

INFORMATION TO USERS

This reproduction was made from a copy of a document sent to us for microfilming. While the most advanced technology has been used to photograph and reproduce this document, the quality of the reproduction is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help clarify markings or notations which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure complete continuity.
2. When an image on the film is obliterated with a round black mark, it is an indication of either blurred copy because of movement during exposure, duplicate copy, or copyrighted materials that should not have been filmed. For blurred pages, a good image of the page can be found in the adjacent frame. If copyrighted materials were deleted, a target note will appear listing the pages in the adjacent frame.
3. When a map, drawing or chart, etc., is part of the material being photographed, a definite method of "sectioning" the material has been followed. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.
4. For illustrations that cannot be satisfactorily reproduced by xerographic means, photographic prints can be purchased at additional cost and inserted into your xerographic copy. These prints are available upon request from the Dissertations Customer Services Department.
5. Some pages in any document may have indistinct print. In all cases the best available copy has been filmed.

**University
Microfilms
International**

300 N. Zeeb Road
Ann Arbor, MI 48106

8501129

El-Gazzar, Samir Mohamed

THE IMPLICATIONS OF THE AGENCY-CONTRACTING THEORY OF THE
FIRM FOR CORPORATE ACCOUNTING POLICY DECISIONS: THE CASE OF
ACCOUNTING FOR LEASES BY LESSEES

City University of New York

PH.D. 1984

University
Microfilms
International 300 N. Zeeb Road, Ann Arbor, MI 48106

Copyright 1984

by

El-Gazzar, Samir Mohamed

All Rights Reserved

PLEASE NOTE:

In all cases this material has been filmed in the best possible way from the available copy. Problems encountered with this document have been identified here with a check mark .

1. Glossy photographs or pages _____
2. Colored illustrations, paper or print _____
3. Photographs with dark background _____
4. Illustrations are poor copy _____
5. Pages with black marks, not original copy
6. Print shows through as there is text on both sides of page _____
7. Indistinct, broken or small print on several pages
8. Print exceeds margin requirements _____
9. Tightly bound copy with print lost in spine _____
10. Computer printout pages with indistinct print _____
11. Page(s) _____ lacking when material received, and not available from school or author.
12. Page(s) _____ seem to be missing in numbering only as text follows.
13. Two pages numbered _____. Text follows.
14. Curling and wrinkled pages _____
15. Other Dissertation contains pages with print at a slant, filmed as received.

University
Microfilms
International

THE IMPLICATIONS OF
THE AGENCY-CONTRACTING THEORY OF THE FIRM
FOR CORPORATE ACCOUNTING POLICY DECISIONS:
THE CASE OF ACCOUNTING FOR LEASES BY LESSEES

by

SAMIR M. EL-GAZZAR

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

1984

© COPYRIGHT BY

SAMIR M. EL-GAZZAR

1984

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.

8/1/84
date

Steven Liles
Chairman of Examining Committee

8/1/84
date

Ally Appanna
Executive Officer

Prof., Victor S. Pastena

Prof., Ashok Vora

Prof., A. Rashad Abdel-Khalik
Supervisory Committee

The City University of New York

Abstract

THE IMPLICATIONS OF
THE AGENCY-CONTRACTING THEORY OF THE FIRM
FOR CORPORATE ACCOUNTING POLICY DECISIONS:
THE CASE OF ACCOUNTING FOR LEASES BY LESSEES

by

Samir M. El-gazzar

Advisor: Professor Steven B. Lilien

This research has a two-fold objective. First, using the agency/contracting theory of the firm, the study provides a model for lessees accounting policy decision for leases (prior to the mandates of Statement of Financial Accounting Standards, SFAS, No. 13). Second, given the firm already selected the optimal accounting policy that goes along with its investing and financing environment, the study provides an analysis for the economic impact of mandating SFAS No. 13, and identifies the conditions under which such exogenous policy can stimulate economic consequences.

The study argues that, under uncertainty of management behavior, monitoring and contracting activities have become essential characteristics to the existence of the firm. Because most monitoring and contracting agreements are based on accounting variables, managements are motivated to select the set of accounting policies that relaxes the constraints which arise from these monitoring/ contracting agreements.

The study hypothesizes that lessees' choices of the accounting treatment for leases are influenced by the factors of: (1) debt financing and debt covenants; (2) corporate performance and political costs; (3) management

compensation plans; and (4) growth in leasing activities. The study also hypothesizes that the mandates of SFAS No. 13 reduced the discretion of management choice of accounting for leases. Complying with SFAS No. 13 would cause violation of ex ante agreements, which increase the probability of technical default, and increase management accounting exposure. To cope with these consequences, management may alter its operating and financing policies. Alterations of investing and financing policies produce real economic impact.

From the 1977 Accounting Trends and Techniques, two groups of lessees were identified. Group one (capitalizers) consists of 41 firms that capitalized all of their leases both prior and subsequent to the mandates of SFAS No. 13. Group two (noncapitalizers) consists of 113 firms that did not capitalize all of their leases prior to SFAS No.13, but were forced to capitalize them in compliance with SFAS No. 13. The discriminant analysis function and the probit regression model were used to test for the determinants of accounting for leases. The empirical results support the hypotheses.

For the economic impact test, the 113 noncapitalizing lessees were partitioned into four portfolios in terms of: 1) the level of the impact of capitalizing off-balance sheet leases on outstanding debt; and 2) the rate of growth in expected (3-5 years) earnings. The market test was conducted for these portfolios in comparison to the 41 capitalizers. The empirical results indicate that there had been a differential market reaction in terms of debt financing levels and the levels of corporate growth.

ACKNOWLEDGEMENTS

The excellent performance of a dissertation research project is the culmination of intellectual interactions between a doctor of philosophy candidate and a dedicated dissertation committee.

Professors Steven Lilien and Victor Pastena guided me from an initial, unstructured idea through a completed dissertation. The valuable suggestions of Professors Ashok Vora of the Department of Economics, and A. Rashad Abdel-Khalik of the University of Illinois have contributed to the success of this dissertation. The encouragements and comments of Professor Martin Benis are very appreciated.

A word of appreciation is due to the staff of Brooklyn Business Library who efficiently keep form 10-K's and annual reports of most corporations, and who nicely helped me to use such filings. Also, the support and cooperation of the staff of the Computer Center of Baruch College are appreciated.

A special acknowledgement to a very special person is due. It is to my beloved wife, Afaf, whose love and encouragement as well as the many hardships she endured during the period of study, helped me to reach a successful and glorious ending.

My final acknowledgement is of a very special kind.
It is to my parents whose care and love never ended.
In recognition of their unlimited efforts and support,
I dedicate this dissertation.

TABLE OF CONTENTS

CHAPTER	Page
I. INTRODUCTION	
Introduction	1
Statement of the Problem	4
Objectives of the Study	5
Importance of the Study	6
Research Methodology	8
Definition of Terms	9
Organization of the Study	11
II. THEORY OF THE FIRM: THE IMPLICATIONS FOR CORPORATE ACCOUNTING POLICY DECISIONS	
Introduction	13
Theory of the Firm	13
The Agency Theory of the Firm	14
Uncertainty About Management Behavior: The Need for Monitoring/Contracting Processes	15
Monitoring Processes: The Use of Accounting Variables	17
Implications to Accounting Policy Decisions	19
First: The Discretionary State	19
Second: The Mandatory State	20
III. ACCOUNTING FOR LEASES BY LESSEES	
Introduction	22
Background	22
SFAS No. 13 "Accounting for Leases"	25
Consequences of SFAS No. 13: Users Versus Lessees	27
Capitalization/Noncapitalization of Leases: The Effect on Lessees' Financial Statements	28
SFAS No. 13: Effective Date and Application	31

CHAPTER	Page
IV. DETERMINANTS OF LESSEE ACCOUNTING FOR LEASES	
Introduction	34
Determinants of Lessee Accounting for Leases.....	35
1. Corporate Performance, Industry Barriers to Entry, and Political Costs.....	35
2. Management Compensation Plans ...	40
3. Debt Financing and Debt Covenants.	44
4. Growth in Leasing Assets.....	46
V. THE ECONOMIC IMPACT OF SFAS NO. 13 ON AFFECTED LESSEE COMPANIES	
Introduction	48
The Economic Consequences of SFAS No. 13	48
Information Refinement	49
Alterations in Managerial Behavior and Decisions.....	54
1. Debt Financing and Debt Capacity Displacement.....	54
2. Growth Opportunities Realization: Altering Its Probability Distribution	56
3. Unknown Course of Actions by the Agent: Altering the Risk of Stockholders	57
VI. RESEARCH DESIGN	
Phase I: Determinants of Lessee Accounting	59
Sample and Data	59
Measuring Variables	62
Model Specification	65
Phase II: Economic Impact of SFAS No. 13.	69
Sample and Portfolios	70
The Partitioning Process	73
Model Specification	74
Alterations in Security Returns Distribution Function	75
The Regression Test	77
Data and Testing Period	79

CHAPTER	Page
VII. ANALYSIS OF EMPIRICAL RESULTS: DETERMINANTS OF THE CHOICE OF ACCOUNTING FOR LEASES	
Introduction	80
Financial Characteristics Differences	80
The Univariate Test	80
The Discriminant Classification Test ...	83
The Regression Test	85
VIII. ANALYSIS OF EMPIRICAL RESULTS: THE ECONOMIC IMPACT OF SFAS NO. 13	
Introduction	96
The Abnormal Security Market Return Test..	97
The Nonpartitioned Sample Test.....	97
The Partitioned Sample Test.....	102
Multivariate Test of CAR's	108
The Regression Test	108
Altering the Distribution Function of Security Returns	112
A. No Partitioning	113
B. The Partitioned Sample	115
IX. CONCLUSIONS AND RECOMMENDATIONS	
Introduction	123
Summary and Conclusions	123
Recommendations for Further Research	132
APPENDIX	
A. Example to Illustrate the Effects of Different Accounting Treatments (Capitalization/Non-capitalization) of Leases by Lessees on Key Financial Variables	133
B. List of Companies Included in the Sample (Showing the Effect of Capitalizing Off-Balance Sheet Leases on Outstanding Debt	139
C. Illustrative Example of the Impact of Capitalizing Off-Balance Sheet Leases on Growth Opportunities Undertaking	143
D. The Probit Model Description	146
BIBLIOGRAPHY	148

LIST OF TABLES

Table	Page
1. Lease Related Accounts and Key Financial Variables: A Comparison Between Company X (Noncapitalizer) and Company Y (Capitalizer)	30
2. Breakdown of the AT & T 600 Firms According to Lease Accounting Method.....	61
3. The Partitioning of Total Sample: Four Portfolios in Terms of Debt Financing and Growth	72
4. Univariate Statistics of Capitalizers and Noncapitalizers	81
5. Correlation Matrix of Measuring Variables: Pooled Correlation	84
6. The Discriminant Analysis Function and the Predicted Classification	86
7. The Probit Regression Results: All Variables	87
8. The Probit Regression Results With Political Costs Measured by ETR	90
9. The Probit Regression Results with Political Costs Measured by ROI	91
10. The Probit Regression Results: Excluding Debt Variable	92
11. The Probit Regression Results: With Debt Financing Measured by TIE	95
12. Daily Average Abnormal Returns: No Partitioning	98
13. Cumulative Abnormal Returns: No Partitioning	101
14. Daily Average Abnormal Return: The Partitioned Test	103
15. Cumulative Abnormal Return: The Partitioned Test	105

(List of Tables - cont'd.)

Table		Page
16.	Test Statistics of Multivariate Analysis of Portfolio Cumulative Abnormal Return	109
17.	The Regression of Cumulative Abnormal Return, CAR, on the Choice Variables	111
18.	Test Statistics of the Change in Mean and Standard Deviation of Portfolio Returns: No Partitioning.....	114
19.	Test Statistics of the Changes in Mean and Standard Deviation of Portfolios Returns: The Partitioned Test.....	116
20.	Multivariate Analysis of Variance for Changes in Mean and Standard Deviation of Portfolios Returns.....	118
21.	The Pairwise T-Statistics for Differences in Changes of Mean and Standard Deviations of Portfolios Returns	119

LIST OF FIGURES

Figure		Page
1.	The Agency/Contracting Perspective of the Firm	18
2.	The Event and Groups Under Analysis	36
3.	Daily Cumulative Abnormal Return: No Partitioning Test	101
4.	Daily Cumulative Abnormal Return: Partitioned Test	106

CHAPTER I
INTRODUCTION

With the development of modern large corporations, the task of corporate decision-making has been delegated to management. Among these decisions is the selection of corporate accounting policies. Current literature examining corporate decision-making, emphasizes the importance of management behavioral and motivational factors in the decision model.¹

Over the last decade, the accounting profession, the Financial Accounting Standards Board (FASB), and the Securities and Exchange Commission (SEC), have been moving towards the tightening of the discretion allowed for corporate choice of accounting policies. This has been achieved through promulgating uniform accounting policies (e.g., Statement of Financial Accounting Standards (SFAS) No. 2, Accounting for Research and Development Expenses), and through tightening the necessary conditions for choosing among accounting alternatives (e.g., SFAS No. 13, Accounting for Leases).

¹That literature includes, among others, Leibensfein (1977), Spence (1975), Cyert and March (1963), Williamson (1964), and Jensen and Meckling (1976).

Companies express great concern about the economic consequences of tightening the discretion in accounting policy choices. The public record of corporate responses to major FASB proposals indicates that many corporations are actively involved in presenting to the FASB their positions on new accounting standards. Some anecdotal evidence as to concerns of firms is also available. For example, in the debate following the issuance of SFAS No. 8, "Accounting for the Translation of Foreign Currency Transactions and Foreign Currency Financial Statements," Joseph B. Collonson,² Textron Corporation, and David Saks,³ Drexel Burnham, among others, indicated that SFAS No. 8 distorts earnings, which may cause multi-nationals to reconsider their foreign operations policies. Similarly, in response to the mandates of SFAS No. 19, "Financial Accounting and Reporting by Oil and Gas Producing Companies," "Full Cost" companies complained that the new rule would cause violation of debt agreements, and difficulty in raising new capital.⁴ These effects, in turn, may influence both financing and investing

²The Wall Street Journal, December 8, 1976.

