perceived increased volatility of future prospects, reflected in unsystematic volatility of securities returns. However, the results reveal that earnings misrepresentations

are firm-specific factors. They have no impact on systematic risk. The stronger market impact associated with intentional misrepresentations, relative to unintentional misrepresentations, does not sustain across the various models used, i.e., inconclusive evidence. Also, equity investors do not differentiate between quarterly and annual earnings misrepresentations. The evidence indicates that disclosure of earnings misrepresentations reveals factors that interfere with the quality of earnings messages. Differential ERC and stock price variability provide evidence of a lower market response to the subsequent earnings signal, relative to prior earnings signal.

Compared to prior research, this study: (1) examines the market adjustemnt that is not restricted to a certain type of earnings misrepresentations; (2) provides stronger evidence and, therefore, a better understanding of the market reaction to the information disclosed; (3) helps to gain some insights of the effect of the information as to the change in the assesssment of riskiness and earnings informativeness; (4) examines the effect of some qualitative attributes of the distortion on the market's adjustments; and (5) incorporates a number of refinements in the research methods, which lead to more reliable and conclusive results.

However, the evidence provided in this study is subject to a major limitation, the sample size. Although the sample size is relatively large, tests of some hypotheses were

performed on smaller subsets of sample firms. Therefore, some results may not be generalizable. Regardless of those limitations, results provide some insights that are still of interest. Other implications can be adressed in future research: (1) the differences in characteristics between companies experiencing earnings misrepresentations compared to their industry members; (2) the effect of earnings misrepresentations on avoiding violation of debt covenants and on serving the management's self-interest, i.e., a positive accounting theory perspective; and (3) the social cost of earnings misrepresentations.

Dedicated to the memory of my father, Sayed Ahmed El-Sabbagh.

A great dedicated fatherhood.

ACKNOWLEDGEMENTS

I am indebted to a great many individuals for their guidance, assistance, and support during the preparation of this dissertation. My special appreciation goes to the members of my dissertation committee. I owe substantial gratitude to Dr. Steven Lustgarten for his continued supervision, timely advice, and encouragement as the chairman of my dissertation committee. I wish also to thank Dr. A Rashad Abdel-Khalik who served on my dissertation committe although he serves in another school, the University of Florida, and despite his heavy schedule as an editor of the Accounting Review. His generosity and support with inspiration will never be forgotten. To him, I express my great debt for his knowledgeable help, critical comments, and guidance. I also owe special gratitude to Dr. Martin Mellman for his guidance and his fruitful role that helped to enhance this project. My greatest thanks are also due to Dr. Martin Benis for his valuable advice and encouragement since the first day of my study toward the PH.D at Baruch College.

For many friends and colleagues, I owe sincere appreciation for their friendly help and support. Great thanks are due to my helpful colleague, Ya-Bing Tang, who generously provided considerable professional computer help and assistance. I am also delighted to express my deep

appreciation to Professor Philip Finn for his significant support and assistance. The editorial assistance provided by my colleague, Ilsa Barber, is considerably appreciated. The massive data search directed by Professor Diane DiMartino is greatly appreciated. Many special thanks go to Professor Marilyn Neimark and to Professor Tony Tinker for their sincere emotional and moral support and encouragement during the various years of my study. I also extend my special appreciation to Dr. Steven Lilien, chairman of the Department of Accountancy, Baruch College; and to Dr. Donald Vredenburgh, executive officer of the PH.D program, Baruch College, for their thoughtfulness and support during my study.

My appreciation and gratitude extend to many members of my family. Unquestionably, my appreciation and love go to my lovely daughters, Sara and Randa, who shared the heavy burden and the sacrifice with patience during the course of my study. To my sister, Safaa El-Sabbagh, my great thanks are due for her considerate support and help during part of the period of my study. My parents deserve the greatest appreciation. To them, I deeply acknowledge the greatest debt of my life for their unfailing sacrifices and their dedicated parenthood. For my father, Sayed Ahmed El-Sabbagh, who could not wait to live the pride of his accomplishment and sacrifice, I dedicate this project to his wonderful memory.

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Financial and microeconomic theories propose that the expected level and risk of future cash flows determine the asset values. Reported earnings are considered to be the most important item of accounting information relevant to the prediction of future cash flows, and, therefore, to the assessment of security prices. The FASB's conceptual framework asserts the superiority of reported earnings to cash flows in predicting amounts, timing, and uncertainty of prospective cash flows. This usefulness has been emphasized in SFAC No. 1, Objectives of Financial Reporting by Business Enterprises (1978), and, then, reiterated in SFAC No. 5, Recognition and Measurement in Financial Statements (1984).

Considerable theoretical and empirical evidence has supported the association between earnings and stock market values [e.g., Miller and Modigliani (1966), Ball and Brown (1968), Beaver (1968), Gonedes (1974), and Patell (1976), among others]. Apart from providing information on expected cash flows, earnings numbers also provide information on the riskiness of the asset (Watts and Zimmerman 1986). The evidence indicates an association between accounting determined and market determined measures of riskiness [e.g., Ball and Brown (1969), Beaver et al. (1970), Beaver et al.

(1979), Beaver and Manegold (1975), Gonedes (1973), and Eskew (1979)].

Financial accounting research has concentrated on the association of earnings changes and changes in accounting methods with security prices. Although the information content of earnings has been the subject of numerous studies, it has always been assumed that earnings numbers were correctly reported. While the discovery of earnings misrepresentations points to the weakness of this assumption, little effort has been devoted to understanding the stock price effect when the market discovers that prior earnings were in error. Therefore, there is lack of empirical evidence on the effect of earnings misrepresentations on market performance.

In an attempt to enhance the evidence in this area, this study examines how the discovery of earnings misrepresentations leads shareholders to revise their assessments of the value of firm securities.[1] However, examining share price behavior around the time of the disclosure of earnings misrepresentations does not imply that other suppliers of capital, i.e., debt capital, are not

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[1]The words misrepresentation, distortion, and noise are used interchangeably in this study to mean the error associated with earnings signal, unintentional or intentional, i.e., the reduction of the degree to which prior accounting earnings messages correspond to the economic earnings or cash flows.

interested in such event. In testing the association between market adjustments and the information disclosed upon the discovery, the maintained hypothesis of this study is that the stock market is efficient with respect to public announcements, in its semistrong form.

1.1 Earnings Misrepresentations

In this study, I examine the effect of disclosure of earnings misrepresentations on the firm's market value based on the view of earnings numbers as an informative variable in evaluating assets, i.e., an informational perspective. Hence, the study uses the AICPA auditing standards definitions of basic financial statements and their misrepresentations. According to SAS No. 29, Reporting on Information Accompanying the Basic Financial Statements in Auditor Submitted Documents, the auditor's standard report covers the basic financial statements; with the descriptions of accounting policies, the notes to financial statements, and schedules and explanatory materials as being part of the basic financial statements.[2] Thus, earnings misrepresentations subjected to investigation in this study are not restricted to the bottom line of the income statement. They include components of earnings,

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[2]AICPA. 1972. Codification of Auditing Standards and Procedures, Statement on Auditing Standards No. 29, Reporting on Information Accompanying the Basic Financial Statements in Auditor-Submitted Documents:AU Section 551, Para. 2.

related notes, and supplementary disclosures. Hence, they cover any part of the external financial report.

Further, distortions in earnings are likely to be intentional rather than random. Both types, unintentional (errors) and intentional (irregularities) misrepresentations, are included in this study. Thus, as described in SAS 53, The Auditor's Responsibility to Detect and Report Errors and Irregularities, earnings misrepresentations include the following:

(A) For errors: mistakes in gathering or processing accounting data from which financial statements are prepared; incorrect accounting estimates arising from oversight or misinterpretation of facts; and mistakes in the application of accounting principles relating to amount, classification, manner of presentation, or disclosure.[3]

(B) For irregularities: manipulation, falsification, or alteration of accounting records or supporting documents from which financial statements are prepared; misrepresentations or intentional omission of events, transactions, or other significant information; and intentional misapplication of accounting principles relating to amounts, classification, manner of

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[3]AICPA. 1988. The Auditor's Responsibility to Detect and Report Errors and Irregularities, Statement on Auditing Standards No. 53 (April), Para. 2.

presentations, or disclosure.[4]

1.2 Objective of Study

The purpose of this study is to examine the existence and the significance of market adjustments to the disclosure of earnings misrepresentations. Hence, in reaching the research objectives, the study represents positive research, that is the emphasis is on what investors do. The study assumes that the market is efficient and, hence, investors use properly the information about misrepresentations to determine securities prices. The focus, therefore, will be on the association between announcements of earnings misrepresentations and the change in: (1) market prices, (2) risk and its association with qualitative characteristics of earnings misrepresentations, and (3) informativeness of subsequent earnings signals.

1.3 Plan of Study

The next chapter discusses the economic implications of the discovery of earnings distortion, and, consequently, the expected market adjustment is described. Also, the importance of the power of the test used is indicated, which delineates how this study contributes to that literature. Chapter 3

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[4]Ibid., Para. 3

explicitly states the research testable hypotheses. The empirical work is described, in chapter 4; the sample selection criteria, the data employed in the analysis, and the models used for test purposes. Chapter 5 contains the empirical results. In chapter 6, some accounting and auditing insights of earnings misrepresentations used in this study are discussed. Chapter 7 concludes with a summary of findings, limitations, and suggestions for future research.

CHAPTER 2

GENERAL PERSPECTIVES

2.1 Earnings Misrepresentations: Economic Reflections on Market Expectations

The objective of financial reporting is to identify relatively efficient and inefficient uses of resources and, hence, to assess relative returns and risks of investments.[5] Consequently, the usefulness of earnings information is determined by the extent to which they help in predicting the amount and riskiness of future cash flows. From these objectives, some features are required of earnings information. The role of earnings information requires that they should be measured and disclosed in such a manner as to help users in predicting the future with a minimum level of uncertainty. Financial reporting, therefore, is required to provide reliable earnings information that helps to reduce uncertainty about future cash flows. Indeed, reliability of accounting information is one of the primary criteria the FASB requires for the information to be useful.[6]

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[5]FASB. 1978. Statement of Financial Accounting Concept No.1, Objectives of Financial Reporting By Business Enterprises, (November), Para. 33.

[6]1FASB. 1980. Statement of Financial Accounting Concept No. 2, Qualitative Characteristics of Accounting Information, (May), Para. 15.

Because of the emphasis on the information content of earnings, their quality is as important as the quantified estimates themselves. However, as economic income can not be observed, we can not assess the accuracy of reported earnings. Earnings, therefore, in information economics studies describing the return/earnings relationship are considered to be a signal that communicates the true cash flows perturbed by noise, e.g., Holthausen and Verrecchia (1988), as follows:

$$\tilde{Y} = \tilde{X} + \tilde{e} \qquad (1)$$

Where: the random variable Y represents accounting earnings; the random variable X , true cash flows, has a normal distribution with mean M and variance σ^2; and the random variable e, a noise term, has a normal distribution with mean zero and variance v. The variance of cash flows, σ^2, represents the true underlying variability, or uncertainty, of cash flows. The noise term, e, or its variance, v, reflects the quality of the earnings reporting system. The value of earnings, Y, therefore, is, to a large extent, determined by the extent to which they are distortion free, among other factors.

Earnings quality and, hence, the expectation of future

cash flows, is a function of the quality of decisions made about production, finance, and investments as well as the quality of management. Nevertheless, as estimates, earnings numbers are not free of errors induced by the chosen accounting methods, standards, and estimates accepted within GAAP. Other than these measurement and evaluation problems, users expect that the process by which accounting numbers are generated leads to earnings free of errors and bias. The discovery of earnings misrepresentation, therefore, conveys earnings with a low quality of information. This could be a signal about management attributes and behavior and about firm characteristics, e.g., profitability of the firm. It can, therefore, mean that reported current earnings are less likely to be sustainable, i.e., it can signal likely troubled future earnings. Hence, the discovered increased noise in the earnings generating system can reflect factors that result in reassessment of economic earnings, i.e., lower the expectations of true future flows, M:[7]

> " noise reduces the degree to which accounting messages correspond to underlying economic events. The more noise in a piece of information, the less useful it is as a basis for assessing performance. Whenever the ability to assess the fulfillment of a contract's terms is lessened due to noise in the selected performance measures, the total set of contracting opportunities found to be mutually acceptable will be reduced."

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[7]Wallace, W.A. 1980. The Economic Role of the Audit in Free and Regulated Markets. New York: Touche Ross & Co., P. 31.

Furthermore, disclosure of earnings misrepresentations implies a potential for legal suits against the management. The expected cost of litigations, including possible losses, will also lead to lowering expectations about future earnings and cash flows [see: Elliot and Swieringa (1985), Kellogg (1984), and Gonedes (1978)].

In addition, as the discovery of the increased noise reveals deterioration in the quality of earnings, the investor's knowlege about performance and outcomes is perturbed. Hence, less, indeed, is known. Although the function of earnings information is to increase knowledge or to reduce uncertainty, the disclosed information leaves decision makers more confused and less knowledgeable about the true economic value of the asset. As confidence is reduced, the likely result is an increase in the doubt of the reliability of the process generating economic flows. Thus, it increases the market's assessment of the probability that the variance of economic earnings, σ^2, is high. The revised expectations in the direction of higher uncertainty can unfavorably affect the terms of trade between the firm and its customers, workers, and suppliers; as described in Titman (1984). Moreover, securities possess value because they possess certain attributes that are valued by investors, e.g., claims to future cash flows. The increased market estimate about the volatility of future economic earnings, therefore,

can affect the firm's credit opportunities. Hence, it can lead to increased interest costs , to hedge against the uncertainty of future returns, e.g., Trueman and Titman (1988):" The greater the probability that this variance is high, the greater the probability of bankruptcy and the lower the selling price of the debt."[8] Consequently, the expected cash flows, M, will decrease by the expected increased cost of capital. Summers (1968) describes the increased compensation of uncertainty due to the distortion in earnings information, as a proxy for cash flows:[9]

> "Financial statements are surely among the devices available for the firm to minimize its purchase of capitalist ignorance within the meaning of the profit-maximization constraint. The more efficient financial statements are, the less return to uncertainty will be necessary.... Firms with bad financial statements would be penalized because capitalists would require a higher return from their equities than from the equities of firms with good financial statements... Capitalist ignorance can be bought at a price."

Thus, the various unfavorable factors, discussed above, associated with disclosure of earnings distortion adversely affect investors' evaluation of expected future cash flows, M, and their variance, σ^2.

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[8]Trueman, B. and Titman, S. 1988. An Explanation for Accounting Income Smoothing. Journal of Accounting Research (Supplement), P. 130.

[9]Summers, E. L. 1968. Observation of Effects of Using Alternative Reorting Practices. The Accounting Review (April), PP.257-265.

The adverse effect is predicted to be associated with the disclosure of the misrepresentation whether it is a result of errors or irregularities. SAS No. 53, The Auditor's Responsibility to Detect and Report Errors and Irregularities, refers to errors as: "unintentional misstatements or omissions of amounts or disclosures in financial statements"[10] ; and irregularities are defined as: "intentional misstatements or omissions of amounts or disclosures in financial statements".[11] Hence, the primary distinction between errors and irregularities is whether the cause is intentional or unintentional. Nevertheless, earnings misrepresentations in either case imply increased noise and reflect a breach in the accounting and control system. Both types can convey an unfavorable view of a firm's conditions. While errors are unintentional, they, nevertheless, reduce the credibility of accounting earnings as a proxy for economic income. Hence, they can reflect substantial signals about firms' characteristics for future cash flows. The analysis by Kinney and McDaniel (1989) indicates unfavorable economic characteristics of firms reporting quarterly earnings with errors. Their evidence indicated that correcting firms are less profitable, have higher debt, are slower growing, and face more serious uncertainties relative to their industries. Consequently, disclosure of earnings misrepresentations due

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[10]AICPA, SAS No. 53, op. cit., Para. 2.

[11]AICPA, SAS No. 53, op. cit., Para. 3.

to errors can be viewed as bad news , as described earlier, for which the stock market would be expected to react negatively.

In addition, in a rational-expectations market, the association of the negative market response and earnings misrepresentations, does not depend on the direction of the earnings correction. Earnings misrepresentations bring bad news that lead to a negative impact on equity investors looking for future earnings, regardless of the sign of the change in earnings. Accounting earnings must report as faithfully as possible the economic conditions and events that they purport to represent, without coloring the image they communicate for the purpose of influencing behavior in some particular direction. Thus, even though more income is preferred to less, understating earnings misleads investors as much as overstating earnings.[12] If reliability has been defined as: "the degree of objectivity plus a bias factor"[13], the attempt to understate results raises questions about the reliability and integrity of the generating process of these results. Hence, it raises questions about the firm characteristics and prospects.

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[12]Worthy, F.S. 1984. Manipulating Profits: How It's Done. Fortune (June), P. 51.

[13]Ijiri, Y., and R.K. Jaedicke. 1966. Reliability and Objectivity of Accounting Measurements. The Accounting Review (July), P. 481.

Furthermore, earnings is the bottom line that has been considered the premier information item provided in financial statements. However, misrepresentations resulting in a zero aggregate correction in prior earnings remains, nevertheless, to reflect poorly on the firm attributes. It is, in turn, expected that such misrepresentations result in an adverse market impact. The aggregate zero effect can result from: (1) reversing misstatements, (2) "classificatory" , or "intra-income statement" misrepresentations, or (3) misrepresentations of "explanatory" disclosures.

First, reversing misstatements shift costs and/or revenues from one period to another, i.e., artificial smoothing.[14] However the accounting literature has little agreement on the measurement of income smoothing, it has, nevertheless, provided various explanations for such behavior. Gordon's theory (1964) manifests the economic incentives that motivate managers to smooth income. It predicts that, given the constraints of GAAP, management will smooth reported income in order to enhance the apparent reliability of prediction. Titman and Trueman (1988) show that, by smoothing income, management may reduce the estimate of various claimants of the firm about the variance of economic flows,

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[14]Artificial, or income, smoothing refers to accounting procedures implemented to shift costs and/or revenues from one period to another. In this study, reversing misstatements are considered a sufficient, but not a necessary, condition for income smoothing.

σ^2, and, hence, the probability of bankruptcy. Moreover, Lev and Kunitzky (1974) provide evidence of a significant association between smoothing of accounting numbers and risk measures. In addition, managerial self-interest can lead to smoothing. Moses (1987) provided evidence that bonus plans provide incentives to avoid fluctuations in earnings to serve the management's self-interest.

Thus, by dampening the abnormal variations in reported numbers, managements can favorably affect the valuation of the corporation's shares, by possibly reducing the apparent risk inherent in the income stream. However, as income smoothing is associated with a non-existent income statibility, fluctuations in income cannot be cocealed without masking the reality, i.e., the smoothed data is an illusion[15]. Thus, the incentives to smooth income can lead to the distortion of both performance measures and the information content of financial statements, Wallace (1980). Lambert (1984) indicates that income smoothing arises as a by-product of the agency relationship, a moral hazard problem. Bernstein (1970) summarizes these effects as follows:[16]

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[15]Bernstein, P. 1984. Surprising the Smoothies. The Journal of Portfolio Management (Fall), P. 10

[16]Bernstein, L.A. 1970. Reserves for Future Costs and Losses. Financial Analysts Journal (January-February), P. 46.

" Offsetting distorts both the income of the present and that of the future,... defeats the entire purpose of periodic income reporting and distorts the picture of earnings actually realized and expenses actually incurred in any one period... Such income smoothing and shifting devices in fact undermine the integrity of income accounting and the credibility of financial statements."

Hence, although the intent of smoothing is to reduce the apparent uncertainty about the income stream, the discovery of earnings distortion could be the signal that increases one of the risk elements, variability, σ^2. This, in turn, leads to an unfavorable effect on stock prices.[17]

Secondly, if offsetting misrepresentations are within the income statement, it is also expected that "classificatory" misrepresentations will result in an adverse market reaction. However earnings are the premier information item provided in the income statement, decision makers do not focus exclusively on the "bottom line" or other highly simplified

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[17]Although many criticize income smoothing for its negative effects on the function of financial reporting , it should be mentioned that some argue that income smoothing has some merits, see for example Ronen, J., and S. Sadan. 1980. Accounting Classification as a Tool for Income Prediction. Journal of Accounting, Auditing & Finance (Summer), PP. 339-354. But, it should be noted that offsetting, or smoothing, earnings misrepresentations subject to investigation in this study is a result of violation of accounting standards, i.e., they do not represent income smoothing within the constraints of GAAP. If it is the accounting rules to be followed, not "ends justify means" rule, such kind of misrepresentation, therefore, is not any different from other, non-smoothing, earnings misrepresentations.

condensations. Summary amounts, as earnings, may be useful as general indications of overall performance, but they include many heterogenous factors and events. An entity's various activities, transactions and events differ in stability, risk, and predictability.[18] Hence, individual items or other parts constituting the composition of the income statement may be more useful indicators than the aggregate. Information, therefore, should be so provided and presented that the user may understand and evaluate the underlying events.

The usefulness of the information about various components of earnings has been documented by various studies [e.g., Bowen (1981), Lipe (1986), Eskew and Wright (1976), Gonedes (1975), Wilson (1986 and 1987), Bernard and Frost (1990), Ou and Penman (1989), and Swaminathan and Weintrop (1991)]. Thus, intra-income statement misrepresentations reduces the user's ability to predict cash flows, which could be the outcome of the disclosure uncovering the misrepresentation. However, managers may be less likely to see the impact of the intra-income statement misstatements. When Bankers Trust Co. had to reduce foreign exchange trading income and to reduce salaries expense included in 1987 income by the same amount, its chairman and chief executive's comment was: "What is the big deal? There is nothing sinister here.

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[18]FASB. 1984. Statement of Financial Accounting Concept No. 5, Recognition and Measurement in Financial Statements, (December), Para. 22.