³Business Week, January 26, 1976.

⁴From the hearings held at the Department of Energy (February 19-21, 1978) about SFAS No. 19, Accounting for Oil and Gas.

policies of affected companies.

To investigate the above argument, the FASB commissioned several research projects to empirically test for the economic consequences associated with the promulgation of new accounting policies. Examples of accounting areas investigated include: (1) SFAS No. 19, Financial Accounting and Reporting by Oil and Gas producing companies; (2) SFAS No. 8, Accounting for the Translation of Foreign Currency Translations and Foreign Currency Financial Statements; (3) SFAS No. 13, Accounting for Leases. Academicians also have been extensively investigating the same issues. For example, Makin (1978) examined the impact of SFAS No. 8 on cost of capital for multinationals; Abdel-Khalik, Thompson, and Taylor (1978), examined the impact of reporting off-balance sheet leases on bond-risk premiums, and Dukes, Dykman, and Elliott (1980), examined the effect of SFAS No. 2 on research and development expenditures.

Considering the empirical results of the economic consequences studies for regulated accounting policies, the following conclusions can be stated:

1. The results are different from one study to another. Such inconsistent results do not lead to general conciliations about the economic impact of regulating accounting policies.

2. In the absence of a model to explain corporate

decisions of choosing one alternative over the other, it is difficult to establish (on ex ante basis) the economic impact of mandating a specific policy.

3. Because of the absence of the rationale for why and when mandatory accounting policy may cause change in the economics of the firm, specification and measurement errors were introduced in most empirical studies.

Statement of the Problem

Prior to SFAS No. 13, the criteria for classifying leases as either operating or capital lease were loose, and lessees enjoyed considerable discretion in the choice of a method for lease accounting. Under the provisions of SFAS No. 13, most leases now qualify as capital leases. SFAS No. 13 established four criteria and required that a lease should be capitalized by lessee even if the lease satisfies only one of these criteria. Furthermore, the statement requires that leases entered into prior to the effective date, January 1, 1977, that satisfy current provisions, must be capitalized on a retroactive basis.

Lessee companies affected by the new rule, demonstrated great concern and opposition to the promulgation of SFAS No. 13. That opposition caused FASB to respond by issuing several interpretations and amendments to the statement. Affected lessee companies argued that the adoption of SFAS No. 13 would lead to adverse impact on financing and operating activities. Nakayama, Lilien,

and Benis (1982), document the reactions of corporate respondents to the exposure draft which preceded SFAS No. 13. In their response to FASB, companies cited concerns about: expected violation of loan agreements, loss of organizational flexibility, reduced credibility of the balance sheet, adverse effect on performance measurement, and difficulty in raising new capital.

Knowing that affected lessee firms demonstrated concern and opposition to SFAS No. 13, it is important for FASB and users of financial statements to understand the underlying factors for these firms to avoid lease capitalization. By learning about the determining factors, the FASB (as the accounting policy maker), and the users of financial statements are in a better position to assess the economic relevance of accounting policies.

Objectives of the Study

This dissertation has two objectives: first, using the agency/contracting perspective of the firm, the study presents a conceptual analysis and empirical investigation for the economic and behavioral factors affecting choices of accounting for leases. Second, the study establishes the rationale, and tests, for the economic impact of mandating SFAS No. 13 on affected lessee companies. The specific research questions to be analyzed in this study are:

1. Prior to SFAS No. 13, what were the economic and behavioral factors that influenced lessees' choices of accounting for leases?

2. What are the economic effects of complying with SFAS No. 13, on lessees who were required to change their accounting policies, and why would such effects be expected on ex ante bases?

Importance of the Study

Although there is a growing body of research that investigates corporate choice of accounting policies, lease accounting has not been considered yet. For example, Hagerman and Zmijewski (1979) investigated some economic determinants of corporate choice of accounting practices for four accounting areas: inventory valuation, depreciation, investment tax credits, and amortization of past services costs; Bowen et al. (1981), examined corporate decision in capitalizing interest costs; Lilien and Pastena (1982), examined accounting choices in the oil and gas industry, and Watts and Zimmerman (1978), examined the factors affecting corporate submissions to the FASB's Discussion Memorandum on General Price Level Adjustments. Yet, the application of their models to lessee accounting for leases is not assurable. The inability to extrapolate their models to lease accounting arises because of the different nature and importance of each accounting area to the total accounting system of the corporation. Also,

empirical results of Hagerman and Zmijewski (1979), indicate that the explanatory variables are not consistent in direction or magnitude for the four areas they investigated.

The economic consequences of complying with SFAS No. 13 have not been determined yet. Several researchers tried to analyze the economic impact of capitalizing off-balance sheet leases. Elam (1975), tested whether capitalization of leases improved the predictability of bankruptcy. He found no major improvements in prediction rate, although he attributed the results to the arbitrary methodology used. Ro (1978), examined whether the disclosure of lease information, as of Accounting Series Release (ASR) No. 147, "Notice of Adoption of Amendments to Regulation S-X Requiring Improved Disclosure of Leases," had impact on lessee's equity securities. His results indicate the existence of adverse impact on security prices of lessee companies. Bowman (1980), demonstrated that debt equivalence of leases has significant association with corporate market risk. Abdel-Khalik (1981), using a comprehensive testing methodology, found insignificant economic impact of mandating SFAS No. 13 on securities of affected lessees. Yet, when he used a survey questionnaire, some respondents indicated that they altered their financing and operating policies.

The results of the research cited above, indicate

that the economic impact of lease accounting has not been resolved yet. The problem requires further investigation with some improved research methodology.

Research Methodology

A. Library Research

Literature of the theory of the firm in economics and finance, and related industrial psychology are considered in developing the implications of the agency/contracting perspective of the firm for corporate accounting policy decision. Then fundamentals of the above literature are tied with current accounting literature to assess the economic relevance of accounting for leases.

B. Empirical Testing

The discriminant function, and the multivariate Probit regression model are used to test for the determinants of lessee accounting for leases. The discriminant function is a classification test, while the probit model is a causality test. The probit model is used because it fits the data base of this study.

Two versions of security market prices are used to test for the economic impact of complying with SFAS No. 13; the abnormal security returns, and the alterations in the distribution function of security returns. The abnormal return is based on expected prices, while the

change in the distribution function is based on actual (ex post) prices. In the market reaction test, the experimental sample is partitioned into four portfolios in terms of levels of debt, and growth opportunities facing the company. Then, the cumulative abnormal return is regressed on the determinants of lessees' choice of the accounting treatment.

Data Sources

This research is based on public information. Data about the measuring variables, the determinants of lessee accounting, are gathered from corporate annual reports, Form 10-K's, and the proxy statements. The CRSP daily market security returns tape is used for the two versions of the market test.

Definition of Terms⁵

For purpose of this study, the following terms are important.

1. Inception of the Lease: the date of the lease agreement or commitment, if earlier.
2. Fair Value of the Leased Property: the price for which the property could be sold in an arm's length transaction between unrelated parties.

⁵Source: FASB Statement No. 13, paragraph No. 5.

3. Bargain Purchase Option: a provision allowing the lessee, at his option, to purchase the leased property for a price which is sufficiently lower than the expected fair value of the property at the date the option becomes exercisable that exercise of the option appears, at the inception of the lease, to be reasonably assured.

4. Bargain Renewal Option: a provision allowing the lessee, at his option, to renew the lease for a rental sufficiently lower than the fair rental of the property at the date the option becomes exercisable that exercise of the option appears, at the inception of the lease to be reasonably assured.

5. Lease Term: the fixed noncancelable term of the lease, plus (a) all periods, if any, covered by bargain renewal options; (b) all periods, if any, for which failure to renew the lease imposes a penalty on the lessee in an amount such that renewal appears to be reasonably assured; (c) all periods, if any, covered by ordinary renewal option during which a guarantee by the lessee of the lessor's debt related to the leases property is expected to be in effect; (d) all periods, if any, covered by ordinary renewal options preceding the date as of which a bargain purchase option is exercisable, and (e) all periods, if any, representing renewals or extensions of the lease at the lessor's option.

6. Estimated Economic Life: the estimated

remaining period during which the property is expected to be economically usable by one or more users, with normal repairs and maintenance, for the purpose for which it was intended at the inception of the lease, without limitations by the lease term.

7. Minimum Lease Payments (Lessee): the payments that the lessee is obligated to make or can be required to make in connection with the leased property. Normally, lease payments include: (a) the minimum rental payments called for by the lease over the lease term; (b) any guarantee by the lessee of the residual value at the expiration of the lease term, and (c) any payment that the lessee must make or can be required to make upon failure to renew or extend the lease at the expiration of the lease term.

8. Lessee's Incremental Borrowing Rate: the rate that, at the inception of the lease, the lessee would have incurred to borrow over a similar term the funds necessary to purchase the leased asset.

Organization of the Study

The remainder of this dissertation is organized as follows: Chapter II provides a conceptual analysis for the theory of the firm and its implications for corporate accounting policy. Chapter III deals with lease accounting. This chapter examines the discretion of the accounting treatment prior to SFAS No. 13. It

also analyzes the impact of lease capitalization/noncapitalization on the lessee's financial statements. Chapter IV provides a conceptual analysis of the economic and behavioral factors which affect management choices in accounting for leases. Chapter V explains the economic consequences of mandating SFAS No. 13. Chapter VI includes the research design and methodology. Chapter VII analyzes the empirical results of the determinants of lease accounting choices. Chapter VIII analyzes the empirical results of the economic consequences of mandating SFAS No. 13. Chapter IX provides conclusions and recommendations for further research.

CHAPTER II

THEORY OF THE FIRM:

THE IMPLICATIONS FOR CORPORATE ACCOUNTING

POLICY DECISION

Introduction

This chapter provides an analysis of the theory of the firm and its implications for accounting policies. The chapter argues that, under the agency framework, monitoring and contracting activities are essential characteristics to the existence of the firm. To the extent that monitoring and contracting agreements are based on accounting variables, the choice of the accounting policies is influenced by such agreements. Furthermore, the regulation of accounting policies reduces corporate choices and may alter the ex ante agreements. These alterations in ex ante agreements may induce changes in financing and investing policies.

Theory of the Firm

The theory of the firm has been changing with the development of firms' structure and environment. Economists have long been emphasizing the classical entrepreneur model. Under this model the firm is an important actor

in the market. Accordingly, the firm is viewed as a "Black Box" operated within the relevant marginal conditions of its inputs and outputs. An owner (entrepreneur) operates the firm to maximize its profits or present value.

Under large modern corporations, the classical model fails to explain current corporate behavior.⁶ Theorists turned to other perspectives of the firm, the property rights and the agency theories. Both the agency and property rights theories emphasize motivational and managerial interests in corporate decision-making. Early studies by Cooper (1949), and Boulding (1952), argued that a reorientation of "the firm," based on balance sheet considerations, would place economists in touch with the information and factors influencing management. Cyert and March (1963), argued that decision-making in large corporations is one characterized by intended, but bounded, rationality, and adaptive, rather than maximizing, behavior.

The Agency Theory of the Firm

In the agency theory, theorists relax the classical model on the part of the firm but assume classical forms

⁶See, for example, Richard M. Cyert and James G. March, A Behavioral Theory of the Firm (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963), Oliver E. Williamson, The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964).

of economic behavior on the part of the agents within the firm. Accordingly, the firm is viewed as a set of contracts among the suppliers of factors of production, with each supplier motivated by his self-interest. Here, the management is given a special role, planning, coordinating among inputs and controlling the actual performance, all of which are characterized as "decision-making."

In the classical model, Alchian and Demsetz (1972), state:

The essence of the firm is identified as contractual structure with (1) joint input production; (2) several input owners; (3) one party who is common to all the contracts; (4) who has the right to renegotiate, independently, contracts with other input owners; (5) who holds the residual claim, and (6) who has the right to sell central contractual residual status.

In the agency/contracting perspective, management replaced the owner (entrepreneur) in functions (3) and (4) above.

Uncertainty About Management Behavior: The Need for Monitoring Processes by Other Input-Factors

With the decision-making function delegated to the agent (management), managerial discretion became an important factor in corporate decision-making (e.g., Spence, 1975; Leibenstein, 1979; Williamson, 1964, and Jensen and Meckling, 1976; among others). They argued that a large managerial corporation is one in which constraints imposed by market forces are loose, the scope

of managerial choice is considerable, and there is greater emphasis on nonprofit goals of interest groups other than stockholders.

Under the agency perspective of the firm, management is rational and innovative (i.e., behaves in a manner to maximize own interest). Managerial objectives are different from those of other parties in the firm. Salary, security, power status, and professional excellence are common objectives of managers. The achievement of such objectives caused a shift in corporate behavior from profit maximization to adaptive behavior and satisfying performance (Manson and Downs, 1965; Simon, 1965).

Managerial behavior affects the welfare and wealth of other joint-input production factors in different ways. For example, a suboptimal investment policy, or high consumption of pecuniary and nonpecuniary benefits reduce the wealth of equity holders. Williamson (1964) found a high propensity for discretionary expenses in large corporations. Jensen and Meckling (1976) argue that an owner-manager has motives to expropriate the wealth of outsiders, equity and debt holders. For debt holders, negative managerial behavior involves actions of wealth transfers through decisions of claim dilution, dividends, and altering the risk of bondholders (Smith and Warner, 1979).