There is no effect on earnings. The company is worth the same amount. It is just an accounting thing."[19]

Thirdly, reliability of information implies its completeness , at least within the bounds of what is material, considering the cost. If information is to be useful, a certain quantity must be available; there is a point below which the information is useless. Hence, insufficient information may be worse than useless, i.e., of negative usefulness.[20] Accounting standards indicate that some useful information is better provided by financial statements. And some is better provided or can only be provided by notes to financial statements, or by supplementary information, or some other means of financial information. The presentation of financial statements in conformity with GAAP, therefore, requires adequate disclosure of material matters. These matters relate to the form, arrangement, and content of the financial statements and their appended notes.[21] That sort of financial information is essential to understanding the information recognized in financial statements, and it represents an integral part of financial statements prepared

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[19]Wall Street Journal, July, 1988, P. 2.

[20]Snavely, H.J. 1967. Accounting Information Criteria. The Accounting Review (April), P. 230.

[21]AICPA. 1972. Codification of Auditing Standards and Procedures, Statement on Auditing Standards No. 32, Adequacy of Disclosure in Financial Statements: AU Section 431, Para. 2.

in accordance with GAAP.[22]

The evidence indicates that additional disclosures explaining earnings figures are useful in assessing earnings distribution and , therefore, asset values [see: Foster and Vickrey (1978), Hoskin et al. (1986), Ou and Penman (1989), and Ou (1990)]. As the evidence indicates that investors revise their expectations of future earnings based on nonearnings as well as earnings information, managers of companies facing problems have incentives to delay or supress unfavorable information that could signal the problem. This could be the result of the uncovering disclosure. Therefore, misleading disclosures outside the income statement have the same adverse effect as misleading earnings information in the body of the income statement. In a similar fashion, the discovery of such misrepresentations would enable investors to assess expected cash flows and their riskiness, with the negative market effects noted earlier.

In sum, principles of information communication theory indicate that when a signal is perturbed by a noise then the received signal becomes a function of two processes, the source and the noise. Hence, there can be no dependable foundation for a valuation based upon a noisy signal. The discovery of earnings misrepresentations, whether intentional

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[22]FASB, SFAC No. 5, op. cit., Para. 7.

or unintentional, any where in the financial report, and regardless of the sign of the effect on the earnings bottom line, reduces the credibility of the earnings informative function. And, thus, it conveys negative economic factors to equity investors. Consequently, it is predicted that the disclosure will lead to negative market reaction, unless the information disclosed about earnings correction is not properly used by the market.

2.2 The Need for a Powerful Test: Genuine Decisions vs. Habitual Behavior

Changes in market expectations in response to information of earnings changes can be a result of what Katona (1951) calls genuine decisions or habitual (routine) behavior.[23] Genuine decisions reflect the latitude or discretion of the decision maker. As they require the perception of a new situation and, therefore, deciding according its requirements, they are characterized by thinking and deliberating. In contrast, the process involved in habitual behavior is a repetitive action. Because it constitutes passive participation, it serves to reinforce habits rather than to add to knowledge to increase the probability of optimal adaptation. Habitual behavior is thus a mechanistic action

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[23]Katona, G. 1951. Psychological Analysis of Economic Behavior. New York: McGraw-Hill Book Co., Inc., P. 49.

without the elements of decision-making.[24] In normative economic terms, therefore, the terms "rational" and "irrational behavior may be used to describe the two strategies, respectively.[25]

The outcome of reasoned and informed decision-making, should lead to genuine decisions being made by the market. As discussed earlier, the discovery of earnings misrepresentations should lead to reevaluating the quality of earnings, and, hence, their function. Therefore, it should lead to an adverse market reaction, regardless of the direction of the distortion effect on earnings numbers, i.e., making genuine decisions. On the other hand, the evidence provided by accounting empirical research , e.g., Ball and Brown (1968), is consistent with the statement that unexpected

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[24]Ibid., P. 61.

[25]However, in behavioral economics, behavior is considered functional, i.e., it contributes to certain goals. Therefore, rationality is defined in broader terms and, accordingly, "irrationality" from normative economic standpoint has been recognized , instead, as "bounded rationality', which falls far short of the economic assumption of profit maximization. See, e.g., Simon, H. 1957. Models of Man: Social and Rational. New York: Wiley. March, T.G. 1978. Bounded Rationality: Ambiguity, and the Engineering of Choice. The Bell J. of Economics (Autumn), PP. 587-608. Nevertheless, many argue that decision heuristics can lead to significant biases, which may result in poor judgements, in terms of underestimation or overestimation of consequences. You can see for this argument, e.g., Kahneman, D., and A. Tversky. 1973. On the Psychology of Prediction. Psychological Review 80:237-251. Slovic, P. 1972. Psychological Study of Human Judgement: Implications for Investment Decision Making. Journal of Finance (June), PP. 779-799.

income conveys information pertinent to establishing firms' values. And, the corresponding adjustment in firm value is , on average, positive (negative) if the sign of unexpected earnings is positive (negative), respectively. Hence, a possibility that the market may react to the unexpected income change upon the discovery according to the sign (-,+,0) exists, regardless of the relevant economic factors that culminate in the change.

This exclusive reliance on the bottom line numbers, without due attention to the economic implications of the event, is often called "functional fixation", i.e., the functional fixation hypothesis (FFH).[26] The doubt that decision makers may process the change in accounting earnings in a habitual (mechanistic) fashion, i.e., be misled and not able to see through earnings numbers, is due to the fact that research into how recipients of earnings information incorporate the reported numbers in their decision process has provided inconsistent evidence. Ball (1972), Kaplan and Roll (1972), Sunder (1973 and 1975), Beaver and Duke (1972), Comiskey (1971), and Biddle and Lindahl (1982), among others, provided evidence that there is no stock price effect associated with changes in accounting techniques except those

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[26]Ijiri, Y., R.K. Jaedicke, and K.E. Knight. 1966. The Effects of Accounting Alternatives on Management Decisions. In R.K. Jaedicke, Y.I. Ijiri, and O. Neielson (eds.): Research In Accounting Measurement. Americation Accounting Association, P. 194.

affecting cash flows (income taxes). Hence, their evidence indicates that the market is not fixated on income numbers. However, some evidence of functional fixation has been obtained from other studies. In addition to experimental studies by Ashton (1976), Abdel-Khalik and Keller (1979), Jensen (1966), Dyckman (1964); studies of investors' behavior at the market level by O'Donnel (1965 and 1968), Mlynarczyk (1969), Ricks (1982), and Brown (1980), supported the hypothesis that the market is misled by accounting numbers (FFH). Hence, the evidence of the functional fixation hypothesis has been inconclusive. Accordingly, Lev and Ohlson concluded that:[27]

> "the evidence does not warrant an affirmative answer. Relatively few cases of cross-sectional differences in accounting practices have been examined... On the whole, the evidence is consistent with a multitude of hypotheses, none of which can at this stage be either reasonably substantiated or entirely ruled out."

Recently, Hand (1990) and Harris and Ohlson (1990), nevertheless, demonstrated significant violations of market rationality for various asserted market frictions. And, thus, the issue of FFH remains unresolved, see Tinic (1990). It is

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[27]Lev, B., and J.A. Ohlson. 1982. Market-Based Empirical Research in Accounting: A Review, Interpretation, and Extension. J. of Accounting Research (Supplement), P. 273.

not clear, therefore, whether the change in expectations will be induced by a habitual behavior or a genuine decision. Consequently, there is a likely risk in grouping observations with different direction of earnings correction. Treating heterogeneous groups as if they were homogeneous and, then, using "average" abnormal returns for test purposes can lead to misleading results.

Since the inclination is to overstate earnings, and based on the evidence that negative unexpected earnings lead to negative abnormal returns, "average" abnormal returns will always be negative. However, we can not conclude that the market reaction is negative for earnings misrepresentations requiring "increase" or "no change" in prior earnings upon the discovery. If the market reacts to the correction per se, testing the market reaction by grouping misrepresentations of different directions on prior earnings might hide conflicting and partly offsetting market reactions. Thus, it might induce inconsistency with the hypothesis tested. Consequently, a test of the market reaction on the basis of "average" abnormal returns with no regard to the sign of earnings correction is deficient.

The evidence of the market impact upon the discovery of earnings distortion, therefore, should be carefully established, and the use of a powerful test should be of great

concern. One way to overcome this problem is to examine the change in market values in relation to the sign of the earnings change, to increase the power of the test. Experimental firms, hence, are to be classified into homogenous groups on the basis of the sign of the correction. But, has such evidence been provided by accounting research? In the following section, the weaknesses of tests used by prior research are discussed, and, therefore, the need for a stronger evidence is noted.

2.3 Literature Review and Contribution

Very few studies have examined the market impact of the discovery of earnings misrepresentations. Kellogg (1984) analyzed the association between stock prices of 56 companies and announcements of accounting misrepresentations leading to class action lawsuits. His evidence indicates significant negative "average" abnormal returns within both the legal discovery and the prediscovery periods. Kellogg's results, however, were based on observed "average" abnormal returns within the observation period, without controlling for the factors that could have affected the finding. Both of these factors complicated interpretation of results .

Kinney and McDaniel (1989) investigated stock returns of 73 firms reporting 178 erroneous quarterly reports, during the period between the issuance of the report and the disclosure of the misstatement. They concluded that the market reacts as if the existence of corrections is bad news, irrespective of whether the originally reported earnings were overstated or understated. However, the negative return was observed to occur before the public disclosure of errors. According to their conclusion, their results are consistent with price decline being the cause of disclosure rather than the other way around. As with Kellogg, Kinney and McDaniel did not control for other confounding events or factors within the test period.

Elliott and Swieringa (1985) investigated the stock price performance of Aetna Life Co. during the period in 1982 when the company and the SEC disputed the accounting recognition of the tax benefits of loss carryforwards. A relative negative performance of Aetna's share price was identified over the period, which is consistent with negative evaluations by investors.

In a related study, Foster (1979) examined the security market reaction of 28 companies to criticism of accounting practices by Briloff in his published articles. Based on "average" abnormal returns, the evidence indicates that

companies whose accounting practices were criticized suffered a significant price drop on the day the article was published. An extension and replication by Foster (1987) examined the security price and trading volume of 48 companies around publication dates of accounting and management critiques by Briloff. The results documented a significant "average" decline in security prices and a significant increase in trading volume. A specific case was examined by Anderson and Pincus (1984). They investigated returns on the common stock of Telex Corporation around the time of Briloff's critique of Telex's accounting practices in 1970 regarding recognition of revenues from capitalization of leases. Using daily and monthly data, they found a sharp decline in Telex's rate of return during that period. Feroz et al. (1991) examined the market performance of 34 companies subjected to SEC's Accounting and Auditing Enforcement Releases. Their evidence also shows negative "average" cumulative abnormal returns around the disclosure date.

As indicated earlier, these studies used "average" abnormal returns of the various groups, distinguished by different correction of earnings. Hence, they did not give the test hypothesis a good chance of being rejected. Therefore, their evidence did not properly indicate the market impact. Accordingly, there is lack of a proper evidence on whether the market reacts to the economic factors or to accounting numbers

per se, which will be negative or in the direction of earnings correction, respectively. In addition, their results were mixed.

The approach used in this study differs in that the market reaction is examined on the basis of the sign of earnings correction. The sign of the aggregate effect, therefore, of the realized correction of prior earnings (-, +, 0) is used for grouping firms.

Thus, compared with prior research, this study: (1) explores the existence of the evidence on market adjustment that is not restricted to a certain type of earnings misrepresentations; (2) provides a stronger evidence and, therefore, a better understanding of the market reaction to the accounting information disclosed upon the discovery of earnings misrepresentations; (3) helps to gain some insights of the effect of the new information as to the change in the market's assesssment of riskiness and informativeness of earnings signal released in the period following the discovery; (4) examines the effect of the qualitative attributes of the distortion as to the accounting period distorted (annual vs. quarterly) and the intentional level of accounting misrepresentation (errors vs. irregularities) on the market's adjustments; and (5) incorporates a number of refinements in the research methods, which lead to more

reliable and conclusive results.

CHAPTER 3

RESEARCH HYPOTHESES

3.1 The Change In Cash Flow Expectations Hypothesis

A distorted signal involves investors' behaving as if the signal were undistorted, as long as the distortion is unidentified. Hence, expectations generated from prior distorted earnings were in error and, therefore, securities become mispriced. Equation (1), describing the earnings/cash flows relationship, implies that E(e) = 0 and E(Y) = X.

These expectations, nontheless, change in response to the new stimuli that are not consistent with the expectations just prior to their perceptions. The disclosure of earnings misrepresentations reveals that factors subsumed in the error term , e, systematicaly affect the mean value of earnings, Y. Hence, E(e) is different from zero. And E(Y), therefore, is different from X, i.e., diversion of earnings signals from economic earnings. The alteration of expectations will result in a change in equilbrium value, to the extent that expectations are altered.

The alteration, however, in market expectations depends on the market's perception of the relationship between the disclosure and the economic factors affecting future economic

flows. The objective of the first principal hypothesis of the study is to provide evidence of the change in market values in response to the disclosure of earnings misrepresentations. An important question, therefore, is: Do investors recognize the underlying unfavorable economic implications of the event and base their decisions upon them, or do they base their decisions upon the announced changes in earnings numbers per se? Stated differently, is the distinction between bad news and good news based on the sign of earnings correction? e.g., whether the market considers disclosure of unintentional understatement of earnings as bad news or good news.

If investors follow a habitual behavior, i.e., fixated, they will fail to form an unbiased distribution of future cash flows. As the FFH postulates a mechanical relation between a firm's accounting earnings and its stock price , it consequently predicts that abnormal returns are a function of the correction of earnings "bottom line". Hence, to properly establish the evidence of the market adjustment, the null hypothesis is that the market's expectations are formed on the basis of the sign of the disclosed change in reported earnings per se. Accordingly, it predicts that disclosure of earnings decrease is associated with negative abnormal returns, disclosure of earnings increase is associated with positive abnormal returns, and disclosure of zero change in earnings is associated with zero abnormal returns.

In contrast, predictions under economic models of rationality require that investors flawlessly understand and properly use the available information. Hence, they arrive at an unbiased distribution of future cash flows. As the relationship between earnings and security prices exists only to the extent that earnings reflect economic flows, the alternative hypothesis predicts that market prices adjust unbiasedly to the new information. Thus, earnings distortion, once discovered, will have a depressing effect on securities price. Hence, it predictes that negative abnormal returns will be associated with earnings misrepresentations with no regard to the direction of the aggregate correction (-, +, 0).

In addition to the possibility that the market may be misled by the sign of the earnings change upon the discovery, a possibility that the market may be misled by the cause of the change exists. Based on that errors are unintentional and that irregularities are considered to be a result of "fraud" or "intentional bias" to window dress, the market may impound the economic implications associated with misrepresentations resulting from accounting irregularities. But, it may not impound those associated with errors. Hence, another improvement in providing the evidence on the market adjustment is the distinction between the market reaction associated with errors from that associated with irregularities.

Therefore, the change in securities price is to be tested under the first hypothesis for each cause separately.

H_{N1} : Ceteris paribus, abnormal returns around announcements of income correction resulting in aggregate decrease, increase, or no change in prior earnings are respectively: negative, positive, or zero.

H_{A1} : Ceteris paribus, abnormal returns around announcements of earnings correction resulting in aggregate decrease, increase, or no change in prior earnings are negative.

3.2 The Change in Riskiness Hypothesis

Finance theory holds that the value of a share of common stock at a point in time is equal to the expected future cash flows to the holder of the stock discounted at the cost of capital for the level of their perceived riskiness. A change in the price of a common stock may be, therefore, caused by a change in the expectations regarding any or all of the elements of that theoretical relationship, i.e., cash flows or their capitalization rate. Changes in security prices upon discovery of earnings misrepresentations, therefore, can be attributed to changes in assesssed cash flows, their riskiness, or both. The first hypothesis tests the unexpected change in security prices resulting from changes in expectations. This change could be the result of a perceived change in assessed cash flows or of a perceived change in their riskiness borne by investors. The disclosure of

misrepresentations could decrease the mean, M, and increase the variance of future cash flows of a security, σ^2, as discussed earlier in chapter 2, causing a decline in shares value.

The objective of the second hypothesis is to ascertain whether the disclosure of the new earnings information is a signal used by the market to assess "riskiness", or total "variability" of a security return. The risk meausres used in this study are risk components assigned by the market, i.e., the unsystematic and systematic varability components. In the context of an efficient capital market, these risk components provide unbiased estimates of the risk of a security and, hence, are relevant risk measures in this study. It is expected that these parameters will vary in response to the change in the market's perception of the firm's conditions upon release of the information.

There is no completely satisfactory theory describing firm-related determinants of risk. The risk of a security, nevertheless, is commonly associated with uncertainty of future outcomes . Hence, risk can be inherent in the pattern of returns across the various possible future states of nature. Thus, it refers to those characteristics of this

pattern that affect the value of a security.[28] Thus, earnings' capitalization rate can be dependent on the confidence in their stability. As this confidence deteriorates upon the diclosure, investors become less certain of the future outcomes. Hence, they raise their assessment of earnings variability and, consequently, assessment of operating risk. The following model (Rubinstein 1973) of the mean-variance security valuation theorem is used to demonstrate this argument:[29]

$$E(R_j) = R_F + [\frac{Cov\ (R_j, R_M)}{Var\ (R_M)}] \times [E(R_M) - R_F] \qquad (2)$$

$$E(R_j) = R_F + (E(R_M) - R_F)\ \sqrt{Var\ R_M}\ \rho\ (R_j, R_M)\ \sqrt{Var\ R_j} \qquad (3)$$

Equation (3) explains types of security riskiness. The total risk is measured by $\sqrt{\text{Var } R_j}$. Nondiversifiable or systematic risk is measured by $\rho\ (R_j, R_M)\ \sqrt{\text{Var } R_j}$. Since $-1 \leq \rho(R_j, R_M) \leq 1$, then $\rho(R_j, R_M)$ represents the percentage of total risk that can not be eliminated. And the difference between total and nondiversifiable risk, $\{1 - \rho(R_j, R_M)\}\ \sqrt{\text{Var } R_j}$,

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[28]Robichek, A.A., and S.C. Myers. 1966. Valuation Of The Firm: Effects of Uncertainty in a Market Context. Journal of Finance (May), P. 217.

[29]Rubinstein, M.E. 1973. A Mean-Variance Synthesis of Corporate Financial Theory. Journal of Finance (March), PP. 167-182.

measures the diversifiable or nonsystematic risk. In addition, the security risk shown in equation (3) is a measure of operating risk[30], and it can be decomposed into its components as follows:

$$\rho(R_j, R_M)\sqrt{Var\ R_j} = \sum_m \left[(\alpha_m(p_m - v_m)\,\rho(Q_m, R_M)\sqrt{Var\ (Q_m/\alpha_m V_j)}\right] \quad (4)$$

where:

m = product
Q_m = the output in units (random variable)
v_m = the variable cost per unit
p_m = the sales price per unit
α_m = the proportion of assets (V_j) devoted to production

Thus, the contribution margin ($p_m - v_m$) reflects operating leverage, $\rho(Q_m, R_m)$ reflects the pure influence of economy-wide events on output. And, $\sqrt{\text{Var}\ (Q_m/\alpha_m V_j)}$ is the uncertainty of output per dollar of assets that could be interpreted as a measure of the uncertainty of "operating efficiency", an essential source of return uncertainty.

Since $R_j = \sum_m \alpha_m X_j/\alpha_m V_j$, and X_j is the dollar value (random variable) of net operating income, then operating (or business) risk can refer to the uncertainty characteristic of

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[30]The expected return on equity represented by equation (3) is based on the assumption that the capital structure of a company consists only of equity, i.e., with no debt. If there were debt , the equation will include a financial risk component as well. See Rubinstein, Ibid., PP. 177-178.

future economic earnings from the firm's assets, σ^2.[31] Thus, operating risk is a function of earnings stability (or pattern), a characteristic weakened, if not destroyed, by the discovery . The discovery, in turn, could signify operating risk if market participants extrapolate the information disclosed to value characteristics of the distribution of future economic flows, causing volatility in securities returns.

The volatility of earnings stream as a proxy for business risk has been used in various studies [e.g., Malkiel and Cragg (1970), Gruber (1971), Brigham and Gordon (1968)]. And, several studies have provided evidence that earnings variability, as a measure of risk to investors, is a fairly important factor in explaining variability in securities price [see: Hammel and Hodes (1967), Malkiel and Cragg (1970), and Benishay (1961 and 1973)]. Thus, theory posits a direct relationship between earnings uncertainty and price variability, and empirical research has supported this relationship. The risk associated with the variability of accounting earnings reflects, nevertheless, both unsystematic or unique risk and systematic risk, i.e., total variability of returns of a firm's common equity securities.

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[31]The terms variability, uncertainty, and riskiness are used synonomously in this study.

3.2.1 Unsystematic Risk

On one hand, the discovered additional uncertainty about future prospects of assets will result in more diffuse priors in expectations of the distribution of furture returns. Consequently, prices and returns become more volatile, and the unsystematic risk component, measured by the return variance, will increase [e.g., Beaver (1968), Patell (1976), and Holthausen and Verrecchia (1988)]. The change in riskiness hypothesis, therefore, predicts an increase in the unsystematic variability of securities returns, compared to the control group. To examine the effect of the announcement on unsystematic variability, the relative unsystematic variability, i.e., unsystematic variability around the announcement relative to unsystematic variability before the announcement, is used for hypothesis test purposes.

$H_{N2.1}$: Ceteris paribus, discovery of earnings misrepresentations results in a decrease or no change in unsystematic variability of securities returns.

$H_{A2.1}$: Ceteris paribus, discovery of earnings misrepresentations results in an increase in unsystematic variability of securities returns.

3.2.2 Systematic Risk

On the other hand, the expected rate of return the market requires for the risk of an asset under the multiperiod CAPM depends on the asset's relative risk (beta). The evidence provided by Lev (1974), Bildersee (1975), Rosenberg and McKibben (1973), Thompson (1976), Melicher and Rush (1974), Beaver et al. (1970), and Beaver et al. (1979) shows that volatility of earnings is positively associated with systematic volatility of stock returns. Hence, if the discovery signals increased operating risk, i.e., a change in the economic status of the firm, it is likely that it will alter the covariability of the firm's income with the market. Therefore, it can signal increased relative risk and , in turn, induces upward revisions in the assessed systematic risk component.