Given the possibility of the above noted managerial behavior, other parties are assumed to be

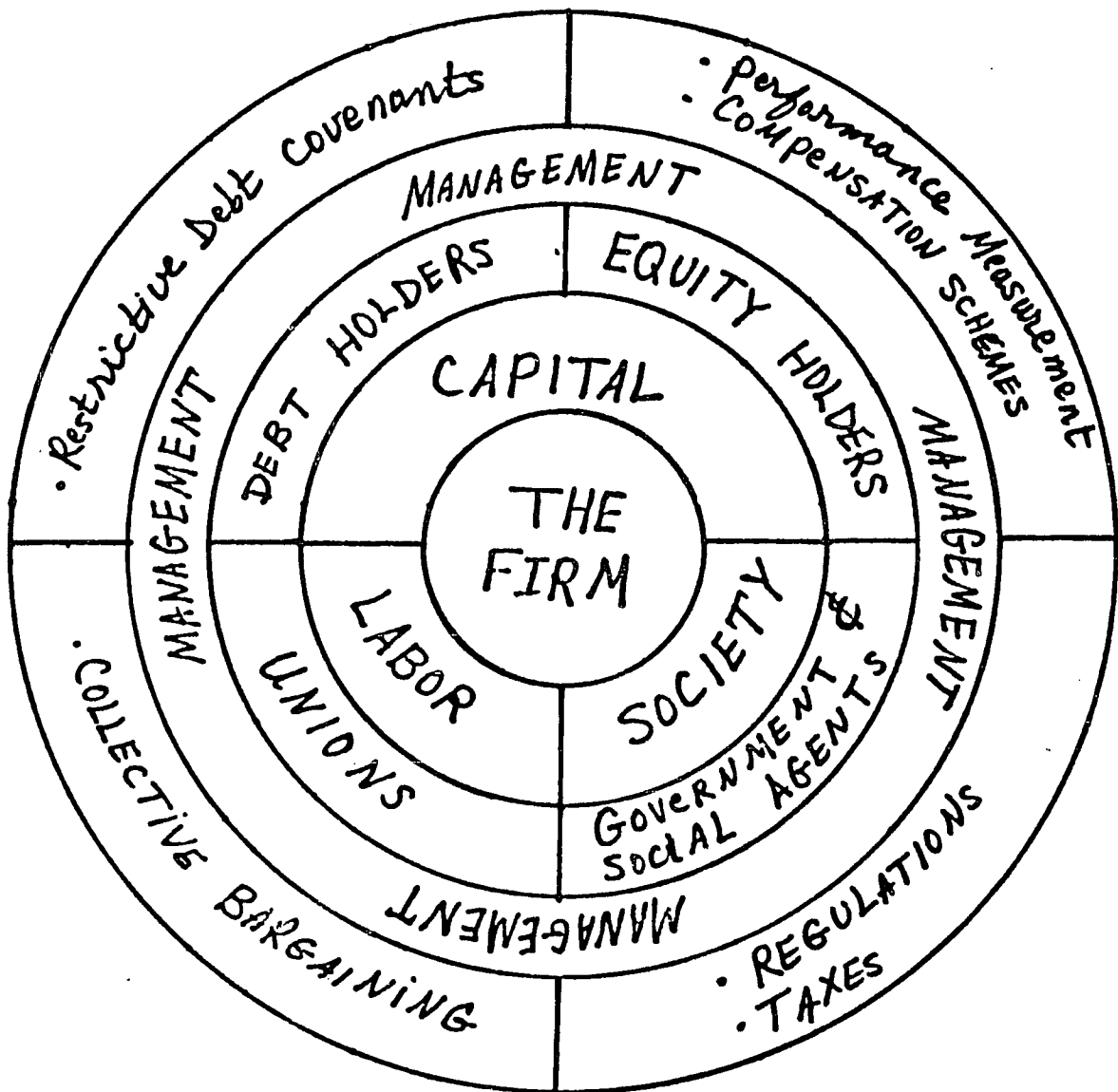
rational and innovative too. They anticipate such negative behavior and monitor the agent through the contracting process. For example, stockholders monitor management behavior through performance measurement and incentive compensation plans. Debt holders use restrictive debt covenants to prevent management from making decisions of claim dilution or wealth transfers. Labor unions use collective bargaining actions to protect employees' interest in corporations. For social welfare, social agents monitor corporate behavior through regulation, industry breakup, and taxation.

Taking the two aspects together, managerial decision-making and the monitoring process by joint-input factors, the company is viewed as "delegation of economic resources, by joint-input factors, for management decision-making with contractual agreement that should be satisfied by management." That integrated view of the firm is illustrated in Figure 1 (p. 18).

Monitoring Process: The Use of Accounting Variables

Empirical observations and analysis of corporate contracting process indicate that variables of financial statements are used in the monitoring process. For example, Smith and Warner (1979), Leftwich (1983), and Folgeston (1978), found that most debt agreements are based on key accounting variables. Furthermore, such agreements require the variables to be calculated in conformity with

Figure 1
The Agency/Contracting Perspective
of the Firm



Generally accepted accounting principles. Siegfried (1975), Brozen (1969), and Felton (1966), found that high rates of return are indicators of monopoly profits, and motivate for anti-trust actions. For performance measurement and management incentive plans, corporate profits and maintaining specified rate of return on invested capital found, in this study, to be common factors in most management compensation plans. Accounting profits, residual profits, or return on investments are common measures of corporate performance (Anthony and Dearden, 1976), and used in predicting corporate earnings (Bernstein, 1978).

Implications to Accounting Policy Decisions

The implications of the agency/contracting perspective of the firm to accounting policies can be analyzed in two different states. First, the discretionary state, where management selects from the acceptable set of accounting policies. Second, the mandatory state, where the specific accounting policy to be followed is mandated by the profession (FASB or the SEC).

First: The Discretionary State: Given the use of accounting variables in the contracting/monitoring process, with the latitude allowed by accounting policies, management can be motivated to select the set of accounting policies that relaxes the constraints of the contracting agreements. In fact, empirical findings of current research found that companies which are subject to

contracting agreements tend to choose loose accounting policies; e.g., FIFO versus LIFO; Straight Line Depreciation versus Accelerated Depreciation, and Full Cost versus Successful Efforts, among others. For example, Dhaliwal (1980), found that oil companies with high leverage ratios choose full cost accounting. Bowen, Noreen, and Lacey (1981), found that firms with financial ratios closer to debt constraints, tend to capitalize interest. Zmijewski and Hagerman (1981), found that factors of management compensation, leverage, and political cost, are significant determinants of corporate choice of accounting policies. Even intramethod choices are affected by the contracting/monitoring constraints, as demonstrated by Lilien and Pastena (1982).

From the above analysis, the following general hypothesis can be stated:

H_{O1} : Corporate managements are motivated to select the accounting policies that alleviate or circumvent the constraints of existing monitoring/contracting process.

Second: The Mandatory State: Managers build corporate investing and financing policies, and choose the set of accounting policies that minimizes their contracting/monitoring costs. In the equilibrium conditions, the agent chooses the set of investing and financing schemes, and accounting policies that maxi-

mizes his wealth and minimizes his monitoring contracting costs.

Now, assume the company already selected its investing and financing policies along with the optimal set of accounting methods. If the FASB mandates an accounting policy that contradicts the specific policy the company is currently using, there will be violation (alterations) in the ex ante contracting/monitoring agreements. These alterations may increase the agent's contracting/monitoring costs unless actions of adaptive behavior are taken. These actions may cause alterations in corporate mix of investing and financing policies. Therefore, mandatory accounting policies may induce economic consequences.

CHAPTER III

ACCOUNTING FOR LEASES BY LESSEES

Introduction

Over the last two decades, leasing has grown tremendously.⁷ However, the accounting treatment of leases has long been under dispute, and even after the passage of SFAS No. 13, the numerous amendments and interpretations to rule pronouncement suggest that lease accounting has not yet been resolved. This chapter analyzes the accounting for leases both prior to and according to SFAS No. 13. The chapter also shows the effects of capitalization/non-capitalization on lessee's financial statements. It also shows the effects of complying with SFAS No. 13 on lessees who were required to switch their accounting from the operating to the capitalizing method.

Background

Prior to 1964, most leases, irrespective of their duration or other characteristics, were not capitalized

⁷According to the AICPA survey, 548 firms of the Accounting Trends and Techniques (AT&T) 600 firms disclosed either capitalized or operating lease data for the year of 1980 (AT&T, 1981).

and little about them was disclosed. Since then, the accounting treatment for leases has been subject to many professional pronouncements that tried to clarify the method of accounting and the disclosure requirements (The Accounting Principles Board, APB, Statements of Opinion No. 5, 7, 27, and 31; Accounting Series Release, ASR, No. 147, and 225; FASB Statement No. 13, and its amendments and interpretations).

In APB Opinion No. 5, the board required that leases that are in substance "installment purchase" be capitalized by the lessee as an asset purchase with a related obligation. For non-cancelable leases which do not meet the capitalization criteria, sufficient disclosure should be made about the minimum annual rentals and the period over which the outlays will be made. However, the criteria set forth for capitalization or noncapitalization, under APB Opinion No. 5, remained loose and were readily circumvented by lessees. Furthermore, APB Opinions No. 5, and No. 7 did not require that there be a symmetry in the accounting treatment by both the lessee and the lessor as two parties of the same economic transaction (the same lease).

Because of ineffectiveness of the criteria set forth in APB Opinion No. 5, both the APB and the SEC required additional disclosures of noncancelable non-capitalized leases by lessees in both APB Opinion No. 31 and ASR No. 147. In APB Opinion No. 31, the board required

that the following disclosures be an integrated part of the financial statements:

1. total rental expense entered into the determination of income;
2. minimum rental commitment for all noncancelable leases at the date of the latest balance sheet for each of the five succeeding fiscal years, each of the next three five-year periods, and the remainder as a single amount;
3. the disclosure in (1) and (2) should be classified by major categories of properties.

In ASR No. 147, the SEC requires lessees, in addition to the disclosure noted above, to disclose about two important items:

1. the present value of noncapitalized noncancelable financing leases and the discount rate used in computing those present values;
2. the impact on net income had "financing leases" been capitalized.

Both the present value of noncapitalized leases and the impact on net income, had these leases capitalized, are important disclosures to users of financial statements. The present value provides the debt equivalence of off-balance sheet leases. That debt equivalence is important in determining the lessee's real debt obligations and the riskiness of outstanding debt. Similarly, the effect on net income enables users to accurately assess the profitability of lessees.

Despite the above requirements, and prior to SFAS No. 13, there had been three observations:

1. The criteria for determining "substance installment purchase" were loose, and hence it became easy for lessee companies to circumvent the lease's conditions and avoid lease capitalization.

2. Corporations did not effectively comply with the disclosure requirements.

3. Relatively much disclosure, with some differences (APB No. 5 and No. 7; APB No. 31, and ASR 147), can cause confusion or information overload⁸ of one item (lease) that, in most cases, creates a dysfunctional information processing on the part of information users.

SFAS No. 13 "Accounting for Leases"

To solve the problems listed above, the FASB (after two exposure drafts) issued SFAS No. 13 in November 1976. In that statement, the board reduced the discretion allowed for corporate management in accounting for leases by widening the criteria of classifying leases as capital ones. The criteria are the "substantial transfer of all the benefits and risks incident to the ownership of property." Accordingly, a lease that transfers substantially all the benefits and risks incident to the ownership

⁸Information overload is a concept used to describe cases of detailed information of specific items that causes ineffectiveness of decision making (Casey, 1980; Abdel-Khalik, 1973).

of leased property is classified as capital lease with a corresponding liability in financial statements of the lessee.

The "substantial transfer of all benefits and risks of the property," according to SFAS No. 13, is evidenced by satisfying any one of the following criteria:⁹

1. the lease transfers ownership of the property to the lessee by the end of the lease term;
2. the lease contains a bargain purchase option;
3. the lease term is 75 percent or more of the estimated economic life of the leased property;
4. the present value of minimum lease payments is at least 90 percent of the fair value of the leased property, less any investment credit retained by the lessor.

The integrated effects of SFAS No. 13 on accounting for leases by lessees are that:

1. Under SFAS No. 13, most of the noncancelable noncapitalized leases, prior to SFAS No. 13, would qualify as capital leases.

2. In terms of disclosures, SFAS No. 13 reduced the detail of information in the footnotes of financial statements as compared with the required disclosure of APB No. 31, and ASR No. 147.

⁹ Paragraph No. 7 of SFAS No. 13.

3. Achieved symmetry in the treatment by both the lessee and lessor to a significant degree.

Consequences of SFAS No. 13: Users Versus Lessees

The net effect of the above changes from users' point of view is improving interpretation and comparison of lessees' financial statements. The inclusion of leased assets in the balance sheet provides a better measure of corporate capacities and assets used in generating current level of earnings. That, in turn, provides accurate accounting measures of corporate performance and profitability.

On the other hand, the inclusion of future lease payments as long term debt enhances the assessment of corporate financial position and liquidity measures. Both, the inclusion of lease assets and its corresponding liability in the balance sheet enhance the projection of future cash flows and the different claims on them.

While the adoption of SFAS No. 13 improves corporate disclosure and financial reporting, as viewed by users, lessee companies demonstrated great concern about the negative impact of SFAS No. 13 on their financial statements which in turn may lead to adverse economic consequences. Nakayama, Lilien, and Benis (1982), document the reactions of corporate response to the exposure draft which preceded SFAS No. 13 and demonstrated that managers were concerned about possible adverse

economic consequences to their firms. Examples cited by managers include: violation of loan agreements, loss of organizational flexibility, reduced credibility of the balance sheet, adverse effect on performance ratios, and increased difficulty in raising new capital. Abdel-Khalik et al. (1981), indicated that some firms reacted to SFAS No. 13 by renegotiating existing leases to avoid capitalization. The effects of capitalization/noncapitalization on lessee financial statements are illustrated in the next section.

Capitalization/Noncapitalization of Leases

The Effect on Lessees' Financial Statements

From financial reporting and presentation of financial statements, accounting for leases under capital lease as opposed to noncapital lease produces different financial results that significantly affect several categories of key financial variables.