Based on Benston (1973), Sunder (1973 and 1975), Peltzman (1976), Melicher and Rush (1974), Collins and Simonds (1979), and Horwitz and Kolodny (1977); the association between the change in systematic risk and the new information conveyed by the signal is tested by examining the differential systematic risk, i.e., the change in systematic volatility of returns between the pre-discovery period and the post-discovery period, compared to the control group. The second principal hypothesis predicts increase in the systematic risk in the

post-announcement period relative to the pre-announcement period.

$H_{N2.2}$: Ceteris paribus, discovery of earnings misrepresentations results in a decrease or no change in systematic variability of securities returns.

$H_{A2.2}$: Ceteris paribus, discovery of earnings misrepresentations results in an increase in systematic variability of securities returns.

3.2.3 Risk and Attributes of Earnings Misrepresentations:

The principal risk hypothesis presented above explains, in general, changes in riskiness resulting from the disclosure. However, the assessment of the information effect on security riskiness based on some attributes, that can have a different effect on stock price variability, can provide a refined assessment of that effect. Hence, this study further examines the association of the market's assessment of riskiness with two attributes of earnings misrepresentation: the accounting period misrepresented (annual vs. quarterly), and the intentional level of accounting violation (errors vs. irregularities).

3.2.3.1 The Accounting Period Hypothesis

Annual periods may obscure turning points in business operations and may reflect a pattern of stability and growth which is inconsistent with business reality. During the intervals between annual reports, a great deal can happen which will affect the value of a security. Hence, interim reports put the investor on notice of such tracks and developments.[32] Thus, periodic and timely financial information is needed to provide investors and others with timely information as to the progress of the enterprise.

The evidence on the usefulness and predictive power of quarterly earnings in forecasting annual earnings is documented by various studies [e.g., Newell (1969), Brown and Niederhoffer (1968), Stickel (1989), Coates (1972), and Abdel-khalik and Espeio (1978)]. Also, many studies have provided evidence on the use of quarterly earnings in the assessment of securities value [see: Brown and Kennelly (1972), Kross and Schroeder (1984) , May (1971), Watts (1978), Foster (1977), McNicholes and Manegold (1983) , and Bathke and Lorek (1984)]. Also, Griffin (1976) provides evidence that quarterly earnings reflect information about relative risk and about changes in relative risk. It is expected, therefore, that disclosure of

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[32]Taylor, R.G. 1965. A Look at Published Interim Reports. The Accounting Review (January), P. 93.

quarterly earnings misrepresentations reveals adverse information and, consequently, results in volatility of stock returns.

However, quarterly earnings are subject to more limitations than annual earnings. The characteristics of interim financial information affect the nature, timing, and extent of procedures applied in making a review of that information. Although accounting standards require audits of annual reports as attestation of their accuracy, they do not require an audit of interim reports. This is due to that timely reporting of interim information precludes the development and documentation of information to the same extent as that underlying annual information.[33]

> "The objective of review of interim financial information differs significantly from the objective of an audit of financial statements in accordance with generally accepted auditing standards, ... A review of interim information does not provide basis for the expression of an opinion because the review does not contemplate obtaining an understanding of the internal control structure or assessing control risk... Such a review does not represent an audit and therefore cannot be relied upon to detect all errors and omissions."

Consequently, interim reports, as compared to annual earnings, are under the management's discretion and,

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[33]AICPA. 1972. Codification of Auditing Standards and Procedures. Statement of Auditing Standards No. 36, Review of Interim Financial Information: AU Section 722, Para. 2.

therefore, it is easier to "window dress" or "bias" them.

Furthermore, accounting standards consider quarterly reports an integral part of an annual period, i.e., the "dependent period" concept.[34] Due to the relationship between interim and annual earnings under the dependent period concept; deferrals, accruals, and estimates at the end of each interim period are affected by judgments made at interim dates concerning anticipated results of operations for the remainder of the annual period. Hence, few attempts are made during the period to match costs and revenues or to evaluate assets. And, it is usually only at the end of the annual accounting period that adjustments are made to bring the normal results of the accounting system into accord with generally accepted accounting principles.[35]

Consequently, it is reasonable to expect that the market is aware of quarterly earnings characteristics and their lower reliability, compared to annual earnings. Thus, a possibility that the market incorporates these limitations, upon their release, in forming its expectations exists. Hence, this

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[34]APB. 1968. APB No. 28. Interim Financial Reporting. Para. 5.

[35]Seidler, L.J., and W. Benjes. 1967. The Credibility Gap in Interim Financial Statements. Financial Analysts Journal (September-October), P. 109.

hypothesis predicts that a higher increase in variability of securities returns will be associated with the discovery of annual earnings misrepresentations, relative to the variability associated with quarterly earnings misrepresentations.

$H_{N2.3}$: Ceteris paribus, the increase in unsystematic and systematic variability of securities returns associated with annual earnings misrepresentations is equal to or less than the increase in the variability associated with quarterly earnings misrepresentations.

$H_{A2.3}$: Ceteris paribus, the increase in unsystematic and systematic variability of securities returns associated with annual earnings misrepresentations is greater than the increase in the variability associated with quarterly earnings misrepresentations.

3.2.3.2 The Intentional Level of Accounting Violation Hypothesis

Both unintentional misrepresentations, errors, and intentional violations, irregularities, imply negative implications of a breach in the internal accounting and reporting system. And, to external decision-makers, published earnings information is commonly the basis for the assessment of prospects and success. As a basis for the assessment of management's stewardship and accountability, the underlying causes of irregularities involve a deliberate, fraudulent,

attempt to maintain a predetermined result, undertaken to render financial statements misleading. Therefore, accounting irregularities bring information regarding the integrity and reputation of the management, a major element, among others, in the valuation of the asset to common stockholders. Irregularities, therefore, can signal unfavorable characteristics of the asset attributes.

The agency theory implies that monitoring is consistent with efficient agency-costs minimizing, if it restricts management's ability to conceal the consequences of "self-serving actions", i.e., the moral hazard problem. Therefore, the monitoring system that mitigates the relative inability of ownership to monitor and control managements' actions is of economic value, i.e., reduction in agency costs [see, e.g., Jensen and Meckling (1976), Francis and Wilson (1988), Ng (1979), Simunic and Stein (1987), Watts and Zimmerman (1986), and Chow (1982)].

Otherwise, a cost of the agency relationship, i.e., a "residual loss", is to increase. It reflects the reduction in the welfare experienced by the principals, due to the divergence between the management's decisions and those that maximize the welfare of the shareholders. According to Jensen and Meckling (1976), the magnitude of the cost depends, among other things, on the ease with which managers can exercise

their own preferences as opposed to value maximization in decision-making. This depends on the effectiveness of the monitoring system.[37] DeFond and Jiambalvo (1991) find that earnings misstatements are less likely to occur among firms that have audit committees, an important element of a firm's control environment. Thus, while errors represent unintentional misrepresentations, i.e., mistakes, irregularities are intentionally committed to manipulate expectations. The dishonest signal is sent by managements to be interpreted in a manner inconsistent with their actual beliefs about the unobservable outcomes of their decisions. Hence, this type of signal is consistent with behavior that appears to be intended to alter investors' inferences about the unobservable characteristics of the firm.[38] This could be an indicator of the ineffectiveness of the monitoring system, and consequently an indicator of increased agency costs, i.e., higher riskiness.

In addition, settings that provide incentives for earnings management are likely for those firms characterized by uncertainty about cash-flow prospects. Therefore, earnings

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[37]Jensen, M., and W. Meckling. 1967. Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure. Journal of Financial Economics 3, P. 328.

[38]Gonedes, N.J. 1978. Corporate Signalling, External Accounting, and Capital Market Equilbrium: Evidence on Dividends, Income, and Extraordinary Items. J. of Accounting Research (Spring), P. 37.

irregularities may reflect managements' attempts to disguise what may be difficulties, as they make companies appear to be in a better economic health than they are. If the stock market's assessment of the economic fortunes of a firm depends on the assessment of the firm's economic fortunes as reflected by accounting earnings, the principal of survival can cause individuals to engage in a variety of methods to change facts. The evidence indicates that managers of firms in financial difficulties are motivated to use such practices to "window dress", to mask problems. DeFond and Jiambalvo (1991) found that accounting errors resulting in earnings overstatements are more likely when firms have lower growth in earnings, and that the overstatements are negatively correlated with the growth in earnings. Salamon and Smith (1979) found that the timing of certain accounting policy decisions made by the managers of management-controlled firms is related to the current level of the firm's security return performance. Lilien et al. (1988) found evidence that unsuccessful firms use accounting changes that increase earnings more often than successful firms. In addition, the positive accounting theory literature provides evidence that firms close to violation of debt covenants have an incentive to overstate reported earnings; e.g., Bowen et al. (1981) and Dhaliwal et al. (1982).

Therefore, discovery of earnings irregularities may

signal increased difficulties, and, hence, riskiness, relative to errors. Furthermore, accounting-based bonus management compensation schemes may motivate managers to meet earnings targets, i.e., an opportunistic behavior. And, managers do not have an incentive to exceed targets by a large margin, Healy (1985). For the various reasons discussed above, this type of misrepresentation can have risk implications for future cash flows. Accordingly, it is expected that misrepresentations resulting from irregularities will lead to a higher assessment by the market of the riskiness relative to those resulting from errors.

$H_{N2.4}$: Ceteris paribus, the increase in unsystematic and systematic variability of securities returns associated with earnings irregularities is equal to or less than the increase in the variability associated with earnings errors.

$H_{A2.4}$: Ceteris paribus, the increase in unsystematic and systematic variability of securities returns associated with earnings irregularities is greater than the increase in the variability associated with earnings errors.

3.3 The Change In Earnings Quality Hypothesis

Information value has been considered to be a nondecreasing function of its accuracy, the degree of

indentifiability of states from signals[39] Rational revision of expectations in the light of new information, therefore, requires consideration of the quality of the information, e.g., its accuracy. Gonedes (1978) indicates that the market response to any signal depends on the perceived relevance of the signal to assessments of returns distributions and on its honesty, among other factors. And numerous studies have provided evidence that the price revision upon earnings announcements is a function of earnings quality, or the variance of the error term in equation (1), v, among other things. Hence, the noiser the firm's reporting system, the lower the market response to earnings release. Lev (1989) indicates that if earnings contain an error perceived by investors as a defeciency that detracts from earnings predictability, they will adjust for that error. And the variance of the difference between the reported and adjusted earnings is inversely related to the correlation between earnings and stock returns.[40] Holthausen and Verrecchia (1988), Verrecchia (1980), and Pincus (1983) investigated the extent to which differences in the precision of earnings announcements affects the market response. The evidence supports the hypothesis that the precision of earnings numbers

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[39]Hilton, R.W., and R.J. Swieringa, and R.E. Hoskin. 1981. Perception of Accuracy as a Determinant of Information Value. Journal of Accounting Research (Spring), P. 87.

[40]Lev, B. 1989. On the Usefulness of Earnings and Earnings Research: Lessons and Directions From Two Decades of Empirical Research. J. of Accounting Research (Supplement), P. 177.

is associated with differences in the rapidity and the variability of price change. And the variability and rapidity will increase (decrease) as the perceived precision (or reliability) of the announcement increases (decreases).

Thus, the existing evidence of the association between the market response and earnings signals posits an inverse relationship between the market response and the perceived noise in earnings signals. Earnings are signals from an information system, but it is not the signal per se that is sent to decision makers which is important, but the decision makers' perception of the informativeness of the signal.

Therefore, an effective accounting and reporting system should possess deterrent value , i.e., the capability to detect and communicate the noise. Hence, the probability that earnings misrepresentations are committed is reduced by controls that increase the probability of detection. The discovery of earnings misrepresentations, therefore, conveys factors that interfere with the quality of earnings messages. In turn, it can reflect unfavorably on the quality of the subsequent reported earnings.

Thus, to the extent that the discovery of earnings misrepresentations changes the assessment of the credibility of the earnings informative function, it is expected that the

market response to the subsequent earnings surprise will be dampened. Therefore, the earnings quality hypothesis predicts that subsequent earnings signal is perceived to become a less value-relevant variable. Thus, its influence on the market's revision of expectations will decrease. This prediction is consistent with that usefulness of information is determined , in part, by the variance of its error term (quality), v, according to the previously cited studies of information economics.

The information economics based empirical studies, describing return/earnings relationship, have examined the relationship between earnings signal and stock prices on the basis of stock price variability and earnings response coefficient (ERC). Therefore, the change in the market's perception of earnings informativeness upon the discovery is assessed on the basis of the two measures. Tests using both measures are based on a differential approach , i.e., the change in the measure, compared to the control group. To increase the power of tests, informativeness of the first earnings announcement after the discovery is compared with informativeness of earnings release prior to the discovery. Moreover, the analysis is carried out on two levels of aggregation: first on an over-all basis including all sample firms, and second on the basis of subgroupings according to the qualitative attributes of earnings misstatements.

H_{N3} : Ceteris paribus, the market perception of informativeness of earnings signal subsequent to the discovery of earnings misrepresentations is equal to or greater than that of earnings signal prior to the discovery.

H_{A3} : Ceteris paribus, the market perception of informativeness of earnings signal subsequent to the discovery of earnings misrepresentations is less than that of earnings signal prior to the discovery.

CHAPTER 4

RESEARCH DESIGN

4.1 Sample Firms

The sample consists of 295 firms, 11 of them had two earnings misrepresentation announcements over the time period selected. Hence, the analysis is based on 306 observations. Announcements of earnings misrepresentations are identified by searching the Dow Jones News Service, a computerized data base that includes the Dow Jones Broad Tape and the Wall Street Journal and Barrons', over the period 1979-1991. 1979 is selected as the first year of the time period because it is the first year included in the Dow Jones Service data base, and 1991 is selected as the last year of the time period because it is the most recent year for which stock return data are available on the Center for Research in Security Prices (CRSP) tapes. 3569 articles were retrieved using the search terms, and 384 companies were identified with earnings misrepresentations. 89 companies were excluded due to unavailability of stock data on stock return tapes. Thus, since the stock return analysis to be performed on the sample requires available return data, firms used in the study meet the following criteria:

a- Announcements of earnings misrepresentations are identified

from Dow Jones News Service.

b- Common stock returns are available on CRSP daily stock return tapes.

The sample consists of 147 OTC companies and 148 companies listed on NYSE and AMSE, and therefore the sample selection criteria are not biased towards including firms of a particular size.

4.2 Control Sample

Application of sample selection criteria results in dealing with a nonrandom sample, and, therefore, the expected value of abnormal return may be different from zero, due to sample self selection bias. However it is not uncommon in various areas of research to apply sample selection criteria which precludes randomness, other factors that may affect market performance are not randomized. This can reduce the power of the test as it may prevent the "averaging out" of variables other than the one of interest in the study, i.e., it may affect the associations observed. To validate inferences, stock price behavior of the experimental sample firms around the event examined is therefore contrasted with that of a control sample firms, with similar properties to those of the sample firms. Also, a comparison of the market performance of the experimental sample and a control sample

will reduce the measurement error effect that may result from misspecification of the return-generating model or from estimation of its parameters. Each experimental firm is pair-matched with a control firm such that any realized return differences are more likely to be associated with the announcement of interest in the study. The control sample firms are selected on the basis of the following criteria:

1- Industry membership affects the information environment. Also, since industries differ in average risks; King (1966) and Brown and Ball (1967), and the asset-pricing model predicts different rates of return with different risks, industry membership is controlled. To control for the industry effect, an experimental firm is paired with a control firm in the same industry, based on two SIC digits.

2- It is widely believed that larger firms are less risky than smaller firms; Benishay (1961, and 1973), Horrigan (1966), Pettit and Westerfield (1972), and Brigham and Gordon (1968). Therefore, a control firm is selected of the same size, measured in terms of total assets at the beginning of the announcement year, as the experimental firm with which it is paired.

3- To control for risk, control firms are selected such that an experimental firm has the same systematic risk (beta)

prior to the announcement examined as the control firm with which it is paired. Therefore, to select a control firm with beta close to the expermintal firm's beta, the beta matching criteria required estimating betas, using the market model and daily returns, for all securities on the CRSP tape. As each expermintal firm has a different event date, betas for companies on the CRSP tape were calculated prior to the event date of each sample firm. Hence, about .6 million betas were estimated, and a matched sample was selected as a control group.

Thus, slection of the control group required searching the CRSP tapes, Compustat tapes, the National Automated Accounting System data base (NAARS), Moody's, and the companies' annual reports.

4.3 Confounding Events

Disclosure of other confounding events within the event period, especially around the event day, may contaminate the observed market reaction investigated. So, testing various hypotheses requires controlling for potentially confounding announcements. Based on Foster (1980), one alternative is to delete firms experiencing other events in the event window used in testing market reaction, which is feasible if the time period examined is

short or if the event is of a "non-recurring" kind. Another alternative is to retain all sample firms based on the assumption that the net effect of other events is minimal. This assumption is reasonable when event time differs among firms. Since the study covers a long period of time, the time period diversification , therefore, mitigates the effect of confounding events, as the arrival of "good news" is equally likely as the arrival of "bad news".

However, in this study both alternatives are used. So, tests are performed using all firms first, then using only firms with no confounding events around announcements of earnings misrepresentations. Therefore, the sample is segmented based on whether observations are "contaminated" by other disclosures or "non-contaminated". Past research has reported that the announcements of such items as earnings, cash and stock dividends, stock splits, sales and earnings forecasts, mergers and acquistions, etc. appear to have an observable effect on the market performance. Moreover, much of the effect appears to be concentrated in a two-day period surrounding the announcement. Thus, observations are classified as contaminated if there is such a confounding announcemnt during two days prior to or subsequent to the announcement of misrepresentation (t= -2 through t= +2). All other observations are classified as non-contaminated.

4.4 Data

4.4.1 Event Day

The ability to attribute an observed price change to new information depends on recording price-change response in the period immediately following the market's first perception of the announcement. Since the power of tests of information content of a particular announcement is a function of the precision of the event date, the day of first perception , day "0", should correspond to the first publication date of the announcement tested.

To ensure that the first disclosure date about the discovery is the event date used in the study, the disclosure date retrieved from the Dow Jones data base was not relied upon. Each experimental sample firm was searched over five-year period prior to the announcement retrieved from the Dow Jones, and the first identified date, if different from Dow Jones, is the event date used in the study.

4.4.2 Test Period

Measuring the information content of announcements of earnings misrepresentations for a short time period or window reduces the likely incidence of other information releases during the window , and lengthening the time period used to

measure the information content probably biases the tests in favor of finding information content rather than simply adding noise. So, stock price behavior is tested over a short event window, five-day event window starting two days prior to the announcement and ending two days post the announcement. The test period used , however, extends to include 20 days before the announcement and 20 days post the announcemnet, for test purposes of systematic risk change hypothesis. Therefore the test period covers 41 trading days around the announcement.

4.4.3 Estimation Periods

The market model parameters are estimated using 110 observations before and 110 observations after the test period. Thus, two estimation periods are used. The first estimation period, pre-test period, is used for estimation prior to the announcement. The second estimation period, post-test period, is used for estimation after the announcement. The length of the estimation period is chosen because it is long enough to provide sufficient observations for estimation purposes, and because it is short enough to impound beta changes. Thus, observations of 261 daily returns starting on "t= -130" and ending on "t= +130" are employed in the analysis.

	estimation period I (pre-test period)		test period		estimation period II (post-test period)	
	110 days		41 days		110 days	
Obser.	1	110	111	151	152	261
Day	-130	-21	-20	0 +20	+21	+130

(event date)
announcement

4.5 Methodology

4.5.1 Abnormal Returns

The approach of the study is to infer the information content of the announcements from the measured association between price changes and the disclosure of earnings misrepresentations. Efficient market hypothesis based studies use residual analysis, since the abnormal rate of return measures the extent to which the market has reacted to errors in its previous expectations. Based on Brown and Warner (1985), a simple methodology based on the market model is both well specified and relatively powerful, and simpler methods also perform well in some cases. So, the CAPM is estimated using the market model, and prediction errors are used to measure unsystematic security returns to test their association with the announcement:

$$AR_{ft} = R_{ft} - E(R_{ft}|R_{mt}) = U_{ft} \qquad (5)$$

$$E(R_{ft}|R_{mt}) = \alpha_f + \beta_f R_{mt} \qquad (6)$$

where:

AR_{ft} = unexpected return for firm f on day t, and firm f represents an experimental firm j or control firm i.

R_{ft} = return for firm f on day t.

R_{mt} = market return on day t, measured as equally-weighted, or value-weighted market portfolio return.

$E(R_{ft}|R_{mt})$ = expected return for firm f on day t conditional on the ex-post value of the market factor.

α_f and β_f = the intercept and slope which define the linear relationship between the returns of firm f and the market return.

U_{ft} = the error term or unique return factor for firm f.

For test purposes, the $E(R_{ft}|R_{mt})$ is generated by regressing 110 daily rates of return during the estimation period for each firm's stock on a market index. Brenner (1979) tested the efficient market hypothesis (EMH) under different market models. Results show that in spite of the differences among models, the evidence in favor of EMH is insensitive to the market model employed. Hence, the simple form of the market model in a logarithmic form is used so the sample residuals conform well to the assumptions of the simple linear regression model, according to Fama (1969):

$$Log_e(1+R_{ft}) = \alpha_f + \beta_f Log_e(1+R_{mt}) + U_{ft} \qquad (7)$$

Brown and Warner (1985), Jain (1986), and Dyckman et al. (1984) indicate that none of the more sophisticated methodologies , Scholes-Williams and Bayesian-based procedures, yields clear-cut benefit or increase in the power of the test to detect abnormal returns than Ordinary Least Squares (OLS) method. Hence, OLS method is used to estimate the intercept and the slope of the market model.