Treating a lease as a noncapital (operating) lease results in charging each year's income by the annual lease rentals. There is no recognition of an asset and the related liability. In contrast, treating the lease as a capital one results in:

1. recording the lease as an asset and related liability at the fair market value or the present value of minimum lease payments, if lower;
2. charging current income for interest expense

on the lease obligation balance, and a depreciation expense for the use of the assets;

3. in the balance sheet, there appears a lease-related current liability (the portion of lease payments due within a year), and other payments as long-term debt;

4. in statement of changes in financial position lease related transactions affect both sources and uses of funds.

In Appendix A, a comparison between two firms, X and Y, is made to reflect the effects of different accounting treatments for leases on financial statements of lessee companies. Companies X and Y are identical in all aspects but accounting for the leased property. Company X considered the lease as a noncapital one (operating), while company Y considered it as a capital lease.

Table 1 (p. 30) presents a comparison summarizing results of Appendix A for (1) lease-related accounts; (2) key financial variables (ratios). The results presented in Table 1 indicate that firm X enjoys higher performance measurements, and a better liquidity position both in short-term as well as long-term as compared to firm Y. These differences emerged solely from the accounting treatment of the leased property by both firms, where firm X considered the lease as an operating one,

Table 1

Lease-Related Accounts and Key Financial Variables
(A Comparison Between Companies X and Y)
on December 31, 1976

	<u>Company X</u>	<u>Company Y</u>
<u>Lease-related Accounts</u>		
Property under capital lease	000	4,300,000
Obligations under capital lease	000	4,000,000
Interest expense	000	500,000
Depreciation expense	000	700,000
Annual lease rentals	1,000,000	
<u>Key Financial Variables</u>		
<u>Measures of Performance</u>		
Earnings per share	14 ⁰⁰	13 ⁰⁰
Return on total assets	15%	10%
Return on net worth	33%	30%
Return on invested capital	19%	13%
<u>Measures of short-term liquidity</u>		
Current ratio	2.3	1.1
Quick ratio	1.4	.7
Times interest earned	7.5	1.1
<u>Long-term liquidity (solvency)</u>		
Long-term debt to equity	1.1	3.3
Long-term debt to net worth	.9	2.5
Long-term debt to invested capital	.5	.72

while firm Y accounted for it as capital lease, although the lease conditions are the same for X and Y.

On the other hand, the results also indicate the damage that would be brought to X's financial statements had firm X complied with SFAS No. 13, i.e., considered the lease as a capital lease. The magnitude of such negative effect would be higher under cases where lessee companies exhibit growth in leasing activities (which was the case prior to SFAS No. 13).

Empirical findings in this study show that reported debt would increase significantly had noncapitalized financing leases capitalized. Appendix B presents the impact of capitalizing off-balance sheet financing leases on reported corporate debt. An increase in outstanding debt of 20 percent or more in 52 percent of the cases, and an increase of 10 percent or more in 75 percent of the cases was found.

SFAS No. 13: Effective Date and Application

In order to achieve effective comparison between financial statements of lessees, and between different periods of each lessee, the FASB initially required a retroactive application of SFAS No. 13 on its effective date, January 1, 1977. Lessees demonstrated dissatisfaction of the retroactive application of SFAS No. 13, because of the expected impact on both outstanding debt and retained earnings. The retroactive application of SFAS No. 13 would

require capitalization of leases that have been accounted for as operating leases. That capitalization, in turn, would increase significantly the outstanding debt, and the cumulative effect on annual net income would reduce retained earnings. Both, the increase in outstanding debt and reduction in retained earnings may cause violations of existing contracts; e.g., debt covenants, and management compensation and performance.

The following are examples of the effects of lease capitalization, had SFAS No. 13 applied retrospectively on January 1, 1977, on both outstanding debt and net income.¹⁰

	%	%
	Increase in Outstanding Debt	Decrease in Net Income
J.C. Penny	89	24
Albertson's Inc.	115	27.5
Chuck Full 'o' Nuts	78	35
Frontier Airlines	52	23

Because of the above noted effect, the FASB allowed a transition period of four years during which lessees could restructure existing agreements to avoid the negative consequences of complying with SFAS No. 13. However, the SEC in ASR No. 225 reduced the transition period to two years, in general, with exceptions for lessees that would violate existing debt covenants to extend the transition period for four years.

¹⁰These figures are based on lessees disclosures according to ASR No. 147, for the fiscal year ended 1976.

A comparison between what could have been the impact on lessees, had the retroactive application of SFAS No.13 took place immediately, with the actual impact after the transition period indicates that lessees have taken offsetting actions to minimize the effects of complying with SFAS No. 13. For example, J. C. Penny discloses in 1976 that the present value of noncapitalized leases is \$ 1.6 billion, and the present value of noncapitalized financing leases only is \$ 1.0 billion. These leases, if capitalized would reduce net income by 24 percent, and retained earnings by 4 percent. However, subsequent disclosures by J. C. Penny showed that the company capitalized only one third of these leases, and the impact of the capitalization on retained earnings is only 2 percent. In fact, the survey study of Abdel-Khalik (1981) shows that some lessees have taken actions to minimize the effects of SFAS No. 13 on financial statements.

CHAPTER IV

DETERMINANTS OF LESSEE ACCOUNTING FOR LEASES

Introduction

From the preceding analysis it is clear that, prior to SFAS No. 13, lessee companies enjoyed greater discretion in the accounting treatment of leases, as the criteria of identifying capital lease were loose. Some lessees chose operating lease accounting, while some others chose capital lease accounting. In this chapter, the study provides conceptual analysis for the following question: Prior to SFAS No. 13, why did some firms which qualify for capital lease, as of SFAS No. 13, choose operating lease accounting, while some others choose capital lease accounting?¹¹

Because of the complexity of the subject, and in order to reach clean interpretation, the analysis is made for two groups of lessee companies. Group One includes companies classifying all their leases as capital leases before the promulgation of SFAS No. 13 and that continued

¹¹Implicit in that analysis is the assumption that SFAS No. 13 is the true criterion. That assumption is legitimate as long as SFAS No. 13 is the prevailing and acceptable criterion.

to do so afterwards. Group Two includes lessee companies that had all their leases accounted for as operating lease accounting before SFAS No. 13, but must capitalize them in order to comply with the new rule. These two groups and the event are illustrated in Figure 2 (p. 36).

Determinants of Lessee Accounting
for Leases

Four simultaneous hypotheses, which are derivatives of the agency model, are provided as the determinants of lessee accounting for leases.

1. Corporate Performance, Industry Barriers to Entry,
and Political Costs

From the agency-principal relationship, effective performance by the agent is a necessary condition for continuing the contractual relationship (Williamson, 1964). Performance levels are employed in most agency monitoring models (Ross, 1973; Fama, 1980) to motivate the agent to behave in the best interest of the principal or to minimize actions of wealth transfers (Smith and Warner, 1979).

Parallel to the above, and under competitive markets, which are characterized by free exit and entry, corporate performance has dual and complex consequences (Stigler, 1963). Under unfavorable states, i.e., low operating performance, the firm may be forced to exit industry because of its inability to bear competition costs. On the other

Figure 2

Groups Under Analysis and The Event

<u>Experimental Group</u> Qualify but chose noncapital lease accounting	Qualify and must capitalize
SFAS No. 13	
1/1/1977	
<u>Control Group</u> Qualify and chose capital lease accounting	Qualify and must capitalize

hand, high operating performance of firms in specific industries provides signals for industry entry by rivals (Mansfield, 1962), and raises the probability of political costs (Watts and Zimmerman, 1978).

The net effect of both outcomes, high performance and low performance, is to reduce the long run welfare (wealth) of the agent unless actions of adaptive behavior are taken.

The agent seeks to adapt a performance reporting policy that maximizes his long run interest conditional upon the state of the nature. It is hypothesized that he would seek a reporting policy that enhances corporate performance, under unfavorable states, in order to satisfy the contractual relationships and to survive current competition with the assumption of improving actual operating performance in future periods. On the other hand, he would seek a reporting policy that masks (reduces) operating performance, in favorable states, to reduce the likelihood of political costs and rivals entry. Empirical findings in both economics and accounting support the above behavior.¹²

¹²See, for example, G. Stigler, "Capital and Rates of Return in Manufacturing Industries," A Study by the National Bureau of Economic Research, Princeton University Press, 1963; Y. Brozen, "Significance of Profit Data for Antitrust Policy," The Antitrust Bulletin (1969), pp. 119-139; F. Scherer, Industrial Market Structure and Economic Performance (Rand McNally College Publishing Company, 1970), pp. 213-238; J. Felton, "Concentration, Condition of Entry,

Accounting for leases can be used by lessee companies to achieve the above prescribed reporting policy through its effect on performance measurements. Return on capital is a common measure of performance in both economics and accounting (Stigler, 1963; Chen and Shimerda, 1981; Bernishen, 1978; Anthony and Dearden, 1978). Return on capital is directly affected by the accounting treatment for leases.

Under operating lease accounting, lease rental expenses are lower than the total of depreciation expense and the interest expense under capital lease accounting. On individual lease bases, the advantages of operating lease accounting over capital lease accounting will be offset in later years of the lease as the total of depreciation expense and interest expense are lower than annual rental expense. However, in cases where the company has a portfolio of leases of different dates and maturities,

and Profit Rates," Mississippi Valley Journal of Business and Economics (Spring 1966), pp. 1-13; M. Mann, "Seller Concentration, Barriers to Entry, and Rates of Return in Thirty Industries 1950-1960," The Review of Economics and Statistics (1966), pp. 296-307; Chen and Shimerda, "An Empirical Analysis of Useful Financial Ratios," Financial Management (Spring 1981), pp. 51-60. In Accounting, M. O. Connor, "On the Usefulness of Financial Ratios to Investors of Common Stock," The Accounting Review (April 1973), pp. 339-352; J. Harrigan, "Some Empirical Bases of Financial Ratio Analysis," The Accounting Review (July 1965), Gupta and Huefner, "A Cluster Analysis Study of Financial Ratios and Industry Characteristics," Journal of Accounting Research (Spring 1972), pp. 77-95; M. Gupta, "The Effect of Size Growth and Industry on the Financial Structure of Manufacturing Companies," Journal of Finance (June 1969), pp. 517-529.

which is the dominant case of companies used to lease, or in cases where the company exhibits growth in leasing assets, the advantages will be perpetually continued from one accounting period to another. The opposite analysis holds for capital lease accounting. From the above analysis, as shown in Table 1 before, operating lease accounting contributes to higher profits as compared to capital lease accounting.

The above analysis indicates that a low operating performance lessee is motivated to select operating lease accounting to improve reported profits and satisfy contractual or monitoring processes, while a high performance lessee is motivated to select capital lease accounting to reduce signals of abnormal profits thereby reducing future competition costs of rivals, and likelihood of political costs.

With the above analysis accepted, the following hypotheses can be stated:

HO₁₁: There is a positive association between accounting profitability measures and operating lease accounting, and a negative association with capital lease accounting.

HO₁₂: Effective tax rates are positively associated with capital lease accounting but negatively associated with operating lease accounting.

Zimmerman (1983), using effective tax rates, demonstrated that successful firms bear the highest political costs. Effective tax rates are surrogates for political costs to the extent that taxes are not systematically offset by nontax components like antitrust regulations, government subsidies, and import quotas and tariffs.

Mansfield (1962) provided a model for determinants of industry entry. In his model, high returns on capital are found to be significant explanatory variables. Brozen (1969) argued that high profit rates are motives for antitrust actions.

2. Management Compensation Plans

In the agent/principal model, conditioning the agent compensation (or part of it) on the outcomes of his decisions is considered a monitoring mechanism that would induce the agent to behave in the best interest of the principal (Ross, 1973; Holmstrom, 1979; Shavell, 1979, and Fama, 1980).

In practice, several procedures can achieve the above principle, the conditioned compensation. One procedure is the "market wage revision," introduced by Fama (1980). According to his model, managerial services are to be valued by the market through corporate performance and productivity. However, that procedure

requires the existence of "efficient market" for managerial services, and the ability to trace the history of the individual manager or teams of managers over time.

One common procedure is the use of accounting measures of performance like sales, gross margin, or net income. Empirically, it was found that the majority of corporate incentive plans are based on some sort of accounting profit measures. For example, Watts and Zimmerman (1978) found 65 percent of their sample employing accounting income in the compensation plan. Collins et al. (1981) found that most of the firms in their study used accounting income in compensation base. In this study, preliminary examination of the sample revealed that 212 firms of the base sample (337) have compensation plans tied to accounting income.

Within the latitude allowed by accounting practices, one can infer that managements that have compensation schemes based on accounting income are motivated to select the accounting practice that maximizes the compensation base, and hence their compensation income. Underlying that inference is the assumption that compensation schemes are not adjusted for the effects of differences in accounting methods. To conclude on the validity of that assumption is really an empirical matter. However, in this study the examination of the compensation schemes of the base sample revealed on, only, two companies that

require compensation base to be adjusted for effects arising from accounting changes. That finding indicates that the majority of firms do not adjust compensation schemes to differences in accounting policies. Also, existing literature argues that nonmanaging directors have low motives to adjust compensation schemes because of the associated costs of reaching new agreements (Watts and Zimmerman, 1978; Hagerman and Zmijewski, 1979).

In relation to lessee accounting policy decision for leases, and based on the above analysis, the following hypothesis can be stated:

HO₂: Lessee companies with management compensation schemes based on accounting income have motives to select operating lease accounting to increase net income, and hence managers' compensation income.

Accounting for leases under the operating lease method enhances net income and reduces total assets. With this treatment, corporate profitability (the compensation base) is enhanced, and so the rate of return on total assets.

From the analysis of the compensation schemes of firms in this study, it was found that the majority of companies condition the granting of the compensation upon the excess of income over a predetermined rate of return on average stockholders' equity or average total assets

for the accounting period. For example, the Phelps-Dodge Corporation's incentive plan says:

...the amounts credited to the plan are limited in the aggregate to no more than 3% of that part of consolidated net income which is in excess of 7% of stockholders' equity.

Also, the PPG Industries Inc.'s incentive plan says:

...the plan stipulates that the yearly provision may be a maximum of 3% of consolidated earnings, provided that such earnings are 6% of average capital.

Other companies put it as percentage of net income. For example, Sears Roebuck and Co. says:

...the company and subsidiaries contribute each year 11% of consolidated net income to the plan .

Ball and Foster (1982) criticize the use of management incentive plans based on income as the only implications of accounting income on managerial remuneration. They argued that:

...because a plan does not explicitly include profit sharing based on accounting income, does not mean that accounting income is not implicitly or explicitly used in determining the base salary, the stock options granted, or promotion positions.

This criticism is intuitively valid. However, this study is based on public information, and since minimal disclosure (if any) is available about the use of accounting income in stock options granting or base salary, the researcher is not able to pursue the implications of accounting income to other sorts of management remunerations but

disclosed incentive compensation plans. The implications to other parts of management remunerations can be investigated through questionnaire research.

3. Debt Financing and Debt Covenants

Corporations are motivated to employ debt in financing their investments and operations for economic and behavioral reasons (Jensen and Meckling, 1976; Chen and Kim, 1979). In order to minimize actions of wealth transfer or claim dilutions, debt holders usually impose restrictive debt covenants to constrain the negative behavior of the debtor. Most debt agreements are made in terms of key financial variables, and that those key financial variables be consistent with generally accepted accounting principles (Smith and Warner, 1979).

Examples of debt agreements include a prescribed ratio of income to interest expense, a maximum dividends payout ratio, and maintaining a specific debt to equity ratio. Furthermore, covenants for production investment decisions take the form of prohibiting the borrower from incurring (or permitted to have outstanding) current or funded indebtedness or lease liabilities in excess of specific percentage of net tangible asset (Folgeston, 1978).

Accounting for leases under capital lease decision significantly increases the following accounts: total tangible assets, long-term liabilities, interest expense, depreciation expense, all of which worsen corporate

financial ratios of:

- long term debt to equity interest;
- long term debt to total assets;
- long term debt to tangible assets;
- times interest earned;
- current ratio, etc.

In contrast to the above results, treating a lease as operating one produces just the opposite; i.e., improves all long-term debt to equity (or assets) ratios, times interest earned, and current ratio. Again, the results in Table 1 and Appendix A emphasize these differences.

To the extent that both accounting treatments were acceptable, prior to SFAS No. 13, and that most debt agreements are defined in terms of financial ratios, the following hypothesis can be stated:

HO₃: Lessee firms that heavily employ debt financing and subject to restrictive debt covenants have motives to avoid lease capitalization (select noncapitalization accounting), while lessee firms of low debt financing or mainly equity financing are indifferent.

Empirical results of prior research support this hypothesis. Dahalwill (1980), Holthausen (1980), Leftwich (1980), and Bowen et al. (1981), concluded that utilization

of key financial variables in debt granting and debt covenants is an important factor in management's choice among accounting alternatives.

Related to the above hypothesis is the question of whether debt holders (grantors) do understand differences in accounting procedures. Stated differently, would the loan officer in a bank stop granting firm X (in Appendix A) a loan had firm X capitalized its lease? The answer to this question is really an empirical one. However, corporate choice of capitalization/noncapitalization is based on management's perceived behavior of others. Management believes in the functional fixation of financial statements by users (Abdel-Khalik and Keller, 1979). Furthermore, current research (partially) answers this question. Sommer (1980) found that financial analysts and bank officers do not understand the efficient market mechanism, and if they do, they do not believe in it. Also, Abdel-Khalik (1981), when asked financial analysts to evaluate the debt paying ability of two identical firms, but that differed in their accounting for leases, the noncapitalizing firm was ranked higher. If we accept these results, then corporate management's perceived behavior of accounting information users is justified.

4. Growth in Leasing Assets

As indicated earlier, on individual lease bases

the advantages of operating lease accounting will turn around in later years of the lease. To magnify and extend the advantages of operating lease accounting for long run cycles depends on growth in leasing activities by the lessee company. The economic consequences and potential benefits of the operating/capitalizing to managers are directly related to the growth in leasing activities.

HO₄: Lessee companies which exhibit growth in leasing activities have higher motives to select operating lease accounting.

CHAPTER V

THE ECONOMIC IMPACT OF SFAS NO. 13 ON AFFECTED LESSEE COMPANIES

Introduction

The second issue to be investigated in this study is the economic consequences of mandating SFAS No. 13 on affected lessee firms. Specifically, the objective of this chapter is to provide a conceptual analysis for the following questions: what are the economic impacts of mandating SFAS No. 13 on firms that were required to change their accounting method for leases, from operating to capital lease accounting, and why such impacts would be expected on ex ante bases? The study hypothesizes that capitalization of leases may induce alterations in corporate financing and investing policies. These, in turn, produce economic consequences in terms of debt financing and growth realization.

The Economic Consequences of SFAS No. 13

Within the Market Valuation Model (MVM) and the Efficient Market Hypothesis (EMH), discretionary variations in accounting procedures have been viewed as irrelevant to equity market valuations. This view was supported by

a substantial empirical research which concluded that discretionary accounting changes are cosmetic in nature in relation to the market behavior¹³ (Archibald, 1972; Ball, 1972; among others). Although these results confirm market efficiency, that the market reacts to change in the economics of the firm rather than to changes in its reporting system, mandatory accounting changes may convey information content. Furthermore, under specific conditions, mandatory accounting policy may influence the economics of the firm.

The above proposition is based on two factors: the first is information refinement, and the second is expected alterations in managerial behavior and corporate economics.

Information Refinement

In the market model setting, the establishment of market-wide parameters as well as firm-specific parameters is dependent on all publicly available information at any state. Financial statements are one source of such publicly available information. Variations in accounting practices require time and efforts on the part of market

¹³ Except for cases which can result in actual cash flow effects like the switch from FIFO to LIFO of inventory valuation.

participants to scale and disseminate financial statements. These time and efforts impair some of the assumptions underlying MVM like the cost-free information assumption.

Mandatory accounting policy may cause refinement of market participants' assessment of security returns in two ways: (1) if the information provided is in itself new (Gonedes and Dopuch, 1974). For example, the disclosure requirements under "Reserve Recognition Accounting" for the oil industry¹⁴ may provide new information about reserve oil and gas at time (t), and hence may cause alterations in the assessment of future cash flows, and (2) accounting information becomes easier to obtain, and cost-free. That in turn may improve the valuation system (if any), that accounts for confounding and costly information.

In the case under consideration, SFAS No. 13, information refinement hypothesis does not have great potential since the information called for by SFAS No. 13 was available to the market under the disclosure requirements of ASR No. 147, and APB Statement of Opinion No. 31.

Alterations in Managerial Behavior and Decisions

From the agency model, it was discussed earlier that management chooses the set of accounting policies

¹⁴After SFAS No. 19 was amended, the SEC in ASR 269 required disclosures of operating results and financial position based on proved reserve of oil and gas.

that minimizes the agent costs of monitoring/contracting processes. Given the firm already selected its (perceived) optimal accounting policies that go along with its investing and financing policies, it was hypothesized that a contrary mandatory accounting change may cause change in management behavior and decisions.

The argument of managerial behavior and decision-making change, in response to contrary mandatory accounting policy, was demonstrated by corporate managements in several research findings. In response to the announcement of SFAS No. 19, "Accounting for Oil and Gas Producing Companies," affected firms demonstrated concern that the change from "Full Cost Accounting" to "Successful Efforts Accounting" will cause "full cost" firms to reduce exploration and development activities.¹⁵ Similarly, affected multinational companies argued that the adoption of SFAS No. 8, "Accounting for Foreign Currency Translations," may cause reduction in foreign operations and foreign subsidiaries' investments.

Empirical findings of current research support the above argument to some extent. For example, Evans et al. (1978), concluded that SFAS No. 8 has had an impact on investment and financing policies of affected multinationals:

¹⁵For example, Department of Energy Hearings, Feb. 21, 1978, Statement presented by John Chalsty, managing director of Donaldson, Lufkin & Jenrette Securities Corporation.

Some firms reported that they have refrained from making investments that were otherwise acceptable. Others have adjusted their investment "hurdle rate" due to exchange risk. The quarterly reporting of exchange gains and losses had led a number of firms to accelerate dividend payments from subsidiaries in weak currency countries to reduce exposure (p. 20).

Abdel-Khalik (1981) reached a similar conclusion regarding management response to SFAS No. 13, Accounting for Leases:

1. The majority of the survey respondents indicated that the terms of new lease contracts were structured to avoid capitalizations.
2. About 30 to 40 percent of the respondents indicated that there was an increase in buying or constructing assets instead of leasing them.
3. About 45 percent of the users and auditors and about 10 percent of chief financial officers indicated that existing lease contracts were renegotiated to avoid capitalization.

It should be noticed that although survey studies support the argument of managerial behavior change, results of security price reaction studies are inconsistent. Some studies observed no significant market reactions to the regulation of specific accounting policy.¹⁶ For example, Dyckman and Smith (1979), concluded that no adverse market reaction to the exposure draft of SFAS No. 19 on "full

¹⁶For extensive review of inconsistent empirical results of market reactions to the regulation of accounting policies, see Lev and Ohlson (1982), Journal of Accounting Research, Supplement 1982, pp. 241-322.

cost" firms. Dukes' (1978) research report concluded that no price adjustments of multinationals' security for the enactment of SFAS No. 8, Accounting for Foreign Currency Translation. Also, Abdel-Khalik (1981), did not find significant security return reaction to the promulgation of SFAS No. 13. To the contrary of the "no reaction" results, some researchers found, for the same events above, significant market reaction. For example, Lev (1979), and Collins and Dent (1979), for the oil and gas accounting, and Ro (1978), and Bowman (1980), for lease accounting.

These inconsistencies can be attributable to one or both of (1) lack of theoretical link between the expected accounting impact and the market model (Foster, 1980), and (2) the use of crude methodology that is unable to detect interaction between various variables (Abdel-Khalik and Keller, 1979).

In this study, three hypotheses are considered for the link between lease accounting regulation, managerial behavior, and the market valuation model. Also, some screening methodological steps will be taken in terms of portfolio construction and testing process. The linking hypotheses are:

- debt financing and debt capacity displacement;
- alterations of growth opportunities realization,
- and

- unknown course of actions against the new lease accounting alters the risk of stockholders.

1. Debt Financing and Debt Capacity Displacement

Within the MVM, corporate debt capacity and its associated debt tax savings are impounded in establishing the value of the firm (Miller and Modigliani, 1964; Hamada, 1972, and Bowman, 1979). They argued that the value of a levered firm is higher than unlevered firm by the present value of debt tax savings. That relationship can be expressed as:

$$V_L = V_U + PVTS, \quad (1)$$

where:

V_L = value of levered firm

V_U = value of unlevered firm

PVTS = present value of debt tax savings.

To the extent that lessee companies who employ debt financing, use operating lease accounting to relax the constraints of debt covenants and enhancing their ability to raise capital, PVTS can be dependent (to some extent) on operating lease accounting.

Capitalization of leases with related liability on a dollar per dollar basis, and retroactively applying the same principle for leases prior to 1977, would significantly increase the percentage of corporate capital financed by debt as related to total assets or net worth. Therefore, complying with SFAS No. 13 displaces debt

capacity of existing as well as future capital assets. Existing literature partially supports that argument. Abdel-Khalik et al. (1978), in testing for bond premium and bond default revisions to the disclosures of ASR 147, concluded that "some firms with material noncapitalized financing leases have enjoyed a relatively lower assessment of their default risk and that present value footnote disclosure has not altered this position (p. 151). Elam (1975) concluded that the inclusion of off-balance sheet lease financing did not improve ex post bankruptcy predictions. Also, Abdel-Khalik (1981), when asked financial analysts to value the paying power of two identical firms, but accounting for leases, the analysts ranked non-capitalizing firms as of higher paying power. Leftwich (1983), by examining debt agreements as used in private placements, found that GAAP was still the base of building debt covenants, although minor adjustments may take place.

The above argument is better illustrated by referring to Table 1 or Appendix A. Firm X is currently enjoying debt capacity of .5 of its net worth. Assuming .5 is the average industry requirement, this percentage would increase to .72 had firm X capitalized its lease, producing a reduction in debt capacity of .44. To cope with the new condition, firm X has to take one or more of the following actions: (1) convert some of the existing debt into equity; (2) issue new equity capital; (3) redeem

outstanding debt, or (4) renegotiate debt holders to avoid technical default. All of these actions have economic consequences that result in loss of debt tax savings (cash flows) or incurring cash outflows in case of re-negotiating existing debt covenants (i.e., higher interest rate).

2. Growth Opportunities Realization: Altering Its Probability Distribution

Under the MVM, the value of the firm at time (t) is a function of its expected cash flows in the future. Expected future cash flows can be partitioned into two components: (1) cash flows from assets already in place, and (2) cash flows from growth opportunities facing the firm. That relationship can be expressed as:

$$V_{it} = f(\text{ECFAP}, \text{ECFGO}) \quad (2)$$

where:

V_{it} = the value of firm (i) at time (t)

ECFAP = expected cash flows from assets already in place

ECFGO = expected cash flows from growth opportunities facing the firm.

Financial statements provide information about the earning power of assets in place. Hence, these statements help the market in assessing ECFAP. The link between lease accounting and ECFGO comes from the fact that undertaking growth opportunities is discretionary to management. Capitalization of leases by affected lessees, who have

significant off-balance sheet lease financing, increases the agent (management) costs of debt (through increased probability of technical default, reduction of debt capacity), equity (through reduced profitability), and opportunity costs of lost incentive compensations of reduced profitability measures.