The cumulative risk-adjusted stock returns from two days before through two days after the announcement are used in the analysis. However, cumulating abnormal returns from two days before through two days after the announcement makes a strong assumption concerning the market's ability to impound quickly the information contained in the announcement. Since the impact of the announcement might not be captured instanteously in the abnormal return behavior, cumulated abnormal returns over alternative windows are used to gain insight into the permanency of price adjustment and to test the sensitivity of the results to the length of event window:

$$U_f^+ = \sum_{t=1}^{w} U_{ft} \qquad (8)$$

where: w is number of days included in the window.

For hypothesis test purposes, the standardized abnormal

returns, first used by Beaver (1968) and further developed by Patell (1976) are employed as follows:

$$SU_{ft} = \frac{U_{ft}}{\sqrt{C_{ft} V_f}} \qquad (9)$$

$$SU_f^+ = \sum_{t=1}^{w} SU_{ft} \qquad (10)$$

$$C_{ft} = 1 + \frac{1}{T} + \frac{(R_{mt} - \bar{R}_m)^2}{\sum_{k=1}^{T} (R_{mk} - \bar{R}_m)^2} \qquad (11)$$

$$\bar{R}_m = \frac{1}{T} \sum_{k=1}^{T} R_{mk} \qquad (12)$$

where:

SU_{ft} = standardized abnormal return for firm f on day t.

U_{ft} = prediction error for firm f on day t from the market model.

C_{ft} = the increase in variance due to prediction outside the estimation period for firm f on day t.

T = the number of days used in the estimation period for firm f.

V_f = the residual variance from the estimated market model for firm f in the estimation period.

4.5.2 Earnings Correction (materiality)

The magnitude of earnings correction for a firm represents the aggregate effect of the difference between the distorted reported and corrected earnings, which is simply the sum of all earnings corrections (-, +, 0). To examine the association between market adjustment and materiality of earnings misstatements, scale differences across firms are considered to avoid an important source of misspecification. Hence, the dollar amount of earnings misstatements are to be deflated to control for the size effect. Based on Christie (1987), the correct deflator is the market value of equity at the beginning of the year. Thus, the aggregate dollar amount of earnings correction are deflated by the firm's market value at the beginning of the announcemnt year.

4.5.3 Tests of Hypotheses

4.5.3.1 Change in Cash Flow Expectations (H_{N1})

To test the market adjustment to the discovery of earnings misrepresentations, mean standardized abnormal returns is estimated for experimental and control firms. The test is performed for sample firms grouped on the basis of the sign of the aggregate correction in prior earnings (-, +, 0) disclosed to the market, compared to their control groups. And cumulative standardized abnormal returns over the five-day

event window is used for test purposes:

$$SU_f^+ = \sum_{t=-2}^{+2} SU_{ft} \qquad (13)$$

where:

SU_{ft} = standardized abnormal return for firm f on day t.

SU^+_f = cumulative standardized abnormal return for firm f cummulated from two days prior to the announcement through two days post the announcement.

To test whether mean cumulative abnormal returns for each group of the experimental firms is statistically significant from that observed for their control group, the following z-statistic is used, based on Dodd and Warner (1983):

$$Z = \frac{[\overline{SU^+}]_g - [\overline{SU^+}]_i}{\sqrt{1/N_g + 1/N_i}} \qquad (14)$$

where:

g= g_1 for earnings overstatements group.
g_2 for earnings understaments group.
g_3 for zero earnings misstatements group.

i= control firms group.

Prediction:

Intentional (or Unintentional) misrepresentations:

$$
\begin{array}{lllll}
H_{N1} & g1: [[SU^{+}]_{g1} - [SU^{+}]_{i}] \leq 0 & H_{A1} & [[SU^{+}]_{g1} - [SU^{+}]_{i}] < 0 \\
 & g2: [[SU^{+}]_{g2} - [SU^{+}]_{i}] \geq 0 & & [[SU^{+}]_{g2} - [SU^{+}]_{i}] < 0 \\
 & g3: [[SU^{+}]_{g3} - [SU^{+}]_{i}] = 0 & & [[SU^{+}]_{g3} - [SU^{+}]_{i}] < 0
\end{array}
$$

4.3.2 Change in Riskiness Components (H_{N2})

To measure changes in the risk levels over time, the risk components must be compared between periods prior to and after the announcement of earnings misrepresentations:

4.5.3.2.1 Unsystematic Risk ($H_{N2.1}$)

The hypothesis is tested by examining the relative change in variance of abnormal returns as a measure of the increased unsystematic variability, compared to the control group. Based on the price volatility approach of Beaver (1968) and Patell (1976), a relative variance measure of price variability, i.e., the ratio of variance of abnormal return for a given day within the event
window to the residual variance in the estimation (nonevent) period, is used to examine the change in unsystematic stock price variability:

$$PV_{ft} = \frac{SU_{ft}^2}{C_{ft}V_f} * \frac{T_f - 4}{T_f - 2} \qquad t=-2,\ldots,+2 \quad (15)$$

$$\overline{PV_t} = \frac{1}{N}\sum_{f=1}^{N} PV_{ft} \qquad (16)$$

$$AVCPV_f = \frac{1}{5}\sum_{t=-2}^{+2} PV_{ft} \qquad (17)$$

$$\overline{AVCPV} = \frac{1}{N}\sum_{f=1}^{N} AVCPV_f \qquad (18)$$

where:

PV_{ft} = relative price variability for firm f for day t.

SU_{ft} = standardized prediction error for firm f on day t from the market model.

$\overline{PV_t}$ = average variability for day t for group firms N (N represents sample group j or control group i).

$AVCPV_f$ = average cumulative price variability for firm f from day -2 through day + 2.

$\overline{AVCPV}$ = mean of average cumulative price variability for group firms N.

Prediction:

$H_{N2.1}$: $[\ \overline{PV_t}\ (\text{or } (\overline{AVCPV}))\ ]_j - [\ \overline{PV_t}\ (\text{or } (\overline{AVCPV}))\ ]_i \leq 0$

$HA_{2.1}$: $[\ \overline{PV_t}\ (\text{or } (\overline{AVCPV}))\ ]_j - [\ \overline{PV_t}\ (\text{or } (\overline{AVCPV}))\ ]_i > 0$

where:

j = experimental sample firms.
i = control sample firms.

To test whether unsystematic variability observed for the experimental sample is statistically different from that observed for the control sample, the following Z-statistics is used, based on Dodd and Warner (1983):

$$Z = \frac{[\overline{PV_t}(V(\overline{AVCPV}))]_j - [\overline{PV_t}(V(\overline{AVCPV}]_i}{\sqrt{(1/N_j + 1/N_i)}} \qquad (19)$$

4.5.3.2.2 Systematic Risk ($HN_{2.2}$)

To test whether the discovery of earnings misrepresentations results in a significant shift in systematic risk for sample firms , compared with control firms, betas are estimated for each firm during the pre-discovery and the post-discovery periods. Then, the shift in average systematic risk over the two periods is used for the hypothesis test. The pre-announcement period extends from day -21 to day -2. The post-announcement period extends from day -1 to day +20. Day -1 is included in the post-announcement period as it represents the actual announcement day, but published on the following day (day 0 in the study) in the business press. Following Ball (1972), Sunder (1973), and

Collins and Simonds (1979); moving-beta estimates are computed using a moving series of return data. The study uses a moving series prior to the test period (starting from t= -130) to estimate moving-beta time series prior to the announcement (t = -21 to t = -2), and a moving series post the test period (starting from t= +130) is used to estimate moving-beta time series in the post-discovery period (t= -1 to t= +20). To estimate beta for a certain day, an OLS moving regression on a moving series of 111 trading days ending with the day for which beta is estimated , by adding a new observation and dropping an observation from the beginning. For example, the observations used to estimate beta for day -21 are the rates of return for day -130 through day -21, observations from day -129 through day -19 are used to estimate beta for day -19. For the post-announcement period, observations from day +111 through day +1 are used to estimate beta for day +1, observations from day +130 through day +20 are used to estimate beta of day +20, and so on. Since the change in riskiness hypothesis implies testing whether the change in systematic risk , between the two periods, for experimental firms is significantly higher than the change in risk for the control sample, the change in risk is averaged cross-sectionally as follows:

$$\overline{B_t} = \frac{1}{t}\sum_{t} \beta_t \quad t=-2,\ldots,-21\,(before{:}period1) \qquad (20)$$

$$t=-1,\ldots,+20(after{:}period2\ )$$

$$\Delta\overline{\beta}_f = \overline{\beta}_{f2} - \overline{\beta}_{f1} \qquad (21)$$

$$\overline{\Delta\beta} = \frac{1}{N} \sum_{f=1}^{N} \Delta\overline{\beta}_f \qquad (22)$$

where:

$\overline{\beta}_f$ = mean beta for firm f, over the pre-announcement period (period 1) or after the post-announcement period (period 2).

$\Delta\overline{\beta}_f$ = change in mean beta for firm f, between period 1 and period 2.

$\overline{\Delta\beta}$ = average of change in mean betas for group N firms (experimental firms j or control firms i).

Prediction:

$$H_{N2.2} : [\overline{\Delta\beta}]_j - [\overline{\Delta\beta}]_i \leq 0$$

$$HA_{2.2} : [\overline{\Delta\beta}]_j - [\overline{\Delta\beta}]_i > 0$$

To test whether the change in systematic variability observed for the experimental sample is statistically different from that observed for the control sample, the following t-statistics is used for test purposes.

$$t = \frac{[\overline{\Delta\beta}]_j - [\overline{\Delta\beta}]_i}{\sqrt{(S_j^2/N_j + S_i^2/N_i)}} \qquad (23)$$

where:

N_j and N_i = number of observations in each group respectively.

S^2_j and S^2_i = the sample variance for each group.

4.5.3.2.3 Association of Changes in Risk Parameters and Attributes

Testing the relationship between the change in riskiness and attributes of earnings misrepresentations, discussed with the second hypothesis, is performed using ANOVA technique.[41] Independent variables of the model represent the various attributes of earnings misrepresentation examined in the study. The qualitative attributes are represented by discrete variables of zero-one value. Control variables for the effectiveness of the company's monitoring system are represented by discrete variables as well, the detector of earnings misrepresentation and the length of the time period for the detection. The dependent variable reflects the change

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[41]I am aware that change in risk component could be a function of earnings materiality (magnitude of earnings correction). However, as the dependent variable is the change in riskiness upon the first disclosure of earnings misrepresentation, using the magnitude of earnings correction as a control variable, in a regression analysis, will reduce number of observations significantly. This is because the magnitude of earnings correction is not usually determined or disclosed to the market in the first disclosure announcement. Thus, ANOVA procedure is performed for all sample firms, with no regard to earnings correction. And to verify results, additional regression analysis will be performed for observations with magnitude amount available on the first disclosure date.

in risk parameter for the firm:

$$AVCPV_j\,(V(\Delta\overline{\beta}_j)) = \alpha_1 D_1 + \alpha_2 D_2 + \alpha_3 D_3 + \alpha_4 D_4 \qquad (24)$$

where:

D_1	= 1	if annual earnings misrepresentation.
	= 0	otherwise.
D_2	= 1	if irregularities misrepresentation.
	= 0	otherwise.
D_3	= 1	if not detected by the company's internal or external monitoring system.
	= 0	otherwise.
D_4	= 1	if not detected with the subsequent annual audit.
	= 0	otherwise.

Prediction:

$H_{N2.3}$:	α_1	≤ 0	$H_{A2.3}$:	α_1	> 0
$H_{N2.4}$:	α_2	≤ 0	$H_{A2.4}$:	α_2	> 0

4.5.3.3 Change In Earnings Quality Hypothesis (H_{N3})

To test the effect of the discovery of earnings misrepresentations on the market's perception of earnings quality of sample firms, compared with control firms, the change in the associaton between earnings and stock returns is

examined. Based on information economics studies , cited before, the evidence is provided in terms of earnings response coefficient (ERC) and the stock price variability around earnings announcement. On the basis of each measure, the change in the association between stock returns and earnings release before the discovery (release A) compared to earnings release after the discovery (release B) is used for test purposes. Test of the difference in stock price variability is based on average cumulative price variability (AVCPV) , as defined before. And, test of difference in ERC is based on the slope coefficient estimated from a cross-sectional regression model, using ordinary least squares (OLS).

Rather than estimating an individual regression model for each of the two earnings releases, observations for the two releases are pooled in one regression model, using a dummy variable to distinguish between the two functions. And the differential slope (differential ERC) is used to test the change in earnings quality hypothesis. The dependent variable represents cumulative standardized abnormal returns over a five-day window around earnings release, and the independent variable represents earnings forecast error.

In this study, analyst forecasts are used as a proxy of the market's expectation for future earnings, rather than

time-series based expectations, for two reasons:

1- Prior evidence suggests that analyst forecasts are a better measure of expected earnings than time-series based expectations as they incorporate new information [see, e.g., Brown et al. (1985) and O'Brien (1988)].
2- As discovered earnings misrepresentations are predicted to reduce the perceived credibility of earnings, it is unlikely that the market will use prior, and unreliable, earnings in forming its expectations of the subsequent earnings signals.

Hence, Value Line earnings forecasts are used to measure earnings prediction error, the difference between earnings announced and earnings forecasts. Therefore, the following criteria are applied for the experimental firms and the control group:[42]

1- Availability of daily stock returns for estimation purposes around earnings reports prior to and subsequent to discovery of eanings misrepresentation.
2- Disclosure of earnings reported prior to and subsequent to the discovery of earnings misrepresentations in the WSJ.
3- Availability of Value Line earnings forecasts for both

[42]These criteria required changing the control group used to test the third hypothesis. Also, it resulted in reducing the experimental group to 96 companies.

earnings reports prior to and subsequent to the discovery.

$$EFE_{ft} = \frac{EPS_{ft} - FEPS_{ft}}{FEPS_{ft}} \qquad (25)$$

$$SU_f^{\dagger} = \alpha_0 + \alpha_1 D_1 + \beta_1 EFE_{ft} + \beta_2 D_1 EFE_{ft} + e_f \qquad (26)$$

where:

EPS_{ft} = reported earnings per share for firm f and period t.
$FEPS_{ft}$ = value line earnings forecasts for firm f and period t.
EFE_{ft} = earnings forecast error for firm f and period t.

$SU^{\dagger}_f$ = cumulative standardized abnormal returns of firm f over five-day period around earnings release date, which is the publication date of earnings numbers in the Wall Street Journal.

D_1 = 1 for earnings release after the discovery (release B).
= 0 for earnings release before the discovery (release A).

Prediction:

(a) Stock Price Variability:

H_{N3} $[[\overline{AVCPV}]_j - [\overline{AVCPV}]_i]_B$ [vs. $[[\overline{AVCPV}]_j - [\overline{AVCPV}]_i]_A$] ≥ 0

H_{A3} $[[\overline{AVCPV}]_j - [\overline{AVCPV}]_i]_B$ [vs. $[[\overline{AVCPV}]_j - [\overline{AVCPV}]_i]_A$] < 0

(b) Earnings Response Coefficient:

H_{N3} $[\beta_2]_j - [\beta_2]_i \geq 0$

H_{A3} $[\beta_2]_j - [\beta_2]_i < 0$

CHAPTER 5

EMPIRICAL RESULTS

This chapter reports the empirical results for the hypotheses tested in this study.

1. The results of the tests of the first hypothesis based on cumulative standardized abnormal returns, CSAR, are included in Table 1 through Table 3.[43] Table 1 presents mean cumulative standardized abnormal returns for experimental firms compared to the control group.[44] Results reported in Panel A show significant lower returns for experimental firms. During the 3-day and the 5-day event window, the difference is -.4156 and -.5372 , respectively, at the .0003 level. Panel B shows that excluding firms with confounding events, i.e., contaminated firms, does not change results; the difference is -.5729 and -.4892, respectively at the .0003 level. Thus, the evidence indicates that other news announcements occuring within the event window do not preempt the information content of the discovery of earnings misrepresentations, and that these announcements are of particular importance to investors.

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[43]Standardized abnormal returns are determined using daily returns during the first estimation period, i.e., no adjustment was made for shift in systematic risk (beta), as results do not support the change in the systematick risk component.

[44]60 observations are considered outliers and excluded from the analysis. Consequently, 246 observations are used for test purposes.

Table 2 includes the market performance based on the sign of the earnings correction disclosed to the market. Panel A shows market performance associated with announcements of overstatements of prior earnings, i.e., negative correction of earnings. The difference in mean cumulative standardized abnormal returns for experimental firms, compared to the control group, over the 3-day and the 5-day event window is -.3598 and -.4553, siginificant at the .0017 and .0003 level, respectively. Panel B shows the market performance with regard to announcements of earnings understatements, i.e., positive earnings correction. Results show that over the 3-day and the 5-day event window the difference in mean cumulative standardized abnormal return is -.8395 and -.8208, significant at the .0110 and .0125, respectively. Thus, although the announcement reveals an increase in prior reported earnings, the market discounts securities price of companies understating their earnings. Results, therefore, indicate that the market prefers faithfulness of earnings reports and that, consistent with the prediction, earnings manipulation reflects unfavorable economic factors. It is interesting to note that the negative market reaction to earnings understatements is greater than its reaction to earnings overstatements. Or, the market behaves as if the only justification for earnings understatements might be a strong evidence of manipulation. Nevertheless, these results should be accepted within certain limitations. As the tendency is not to understate earnings,

only 15 observations were available to test the market evaluation of earnings understatements. Hence, results, while not generalizable, can provide some insights into the market reaction to earnings manipulation, i.e., the significance of earnings faithfulness to investors.

Panel C shows market performance to announcements of "zero' correction in prior earnings. Results support the hypothesis that misstatements requiring no correction in prior earnings numbers reveal increased noise, and, hence, unreliability of earnings information, leading to lower assessment of asset values. The difference in mean the cumulative standardized abnormal return over the 3-day event window is -.5702, compared to the control group, at the .0125 level. And the difference in the mean cumulative standardized abnormal return over the 5-day event window is -1.1866, at the .0003 level. Thus, as predicted, earnings misrepresentations that do not affect earnings bottom line convey bad news, leading to an adverse market impact.

Hence, on the basis of the sign of earnings misrepresentation, the market reacts negatively regardless of the direction of the correction. As earnings has been considered the most important information item in assessing asset values, the market perceives earnings misrepresentations as unfavorable factors, i.e., bad news about the distribution

of future returns.

With regard to the cause of earnings misrepresentation, Table 3 presents the market reaction to earnings misrepresentations resulting from errors and irregularities. Compared to the control group of each category, cumulative standardized abnormal returns to intentional earnings misrepresentations (irregularities) over the 3-day and the 5-day event window is -.5275 and -.5922, significant at the .0003 level, respectively. For errors, the difference over the 3-day and the 5-day event window is -.1699 and -.4163, respectively, significant at the .1468 and .0049 level, respectively. However the results do not a indicate strong market impact upon disclosure of errors over the 3-day window, the market appears to capture reaction over the 5-day window. Hence, as predicted, the market considers both intentional and unintentional misrepresentations as a negative signal, i.e., a breach in the accounting and reporting system, and, accordingly, lowers its expectations of future returns.

In sum, as predicted, results indicate adverse market reaction to misrepresentations regardless of the sign or the cause of the misrepresentation. Accordingly, the first null hypothesis is rejected in favor of the alternative hypothesis, earnings misrepresentations reflect unfavorable factors, and, hence, result in adverse market impact.

2.

2.1 Table 4 provides results of tests of the change in unsystematic variability of securities returns.[45] Panel A shows variability of stock returns for all firms, both contaminated and non-contaminated. Results indicate that experimental firms experience increased unsystematic variability of their stock return around the announcement date. Within the 3-day and the 5-day window the difference between the experimental and the control group is .4910 and .5482, respectively, significant at the .0003 level. Panel B shows the mean unsystematic variability over the 3-day and the 5-day event window for only non-contaminated firms compared to their control group. Over the 3-day and the 5-day window, the difference in unsystematic variability is .5739 and .5023, respectively, at the .0003 level. Hence, results indicate that announcements of earnings misrepresentations reflect increased uncertainty or volatility of future prospects, leading to increased unsystematic volatility of securities returns. Therefore, the null hypothesis is rejected in favor of the alternative hypothesis, i.e., earnings misrepresentations result in higher assessement of future uncertainty and, hence, upward revision of unsystematic risk.

Test results of the change in systematic volatility of

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[45]An additional 12 observations are considered outliers. Consequently, stock price variability of 234 firms is used for the hypotesis test.

securities return upon announcements of earnings misrepresentations are included in Table 5. Testing the change in systematic risk required comparison of systematic risk prior to the announcement to that of post announcement. To increase the power of tests, only firms with daily return data available for estimating beta before and after the announcement are used to test the change in the systematic risk. This reduced sample size to only 256 firms.[46] In addition, due to possible information leakage to the market through other channels prior to the disclosure in the WSJ, which could bias results, average beta in the pre-announcement period is estimated for several intervals during the pre-announcemnet test period. Hence, average beta is estimated for the pre-announcemnt test period ending 2 days before the announcement (t=-21 to t=-2), for the test period ending 5 days before the announcement (t=-21 to t=-6), and for the test period ending 10 days before the announcemnt (t=-21 to t=-11).

While results indicate that the disclosure of earnings misrepresentations generates increased perceived volatility of furture prospects and, hence, unsystematic risk, as discussed above, the test results of the change in the systematic risk component (beta) do not support the prediction. Results show that the systematic risk component of experimental firms,

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[46]Two firms are excluded as outliers and 254 observations are used for test purposes.

compared to their control group, does not change upon the announcement. Results reported in Table 5, Panel A, show that selection of control firms was successful. Mean beta for various intervals before the announcement indicates no significant difference in beta between the experimental and the control group prior to the announcement. During the various intervals in the test period prior to the announcement, ending 2 days and 5 days and 10 days before the discovery, the difference in mean beta between the experimental and the control group is .0506, .0490, and .0494, respectively. And, results show that the difference between the two groups is not significant at any acceptable level; .4622, and .4803, and .4772, respectively. Panel B shows that during the test period following the announcement, the picture does not change. Mean beta after the announcement is .8344 for sample firms, compared to .8295 for the control group, and the difference, .0049, is significant at .9711 level. As shown in Panel C, the shift in beta, between the two periods, for the two groups, using the various intervals prior to the discovery, is not substantially different. The difference, between the two groups, of shift in beta between the post-discovery and the pre-discovery period ending 2 days prior to the announcement, for example, is .0199, at the .8897 level. Comparisons using other intervals prior to the discovery provide similar conclusion.