The adoptive behavior of the agent, under these circumstances, may lead to reconsidering the investment policy (Jensen and Meckling, 1976, and Myers, 1977). Management of affected lessee companies may adjust their investment "hurdle rate of return," since debt financing became costly (or less available). Management may become of higher risk averse because of higher accounting exposure under capital lease accounting. The overall effect of the change is that management may refrain from taking investment opportunities that were acceptable. Thus the accounting change may have altered the probability distribution of growth opportunities facing affected lessee companies.

3. Unknown Course of Actions by the Agent: Altering the Risk of Stockholders

Given the two hypotheses analyzed above, debt capacity and growth opportunities are not rejected; one can conclude that SFAS No. 13 could have produced (some) economic consequences, unless some offsetting actions were taken by management of affected firms.

Investors possess minimal information about the (specific) actions that management will take in face of the new requirement. From investors' point of view, securities of affected firms became of higher risk class. For these securities, investors can be motivated to eliminate them, and construct portfolios from the subset of securities they possess full information about (Levy, 1978; Collins et al., 1981). With the majority of investors doing so, securities of affected firms suffer a price decline.

On the other hand, if management is aware of such investor behavior, management can take efforts to assure to the investing society that the new policy will not affect corporate financing or operating activities, but this is also still a costly process that requires additional cash outflows.

CHAPTER VI

RESEARCH DESIGN

This study has two phases: the determinants of lessee accounting decision, prior to SFAS No. 13, and the economic impact of mandating SFAS No. 13. Since testing the hypotheses of each phase requires different processes, the research design of each phase is carried independently.

Phase I

Determinants of Lessee Accounting for Leases

Sample and Data

As indicated earlier, this study concentrates on two groups of lessee companies: lessee companies which were qualified for lease capitalization, as of SFAS No. 13, but chose noncapitalizing accounting as compared to lessee companies which were qualified and chose capital lease accounting.

Companies included in the Accounting Trends and Techniques (AT&T) of 1977 represent the base sample of this study. AT&T provides annual analysis for accounting techniques on a sample of 600 firms. The choice of the 1977 edition is rationalized on the basis of (1) the 1977 edition provides an analysis for fiscal year ended in 1976. Nineteen-hundred-seventy-six is the most recent

year prior to the effective date of SFAS No. 13, where the researcher was able to access the annual reports and the form 10-K's of lessee firms, and (2) up to 1976, the criteria for lease classification were loose and lessee firms enjoyed discretion in accounting policy choice.

AT&T of 1977 provides a breakdown of the 600 firms' accounting method. Table 2 (p. 61) summarizes this breakdown.

From the summary in Table 2, it is clear that groups A and B use distinctive accounting methods. Group A used capital lease accounting for all leases while group B used operating lease accounting for their leases. Group C used a mix of accounting methods. Group D appears to have no leasing activities. Groups C and D were deleted from the sampling process because of unclearness of membership. Four companies that are defined in AT&T of 1976 as capitalizers were added to Group A. The 41 firms of Group A represent the control sample in the study. To identify the experimental group, a follow-up of the 300 noncapitalizing firms was made for fiscal years 1977 through 1979. That follow-up revealed of 113 of these firms subsequently restated their financial statements for leases accounted for as operating ones before SFAS No. 13. These 113 firms, according to this study, have used their discretion to avoid lease capitalization. The empirical testing is carried in the rest of this study for the 41 capitalizing against the 113 noncapitalizing.

Table 2

Breakdown of AT&T 600 Firms According to
Lease Accounting Method

Group	Accounting Method	Number of Firms
A	All leases capitalized	37
B	All leases noncapitalized	300
C	Capitalized and noncapitalized	164
D	No lease disclosure	<u>99</u>
	Total	600

After group membership was determined, firms were screened against the following criteria too: (1) no engagement in merger or acquisition activities for the period of 1976-1979; (2) data availability in annual reports and 10-K's for the period of 1971-1979.

Data about measuring variables and the retroactive application of SFAS No. 13 were obtained from annual reports and 10-K's. In some cases, like management compensation plan, the proxy statements were the main source.

Measuring Variables

In order to empirically test the hypotheses stated in this study, it is necessary to operationalize them into some measuring variables in the selected statistical model.

Corporate performance and industry barriers to entry will be measured by corporate rate of return on total assets. The reason for using total assets instead of equity capital is to be close to economic definition of capital, all capital needed to have an asset (firm) in operating condition and generating cash flow. Also, it provides a measure of managerial success of utilizing all capital available, equity and debt. Sensitivity to political costs will be measured by effective tax rates (Zimmerman, 1983; Fama, 1981, and Gonedes, 1981). Effective tax rate is only one version of political costs. Other political costs/benefits include antitrust, regulation,

government subsidies and contract, and import quotas and tariffs. However, effective tax rates are not systematically offset by the nontax components. Thus it can be considered a surrogate for all political costs. Although corporate size has been used as surrogate of political costs in many studies, current evidence indicates that size is an imperfect surrogate of political costs (Holthausen and Leftwich, 1983; Zimmerman, 1983). Effective tax rates are defined, in this study, as tax expense adjusted for "deferred income tax" changes divided by the current gross profits. An average of two fiscal years (1975 and 1976) is used.

Management compensation plan is measured by a dummy variable. Depending on the existence of a compensation plan defined in terms of accounting income and profitability, that variable will take a value of one, if management compensation plan exists, and zero if not. Ball and Foster (1982) criticized the use of dummy variable (zero, one) for the effect of profits on accounting choices. They argued that other components of compensation like base salary, stock option granting, and promotion proposals are directly or indirectly affected by accounting income. However, financial statements do not provide information about the relationship between profitability and other components of the compensation schemes. The implication of Ball and Foster's argument can be tested through questionnaire surveys, which are not considered in this study.

Debt financing and debt capacity displacement are measured by a surrogate of corporate capital structure. Long term debt to total assets or equity capital are common financial ratios of capital structure. Long term debt to total equity ratio is used in this study. Since lease liabilities are included in outstanding debt of capitalizers, present value of noncapitalized financing leases of noncapitalizers are added to reported outstanding debt to have a comparable debt measure of both groups. Present value of noncapitalized leases is obtained from footnote disclosure according to ASR No. 147. The book values of long term debt and equity capital of the years 1975/1976 are used in calculating the leverage ratio. Although some researchers (Ben-Zion and Shalit, 1975), argue that the market value of equity capital should be used, the researcher preferred book values, since all hypotheses are made in terms of accounting-based variables.

Growth in leasing operations is measured by the percentage change in leasing assets. Since capitalizers include lease payments in long term debt and no disclosure about annual rental payments, and on contrary, noncapitalizers disclose about annual rental payments entered into the determination of net income, an identical criteria of measuring growth in leasing for both groups are not available. For capitalizers, growth in leasing is measured by the average percentage change in lease

liabilities, as reported in the balance sheet, over a five-year period, 1972-1976. For noncapitalizers, growth in leasing is measured by the average percentage change in lease rentals over a five-year period, 1972-1976.

Model Specification

Two tests will be performed to examine the hypotheses of corporate accounting treatment for leases:

1. a characteristics discriminant test;
2. a response regression test.

1. The Characteristics Discriminant test:

A primary way to test the above hypotheses is the ability to differentiate between lease capitalizing firms and lease noncapitalizing firms in terms of the variables discussed above. The minimum the prediction errors (classifications) of corporate choices, based on the measuring variables, as compared to actual classification, the higher the validity of the hypotheses. The discriminant analysis function constructs a linear compound of index ($a'x$) for summarizing observations from the group on an one-dimensional scale that discriminates between the populations by some measures of maximal separation.¹⁷

¹⁷ For detailed description of the discriminant function, see Morrison, Multivariate Statistical Methods, New York: McGraw-Hill, 1976.

In its main criteria, the discriminant function would solve for the coefficients (a') of the index (a'x) such that maximizes the differences between means; i.e., gives the greatest squared critical ratio.¹⁸ In the theoretical form, the discriminant function creates an optimal log likelihood ratio based on prior probability (Y*) of the dependent variable, and optimal coefficients for the measuring variables, such that:

$$Y^* = A_0 + A_1 X_1 + A_2 X_2 + A_3 X_3 + \dots + A_P X_P.$$

For firm i, if the calculated Y_i is equal or greater than Y^* , the firm will be classified as an outcome, say lease capitalizing firm, and be classified as noncapitalizing firm if Y_i is lower than Y^* . The differences between actual classification and predicted classification are the errors produced by the model, and the ratio of correct classifications to total sample is used as indicator of the predictive ability of the model; i.e., how valid are the hypotheses of the study.

2. The Response Regression Test: The discriminant function enables the researcher to test hypotheses regarding different financial characteristics and the degree of accuracy for classifying firms in terms of these characteristics. However, it does not provide

¹⁸The critical ratio is calculated as follows:

$$t^2(a) = \frac{a' (X_1 - X_2) \sqrt{N_1 N_2 / (N_1 + N_2)}}{a' S a}$$

a test for the dependency relationship for the choice of the accounting policy and the hypothesis stated in this research. The research model that fits the dependency analysis is the Ordinary Least Squares (OLS) Regression Model (Gujorati, 1978). Although the OLS is the appropriate model for testing dependency, it does not fit data base in this research. The data base deviates from the OLS assumptions in several points. For example, the assumption of continuous random variables, and homoscedasticity.

The alternative regression model that fits the data base in this study is the "Probit" model. "Probit" is one of the linear probability models that are designed to fit qualitative variables which take dichotomous or (N chatomous) outcomes (Judge et al., 1978). The analysis of inconsistency of data base and OLS, and the description of Probit are presented in Appendix D. The Probit model was adopted by Tobin (1958), for economic analysis and then expanded to be used in other areas such as behavioral science, and in accounting research by Harring (1979), Hagerman and Zmijewski (1979), and by Lilien and Pastena (1982), among others. The main criterion of the Probit model is to transform the discret-variable (0, 1) into a continuous one that fits the regression assumptions.

In terms of our hypothesis the Probit multivariate model will take the form:

$$Y_i = A + B_1 (\text{ROI}) + B_2 (\text{MCP}) + B_3 (\text{DER}) \\ + B_4 (\text{ETR}) + B_5 (\text{GL})$$

where:

Y_i = the probability that firm i will choose non-capitalizing lease treatment given its specific explanatory variables. In input format, Y_i takes a value of zero for capitalizers and one for noncapitalizers.

ROI = return on invested capital, measured as:
net income + interest expense (1-tax rate)/
total assets.

MCP = management compensation plan, a dummy variable taking 1 if MCP exists and 0 otherwise.

DER = debt to equity capital ratio, measured as
long-term debt/total equity capital.

ETR = effective tax rate, measured as: tax expense
adjusted for changes in deferred income tax/
gross profits of the year.

GL = growth in leasing activities, measured by
average percentage change in lease rental
or lease liabilities for a period of five
fiscal years, 1972-1976.

A = model intercept.

B_i = regression coefficients of the explanatory
variables, $i = 1 \dots 5$.

Phase II

Economic Impact of SFAS No. 13

From the analysis provided in Chapter V, one may state the following hypothesis:

Under the conditions of (1) debt financing and debt covenant; (2) existence of growth opportunities; (3) existence of agency/principal relationship, and (4) the use of accounting variables by other joint input factors; mandating SFAS No. 13 may have altered management behavior and the optimal mix of financing/investing policies of affected lessee firms. Hence, the adoption of SFAS No. 13 had some economic relevance.

There are two ways to test the above hypothesis. The first is to ask managements about "what was the course of actions they took to cope with SFAS No. 13?" The second procedure is to conduct a market test for the security prices around the announcement of the new rule, SFAS No. 13. The first type reflects managerial attitudes towards accounting policies and consequence behavior. Abdel-Khalik (1981) used questionnaire survey and found some lessee companies changed their decision behavior. The second procedure reflects the rationale investor's perceived expectations about managerial behavior and corporate economics.

In this study, the market test is used for practical reasons and rational ones as well. From the practical

side, there is a tendency for low rate of response for survey questionnaire, unless the survey is supported by some professional organizations like the American Accounting Association, or Financial Accounting Foundation. Hence, limited conclusions can be drawn from empirical results. Also, the market test has been widely used as a test for the economic impact of regulated accounting rules.¹⁹

Sample and Portfolios

The sample selected in Phase I, the 41 control and 113 experimental, are used here with additional screening criteria. The additional screening is for data availability on CRSP daily security market returns. After that screening the final sample became 36 capitalizers versus 87 noncapitalizers.

Most research on market reaction to accounting changes (discretionary or mandatory) constructed portfolios of experimental samples in terms of security systematic risk, i.e., high risk versus low risk. By so doing, they failed to test for the hypothesis or the rationale stated in their analysis (Foster, 1980). For example, Dyckman and Smith (1979), and Collins and Dent

¹⁹ See among others, Dyckman and Smith (1979); Dukes (1978); Lev (1979), and Abdel-Khalik et al. (1978).

(1979), argued that because of the impact of SFAS No. 19 on financial statements, Full Cost firms, using debt in financing their operations, may reduce their exploration and development activities because violating existing debt covenants and the difficulty to raise capital. However, they based their conclusions on average abnormal return of the total experimental group, as one portfolio, against the average residual of the control group, although firms in the experimental group might exhibit different levels of sensitivity to debt covenants. Dukes (1978), in testing for economic impact of SFAS No. 8, constructed experimental portfolios in terms of the levels of systematic risk.

To avoid the above common criticism in this study, portfolios are constructed in terms of the necessary conditions for SFAS No. 13 to have economic impact on affected lessee companies, levels of debt financing, and growth opportunities facing the company. Four portfolios are constructed in terms of debt and growth. Table 3 (p. 72) illustrates the partitioning of the experimental sample into four portfolios. Growth opportunities are measured here by using the Value Line predictions of growth in earnings for the next 3-5 years. The 1976 edition of the Value Line predictions is used. Another candidate of measuring growth opportunities is the rate of growth in leasing activities. However, that

Table 3

Total Sample Partitioning:
Four Portfolios in Terms of Debt Financing and Growth

Debt Growth	High Debt Financing	Low Debt Financing
High Growth No. of Firms	HD & HG 23	LD & HG 21
Low Growth No. of Firms	HD & LG 21	LD & LG 22

growth in leasing is a historical measure of prior years' growth, while the hypothesis is dealing with future growth opportunities.