A possible explanation is that, compared to the strong evidence of change in the unsystematic risk component, factors that lead to earnings misrepresentations are firm-specific rather than market-related , and, hence, they do not affect systematic risk. Consequently, the null hypothesis of no change in systematic risk is accepted and the alternative hypothesis, earnings misrepresentations lead to increase in relative risk, is rejected.

2.3 Results of testing the effect of attributes of earnings misrepresentations on market performance are included in Table 6 and Table 7. As results of the change in the systematic risk hypothesis indicate no change in systematic risk, examining the effect of attributes of earnings misrepresentations on riskiness is performed only for the change in the unsystematic risk component, which has been supported by the study. Table 6 shows results of the ANOVA anlaysis performed to test the accounting period and the intentional level hypotheses. Results indicate that only the variable of the intentional level of earnings misrepresentations has a significant parameter estimate. The sign of the parameter estimate is positive, 2.3247, as predicted, at the .0055 level. This indicates that intentional misrepresentations reveals greater adverse attributes, compared to unintentional misrepresentations or errors, and, hence, result in stronger price variability, consistent with the prediction. The

coeffecient estimate for the accounting period variable has a negative sign, -.6499, i.e., inconsistent with prediction, but it is significant only at an unacceptable level, .4300. Hence, results do not support the prediction that annual earnings misrepresentations are associated with greater market impact, relative to quarterly earnings misrepresentations.

As the market impact could depend on the magnitude of earnings misrepresentations as well as on the qualitative attributes, regression analysis is performed, including the magnitude of earnings correction as a control variable.[47] Results of the regression model are included in Table 7. Results indicate that including the materiality effect of earnings misrepresentation
(the correction magnitude) in the model as an additional explanatory vriable changes the evidence obtained from ANOVA analysis. Only the intercept, 2.5888, is significant, at .0399 level, and other explanatory variables become insignificant. Hence, significance of the intentional level variable provided by the ANOVA model can not be supported by the regression model, upon including the magnitude effect. As results are inconsistent, the intentional level of misrepresentations can not be accepted or rejected. And the accounting period

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[47]This reduced sample size to only 66 observations, as the magnitude of earnings correction is not usually disclosed on the first disclosure date, which is the event date (t=0) used in the study.

hypothesis is rejected in favor of the null hypothesis, market reaction to annual earnings misrepresentations is not significantly different from its reaction to quarterly earnings misrepresentations.

3. Table 8 presents comparison results, on the basis of stock price variability, for the third major hypothesis, the change in earnings quality.[48] A comparison of mean average cumulative price variability (AVCPV) between the two groups around earnings announcement prior to the discovery, included in Panel A, indicates no significant difference in price variability between the two groups prior to the discovery of earnings misrepresentations. Results reported appear to indicate that prior to the discovery the difference between the two groups over the 3-day and the 5-day windows is .0211 and .0744, significant at the .4482 and .3156 level, respectively. Thus, there appears to be little difference in the market's response to the earnings signals of the two groups before the announcemnt (release A). However, the evidence provided in Panel B indicates that stock price variability around earnings release after the discovery (release B) is substantially different between the two groups. On average, experimental firms experienced significant lower

[48]However 96 firms satisfied the criteria of testing the third major hypothesis, earnings informativeness, only 85 firms are used for test purposes after excluding 11 firms as outliers.

price variability, compared to the control group, during the two windows of disclosure used in the the study. Results indicate that over the 3-day window, the experimental group, compared to the control group, experienced lower price revision, and the difference is .3626, significant at the .0096 level. Also, over the 5-day window the control group experienced stronger price revision (1.8963 vs. 1.5486), and the difference, .3477, is significant at the .0122 level. On the basis of the difference in variability between the two earnings releases, results indicate that over the 3-day and the 5-day event window, experimental firms experienced .4429 and .3462 increase in price variability, compared to .7844 and .6195, respectively, for the control group. The difference is significant at the .0135 and .0383 level, respectively.

Thus, on the basis of stock price variability, results are consistent with the prediction, price variability around earnings announcement subsequent to discovery of misrepresentations is significantly lower for the experimental group, compared to the control group. Hence, the substantial difference between the two groups after the discovery, compared to the insignificant difference prior to the discovery, indicates the market's lower assessment of earnings credibility, and, hence, informativeness, of companies experiencing earnings misrepresentation.

Test results for the change in earnings quality hypothesis on the basis of earnings response coefficient (ERC) are presented in Table 9. Panel A provides results of the pooled regression model for experimental firms, for earnings release prior to the discovery (release A) and earnings release after the discovery (release B). The evidence for experimental firms indicates that the difference in the earnings response coefficient between the two releases, the differential slope, is -.0384, i.e., ERC after the discovery is higher, inconsistent with prediction, but is significant only at the .5693 level. Thus, the increase is not substantial. Panel B provides results of the pooled regression model for the control group. Results show that the differential slope for the control group is negative, - .4164, and significant at .1772 level. This also reflects an increase in the association between stock returns and earnings information, measured by ERC. The regression was run for the control group and the experimental group combined, allowing for the difference in the slope coefficient between the two groups. The results of the pooled regression are presented in Panel C. Results show that the differential slope for the control group is -.3783, significant at .1182, and -.0372 for the experimental group, significant at .5263 level. The difference is -.3411, significant at the .10 level. Hence, on the basis of ERC, results imply that for the experimental group, compared to the control group, the association between

earnings release and stock price after the discovery is lower than that before the discovery, consistent with the evidence obtained in terms of stock price variability. Results, therefore, support the prediction of the third hypothesis. The null hypothesis, accordingly, is rejected in favor of the alternative hypothesis, earnings misrepresentations reveal lower earnings informativeness, i.e., become less value relevant.

CHAPTER 6
ACCOUNTING AND AUDITING IMPLICATIONS

This chapter provides some accounting and auditing insights into earnings misrepresentations used in this study. An analysis of some aspects of earnings misrepresentations is included in Table 10 through Table 13, and materialitity of earnings misstatements is provided in Table 14. A brief description of earnings misrepresentations for sample firms is provided in Table 15.

The analysis provided in Table 14 reveals that in most of the events, earnings misstatements resulted in material imprecision, i.e., they reveal material noise in earnings signals and, hence, a significant reduction in the credibility and, in turn, reliability, of earnings information. The average amount of earnings misstatement is $15,537 thousand, or 74.31 percent of income that should have been reported (or the correct income). In illustration of the material difference between the reported and the correct income, some cases are used to cast light on the materiality effect of the misstatements. BTK Co. reported $47 thousand profit for the first quarter of 1983; instead of a loss of $378 thousand, and , hence, income of the 1983 first quarter was misstated by 112.43 percent. Control Data Corporation reported profit of $3.8 million for its second quarter of 1985; however the correct result was a $4.8 million loss, and , hence, the 1985

second quarter result was misstated by 179.16 percent. USF&G reported a profit of $4.3 million for 1983; while the correct result for that accounting period was a loss of $64 million, and , therefore, 1983 income was misstated by 106.71 percent.

Moreover, Table 10 shows that in most of the events (84.31 percent of sample firms), the distortion resulted in reporting lower losses, or higher profits, or reporting profits when the proper result was a considerable loss. Thus, earnings misrepresentations could be an indication of failure to disclose poor performance. That is, they reveal negative attributes about the company. The discovery, therefore, may reveal possibly lower future prospects and increased riskiness, which conforms with the analysis of the economic implications of earnings misrepresentations, discussed in Chapter 2. Based on the direction of earnings misstatements, Table 10 shows that only a few misstatements resulted in "aggregate" less profits or increased losses, i.e., earnings understatements. Compared to earnings overstatements, earnings understatement only constitute 4.9 percent of the sample firms. However, we should be aware that in many other events earnings understatements were found to be followed or preceded by offsetting misstatements, i.e., overstatement, which resulted in aggregate zero or positive change in prior earnings upon the discovery.

Because shifting revenues and/or expenses is a sufficient condition for income smoothing, it appears that understating earnings misrepresentations in some periods might not be an ultimate objective, but rather might be a result of income smoothing plans, i.e., earnings manipulations. A decline in profit may not be desired, but reporting income increases that vary from one year to another may not be preferred either. Executives may prefer to report earnings that follow a smooth, regular, and upward path. Thus, they may "bank" earnings by understating them in some years and use them in other difficult or less favorable years. The information disclosing earnings understatement can, therefore, disclose to users of accounting information the management's manipulation plans as well, i.e., the negative management attributes, and , hence, the negative attributes of the asset to equity investors.

Based on the intention of earnings misrepresentations, the analysis included in Table 11 indicates that misrepresentations resulting from errors constitute 29.73 percent of sample firms, compared to 70.27 percent misrepresentations resulting from intentional acts or accounting irregularities, i.e., falsification of records, omission of facts, and violation of accounting principles. However, a closer analysis of earnings misrepresentations resulting from errors reveals that 86.81 percent of errors disclosed (79 out of 91) resulted from misapplication of

accounting principles. And,. only a small proportion, 13.19 percent (12 out of 91), resulted from data processing errors and errors in accounting estimates. This pattern is similar to the pattern of earnings misrepresentations resulting from accounting irregularities. Analysis of intentional misrepresentations provided in Table 11 shows that 84.65 percent (182 out of 215) resulted from improper use of accounting principles. Hence, it appears that what is claimed by companies as errors may be a result of attempts to manipulate results through improper use of accounting rules. In other words, the line between errors and irregularities might not be clear, which is consistent with the negative market response to both types of misrepresentations, observed in the study.

Earnings misrepresentations constituted a material proportion of results, and most of them were a result of intentional accounting violation. However, most of the intentional misrepresentations were detected by governmental regulatory agencies, e.g., the SEC and FHLB. And a much smaller proportion was detected by the company's internal or external monitoring system, i.e., the internal control sysyem and external auditors respectively. Table 12 shows that the internal control system detected 71.42 percent (65 out of 91) of errors, and only 14.88 percent (32 out of 215) of the intentional misrepresentations. Thus, the internal monitoring

system does not appear to contribute much in detecting intentional earnings misrepresentations. Also, misrepresentations detected by auditors, who should render credibility to earnings reports, represent only 5.55 percent (5 out of 91) of errors and 9.76 percent (21 out of 215) of accounting irregularities and, hence, an indication of the weakness of the external monitoring system as well. The weaknesses of both the internal and the external monitoring system are, consequently, an indication of an increased agency cost and an increase in the volatility of future prospects of those companies, as discussed earlier in chapter 2 and chapter 3.

However, since Generally Accepted Auditing Standards (GAAS) do not require an audit of quarterly reports, analysis of the auditors' role in detecting misrepresentations of annual earnings only, i.e., excluding quarterly earnings misrepresentations, is more representative of their contribution to detecting earnings irregularities. Table 13 shows that auditors detected 2.32 percent (1 out of 43) and 12.64 percent (22 out of 174)of unintentional and intentional misrepresentations affecting annual earnings, respectively. Moreover, it is shown that 41.47 percent (90 out of 217) of annual earnings were not detected with the subsequent annual audit, i.e., more than one accounting year was affected before being detected. It is surprising to find that 14.74 percent

(32 out of 217) of annual earnings misstatements used in this study were discovered after 3 (or more years); however, the auditors' role resulted in detecting only 3.12 percent (1 out of 32) of them.

Thus, although one of the basic objectives of the audit process is to obtain the highest possible assurance about the absence of errors and irregularities that affect the fairness of accounting information included in financial statements, it appears that the auditors' role in detecting earnings misrepresentations was very limited. Thus, not only are the executives who misrepresent their company's financial statements being blamed, the accountants who fail to detect fraud during audits are being held accountable as well.

Under Generally Accepted Auditing Standards, the primary objective of the financial statements audit is to render an opinion as to whether the statements are fairly presented in accordance with GAAP. And, the auditors' responsibility to detect errors and irregularities has been expanded over time through SAS 1, Extensions of Auditing Procedures; SAS 16, The Independent Auditor's Responsibility for the Detection of Errors and Irregularities; and SAS 53, The Auditor's Responsibility to Detect and Report Errors and Irregularities. Although the detection and reporting of fraud has been considered the core of the public's idea of an audit, it is

considered under GAAS to be the management's responsibility. Due to the limitations on the auditor's ability to detect accounting irregularities, detection of fraud still does not represent a primary objective of an annual audit, which poses higher risks to investors.

The public, therefore, sees that a public accountant has a public responsibility that transcends the contractual relationship with his client. Therefore, it expects auditors to assure greater responsibility in this area. An attestation to the degree to which a firm's financial statements are fairly represented in accordance with GAAP is among the most basic services provided by the public accounting profession. The public's trust in auditors results in an expectation that accounting disclosures are complete and free from bias. Hence, it wonders how an auditor can give a clean opinion to financial results that turn out to be materially unreliable later on. Therefore, an "expectation gap" exists between what the auditors claim to be the objectives of an audit and what the general public understands an audit to be. Consequently, the problem poses a serious liability crisis for the accounting profession and, hence, a strong challenge to regulators. Otherwise, according to Norris[49], it may remain that companies have two ways to show profits, one is to make

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[49]Norris, Floyd. 1983. GAAP Over RAP. Barron's, March 7, P. 70.

good business decisions, and the other is to hire good accountants!

CHAPTER 7

SUMMARY AND CONCLUSIONS

This chapter provides a brief summary and findings of the study, contribution, and possible extentions of future research.

7.1 Summary and Findings

Financial accounting research has concentrated on the association of earnings changes and changes in accounting methods with security prices. Although the discovery of earnings misrepresentations is not less significant, little effort has been devoted to understanding the stock price effect when the market discovers that prior earnings were in error. The purpose of this study was to examine how the discovery of previously distorted reported earnings, a negation of earnings reliability, leads shareholders to revise their assessments of the value of firm securities. The study used an informational perspective of earnings numbers, and, thus, earnings misrepresentations used in the study extended to include any part of the external financial report. Assuming market efficiency, in its semistrong form, the purpose was to examine the association between announcements of earnings misrepresentations and the change in: (1) security prices, (2) riskiness, and (3) earnings informativeness.

Chapter 2 discussed the economic implications of the discovery of earnings distortion, and, consequently, the expected market adjustment was described. It was indicated that the discovery reveals increased unreliability, or noise, of earnings information and, hence, it leads to an adverse market impact due to: (1) lower expectations of true future flows, (2) potential legal costs, and (3) higher variance of economic earnings and, hence, unfavorable effects on trade terms, e.g., cost of capital. It was also argued that the various unfavorable factors should be associated with earnings distortion, whether it is a result of intentional or unintentional misrepresentations and regardless of the direction of earnings distortion (-, 0, +). Research into how recipients of earnings information incorporate earnings numbers into their decision process has not provided consistent evdience. Accordingly, the evidence of the functional fixation hypothesis (FFH) remains unresolved. Therefore, the use of a powerful test becomes critical. It was indicated that the "few" prior studies of the informational content of earnings misrepresentations used "average' abnormal returns to provide the evidence of the market's response to earnings misrepresentations. This can hide conflicting and partly offsetting results and, hence, their evidence is inconclusive. This study used a more powerful test and, hence, it provided a stronger evidence.

Chapter 3 discussed the research hypotheses. The objective of the first hypothesis was to provide the evidence of the change in market values upon the announcement. The evidence, therefore, was provided in relation to the direction of distortion, by classifying sample firms into homogenous groups. Another improvement was to distinguish between the market impact associated with errors from that associated with irregularities. The second principal hypothesis tested was the change in riskiness, where risk measures used in the study were risk components assigned by the market, i.e., unsystematic and systematic risk. It was argued that the discovery signals increased operating risk and, thus, upward revisions in volatility of security returns was predicted to be associated with the announcement. The study further examined the association of the market's assessment of riskiness with some attributes of earnings misrepresentation: the accounting period misrepresented (annual vs. quarterly), and the intentional level of accounting violation (errors vs. irregularities). It was argued that disclosure of quarterly earnings misrepresentations reveals adverse information and, hence, results in volatility of stock returns. However, as quarterly earnings are subject to more limitations, compared to annual earnings, it was predicted that a higher increase in variability of securities returns will be associated with the discovery of annual earnings misrepresentations, relative to the variability associated with quarterly earnings

misrepresentations. As irregularities include fraudulent financial reporting undertaken to render financial statements misleading, they reflect lack of effectiveness of the monitoring system, and, thus, increased agency costs. They can also reflect attempts by managements to disguise what may be difficulties, and they may be a result of opportunistic behavior to meet earnings targets. Hence, it was predicted that misrepresentations resulting from irregularities will lead to higher market's assessment of riskiness relative to those resulting from errors. As the discovery conveys factors that interfere with the quality of earnings messages, the purpose of the third major hypothesis was to test the change in the market's assessment of earnings informativeness, in terms of the change in the market response to the subsequent earnings surprise compared to the prior signal. It was predicted that the subsequent earnings signal is perceived to reflect a less true economic value and, thus, its influence on the market's revision of expectations decreases.

Chapter 4 described the research design. 306 earnings misrepresentations were used for empirical analysis, over the 1979-1991 period. As sample selection criteria precluded randomness, the power of tests is reduced. Stock price behavior of the experimental firms, therefore, was contrasted with a control group, matched on the basis of size, industry, and risk. Also, although event time differs among firms, and

the study covered a long time period, which mitigates the effect of confounding events, tests were performed using all sample firms and then using firms with no confounding events. Two estimation periods were used to estimate the market performance prior to and subsequent to the discovery, and the CAPM was estimated using the market model, in a logarithmic form to conform with the assumptions of the linear regression model. Evidence of the change in stock price was obtained using mean standardized abnormal returns, cumulated over various event windows, to test the sensitivity of the results. The change in unsystematic risk component was examined using the relative change in variance of abnormal returns, and the test of the change in systematic risk was performed using the shift in average systematic risk (beta) between the pre-announcement and the post-announcement periods, using moving beta estimates. The association of qualitative attributes of earnings distortion and assessment of riskiness was examined first using an ANOVA approach and then using a regression model to control for the materiality effect. The third major hypothesis, the change in the association between earnings quality and stock returns, was examined on the basis of the two measures used in information economics studies, earnings response coefficient (ERC) and stock price variability. To increase the power of tests, the change in the association between stock returns and earnings releases before and after the discovery was used for test purposes. As the evidence

indicates that analyst forecasts are a better proxy of market expectations for future earnings, this study used Value Line earnings forecasts to measure earnings prediction error.

Research results provide evidence that announcements of earnings misrepresentations have a statistically negative market impact. Consistent with prediction, the adverse market impact is associated with discovery of earnings misrepresentations, regardless of the direction of the correction (-,+,0) or the cause of the misrepresentation (intentional or unintentional). Also, results provide evidence on the perceived increased volatility of future prospects, reflected in increased unsystematic volatility of securities returns. However, results reveal that earnings misrepresentations are firm-specific factors, i.e., have no impact on the systematic risk component. The evidence indicates no increase in systematic volatility of securities returns upon the discovery of earnings distortion. In addition, results do not provide conclusive evidence of the intentional level of misrepresentation hypothesis. And the market impact associated with annual earnings misrepresentations is not significantly different from that associated with quarterly earnings misrepresentations. In addition, results, on the basis of stock price variability and earnings response coefficient (ERC), provide evidence of the market's degredation of earnings credibility of companies

experiencing earnings misrepresentations. The market's response to subsequent earnings signal reflects increased perception of earnings unreliability, and, hence, their lower informativeness. Thus, the evidence seems to imply that investors, in the aggregate, use the disclosed information in setting equilbrium security prices.

7.2 Contribution, Limitations, and Implications for Future Research

This study has major improvements in providing the evidence of the market's adjustments upon discovery of distortion in prior earnings. Compared with prior research, this study: (1) explores the existence of the evidence on the market adjustemnt that is not restricted to a certain type of earnings misrepresentations; (2) provides a stronger evidence and, therefore, a better understanding of the market reaction to the accounting information disclosed upon the discovery of earnings misrepresentations; (3) helps to gain some insights of the effect of the new information as to the change in the market's assesssment of riskiness and informativeness of earnings signal released in the period following the discovery; (4) examines the effect of the qualitative attributes of the distortion as to the accounting period distorted (annual vs. quarterly) and the intentional level of accounting misrepresentation (errors vs. irregularities) on the market's adjustments; and (5) incorporates a number of

refinements in the research methods, which lead to more reliable and conclusive results.

However, the evidence provided in this study is subject to a major limitation, the size of the sample. The experimental sample included 306 observations. Although this size is relatively large, compared to the sample size used in finding the evidence by prior studies, empirical analysis for tests of some of the research hypotheses was performed on smaller subsets of sample firms. Test of the market's response to discovery of earnings understatements was performed using only 15 observations. And test of the market's response to discovery of earnings misrepresentations leading to no change in prior earnings numbers was performed using only 31 observations. Therefore, some of the evidence provided in this study can not be considered conclusive, and, therefore, the results may not be generalizable. Also, the sample does not include firms which are not represented on the CRSP tapes, those with missing data on the CRSP tapes, and those which are not included in the Dow Jones News data base used to identify the sample. As a result, the evidence obtained may not be representative of all firms. Regardless of those limitations, results provide some insights that are still of interest. And I hope this study has presented new insights and some evidence by exploring this topic, the market's assessment of earnings misrepresentations.

The problem of earnings misrepresentations can be adressed from various perspectives. The focus of this study was to examine the association between the discovery of earnings misrepresentations and the market's assessment of asset values. However, other various implications, can be adressed in future research:

- The differences in characteristics between companies experiencing earnings misrepresentations compared to their industry members, e.g., growth and profitability. This research can help the audit process as it can provide auditors with some red flags, and, hence, it can contribute to the design of an efficient audit.
- Prior research of the positive accounting theory has provided evidence that companies that are close to violation of debt covenants have an incentive to manipulate their reported earnings, the debt/equity hypothesis. Also, the evidence indicates that managers have incentives to meet target profits in profit-based compensation plans, the bonus-plan hypothesis. The effect of earnings misrepresentations on avoiding violation of debt covenants and on serving the management's self-interest is another interesting aspect that can be pursued in the future.

- Discovery of earnings misrepresentations resulted in various unfavorable outcomes to these companies, their employees,

and to the economy. Bankcruptcy, resignations, suicide, firing, and litigations are among many of the adverse outcomes of the discovery. Studying the social cost of earnings misrepresentations is another significant and interesting area for future research.

Table 1

Mean Cumulative Standardized Abnormal Returns

Window	Sample	Control	Diff.	Z-stat.	Prob.
A. All Firms (N=246):					
-1 to +1	-.6822	-.2666	-.4156	4.6126	.0003
-2 to +2	-.6709	-.1337	-.5372	5.9622	.0003
B. Non-Contaminated Firms (N=212):					
-1 to +1	-.5491	+.0238	-.5729	5.9061	.0003
-2 to +2	-.6213	-.1321	-.4892	5.0432	.0003

Table 2

Mean Cumulative Standardized Abnormal Returns (Sign of Earnings Correction)

H_{N1} g1: $[[SU^+]_{g1} - [SU^+]_i] \leq 0$ H_{A1} $[[SU^+]_{g1} - [SU^+]_i] < 0$
g2: $[[SU^+]_{g2} - [SU^+]_i] \geq 0$ $[[SU^+]_{g2} - [SU^+]_i] < 0$
g3: $[[SU^+]_{g3} - [SU^+]_i] = 0$ $[[SU^+]_{g3} - [SU^+]_i] < 0$

Window	Sample	Control	Diff.	Z-stat.	Prob.
A. Earnings Overstatements (-):N=200					
-1 to +1	-.7233	-.3635	-.3598	3.5980	.0017
-2 to +2	-.6359	-.1806	-.4553	4.5530	.0003
B. Earnings Understatements(+):N=15					
-1 to +1	-1.1134	-.2739	-.8395	2.2993	.0110
-2 to +2	- .6941	.1267	-.8208	2.2481	.0125
C. Zero Earnings Misstatements (0):N=31					
-1 to +1	-.2079	.3623	-.5702	2.2448	.0125
-2 to +2	-1.1440	.0426	-1.1866	4.6716	.0003

Table 3

Mean Cumulative Standardized Abnormal Returns (Errors & Irregularities)

Window	Sample	Control	Diff.	Z-stat.	Prob.
A. Irregularities: (N=169)					
-1 to +1	-.8404	-.3129	-.5275	4.8528	.0003
-2 to +2	-.7398	-.1476	-.5922	5.4480	.0003
B. Errors: (N=77)					
-1 to +1	-.3350	-.1651	-.1699	1.0546	.1468
-2 to +2	-.5197	-.1034	-.4163	2.5841	.0049

Table 4

Mean Cumulative Unsystematic Returns Variability (Unsystematic Risk)

$H_{N2.1}$: $[\overline{PV}_t \text{ (or } (\overline{AVCPV}))]_j - [\overline{PV}_t \text{ (or } (\overline{AVCPV}))]_i \leq 0$

$H_{A2.1}$: $[\overline{PV}_t \text{ (or } (\overline{AVCPV}))]_j - [\overline{PV}_t \text{ (or } (\overline{AVCPV}))]_i > 0$

Window	Sample	Control	Diff.	Z-stat.	Prob.
A. All Firms (N=234):					
-1 to +1	1.8724	1.3814	.4910	5.3138	.0003
-2 to +2	1.6117	1.0635	.5482	5.9329	.0003
B. Non-Contaminated Firms (N=200):					
-1 to +1	1.8888	1.3149	.5739	5.7390	.0003
-2 to +2	1.5749	1.0726	.5023	5.0230	.0003

Table 5

Change In Mean Systematic Risk Component

$H_{N2.2}$: $[\overline{\Delta\beta}]_j - [\overline{\Delta\beta}]_i \leq 0$

$H_{A2.2}$: $[\overline{\Delta\beta}]_j - [\overline{\Delta\beta}]_i > 0$

Period	Sample	Control	Diff.	T-stat.	Prob.
A. Mean Prior Announcement:					
test period to day -2	.9217	.8711	.0506	.7358	.4622
test period to day -5	.9187	.8697	.0490	.7064	.4803
test period to day -10	.9168	.8674	.0494	.7113	.4772
B. Mean Post Announcement:	.8344	.8295	.0049	.0362	.9711
C. Difference In Mean Between Two Test Periods:					
test period to day -2	-.0739	-.0536	-.0203	.2954	.8859
test period to day -5	-.0751	-.0566	-.0185	.2667	.8974
test period to day -10	-.0778	-.0579	-.0199	.2868	.8897

Table 6

Qualitative Attributes of Earnings Misrepresentations

Model: $AVCPV_j = \alpha_1 D_1 + \alpha_2 D_2 + \alpha_3 D_3 + \alpha_4 D_4$

Attribute		predicted sign	coeffecient	F-value	Prob.
Acc. period:	α_1	+	-.6499	-.7900	.4300
Intn. Level:	α_2	+	2.3247	2.7990	.0055
Detector:	$\alpha 3$	+	-1.7371	-1.5490	.1224
Time	α_4	+	-1.0415	-1.3520	.1775
F value		2.5340			
R-sqr		.0212			
Prob > F		.0500			

Table 7

Magnitude and Qualitative Attributes of Earnings Misrepresentations

Model: $AVCPV_j = \alpha_0 + \alpha_1 D_1 + \alpha_2 D_2 + \alpha_3 D_3 + \alpha_4 D_4 + \beta |ERCORR_j|$*

Attribute		predicted sign	coeffecient (st.error)	T-value	Prob.
Intercept		+	2.5888 (1.2347)	2.097	.0399
Acc. period:	α_1	+	-.6131 (1.3059)	-.470	.6403
Intn. Level:	α_2	+	.5508 (1.3631)	.404	.6875
Detector:	α_3	+	.2819 (1.2103)	.233	.8166
Time	α_4	+	.7741 (1.2192)	.635	.5277
Magnitude:	β		1.5603	.841	.4034
F value		.373			
Adj R-sqr		.027			
Prob > F		.865			

* where $ERCORR_j$ = aggregate difference between the distorted reported and corrected earningss, deflated by market value at the beginning of the announcement year.

Table 8

Mean Cumulative Unsystematic Returns Variability (Earnings Quality)

H_{N3} $[\ [\overline{AVCPV}]_j - [\overline{AVCPV}]_i\ ]_B$ [vs. $[\ [\overline{AVCPV}]_j - [\overline{AVCPV}]_i\ ]_A$] ≥ 0

H_{A3} $[\ [\overline{AVCPV}]_j - [\overline{AVCPV}]_i\ ]_B$ [vs. $[\ [\overline{AVCPV}]_j - [\overline{AVCPV}]_i\ ]_A$] < 0

Window	Sample	Control	Diff.	Z-stat.	Prob.
A. Earnings Release Before Discovery(N=84):					
-1 to +1	1.2946	1.3157	-.0211	-.1367	.4482
-2 to +2	1.2024	1.2768	-.0744	-.4821	.3156
B. Earnings Release Post Discovery (N=84):					
-1 to +1	1.7375	2.1001	-.3626	-2.3499	.0096
-2 to +2	1.5486	1.8963	-.3477	-2.2534	.0122
C. Difference Between Two Releases (N=84)					
-1 to +1	.4429	.7844	-.3415	-2.2132	.0135
-2 to +2	.3462	.6195	-.2733	-1.7712	.0383

Table 9

Change in Earnings Response Coefficient (Earnings Quality)

Variablee	predicted sign	coeffecient	T-value	Prob.
A. Sample Firms: Model: $SU^{+}_{f} = a_0 + a_1 D_1 + B_1 EFE_{ft} + B_2 D_1 EFE_{ft}$				
Intercept	+	.2968	1.339	.1826
D_1^{*}	+	-.0751	-.244	.8078
EFE	+	.1891	1.820	.0597
DEFE	+	-.0384	-.570	.5693
F value	2.309			
Adj R-sqr	.0260			
Prob > F	.0776			
B. Control Firms: Model: $SU^{+}_{f} = a_0 + a_1 D_1 + B_1 EFE_{ft} + B_2 D_1 EFE_{ft}$				
Intercept	+	.4107	1.440	.1521
D_1	-	-.0726	-.192	.8632
EFE	+	.6351	2.261	.0097
DEFE	-	-.4160	-1.356	.1772
F value	2.7870			
Adj R-sqr	.0338			
Prob > F	.0421			

Table 9 (continued)

C. Both Groups: Model: $SU^{+}_{f} = a_0 + a_1D_1 + a_2C_1 + B_1\,EFE_{ft} + B_2\,D_1EFE_{ft} + B_3\,C1EFE_{ft} + B_4\,D_1C_1EFE_{ft}$

intercept	+	.10121	.370	.7113
D_1	+	-.34501	-1.069	.2860
EFE	+	.14386	2.145	.0111
DEFE	+	-.03727	-.634	.5263
C	+	.66738	2.064	.0398
CEFE	+	.58362	1.865	.0630
CDEFE	-	-.37832	-1.276	.1182

* where D=1 for release before the discovery and D=0 for release after the discovery. and C=0 for experimental firm and C=1 for control firm. H_0: $B_2 - B_4 = 0$ t-satatistic is 1.43515, sig at .10 level.

Table 10

Direction of Earnings Misrepresentations

Direction	No.	%
1- Understatement	15	4.90%
2- Zero	33	10.79
3- Oversatement	258	84.31
Total	306	100.00%

Table 11

Intentional Level of Earnings Misrepresentations

Intention	Quarterly		Annual		Total	
	No.	%	No.	%	No.	%
I. Errors:						
1- Data Processing	7	2.28%	1	.33%	8	2.61%
2- Estimates	2	.65	2	.65	4	1.30
3- Acc. Principles	39	12.75	40	13.07	79	25.82
	48	15.68%	43	14.05%	91	29.73%
II. Irregularities:						
1- Falsification	0	0.00	17	5.55	17	5.55
2- Acc. Principles	39	12.75	143	46.73	182	59.48
3- Omission	2	.65	10	3.28	12	3.93
4- Fals. & GAAP	0	0.00	4	1.31	4	1.31
	41	13.40%	174	56.87%	215	70.27%
Total	89	29.08%	217	70.92%	306	100.00%

Table 12

Detector of Earnings Misrepresentations

Detector	Co.		Auditor		Other		Total	
Misrepresentation	No.	%	No.	%	No.	%	No.	%
I. Errors:								
1- Data Process.	7	2.29%	0	0.0%	1	.33%	8	2.62%
2- Estimates	4	1.30	0	0.0	0	0	4	1.30
3- Ac. Principles	54	17.66	5	1.63	20	6.54	79	25.83
	65	21.25%	5	1.63%	21	6.87%	91	29.75%
II. Irregularities:								
1- Falsification	1	.33	4	1.30	12	3.92	7	5.55
2- Acc. Principl.	29	9.47	16	5.23	137	44.77	182	59.47
3- Omission	1	.33	0	0.00	11	3.59	12	3.92
4- Fals. & GAAP	1	0.33	1	0.33	2	.65	4	1.31
	32	10.46%	21	6.86%	162	52.93%	215	70.25%
Total	97	31.70%	26	8.49%	183	59.79%	306	100.0%

Table 13

Detection of Annual Earnings Misrepresentations

Year	D < 1		1 < D < 2		2 < D > 3		D > 3		Total	
Detector	No.	%	No.	%	No.	%	No.	%	No.	%
I. Errors:										
1- Company	24	11.1%	0	0%	2	.9%	5	2.3%	31	14.3%
2- Auditor	1	.5	0	0	0	0	0	0	1	.5
3- Other	8	3.6	2	.9	1	.5	0	0	11	5.0
	33	15.2%	2	.9%	3	1.4%	5	2.3%	43	19.8%
II. Irregularities:										
1- Company	13	6.0	8	3.7	2	.9	2	.9	25	11.5
2- Auditor	13	6.0	4	1.8	4	1.8	1	.5	22	10.1
3- Other	68	31.3	21	9.7	14	6.5	24	11.0	127	58.6
	94	43.3%	33	15.3%	20	9.2%	27	12.4%	174	80.2%
Total	127	58.5%	35	16.2%	23	10.6%	32	14.7%	217	100.0%

Table 14

MAGNITUDE OF EARNINGS MISREPRESENTATIONS

Company	$ misstatement (thousands)	%
1. NYSE and AMERSE Companies:		
Advanced Systems Inc.	$ 823	46.0%
Aetna Life & Casualty Co.	203,000	156.4
Allegheny International Inc.	zero	0.0
AM International Inc.	202,700	23.9
American Building Maint. Indus. Inc.	477 7,313	17.3 71.8
American Century Corp.	5,500	35.7
American Express Co.	46	2.1
Amre Inc.	461	16.8
Armco Inc.	192,100	44.5
Atlantic Richfield Co.	- 45,000	9.1
Baldwin-United Corp.	331,000	283.7
Bank Building & Equipment Corp.	1,272	172.0
Barnett Bank	16,100	24.2
Benguet Corp.	311,500	64.9
BTK Industries Inc.	427	93.8
Burroughs Corp.	zero	0.0
California Life Corp.	zero	0.0
Cannon Group Inc.	31,800	224.8
Carter-Wallace Co.	zero	0.0

Table 14 (continued)

Centura Banks	1,000	5.8
Charter Co.	28,700	42.1
Charter Power Systems Inc.	626	110.4
Chromalley American Corp.	15,200	26.9
Cincinnati Bell Inc.	1,905	4.8
Coleco Industries Inc.	919	79.6
Columbia Gas System Inc.	zero	0.0
Continental Illinois Corp.	zero	0.0
	21,600	34.5
Control Data Corp.	26,500	127.4
Cosmopolitan Care Corp.	- 1,183	13.2
Craig Corp.	138	128.4
Data Access Systems Inc.	21,200	223.2
Data Point Corp.	5,000	11.4
Dayco Corp.	11,700	433.3
Eastern Gas & Fuel Associates	535	.5
Elscint LTD.	16,555	32.9
Environmental Systems Co.	1,221	48.2
Financial Corp. of America	17,000	62.5
	155,200	194.2
First Chicago Corp.	zero	0.0
First Financial Mgt.	2,600	11.5
Fleet-Norstar Financial Group Inc.	25,200	34.1
Foster Wheeler Corp.	8,300	10.2
Gelco Corp.	- 2,220	9.4

Table 14 (continued)

GEO International Corp.	3,700	44.5
Glenmore Distilleries Co.	875	13.6
Goodyear Tire & Rubber Co.	zero	0.0
Gould Inc.	129,900	112.9
Harken Energy Corp.	7,963	18.7
Health-More Inc.	zero	0.0
Homestead Financial Corp.	8,500	36.3
Inter-Regional Financial Group	zero	0.0
Irving Bank Corp.	4,500	24.3
Itel Corp.	25,700	119.5
JWT Group Inc.	18,000	34.8
Kansas City P&L Co.	87,000	33.6
L.A. Gear	4,271	106.4
Laurentian Capital Corp.	82,083	24.9
Lee Pharmaceuticals	- 1,756	16.1
Lionel Corp.	zero	0.0
Louisiana Land & Exploration Co.	zero	0.0
LSB Industries Inc.	2,400	26.7
LTV Corp.	29,300	121.1
Marsh & Mclennan Cos.	114,120	116.6
Martech USA Inc.	2,893	98.1
Mattel Inc.	7,800	66.8
McLouth Steel Corp.	3,500	24.7
Mead Corp.	50,000	23.8

Table 14 (continued)

Modular Computer Systems Inc.	1,100	11.6
Nicolet Instrument Corp.	zero	0.0
North America Vaccine	- 201	10.3
Oak Industries Inc.	- 100	20.3
Occidental Petroleum Corp	-2,000	18.5
Patient Technology Inc.	550	90.1
Peabody International Corp.	5,900	88.7
Pepsico Inc.	92,100	93.5
Planning Research Corp.	zero	0.0
Puget Sound P&L Co.	-24,300	27.6
Ronson Corp.	zero 558	0.0 7.1
Royal International Optical Corp.	1,589	382.9
Savin Corp.	49,000	84.3
Shaer Shoe Corp.	97	143.0
Shearson Lehman	29,900	14.8
Solitron Devices Inc.	zero	0.0
Southmark Corp.	14,777	24.1
Southwest Bankshares Inc.	zero	0.0
Southwestern Public Service Co.	31,000	27.2
Sparton Corp.	zero	0.0
Stauffer Chemical Co.	15,056	10.0
Storage Technology Corp.	20,000	17.2
Terex Corp.	7,259	109.7
Texscan Corp.	1,629	71.1
Timeplex Inc.	zero	0.0

Table 14 (continued)

TransCapital Financial Corp.	1,812	82.3
Union Corp.	448	13.7
USF&G Co.	103,400 zero	66.8 0.0
U.S. Shoe Corp.	7,400	102.6
VTX Electronics	700	97.3
Wedtech Corp.	141	6.0
Welded Tube Co.	322	143.1
Worthen Banking Corp.	3,066	103.9
Xonics Inc.	1,452	110.3
2. NASDQ Firms:		
Acceleration Corp.	2,971	51.0
Aero Systems Inc.	404	14.8
American Continental Corp.	120,000	167.8
American Educational Computer Inc.	90	18.8
American Reserve Corp.	zero	0.0
American Surgery Centers	zero	0.0
Automatix Inc.	- 350	72.8
Avatar Holdings Inc.	1,380	86.9
BEI Holdings ltd.	zero	0.0
Beres Industries Inc.	226	91.4
Bindley Western Industries Inc.	228 1,357	11.3 77.4
Candela Laser Corp.	4,418	119.7
Cardinal Industries.	537	138.0

Table 14 (continued)

Chatham Mfg. Co.	- 320	48.3
Chronar Corp.	1,188	34.0
Cincinnati Fin Corp.	1,000	3.0
Circle Express Inc.	6,466	424.0
Coated Sales Inc.	55,000	112.6
Commercial Bancorp of Colorado	118	15.0
Commodore Resources Corp.	zero	0.0
Commonwealth Federal Savings	700	21.6
Computer Communications Inc.	807	275.4
Computer Store Inc.	676	60.2
Convenient Food Mart Inc.	1,700	212.5
	579	212.7
Data Switch Corp.	1,892	86.4
Decor Corp.	14	3.9
Deltak	91	24.3
Delware Ostego Corp.	612	19.4
Doughties Foods Inc.	346	76.1
DSC Communications Corp.	41,508	105.0
Eastchester Financial Corp.	239	24.8
Electronidics Inc.	1,939	80.1
Engineering Measurements	187	101.5
Enzon Inc.	- 9,000	47.3
Financial Security S&L Ass.	406	32.6
First Columbia Financial Corp.	21,300	409.6
Fisher Transportation Services Inc.	815	125.0

Table 14 (continued)

Flexible Computer Corp.	2,824	20.6
Flight International Group Inc.	8,773	271.0
Florafax International Inc.	460	21.6
Founders Fin. Corp.	zero	0.0
Fulton Federal Savings Bank	4,987	24.2
Gemcraft Inc.	2,800	200.0
Gencor Industries	- 740	75.2
Gulfstream Banks Inc.	299	51.4
Information Resources	634	73.8
Information Solutions Inc.	- 9	2.6
InterContinental Life Corp.	275	200.7
Interfirst Corp.	54,500	21.9
International Game Technology	1,280	490.4
Kinder-Care Learning Centers	5,100	83.6
Laser Corp.	314	70.6
Lasermaster Technologies	85	17.8
Lori Corp.	3,600	14.9
Matrix Science Corp.	418	5.3
Mccormick & Co.	5,600	15.4
Merchants Bancorp	3,499	38.9
Microdyne Inc.	460	82.4
MiniScribe Corp.	58,100	125.2
Moto Photo Inc.	118	38.6
National Computer Systems Inc.	822	19.1
Northern Air Freight Inc.	116	17.6

Table 14 (continued)

Oracle Systems Corp.	100	.1
Peoples Savings Bank	1,000	57.9
Poughkeepsie Savings Bank	1,000	117.4
Preston Corp.	zero	0.0
Prodigy Systems Inc.	14	20.1
Psych Systems Inc.	270	18.2
Quality Systems Inc.	1,372	82.0
Reeds Jewelers Inc.	388	245.7
Royalpar Industries Inc.	104	222.7
RS Financial Corp.	191	20.6
Scientific Software-Intercomp Inc.	158	27.3
Second National Federal Savings Bank	5,700	33.7
Silk,Silk,Silk, International Inc.	zero	0.0
SJNB Fin. Corp.	1,410	137.6
Southeastern Savings & Loan Co.	2,148 1,544	113.0 19.1
Sovereign Corp.	541	8.1
Spectra Physics	3,508	137.7
Systems & Computer Technology Corp.	3,900	33.3
Tandem Computers Inc.	7,427	24.9
Tennessee-Virginia Energy Corp.	333	23.6
Teradata Corp.	- 1,280	16.8
Trafalgar Industries	614	120.1
Trustcorp Inc.	23,600	181.8
TVI Corp.	133	132.9

Table 14 (continued)

Unico American Corp.	338	17.3
Unit Drilling & Exploitation Co.	1,064	59.4
Utica Bankshares Corp.	6,300	484.6
Vicorp Restaurants Inc.	4,000	19.3
Video Station Inc.	1,000	153.8
Washington Federal Savings Bank	430	27.3
Westside Bancorp Inc.	2,000	166.2
Wilton Enterprises Inc.	zero	0.0
Zitel Corp.	932	209.9
Zondervan Corp.	1,585	27.2
ZZZZ Best Co. Inc.	zero	0.0
Average	$15,537	74.3%

SAMPLE FIRMS

Table 15

Sample Firms

Company	Misrepresentation
1. NYSE and AMERSE Companies:	
Advanced Systems Inc.	Overstated 1984 second and third quarter earnings through error in accounting for distribution revenues.
Aetna Life & Casualty Co.	Boosted earnings of first nine months of 1982 by recognizing future tax credits of operating loss carryforwards.
Allegheny International Inc.	Failed to disclose information of numerous perks given to the company's executives from 1981 through 1985.
AM International Inc.	Inflated earnings of 1980 and 1981 by use of a variety of improper accounting techniques for revenue recognition and cost deferrals.
American Building Maint. Industries Inc.	Overstated 1984 through 1986 income by improper revenue and expense recognition.
American Century Corp.	Overstated 1986 income by understating allowance for loan losses.
American Cyanamid Co.	Overstated 1989 fourth quarter income by concealing losses.
American Express Co.	Overstated 1981 through 1984 income by improper reinsurance transactions.
Amre Inc.	Overstated 1987 through 1989

Table 15 (continued)

	income by improper capitalization of expenses.
Andal Corp.	Overstated 1972 through 1980 profits through accounting irregularities for costs on contracts.
Armco Inc.	Misstated LIFO inventory of iron ore that led to inflating 1979 third quarter earnings. Overstated 1985 earnings through improper inventory valuations.
Atlantic Richfield Co.	Overstated 1984 income due to error in accounting for charges of corporate overhead. Understated 1990 first quarter income by improper accounting for dividends from equity investment.
Aydin Corp.	Inflated 1975 first two quarter profits by violating GAAP to hide losses.
Baldwin-United Corp.	Overstated 1980 through 1982 earnings by use of improper accounting for tax credits and sale of deferred annuities.
Bank Building&Equipment Corp.	Overstated 1988 income by hiding losses through falsification of records.
Bank of Boston Corp.	Overstated earnings by overstating assets.
Bank of New England	Overstated 1989 income by concealing losses and inadequate loan loss reserves.
Bankers Trust	Overstated foreign exchange trading income and understated salaries expense of 1987.