The Partitioning Process

1. The percentage increase in outstanding debt, had off-balance sheet leases capitalized, was calculated for each company. Firms were then ranked in a descending order. Companies in the highest half represent high debt financing portfolio, while the second half represents low debt financing portfolio.

2. Rate of growth in earnings is used to rank and partition firms in a similar fashion to debt above. Thus, high growth portfolios and low growth portfolios are identified.

3. Firms of high debt portfolio will take No. 1, while low debt portfolio will take No. 2. Similarly, firms of high growth portfolio will take No. 3, while low growth portfolio will take No. 4.

Now each firm has two identification numbers to identify its portfolio membership:

<u>Firm ID</u>	<u>Portfolio</u>
1,3	HD & HG
1,4	HD & LG
2,3	LD & HG
2,4	LD & LG

The above process is adopted from the one used by Black et al. (1972), to partition their sample into high risk versus low risk portfolios, and later by others.

Model Specification

Two tests will be conducted based on security market prices:

1. Unexpected returns: to investigate the existence of unexpected security returns;
2. Actual prices: to test whether there had been alterations in the distribution function of security returns before as compared to after SFAS No. 13.

Expected Prices: Researchers in accounting and finance have been using the market model to test for the impact of regulating accounting policies and disclosures on market expectations. The one factor model of Sharp-Lintner (1964), states that:

$$R_{it} = A_i + B_i R_{mt} + M_{it} \quad (4)$$

with the assumption that $E(M_{it}) = 0$; then

$$E(R_{it}) = A_i + B_i E(R_{mt}), \text{ and} \quad (5)$$

the unexpected return is

$$M_{it} = R_{it} - E(R_{it}) \quad (6)$$

where:

R_{it} is the market return on security (i) at time (t);

R_{mt} is the composite market return at time (t);

M_{it} is a residual term;

E stands for expectations, and

A_i & B_i are the model parameters.

The existence of significant cumulative abnormal return (CAR) is considered as evidence that firm specific events like earnings announcement or accounting policy change have had economic impact (Lev, 1979). However, the market model has been subject to some criticisms. For example, King (1969) showed that firm specific variance is more important than the firm's covariance with the market (B_i). Black et al. (1972) empirically found invalidity of the market model for low risk firms as compared to high risk firms. These disagreements introduce specification and measurement errors in the residual term. Thus, CAR cannot totally be attributed to the new event (e.g., accounting change). Researchers turned to a measure of security prices that avoids measurement and specification errors, the actual security price; i.e., ex post prices (Gonedes, 1975, and Hawavini et al., 1982).

Alterations in Security Returns Distribution Function

One way to avoid the problems of specification and measurement errors is to use actual data; i.e., to compare the distribution function of actual security returns before the new information with distribution function of

actual returns after the new information. Empirically, this procedure is reduced to a test in terms of the first two moments (parameters) of the distribution function, the mean and the variance.²⁰

Let θ_B be the set of information before the announcement of the exposure draft of SFAS No. 13;

θ_A be the set of information after the announcement of the exposure draft of SFAS No. 13;

then one can test the hypothesis of:

H_{01} : The distribution function of security returns of affected lessee firms is not different, after the announcement of the accounting policy, from the distribution function before the announcement. Equivalently, it can be stated in terms of mean variance as:

$$(M, \text{VAR}/\theta_A) = (M, \text{VAR } \theta_B).$$

²⁰This approach was used before by Gonedes (1974, 1975), and Ball and Brown (1968) to test for accounting earnings, and by Hawamini and Michel (Feb. 1982) to test for market reaction to new information.

For purpose of testing whether the rationale of this procedure provides advances over prior research (which is based on abnormal market return), both procedures are used in this study, the abnormal return test, and the alteration in the return's distribution function that is associated with the announcement of the new accounting policy.

The Regression Test

If the rationale stated for Phases I and II of this research (the determining factors of lessee accounting for leases, and the economic effects of mandating SFAS No. 13), are accepted, then by inference one would expect to find association between the economic effects (as measured by abnormal market return) and the determining factors. To state that inference differently, the more significant the determining factors (in the case of discretionary choice), the higher the abnormal return of mandating SFAS No. 13.

To test this hypothesis, one can regress the abnormal return as dependent variable over the determining factors as the independent ones. This type of testing was first used by Collins et al. (1980), and recently by Larker and Revsin (1983), to test for the economic determinants of market reaction to mandatory accounting changes. In our case, the model is:

$$\begin{aligned} \text{CAR}_i = a + b_1 (\text{ROI}) + B_2 (\text{MC}) + B_3 (\text{DER}) \\ + B_4 (\text{GL}) + B_5 (\text{ETR}) \end{aligned}$$

where:

CAR is the cumulative abnormal return of firm i , and measured by accumulating unexpected return at different intervals over the testing period.

Data and Testing Periods

Daily market returns of equity stocks will be used in this study to test for the economic effects of mandating SFAS No. 13. Prior research used weekly or monthly returns to test for market reactions to new events (information). However, I prefer daily returns because of its sensitivity to new information and direct attribution. Lev (1979) states that:

...daily flow of new information... renders a period of a week too long for taking a single return observation and attributing it to specific information item, i.e., the exposure draft... accordingly the impact of a signal can more clearly be identified on daily than on weekly data (p. 489).

Similarly, Foster (1978), provides evidence for the rapid daily stock price reaction to earnings announcements.

Data about daily returns will be obtained from CRSP daily returns tape, as well as from the record of daily closing stock prices published by Standards and Poor's Corporation.

For SFAS No. 13, if mandating such statement is expected to alter the decision-making of management, market valuation systems should reflect upon this expected

alterations of the agent behavior when information about that policy was first released; i.e., the date of the exposure draft.

There had been two exposure drafts which preceded the issuance of SFAS No. 13. The first was issued on August 26, 1975, and the second on July 22, 1976. In this study, the test is conducted for the period surrounding the announcement of the first exposure draft for two reasons: (1) if there were any economic consequences, these should have been anticipated when the regulation became first publicly known, and (2) there are no significant differences in the criteria set forth in the two exposure drafts. The testing dates are:

	Dates	No. of days
1. Period used for estimating the market model parameters for each firm;	6/10/75- 8/12/75	50
2. Test period day -10 to day + 10	8/13/75 9/11/75	21

CHAPTER VII

ANALYSIS OF EMPIRICAL RESULTS: DETERMINANTS OF THE CHOICE OF ACCOUNTING FOR LEASES

Introduction

In Phase I of this study, determinants of lease accounting choice, the null hypothesis stated that lessee choice of the accounting treatment is a function of return on investment, leverage, management compensation, growth in leasing activities, and corporate effective tax rate.

Several statistical procedures are employed to test the above hypothesis. Univariate statistics and the discriminant classification procedures are used to examine the hypothesis in terms of differences in lessees financial characteristics. Then a regression test, the probit multivariate, is employed to test the dependency or causality relationship. Tables 4 to 11 show the empirical results.

Financial Characteristics Differences

The Univariate Test

Table 4 (p. 81) presents the basic statistics, mean and standard deviations, of the measuring variables

Table 4

Univariate Statistics
of Capitalizers and Noncapitalizers

Variable	Capitalizers		Noncapitalizers		F-ratio	Signifi- cance
	Mean	STD Deviation	Mean	STD Deviation		
ROI	.09971	.03089	.05060	.02828	86.33	.0001
DER	.31763	.22759	.93769	.82317	22.55	.0001
MCP	.29268	.46065	.82301	.38336	51.55	.0000
GL	4.04878	24.18155	23.21239	28.60778	14.60	.0002
ETR	22.56098	10.52627	9.83186	7.60862	67.88	.0000

for both groups, capitalizers and noncapitalizers. As stated in Phase I of the study, the two lessee groups exhibit different financial characteristics. In terms of the measuring variables employed in this study, the empirical results support that hypothesis.

From Table 4, capitalizing lessees exhibit higher rates of return and effective tax as compared to noncapitalizers. Capitalizers have a .09971 rate of return, while noncapitalizers have .0506, and an effective tax rate of 22.56, while noncapitalizers have 9.831. These two variables, return on investments and effective tax rate, are the measures of political costs and competitions in this study. On contrary, noncapitalizers exhibited higher rates in terms of leverage, management compensation plans, and growth in leasing activities. Noncapitalizers have a debt/equity ratio of .937 as compared to .317 of capitalizers. For management compensation plan, the frequency of tying compensation to accounting income of noncapitalizing lessees are higher than capitalizers. Noncapitalizers have a mean MCP of .823 compared to .292 capitalizers. Also, noncapitalizers exhibit a higher rate of growth in leasing assets as compared to capitalizers. The average annual rate of growth in leasing activities for noncapitalizers is 23.21 percent, while for capitalizers it is 4.048 percent.

Furthermore, the differences between these

variables are statistically significant at levels less than .01. Based on these statistics, one fairly may conclude that, on average, noncapitalizing lessee companies exhibit different (worse) financial characteristics from those capitalizing.

Table 5 (p. 84) shows the correlation matrix of the measuring variables. Except for the case of return of investments and effective tax rate all measuring variables do not have severe correlation. The correlation between return on investment and effective tax rates is .37414, which is relatively high correlation rate. The high correlation between return on investments and effective tax rate indicates that they can be surrogates of each other, and that corporate success and political costs can be measured by either return on investments or effective tax rate. That issue is investigated in the regression test.

The Discriminant Classification Test

Another test of differences in financial characteristics is the discriminant classification test. The discriminant function calculates the optimal coefficient of each measuring variable, that maximizes differences or minimizes overlapping, between capitalizers and non-capitalizers. After that, the model uses these coefficients to predict group membership for each individual lessee firm.

Table 5

Correlation Matrix of the Measuring Variables
(Pooled Correlation)

	ROI	DER	MCP	GL	ETR
ROI	1.00000				
DER	-.23145	1.0000			
MCP	.04904	-.21166	1.00000		
GL	.00529	.02112	.14562	1.00000	
ETR	.37414	-.19913	.15120	.03462	1.0000

Table 6 (p. 86) shows the empirical results of the discriminant model and the predicted classification. The coefficients of the discriminant model are in the expected direction. The model is significant at .0001 level. The model also predicts correct classification of 86.36 percent for the sample. The results of the discriminant model, in this study, are on the same level or higher of prior research (Beaver, 1966; Deakin, 1979). The results of the discriminant model are still the same even when the discriminant holdout (Jackknife) is used.

The Regression Test

Although the univariate statistics, and the discriminant function enable the researcher to conclude about differences in financial characteristics of lessee firms, they do not provide for the assessment of causality relationship of the accounting choice. The regression model examines the dependency relationship.

Table 7 (p. 87) provides the empirical results of the Probit regression model using the five explanatory variables. The results show that all variables are in the expected direction and significant at a level less than .01 except for growth in leasing activities which is significant at the .05 level of significance. Return on investments and effective tax rate have a negative coefficient, which indicates that the higher the rate of return or effective tax rate, the higher the probability

Table 60

The Discriminant Analysis Function and the
Predicted Classification

A. The Standardized Canonical Discriminant Function

$$Y_i = - .67 - .21 (\text{ROI}) + .37 (\text{DER}) + .69 (\text{MCP}) \\ + .29 (\text{GL}) - .67 (\text{ETR})$$

Chi-Square : 113.25

Level of Significance : .0001

B. The Predicted Classification

<u>Actual Group</u>	<u>No. of Cases</u>	<u>Predicted Group Membership</u>	
Cap. 0	41	0 31 75.6%	1 10 24.4%
<hr/>			
Noncap. 1	113	11 9.7%	103 90.3%

Percentage of Correct Classification : 86.4%

Table 7

Probit Regression Results
(All Five Variables)

Variable	Expected Sign	Coefficient	t value	Level of Significance
Intercept.	+ -	-.16493	-.236	**
ROI	-	-15.3655	-2.258	.0001
DER	+	2.75295	3.267	.0001
MCP	+	1.86857	4.294	.0001
GL	+	.01823	1.733	.050
ETR	-	-.06055	-2.676	.0001

*Percent predicted correctly 91.5%

**Insignificant at conventional levels

N = 154

R² = 90.1%

to select lease capitalization, and the lower the probability to select operating lease accounting. Debt financing, management compensation plans, and growth in leasing have positive coefficients, which indicate that these variables are positively correlated with noncapitalizing accounting and negatively associated with capitalizing accounting.

The overall performance of the model is relatively high. The model in Table 7 has R^2 of .905 and prediction accuracy of 91.5 percent. The characteristics of the research design, in this study, have contributed to the high performance of the model. For example, the clean definition of the dependent variable, where the study used only lessees that capitalized all leases versus lessees that did not capitalize any of their leases, prior to SFAS No. 13. The two categories were obtained from AT&T analysis of 1977 edition. Another example is the measurement of leverage. Since capitalizers have lease debt equivalence included in outstanding long term debt, the debt equivalence of noncapitalized leases was calculated and considered in measuring debt to equity ratios for noncapitalizers. These characteristics reduced measurement and specification errors, which in turn contributed to the high performance of the model.

Because both return on investments and effective tax rate, the surrogates of corporate performance and political costs, are found to be highly correlated,

it may be inferred that high R^2 is the result of that colinearity between these two variables. To investigate that inference, two regression runs were conducted including one of the two variables at a time. Table 8 (p. 90) shows the regression results without the rate of return on investments, and Table 9 (p. 91) shows the regression results without the effective tax rate. The results are not significantly different from the original model in Table 7. Table 7 shows R^2 of .905 and correct prediction of .915; Table 8 shows R^2 of .901 and correct prediction of .883, and Table 9 shows R^2 of .89 and correct prediction rate of .8909. This comparison indicates that the exclusion of any of ROI or ETR did not impair the validity of the model, and that they can be valid substitutes.