Table 15 (continued)

Barnett Banks Inc.	Overstated 1990 income by overstating value of marketable equity securities.
Bell Industries Inc.	Overstated 1988 second quarter income by improper accounting methods.
Beneficial Corp.	Misclassified operating loss in 1990 as an extraordinary loss.
Benguet Corp.	Overstated 1984 through 1986 income by understating losses.
Bergen Branswig Corp.	Overstated 1986 income by understating cost of goods sold.
BTK Industrial Inc.	Used improper accounting methods of sales recognition that led to misstatement of 1982 first through third quarter earnings.
Burroughs Corp.	Misstated 1980 through 1982 by improper accounting methods for obsolete and slow inventory.
Butler International Inc.	Overstated 1985 first two quarter income by an error in accounting for accelaration of buildups.
California Life Corp.	Omitted material information in financial statements.
Cannon Group Inc.	Inflated 1983 through 1985 earnings by underamortization of costs and overestimation of revenue through premature recognition.
Carter-Wallace Co.	Misclassified revenue from exports in 1983 as a non-recurring profit.
CCX Inc.	Overstated 1986 through 1988 income due to inventory discrepencies.

Table 15 (continued)

Centura Banks	Overstated 1990 income by error in accounting for non-recurring transaction.
Charter Co.	Overstated 1981 through 1983 earnings by inflating insurance earnings and assets and omission of liabilities.
Charter Power Systems Inc.	Overstated 1988 first three quarter earnings due to error in inventory from use of a new computer system.
Chromally American Corp.	Overstated 1978 through 1981 earnings by error in accounting for reserves for losses and loss adjustment expenses.
Cincinnati Bell Inc.	Overstated 1984 first three quarter income through error in billing to customers.
Clabir Corp.	Inflated 1981 third quarter earnings by use of improper accounting methods for valuation of the company's stock portfolio.
Coleco Industries Inc.	Overstated 1977 first & second quarter earnings through improper inventory valuation.
Columbia Gas System	Misrepresented 1990 results by concealing problems.
Commonwealth Edison Co.	Overstated 1985 income by accounting error for costs disallowance.
Commonwealth Federal Savings	Overstated 1984 third quarter earnings due to error that inflated interest income on mortgage operations.
Continental Illinois Corp.	Misclassified provision for loan losses in 1984. Overstated 1983 through 1986 earnings by manipulating loan-loss reserves.

Table 15 (continued)

Control Data Corp.	Misstated 1985 earnings through improper tax benefit and investment accounting.
Cosmopolitan Care Corp.	Overstated 1988 and 1989 first quarter losses by error in non-current income tax liability.
Craig Corp.	Overstated 1984 third quarter earnings through an error in estimating inventory and receivables.
Data Access Systems Inc.	Inflated 1978 through 1981 earnings by use of inappropriate accounting methods for sales subject to operating leases, CGS, and general expenses.
Data Point Corp.	Overstated 1981 earnings by booking unrealized sales.
Dayco Corp.	Overstated 1981 income by use of phony sales orders.
Diamond-Bathurst Inc.	Manipulated 1986 income by converting expenses to capital items and adjusting inventories.
Diversified Industries	Overstated 1983 through 1990 by understating liabilities and expenses of retirement.
Eastern Gas & Fuel Associates	Overstated 1983 and 1984 income by improper recognition of revenues and expenses.
Elscint LTD.	Overstated 1985 profits due to improper accounting for sales and understating liabilities.
Enron Corp.	Overstated 1985 through 1987 income by falsifying records.
Environmental Systems Co.	Overstated 1989 first three quarter income by error in tax provision.
Equimark Corp.	Overstated earnings of several

Table 15 (continued)

	years by inadequate reserves for loan losses.
Financial Corp. of America	Inflated 1982 earnings by use of improper accounting for loan-loss reserves. Inflated first and second quarter earnings of 1984 by violating liquidity requirements.
Fireman's Fund Corp.	Overstated 1978 through 1984 income by improper accounting for insurance transactions.
First Chicago Corp.	Misstated 1983 and 1984 earnings through improper accounting for loan losses allowance and timing of provisions for loan losses.
First Financial Mgt.	Overstated 1990 first three quarter income by accounting error.
Fleet-Norstar Fin. Group Inc.	Understated 1990 losses by failing to record adequate reserves for declining value of equity securities.
Fleming Cos. Inc.	Overstated 1986 income by overstating inventories and receivables.
Forest Laborotories Inc.	Overstated earnings of 1963 through 1975 by improper accounting.
Foster Wheeler Corp.	Overstated 1984 through 1987 earnings due to accounting discrepancies.
Gelco Corp.	Misstated 1975 through 1979 profits by improper accounting for purchase allowances on new equipment.
GEO International Corp.	Overstated 1989 first three quarter income by error in inventory valuation.

Table 15 (continued)

Georgia Pacific Corp.	Misclassified effect of convertible preferred stock on EPS of 1983.
Gibraltar Financial Corp.	Overstated 1984 through 1988 income by error in interest expense.
Glenmore Distributions Co.	Overstated 1980 income by overstating inventories.
Goodyear Tire & Rubber Co.	Failed to disclose material information for 1990.
Gould Inc.	Overstated 1986 first quarter income by reducing charges.
Gulf & Western Industries Inc.	Overstated 1971 through 1977 profits by improper accounting for large transactions and avoiding recognition of losses.
Harken Energy Corp.	Undersated 1989 loss by improper accounting for gain on sale of investment.
Health-More Inc.	Misstated 1986 second through fourth quarter income due to an error in valuing work in process inventory.
Heck's Inc.	Overstated 1985 second and third quarter results due to an error resulting from a change to a new computerized system.
Heritage Entertainment Inc.	Overstated 1986 income by early recognition of revenues.
Homestead Financial Corp.	Overstated 1983 and 1984 first six months income by improper accounting for dollar reverse purchase transactions.
Hospital Corp. of America	Overstated 1987 third quarter income by improper accounting for gain on assets disposal.

Table 15 (continued)

IC Industries Inc.	Overstated results by overstating assets.
Integon Corp.	Overstated 1989 first quarter income by error in recording transactions.
Interfirst Corp.	Understated 1984 third quarter losses by overstating tax benefits from operating loss carry-forward.
Inter-Regional Fin. Group	Misstated 1981 and 1982 earnings by improper recognition of reserves for delinquent leases.
Irving Bank Corp.	Overstated 1983 fourth quarter income due to irregularities.
Itel Corp.	Overstated earnings of 1978 by understating uncollectible accounts, overstating inventory, overstating residual values of computer system.
JWT Group Inc.	Overstated 1978 through 1981 earnings by inflating revenues through fictitious accounting entries.
Kansas City P&L Co.	Overstated 1986 income by including disallowances.
Ketchum & Co.	Used irregularities that resulted in misstating 1981 and 1982 income.
L.A. Gear	Overstated 1990 second quarter income By improper accounting for credits.
Landmark Land Co.	Overstated 1988 profits by recognition of improper profit of asset disposal.
Laurentian Capital Corp.	Overstated 1985 and 1986 first quarter earnings due to an error in acturial calculations.

Table 15 (continued)

Lee Pharmaceuticals	Understated 1987 through 1989 income due to error in advertising costs.
Lionel Corp.	Failed to disclose information about financial and operating problems in 1982.
Louisiana Land & Explor.Co.	Misrepresented 1983 first quarter income by concealing facts.
Lori Corp.	Overstated 1989 earnings by accounting error.
LSB Industries Inc.	Overstated 1990 income by overstating real estate loans.
LTV Corp.	Overstated 1975 through 1977 income by use of erroneous accounting for inventory.
Lundry Electronics & Sys.Inc.	Overstated 1982 first six months profits by error in billing customers.
Marsh & Mclennan Cos.	Overstated 1983 income by underrecording liabilities and inflating securities value.
Martech USA Inc.	Overstated 1988 through 1990 income by improper timing of revenue recognition.
Mattel Inc.	Overstated 1971 and 1972 first three quarter earnings by improper recognition of sales and costs.
McLouth Steel Corp.	Overstated 1975 earnings by use of improper accounting for investments.
Mead Corp.	Overstated several periods income by error in claims reserves of reinsurance transactions.
Merrill Lynch & Co. Inc.	Overstated 1973 through 1975 income by early rev. recognition

Table 15 (continued)

Murphy Oil Corp.	Overstated 1973 through 1978 revenues by improper accounting methods.
National Intergroup Inc.	Inflated 1984 income by improper accounting methods.
National Semiconductor Corp.	Overstated 1977 through 1980 income by inflating revenues.
New England Electric System	Overstated 1987 through 1990 income by billing error.
Nicolet Instrument Corp.	Misstated 1987 and 1988 by improper timing recognition of revenues.
North American Vaccine	Overstated 1990 third quarter loss by overstating expenses.
Oak Industries Inc.	Understaed 1982 and 1983 income by improper recognition of start-up costs and losses from subsidiaries.
Occidental Petroleum Corp.	Understated 1987 through 1990 income by accounting for acquisitions.
Omnicare Inc.	Overstated 1984 first two quarters by improper accounting practices in respiratory group
Paradyne Corp.	Inflated 1981 through 1989 results by fraudulent transactions.
Patient Technology Inc.	Overstated 1984 income by accounting error.
Peabody International Corp.	Overstated 1979 earnings by improperly deferring some contract costs.
Pepsico Inc.	Overstated 1978 through first three quarters of 1982 by falsifying records of foreign bottling units and improper

Table 15 (continued)

	accounting methods for deferrals.
Planning Research Corp.	Misclassified earnings from non-consolidated affiliates and joint ventures in 1982.
PNC Financial Corp.	Overstated 1989 first quarter earnings by inadequate loan-loss reserves.
Pre-Paid Inc.	Overstated EPS for 1984 and 1985 first nine months by failing to account for preferred stock dividends.
Prodigy Systems Inc.	Overstated 1983 first quarter through error in recording various expenses.
Puget Sound Power & Light Co.	Overstated 1982 income by use of improper accounting for funds used during construction. Understated 1987 firt three quarter income by improper amortization of deferred investment tax credits.
Ronson Corp.	Failed to report significant information in 1982 about its largest customer. Overstated 1977 through 1979 first three quarter income by improper sales recognition.
Royal Intl. Optical Corp.	Overstated 1986 third quarter income due to error in valuing inventory.
Savin Corp.	Understated losses from 1981 through 1984 by improper accounting for research and development costs.
Shaer Shoe Corp.	Overstated 1988 third quarter income by error in accounting practices.
Shearson Lehman Hutton	Overstated 1988 first three

Table 15 (continued)

	quarter income by feferring expenses and accelerating revenue recognition.
Solitron Devices Inc.	Misstated 1967 through 1970 earnings by falsifying and omittting material facts of assets.
Southmark Corp.	Overstated 1983 through 1985 first three quarter earnings by improper discounting of deferred payments.
Southwest Bankshares Inc.	Misstated 1983 second through fourth quarter earnings by failing to maintain adequate loan-loss reserves and charge-off practices.
Southwestern Public Service Co.	Overstated 1982 through 1983 third quarter earnings by recording disallowed investment tax credit and disallowed revenues.
Sparton Corp.	Misrepresented 1976 results by failing to disclose information about sale of gas & oil interests.
Stauffer Chemical Co.	Overstated 1982 earnings and understated 1983 loss by improper accounting for sales and lifo inventory pools and liquidations and misstated 1984 quarterly profits by accelerating revenue recognition.
Storage Technology Corp.	Misstated 1982 through 1984 third quarter earnings by improper leases revenue recognition.
SunTrust Banks Inc.	Overstated 1986 and 1987 income by improper accounting for accrual fees and costs on loans and leases.

Table 15 (continued)

Swanton Corp.	Overstated 1975 and 1976 income by inflating revenues and assets.
Terex Corp.	Overstated 1990 second and third quarter results by accounting for pension benefits.
Texas Commerce Bankshares Inc.	Overstated 1984 earnings by use of inadequate loan-loss reserves.
Texscan Corp.	Overstated 1984 first quarter earnings by improper accounting for acquisition purchase price.
Timeplex Inc.	Miscalculated number of shares outstanding and EPS of 1983 second quarter.
TransCapital Financial Corp.	Overstated 1989 third quarter income by improper portfolio valuation.
Union Corp.	Overstated 1989 and 1990 results by overstating revenues.
USF&G Co.	Inflated income of 1983 through 1985 first three quarters by improper methods for dividends and gains from strategy investments. Misrepresented information of 1990 investment portfolio.
U.S. Shoe Corp.	Overstated 1989 second quarter income by accounting irregularities.
Vendo Co.	Overstated 1982 income through error in tax provisions and profit sharing plan contribution.
VTX Electronics	Overstated 1990 results by understating liabilities.
Watsco Inc.	Overstated 1982 second quarter income through error in insurance

Table 15 (continued)

	recovery transactions.
Wedtech Corp.	Overstated 1986 first quarter income by improper accounting for operating expense charged to APIC. Overstated 1981 and 1982 income by falsifying invoices and accelerating contracts profits.
Welded Tube Co.	Understated 1982 second quarter loss due to clerical error.
Wespercorp	Overstated 1983 second and third quarter and 1984 first three quarter income using improper accounting practices for consignment transactions and long-term contracts.
Westinghouse Electric Corp.	Used fraudulent profit-juggling practices of certain operations.
Worthen Banking Corp.	Overstated 1986 third quarter income by improper accounting for loan charge-offs and provision for loan losses.

2. NASDQ Firms:

Acceleration Corp.	Overstated 1972 through 1978 first three quarter income by error in recognition of unnrealized revenues and fees.
Aero Systems Inc.	Overstated 1983 & 1984 income by misclassification of reserve for losses on investment as extraordinary charge rather than ordinary expense in 1983 and 1984.
Allegheny Beverage Corp.	Overstated income of several accounting periods by error in calculating depreciation expense.

Table 15 (continued)

AmerFirst Bank	Overstated 1987 through 1989 income by understating losses of assets and improper asset valuation.
American Continental Corp.	Misstated 1985 through 1988 income by use of paper profits and undersating loan-loss reserves.
Amer.Educational Computer Inc.	Understated 1984 third quarter loss through error in a contingment sale.
American Reserve Corp.	Failed to disclose facts in 1974 to 1977 for calims reserves.
Amoskeag Bank Shares Inc.	Overstated 1987 quarterly results due to an error in deferred expenses.
Asbestec Industries Inc.	Misstated 1986 resuts by error in deferred expenses.
ASK Corp.	Overstated 1983 through 1985 first two quarter income by improper sales recognition.
Automatix Inc.	Overstated 1983 first three quarter losses by improper recognition of sales.
Avatar Holdings Inc.	Overstated 1982 first three quarter income due to error in estimating losses.
Aztec Manufacturing Co.	Overstated 1990 first quarter income by error in allocating operating loss carryforward.
BEI Holdings ltd.	Misclassified some transactions in 1989.
Beres Industries Inc.	Understated 1988 first quarter loss due to bookkeeping errors for receivables and inventory.
Berkshire Hathaway Inc.	Overstated 1983 and 1984 earnings by improper accounting

Table 15 (continued)

	for stock transactions.
Bindley Western Indus. Inc.	Overstated 1983 income by understating compensation expenses. Overstated 1985 through 1986 first three quarter income by error in accounting for interest income and investment.
Blau Barry & Partners Inc.	Overstated 1988 and 1989 by improper accounting for deferred compensation and other costs.
Broadview Financial Corp.	Overstated 1982 second and third quarter income by improper revenue recognition.
Candela Laser Corp.	Overstated 1988 earnings by improper revenue recognition.
Cardinal Industries.	Overstated 1986 first three quarter income due to error in accounting for sales.
Chatham Mfg. Co.	Understated 1976 through 1978 profits due to tax error.
Chronar Corp.	Overstated 1983 and 1984 first quarter income by use of improper accounting methods.
Cincinnati Financial Corp.	Overstated 1980 income by error in reserves for claims losses.
Circle Express Inc.	Overstated 1986 through 1988 first quarter income by manipulating insurance reserves.
Coated Sales Inc.	Overstated 1986 through 1988 income by falsifying records.
Cogenic Energy Systems Inc.	Overstated 1985 income through accounting error in ending inventory.
Commer.Bancorp of Colorado	Overstated 1989 first three quarter earnings by error.
Commodore Resources Corp.	Misrepresented 1982 results by

Table 15 (continued)

	use of false information.
Commonwealth S&L Association	Overstated 1984 through 1988 income by violating securities transactions.
Comp-U-Check Inc.	Overstated 1986 through 1987 first three quarter income by improper recognition of gains.
Computer Components Corp.	Overstated 1987 and 1988 by inaccurate accounting methods.
Computer Communications Inc.	Overstated 1978 income by improper recognition of sales revenue.
Computer Products Inc.	Misstated 1985 earnings by accounting irregularities.
Computer Store Inc.	Understated 1984 and 1985 first quarter losses by improper accounting.
Comserv Corp.	Overstated earnings of 1981 through first half of 1983 by improper accounting for contingency commitments.
Convenient Food Mart Inc.	Overstated 1987 income by accounting irregularities. Overstated 1988 first quarter income.
Crazy Eddie Inc.	Overstated 1985 and 1986 by creating phony inventory and improper revenue recognition.
Crime Control Inc.	Overstated 1982 and 1983 income by improper accounting for leases.
Data Switch Corp.	Overstated 1984 first quarter income by improper sales recognition.
Decor Corp.	Overstated 1985 income through an error for an acquision.

Table 15 (continued)

Deltak	Overstated 1984 first quarter by error in income tax rate.
Delware Otsego Corp.	Overstated 1986 and first quarter of 1987 through errors in tax provision, rental transactions, capitalized interest, and overhead.
Digilog Inc.	Overstated 1981 and 1982 income by hiding losses for contingencies.
Docutel Corp.	Overstated 1982 earnings due to error in tax loss carryforward.
Doughtie's Foods Inc.	Overstated 1980 through first half of 1982 earnings by inflating inventory.
DSC Communications Corp.	Overstated 1984 and 1985 first two quarter earnings by improper revenue recognition.
Eastchester Financial Corp.	Overstated 1990 first quarter income by accounting error.
Eldec Corp.	Overstated 1989 second quarter income by error in cost of goods sold.
Electro-Catheter Corp.	Misstated 1984 and 1985 income by improper revenue recognition.
Electronedics Inc.	Overstated 1981 and 1982 income by inflating inventory.
Endo-Lase Inc.	Overstated 1984 through 1985 first three quarter income by falsifying records.
Endotronics Inc.	Overstated 1986 income by overstating sales.
Engineering Measuremenmts	Understated 1985 losses by error in cost of goods sold.
Enzon Inc.	Understated 1987 through 1989

Table 15 (continued)

	earnings by improper accounting for equity investment.
Financial Security S&L Ass.	Overstated 1987 first quarter due to an internal accounting error.
Finnigan Corp.	Overstated 1979 profit by error in inventory valuation.
Fireplace Manufacturers	Overstated profit by error in income tax expense.
First Columbia Financial Corp.	Overstated 1983 through 1985 first three quarter earnings by falsifying accounting entries to increase interest income.
First Oklahoma Bancorp.	Overstated 1984 third quarter income by improper accounting practices.
Fisher Transp. Services Inc.	Overstated 1986 second quarter income by error resulting from new computer system.
Flexible Computer Corp.	Overstated 1985 and 1986 first three quarter income by error in revenue recognition.
Flight Intl. Group Inc.	Overstated 1988 and 1989 earnings by accounting error in sales.
Florafax International Inc.	Overstated 1981 and 1982 income by improper revenue recognition and recording phony sales orders.
Founders Financial Corp.	Misstated 1985 and 1986 first quarter income by actuarial error.
Freedom Federal Savings Bank	Overstated 1987 first two quarter income by error in interest income.
Fulton Federal Savings Bank	Overstated 1989 third quarter income by improper classification of assets that understated provisions for losses.

Table 15 (continued)

Gemcraft Inc.	Overstated 1984 profit by improper accounting for asset sale transaction.
Gencor Industries	Understated 1990 first quarter income by error from conversion to computerized system.
General Binding Corp.	Overstated 1983 first two quarter earnings through accounting irregularities in foreign operations.
George Washington Corp.	Overstated 1990 first quarter profit by inflating revenues and understating losses.
Grease Monkey Holding Corp.	Overstated income by improper allocation of fees and costs.
Gulfstream Banks Inc.	Overstated 1979 fourth quarter income by error in securities transactions.
ILC Technology Inc.	Overstated profits by accounting inaccuracies.
Information Resources	Understated 1987 loss by error in accounting for losses from joint venture.
Information Solutions Inc.	Understated 1986 income by improper sales recognition.
InterContinental Life Corp.	Overstated 1988 second quarter income by error in applying an accounting principle.
International Game Technology	Overstated 1987 income by improper accounting practices.
Kinder-Care Learning Centers	Overstated 1983 income by improper accounting for conversion of debentures.
Lane Telecommunication Inc.	Understated 1984 and 1985 first quarter losses by improper revenue recognition.

Table 15 (continued)

Laser Corp.	Overstated 1989 first quarter by errors in liabilities, inventory, and bad debt reserve.
Lasermaster Technologies	Overstated 1990 first quarter by error in tax benefits.
Matrix Science Corp.	Overstated 1982 through 1987 earnings by error in timing of sales and returns recognition.
Mccormick & Co.	Inflated 1979 through 1981 income by improper recognition of expenses and sales.
Melridge Inc.	Overstated 1983 through 1986 income by accounting irregularities.
Merchants Bancorp	Overstated 1989 earnings by inadequate loan-loss reserves.
Metro Airlines	Overstated 1984 and 1985 earnings by misclassifying deferred credits.
Mercurry General Corp.	Overstated 1987 second quarter income due to data processing error in earned premiums.
Microdyne Inc.	Overstated 1985 through an error in accounting for dissolution of a joint venture.
MiniScribe Corp.	Overstated 1986 through 1988 first three quarter earnings by improper revenue recognition and falsification of records.
Montana Naturals Intl. Inc.	Overstated 1988 earnings by improper accounting for assets.
Moto Photo Inc.	Overstated 1987 through 1988 first quarter income by improper recognition of fees of franchises.

Table 15 (continued)

National Computer Sys. Inc.	Overstated 1983 income by improper accounting for gain on asset sale. Overstated 1984 income by improper acccounting for investments.
National Western Life Insur.	Overstated 1984 income by error in deferred income tax.
New York City Shoes Inc.	Overstated 1986 earnings by understating liabilities and falsifying sales.
Northern Air Freight Inc.	Overstated 1988 third quarter earnings by error due to new computerized system.
Nucorp Energy Inc.	Inflated 1980 and 1981 earnings by early recognition of sales and use of paper transactions between subsidiaries.
Oiltech Inc.	Used improper accounting for oil and gas drilling activities for 1981 first 3 quarter income.
Olivers Stores Inc.	Overstated 1985 and 1986 first quarter income by inventory falsification.
Oracle Systems Corp.	Overstated 1990 income by improper sales recognition.
Peoples Savings Bank	Overstated 1987 income by error in receivables and loan loss provision.
Physicians Insurance Co.	Overstated 1985 and 1986 income by understating loss reserves.
Piedmont Management	Overstated 1979 income by error in capital gains.
Poughkeepsie Savings Bank	Overstated 1987 earnings by error in interest income.
Preston Corp.	Misstated 1987 quarterly results by error in tax credit

Table 15 (continued)

	recognition.
Prodigy Systems Inc.	Overstated 1983 first quarter profit by error in tax provision and general expenses.
Psych Systems Inc.	Overstated 1983 income by improper revenue recognition.
Quality Systems Inc.	Overstated 1982 and 1983 first three quarter income by improper recognition of leases as sales.
Ramtek Corp.	Overstated 1987 and 1988 first two quarter income by improper revenue recognition.
Reeds Jewelers Inc.	Overstated 1990 first three quarter income by error in inventory valuation.
Regina Co. Inc.	Overstated 1988 and 1989 first quarter results by false sales invoices and understating sales returns.
Rocky Mount. Undergar.Inc.	Overstated 1985 profit by falsifying inventory.
Rospatch Corp.	Failed to disclose material operating information and contingency liabilities.
Royalpar Industries Inc.	Overstated 1988 income due to error in accounting for sales.
RS Financial Corp.	Overstated 1990 first quarter by error in interest income on loans.
Scien. Software-Intercomp Inc.	Overstated 1984 first two quarter earnings by improper amortization of software and accounting for R&D partnerships.
Second National Federal loss Savings Bank	Understated 1990 third quarter by error in loan reserves.
Seneca Oil Co.	Overstated 1982 first three

Table 15 (continued)

	quarter income by error in sales and depreciation.
Silk,Silk,Silk, Intl.Inc.	Misstated 1987 and 1988 earnings by error in accounts payable.
SJNB Financial Corp.	Understated 1989 loss by improper recognition of sale of securities.
Southeastern S & L Co.	Overstated 1982 income by failing to account for hedge transactions. Overstated 1984 through 1986 income by error in accounting for A/R.
Spectra-Physics Inc.	Overstated 1983 third quarter income by violating transactions.
Sovereign Corp.	Overstated 1984 income by clerical error.
Summit Health ltd.	Overstated profit by inadequate provision for receivables.
Syst.& Computer Techn. Corp.	Overstated 1983 through 1984 first three quarter income by overstating fees revenues. Overstated results by phony revenues from binding contracts.
Tandem Computers Inc.	Overstated 1982 income by improper revenue recognition and falsifying records.
Tennessee-Virg. Energy Corp.	Overtated 1982 and 1983 earnings by accounting irregularities.
Teradata Corp.	Understated 1989 first quarter income by error in accounting for tax loss carryforwards.
Time Energy Systems Inc.	Overstated earnings of 1982 through 1985 due to improper recognition of revenue from partnerships.

Table 15 (continued)

Trustcorp Inc.	Overstated 1988 earnings by inadequate loan-loss reserves.
TVI Corp.	Overstated 1987 second quarter income by improper accounting procedures for debentures.
Unico American Corp.	Overstated 1988 third quarter income by error in tax provision.
Unit Drilling & Exploit. Co.	Overstated 1982 and 1983 first quarter earnings by error in accounting for reimbursements.
Univation Inc.	Overstated 1987 first quarter income by failing to account for costs due to conversion from purchasing to manufacturing a new product.
U.S. Surgical Corp.	Overstated 1979 through 1982 income by falsifying records and improper classification of expenses.
Utica Bankshares Corp.	Overstated 1982 first quarter income by understating allowance for bad loans.
Vicorp Restaurants Inc.	Overstated 1989 and 1990 income by accounting irregularities.
Video Station Inc.	Overstated 1982 income by errors in inventory, sales, and tax claims.
Washington Fed. Savings Bank	Overstated 1988 and 1989 first quarter by error in interest income.
Westside Bancorp Inc.	Overstated 1984 income by improper recognition of real-estate loans.
Widcom Inc.	Overstated 1985 and 1986 first two quarter income by inaccurate accounting for sales transactions.

Table 15 (continued)

Wilton Enterprises Inc.	Misstated 1985 first three quarter earnings by errors in accounting for advertising, reserve for obsolesence, and barter transactions.
Windsor Industries Inc.	Overstated 1982 through 1984 first quarter income by inflating inventory and use of improper accounting adjustments.
Zital Corp.	Overstated 1986 earnings due to an error in expenses.
Zondervan Corp.	Overstated 1982 and 1983 earnings by inflating inventory and tangible assets and understating liabilities.
ZZZZ Best Co. Inc.	Overstated 1986 income by including fictitious revenues.

Bibliography

Abdel-Khalik, A.R., and J.C. McKeown. 1978. Understanding Accounting Changes in an Efficient Market: Evidence of Differential Reaction. The Accounting Review (October):851-868.

AICPA. 1972.Codification of Auditing Standards and Procedures,Statement on Auditing Standards No.29 , Reporting on Information Accompanying The Basic Financial Statements in Auditor-Submitted Documents:AU Section 551.

AICPA. 1972.Codification of Auditing Standards and Procedures, Statement on Auditing Standards No.32 , Adequacy of Disclosure in Financial Statements: AU Section 431.

AICPA. 1972. Codification of Auditing Standards and Procedures, Statement of Auditing Standards No.36 , Review of Interim Financial Information: AU Section 722.

AICPA .1988. The Auditor's Responsibility to Detect and Report Errors and Irregularities, Statement on Auditing Standards No. 53 (April).

Anderson, J.A., and M. Pincus. 1984. Market Efficiency and Legal Liability: Some Extensions and an Illustration. Accounting and Business Research (Spring):169-181.

APB. 1968. APB No. 28, Interim Financial Reporting.

Ashton, R.H. 1976. Cognitive Changes Induced By Accounting Changes: Experimental Evidence on the Functional Fixation Hypothesis. Journal of Accounting Research (Supplement):1-17.

Ball, R. 1972. Changes in Accounting Techniques and Stock Prices. Empirical Research in Accounting: Selected Studies:1-38.

Ball, R., and P. Brown. 1969. Portfolio Theory and Accounting. Journal of Accounting Research (Autumn):300-323.

Beaver, W.H. 1968. The Information Content of Annual Earnings Announcements. Empirical Research in Accounting: Selected Studies:67-95.

Beaver, W.H. 1972. The Behavior of Security Prices and Its Implementations for Accounting Research Methods. The Accounting Review (Supplement):407-436.

Beaver, W. 1989. Financial Reporting: An Accounting Revolution. Englewood Cliffs, New Jersey: Prentice-Hall Inc.

Beaver, W.H., and J. Manegold. 1975. The Association Between Market-Determined and Accounting-Determined Measures of Systematic Risk: Some Further Evidence. Journal of Financial and Quantitative Analysis (June):231-284.

Beaver, W.H., and P. Kettler, and M. Scholes. 1970. The Association Between Market Determined and Accounting Determined Risk Measures. The Accounting Review (October):654-682.

Beaver, W., and R. Clarke, and W. Wright. 1979. The Association Between Unsystematic Security Returns and the Magnitude of Earnings Forecast Errors. Journal of Accounting Research (Autumn):316-340.

Benishay, H. 1961. Variability in Earnings Price Ratios of Corporate Equities. American Economic Review 51:81-94.

Benishay, H. 1973. Market Preferences for Characteristics of Common Stocks. The Economic Journal (March):173-191.

Benston, G.J. 1973. Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934. The Accounting Review (March):132-155.

Bernard, V. 1987. Cross-Sectional Dependence and Problems in Inference in Market-Based Accounting Research. Journal of Accounting Research (Spring):1-48.

Bernstein, L.A. 1970. Reserves for Future Costs and Losses. Financial Analysts Journal (January-February):45-48.

Bernstein, P. 1984. Surprising the Smoothies. The Journal of Portfolio Management (Fall), PP. 10.

Bildersee, J.S. 1975. The Association Between a Market Determined Measure of Risk and Alternative Measures of Risk. The Accounting Review (January):81-98.

Brigham, E.F., and M.J. Gordon. 1968. Leverage, Dividend Policy, and Cost of Capital. The Journal of Finance (March):85-104.

Brown, S.J., and J.B. Warner. 1985. Using Daily Stock Returns, The Case of Event Studies. Journal of Financial Economics 14:3-31.

Chambers, R. 1966. Accounting, Evaluation and Economic Behavior. Englewood Cliffs, New Jersey: Prentice-Hall Inc.

Christie, A. 1987. On Cross-Sectional Analysis In Accounting Research. Journal of Accounting and Economics 9:231-258.

Collins, D.W., and L. DeAngelo. 1990. Accounting Information and Corporate Governance: Market and Analyst Reactions to Earnings of Firms. Journal of Accounting and Economics 13:213-247.

Collins, D.W., and R.R. Simonds. 1979. SEC Line-of-Business Disclosure and Market Risk Adjustments. Journal of Accounting Research (Autumn):352-383.

Collins, D.W., and W.T. Dent. 1984. A Comparison of Alternative Testing Methodology Used in Capital Market Research. Journal of Accounting Research (Spring):48-84.

Collins, D.W., and S.P. Kothari. 1989. An Analysis of Intertemporal and Cross-Sectional Determinants of Earnings Response Coefficients. Journal of Accounting and Economics 11:143-181.

Comiskey, E.E. 1971. Market Response to Changes in Depreciation Accounting. The Accounting Review (April):279-285.

DeFond, M.K., and J. Jiambalvo. 1991. Incidence and Circumstances of Accounting Errors. The Accounting Review (July):643-655.

Elliot, J.A., and R.J. Swieringa. 1985. Aetna, The SEC and Tax Benefits of Loss Carry Forwards. The Accounting Review (July):531-546.

Eskew, R.K. 1979. The Forecasting Ability of Accounting Risk Measures: Some Additional Evidence. The Accounting Review (January):107-118.

Estep, T., and N. Hanson, and C. Johnson. 1983. Sources of Value and Risk in Common Stocks. Journal of Portfolio Management (Summer):5-13.

FASB. 1978. Statement of Financial Accounting Concepts No. 1 ,Objectives of Financial Reporting By Business Enterprises, (November).

FASB. 1980. Statement of Financial Accounting Concept No. 2 ,Qualitative Characteristics of Accounting Information, (May).

FASB. 1984. Statement of Financial Accounting Concept No.5, Recognition and Measurement in Financial Statements, (December).

Feltham, G.A. 1972. Studies in Accounting Research: Information Evaluation. American Accounting Association.

Fischel, D.R. 1982. Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities. The Business Lawyer (November):1-20.

Foster, G. 1979. Briloff and the Capital Market. Journal of Accounting Research (Spring):262-274.

Foster, G. 1980. Accounting Policy Decisions and Capital Market Research. Journal of Accounting and Economics 2:29-62.

Foster, G. 1987. Briloff and the Capital Market. Journal of Accounting, Audinting, and Finance (Fall):409-430.

Foster, T.W., and D. Vickery. 1978. The Incremental Information Content of the 10-K. The Accounting Review (October):921-934.

Gonedes, N.J. 1973. Evidence on the Information Content of Accounting Numbers: Accounting-Based and Market-Based Estimates of Systematic Risk. Journal of Financial and Quantitative Analysis (June):407-443.

Gonedes, N.J. 1975. Risk, Information, and the Effects of Special Accounting Items on Capital Market Equilbrium. Journal of Accounting Research (Autumn):221-256.

Gonedes, N.J. 1978. Corporate Signalling, External Accounting, and Capital Market Equilbrium:Evidence on Dividends, Income, and Extraordinary Items. Journal of Accounting Research (Spring): 26-79.

Griffin, P.A. 1976. The Association Between Relative Risk and Risk Estimates Derived From Quarterly Earnings and Dividends. The Accounting Review (July):499-515.

Gruber, M. J. 1971. The Determinants of Common Stock Prices. Center for Research of the College of Business Administration, The Pennsylvania State University.

Hamilton, J.E., and D.A. Hodes. 1967. Factors Influencing Price-Earnings Multiples. Financial Analysts Journal (January-February):90-92.

Hand, J.R. 1990. A Test of the Extended Functional Fixation Hypothesis. The Accounting Review (October):740-763.

Harris, T., and J.A. Ohlson. 1990 Accounting Disclosure and the Market's Valuation of Oil and Gas Properties: Evaluation of Market Efficiency and Functional Fixation. The Accounting Review (October):764-779.

Harrison, T. 1977. Different Market Reactions to Discretionary

and Nondiscretionary Accounting Changes. Journal of Accounting Research (Supplement):84-107.

Hilton, R.W., and R.J. Swieringa, and R.E. Hoskin. 1981. Perception of Accuracy as a Determinant of Information Value. Journal of Accounting Research (Spring):86-119.

Holthausen, R.W., and R.E. Verrechia. 1988. The Effect of Sequential Information Releases on the Variance of Price Changes in an Intertemporal Multi-Asset Market. Journal of Accounting Research (Spring):82-106.

Ijiri, Y., and R.K. Jaedicke. 1966. Reliability and Objectivity of Accounting Measurements. The Accounting Review (July):474-483.

Ijiri, Y., R.K. Jaedicke, and K.E. Knight. 1966. The Effects of Accounting Alternatives on Management Decisions. in R.K. Jaedicke, Y.I. Ijiri, and O. Neielson (eds.): Research In Accounting Measurement. AAA:186-199.

Imhoff, E., and G. Lobo. 1992. The Effect of Ex Ante Earnings Uncertainty on Earnings Response Coefficient. The Accounting Review (April):427-439.

Jain, P.C. 1986. Analysis of the Distribution of Security Market Model Prediction Errors for Daily Returns Data. Journal of Accounting Research (Spring):76-96.

Jensen, M., and W. Meckling. 1976. Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure. Journal of Financial Economics 3:305-360.

Kaplan, R., and R. Roll. 1972. Investor Evaluation of Accounting Information: Some Empirical Evidence. The Journal of Business (April):225-257.

Katona, G. 1951. Psychological Analysis of Economic Behavior. New York: McGraw-Hill Book Co., Inc.

Kellogg, R.L. 1984. Accounting Activities, Security Prices, and Class Action Lawsuits. Journal of Accounting and Economics 6:185-204.

Kinney, W., and L.S. McDaniel. 1989. Characteristics of Firms Correcting Previously Reported Quarterly Earnings. Journal of Accounting and Economics 11:71-93.

Kothari, S.P., and C.E. Wasely. 1989. Measuring Security Performance in Size-Clustered Samples. The Accounting Review (April):228-249.

Lambert, R.A. 1984. Income Smoothing as Rational Equilbrium Behavior. The Accounting Review (October):604-618.

Lev, B. 1974. On the Association Between Operating Leverage and Risk. Journal of Financial and Quantitative Analysis (September):627-641.

Lev,B. 1989. On the the Usefulness of Earnings and Earnings Research: Lessons and Directions From Two Decades of Empirical Research. Journal of Accounting Research (Supplement):153-192.

Lev, B., and S.K. Kunitzky. 1974. On the Association Between Smoothing Measures and the Risk of Common Stocks. The Accounting Review (April):259-270.

Lev, B., and J.A. Ohlson. 1982. Market-Based Empirical Research in Accounting: A Review, Interpretation, and Extension. Journal of Accounting Research (Supplement):249-313.

Lilien, S., and M. Mellman, and V. Pastena. 1988. Accounting Changes: Successful Versus Unsuccessful Firms. The Accounting Review (October):642-656.

Malkiel, B., and J. Cragg. 1970. Expectations and the Structure of Share Prices. The American Economic Review (September):601-617.

March, J.. 1978. Bounded Rationality, Ambiguity, and the Engineering Choice. The Bell Journal of Economics (Autumn):587-608.

Mayer, R.W. 1963. Analysis of Internal Risk in the Individual Firm. In E.M. Lerner (ed) Readings in Financial Analysis and Investment Management. Homewood, Illinois: Richard D. Irwin, Inc.

Moses, O.D. 1987. Income Smoothing and Incentives: Empirical Tests Using Accounting Changes. The Accounting Review (April):358-377.

Peltman, S. 1976. Toward A More General Theory of Regulation. The Journal of Law and Economics 21:211-239.

Pincus, M. 1983. Information Characteristics of Earnings Announcements and Stock Market Behavior. Journal of Accounting Research (Spring):155-183.

Raaij, W. 1989. Economic News, Expectations and Macro-Economic Behavior. Journal of Economic Psychology 10:473-493.

Ricks, W. 1982. The Market's Response to the 1974 Lifo

Adoptions. Journal of Accounting Research. (Autumn):367-387.

Robichek, A.A., and S.C. Myers. 1966. Valuation of the Firm: Effects of Uncertainty in a Market Context. The Journal of Finance (May):215-227.

Rosenberg, B. 1984. Prediction of Common Stock Investment Risk. The Journal of Portfolio Management (Fall):44-53.

Rubinstein, M.E. 1973. A Mean-Variance Synthesis of Corporate Financial Theory. The Journal of Finance (March):167-182.Salamon, G.L., and

Salamon. G.L., and E.D. Smith. 1979. Corporate Control and Managerial Misrepresentation of Firm Performance. The Bell Journal of Economics (Spring):319-328.

Sauvain, H.C. 1973. Investment Management. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Seidler, L.J., and W. Benjes. 1967. The Credibility Gap in Interim Financial Statements. Finacial Analysts Journal (September-October):109-114.

Shillinglaw, G. 1961. Concepts Underlying Interim Financial Statements. The Accounting Review (April):221-231.

Simpson, R.H. 1969. An Empirical Study of Possible Income Manipulation. The Accounting Review (October):806-817.

Snavely, H.J. 1967. Accounting Information Criteria. The Accounting Review (April):223-232.

Sunder, S. 1973. Relationship Between Accounting Changes and Stock Prices: Problems of Measurement and Some Empirical Evidence. Empirical Research in Accounting: Selected Studies:1-45.

Sunder, S. 1975. Stock Price and Risk Related to Accounting Changes in Inventory Valuation. The Accounting Review (April):305-315.

Taylor, R.G. 1965. A Look at Published Interim Reports. The Accounting Review (January):89-96.

Thompson, D.J. 1976. Sources of Systematic Risk. The Journal of Business (April):173-188.

Tinic, S.M. 1990. A Perspective on the Stock Market's Fixation on Accounting Numbers. The Accounting Review (October):781-796.

Titman, S. 1984. The Effect of Capital Structure on a Firm's Liquidation Decision. Journal of Financial Economics 13:137-151.

Trueman, B., and S. Titman. 1988. An Explanation for Accounting Income Smoothing. Journal of Accounting Research (Supplement):127-139.

Van De Voorde, M.H. 1988. Fraud on the Market. The Journal of Corporation Law (Winter):442-494.

Wallace, W.A. 1980. The Economic Role of the Audit in Free and Regulated Markets. New York: Touche Ross & Co.

Watts, R.L., and J.L. Zimmerman. 1986. Positive Accounting Theory. Englewood Cliffs, N.J. Prentice-Hall.

White, G.E. 1970. Discretionary Accounting Decisions and Income Normalization. Journal of Accounting Research (Autumn):260-281.

Williams, E., and M. Findlay. 1981. A Reconsideration of the Rationality Postulate: Right Hemisphere Thinking in Economics. The American Journal of Economics (January):17-36.

Worthy, F.S. 1984. Manipulating Profits: How It's Done. Forturne (June):50-54.