In response to the exposure draft that preceded SFAS No. 13, affected lessee companies demonstrated great concern about debt financing and the expected violation of existing debt covenants. To investigate how much leverage contributed to the model, and in the same time the weight of nonleverage variables in the model, a regression run was made excluding the leverage variable. Table 10 (p. 92) provides the results of the model without debt. The overall performance of the model is significantly reduced, R^2 of .689, although the percentage of correct prediction is still high, .870. Furthermore, the loadings of the explanatory variables is increased in the case of the

Table 8
 Probit Regression Results
 (with Political Costs Measured by ETR)

Variable	Expected Sign	Coefficient	t value	Level of Sign	R ²
Intercept	+	-1.08866	-1.924		.901
DER	+	3.01624	3.707	.0001	
MCP	+	1.90846	4.667	.0001	
GL	+	.01454	1.536	.0500	
ETR	-	-.08026	-3.809	.0001	

*Percent predicted correctly 88.3%
 N = 154

Table 9

Probit Regression Results
(With Political Costs Measured by ROI)

Variable	Expected Sign	Coefficient	t-value	Level of Significance	R ²
Intercept	<u>+</u>	-.42967	-.643		.89
ROI	-	- 3.03096	-2.984	.0001	
DER	+	2.64389	3.517	.0001	
MCP	+	1.64704	4.265	.0001	
GL	+	.02154	2.060	.0001	

*Percent predicted correctly 89.1%

N = 154

Table 10
 Probit Regression Results
 (Excluding Debt Variable)

Variable	Expected Sign	Coefficient	t-value	Level of Sign	R ²
Intercept	+	.71153	2.390	.0001	.689
MCP	+	1.52324	4.897	.0000	
GL	+	.02113	2.604	.0001	
ETR	-	-.08642	-5.462	.0000	

*Percent predicted correctly 87%

N = 154

growth variable. Growth in leasing became significant at .0001 level as compared to .050 in the original model. The results of Table 10 indicate that debt financing has a high weight in the choice of the accounting method; however, the model can highly predict the choice based on other variables only, management compensation, growth in leasing, and effective tax rate.

One may argue that the importance of debt variable, in this study, is magnified by including off-balance sheet leases. To investigate that issue a different measure of leverage is used, which is not affected by off-balance sheet lease financing, that is times interest earned. Table 11 (p. 95) shows the empirical results of the regression model with debt effect measured by times interest earned (TIE). That variable, TIE, is statistically significant at .0001 level, and has the right direction (a negative coefficient). The overall performance of the model is still high, R^2 of .751, and the correct prediction rate is .870. These results reinforce the validity of leverage hypothesis, although different measures of debt financing are used.

Based on the results of this study, and assuming the sample fairly represents the population, one can fairly conclude that factors of corporate performance and sensitivity to political cost, debt financing, management compensation tied to accounting profit, and growth in

leasing activities significantly influence lessees' choices of accounting for leases.

Table 11

Probit Regression Results
(With Effect of Debt Measured by Times
Interest Earned)

Variable	Expected Sign	Coefficient	t-value	Level of Significance	R ²
Intercept	<u>+</u>	.90788	2.710		.751
TIE**	-	-.0693	-2.624		
MCP	+	1.56538	4.728		
GL	+	.02233	2.590		
ETR	-	-.06964	3.926		

*Percent predicted correctly 87%

**Times Interest Earned measured as follows:

$$\frac{\text{Net Income} + \text{Interest expense (1-tax)}}{\text{Interest Expense}}$$

N = 154

CHAPTER VIII

ANALYSIS OF EMPIRICAL RESULTS: THE ECONOMIC IMPACT OF SFAS NO. 13

Introduction

In Phase II of this study, the null hypothesis states that, under conditions of debt financing, and existence of growth opportunities, mandating SFAS No. 13 may have altered management behavior and decisions. Therefore, regulating accounting for leases by lessees as of SFAS No. 13 had some economic impact.

Two empirical procedures are considered here to test for the null hypothesis. First, is the existence of significant cumulative abnormal return around the announcement of the exposure draft of SFAS No. 13. The CAR was then regressed against factors affecting the choice of accounting for leases. The second, is alterations in the securities return distribution function of affected lessee companies after as compared to before SFAS No. 13. The empirical results of these tests are presented and analyzed in this chapter.

The Abnormal Security Market Return Test

The process of examining the economic impact of SFAS No. 13, using the abnormal market return, was conducted in three steps. First, a test of significant abnormal return was conducted for capitalizers versus noncapitalizers, considering noncapitalizers as one portfolio. The same test, but with noncapitalizers partitioned into four portfolios in terms of debt effect and growth rate. Lastly, the cumulative abnormal return was then regressed against the determinants of lessee accounting choice.

The Nonpartitioned Test

The abnormal market return was calculated for both groups of lessees, using the market model, from day -10 to day +10. The daily average abnormal return of each group as well as the differences between groups are given in Table 12 (p. 98). The results show that noncapitalizers have significant abnormal return for some trading days. However, these significant abnormal returns are spread randomly over the testing period with mixed signs. The same phenomena are shown for capitalizers too. Capitalizers had negative and significant unexpected return on day -2, positive and significant on day 0, and followed by positive and negative on days +5 and +10. Even by analyzing the differences in abnormal return of

Table 12

Daily Average Abnormal Return
(Noncapitalizers Versus Capitalizers)
Day -10 to day +10

DAY	NONCAPITALIZERS	CAPITALIZERS	DIFFERENCES (NONCAP- CAPITALIZERS)
-10	.001895 (.75)	.000199 (.01)	.001691 (.65)
- 9	.004377 (1.74)**	.001210 (.38)	.003167 (1.21)
- 8	.004593 (1.84)**	.002293 (.75)	.002300 (.85)
- 7	-.001300 (- .51)	.003305 (1.06)	-.004605 (-1.74)**
- 6	.003316 (1.33)	-.001133 (- .36)	.002183 (.81)
- 5	.001634 (.63)	-.000350 (.11)	.001284 (.48)
- 4	.002926 (1.12)	.004903 (1.49)	-.001977 (- .74)
- 3	-.003991 (-1.60)	.001728 (.56)	-.005719 (-2.13)*
- 2	-.004123 (-1.66)**	-.008047 (-2.51)*	-.003924 (-1.48)
- 1	-.001646 (- .65)	-.001104 (- .35)	-.002750 (-1.02)
0	.001953 (.74)	.005337 (1.69)*	-.003384 (-1.25)
+ 1	.001663 (.65)	-.004165 (-1.34)	.005828 (2.11)*
+ 2	-.003215 (-1.06)	-.000142 (- .04)	-.003073 (-1.12)
+ 3	.001221 (.48)	.003266 (1.05)	-.002045 (- .67)
+ 4	.002107 (.87)	.002274 (.71)	-.000167 (- .06)
+ 5	-.004985 (-1.96)*	-.003501 (-1.04)	-.001484 (- .55)
+ 6	.004653 (1.85)**	.003303 (1.75)**	.001350 (.51)
+ 7	.001410 (.55)	.000752 (.24)	.000658 (.06)
+ 8	-.001906 (.76)	.004122 (1.34)	-.006028 (-2.16)*
+ 9	.002418 (.91)	.002112 (.66)	.000306 (.01)
+10	-.001188 (.46)	-.006125 (-1.96)*	.004937 (1.82)**

* SIGNIFICANT AT .05 OR LESS

** SIGNIFICANT AT .10 OR LESS

NOTE: TEST OF SIGNIFICANCE IS PROVIDED IN BRACKETS, AND WAS CALCULATED BY THE STANDARD ERROR OF PREDICTION, σ_p , DEFINED AS :

$$\sigma_{pT} = \sigma \left[1 + \frac{1}{N} + \frac{(X_{T+\tau} - \bar{X})^2}{\sum_{T=1}^N (X_T - \bar{X})^2} \right]^{\frac{1}{2}}$$

Where :

σ_{pT} is the standard error of prediction for individual days of the testing period, $\tau = -10, \dots, +10$, σ is the standard error of prediction from the estimation period, N is the number of days used in estimation period, and X is the market return.

the two groups, the results are mixed over the testing period. That random distribution of significance and signs of the unexpected return over the testing period indicates that this test failed to identify the market reaction to the announcement of the exposure draft.

Table 13 (p. 100) shows the cumulative abnormal return for the two groups over the testing period, while Figure 3 (p. 101) illustrates the behavior of such cumulative abnormal return. The cumulative abnormal return shows unexpected results. Noncapitalizers had a positive cumulative abnormal return over the testing period, except for day +5. Capitalizers had negative cumulative abnormal return from day -2 to day +6.

According to the hypothesis, noncapitalizers are the group that was expected to exhibit negative unexpected market return. The results did not support the hypothesis, however. Several reasons may explain that pattern of results. The first is the aggregation effect. Noncapitalizers had different levels of sensitivity to compliance with SFAS No. 13. Considering all noncapitalizers as one portfolio might have had mitigated the results. This problem will be resolved in the following section, the partitioned test. The second reason is diversification level of capitalizers' portfolio. Capitalizers represent a relatively small sample, and have (to some extent) industry effect, mainly steel and heavy

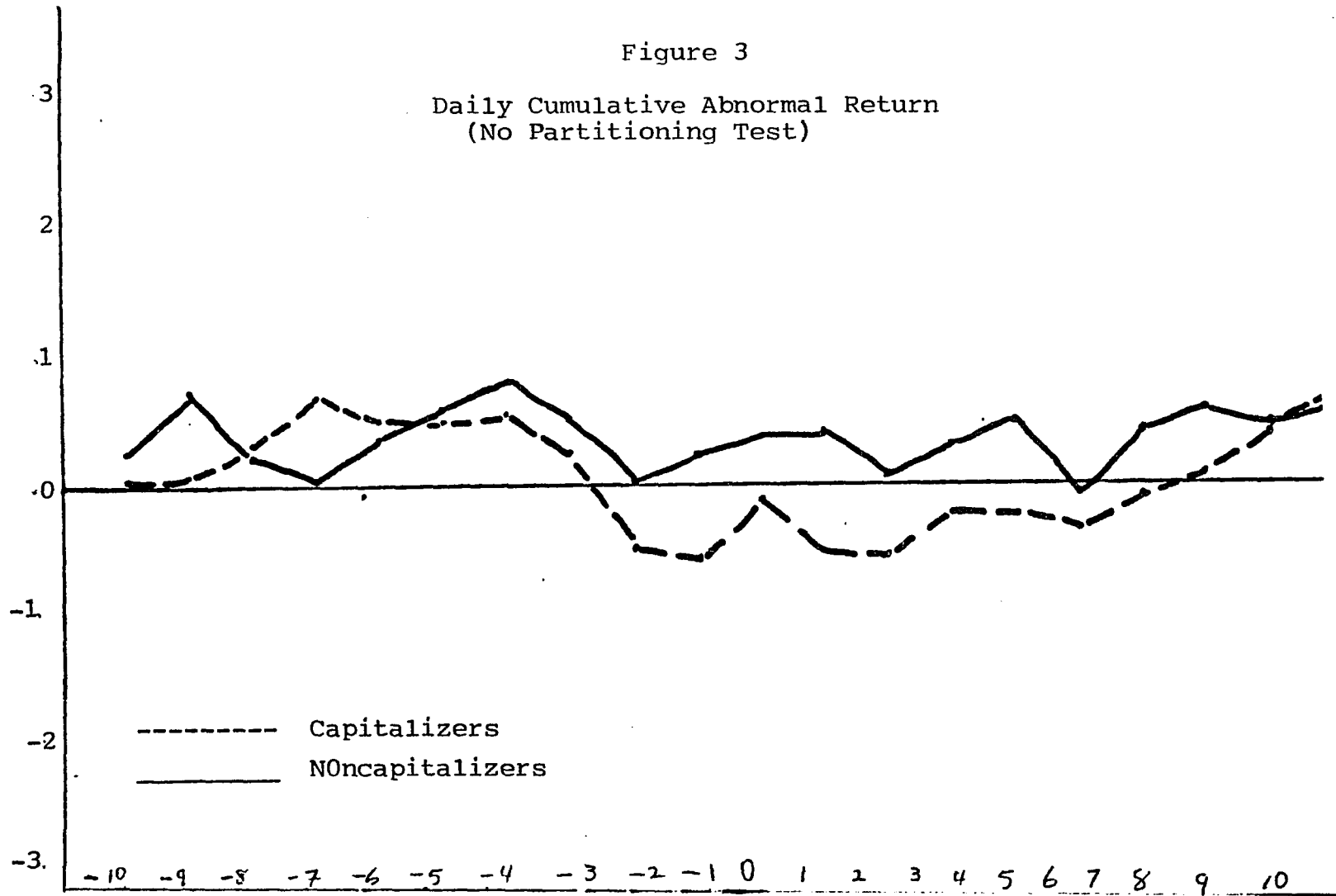
Table 13

Cumulative Abnormal Portfolio Returns
 Capitalizers Versus Noncapitalizers
 (No Partitioning Test)

DAY	NONCAPITALIZERS	CAPITALIZERS
- 10	001894	000199
- 9	006268	001409
- 8	001675	003702
- 7	000375	007002
- 6	003921	005875
- 5	005326	005524
- 4	008253	000620
- 3	005154	002349
- 2	001031	-005697
- 1	002677	-006802
0	004631	-001467
+ 1	004797	-005633
+ 2	001584	-005775
+ 3	002806	-002508
+ 4	004913	-002345
+ 5	-000071	-003735
+ 6	004581	-000432
+ 7	005991	000319
+ 8	004085	004441
+ 9	006503	006554
+ 10	005314	000484

Figure 3

Daily Cumulative Abnormal Return
(No Partitioning Test)



equipment manufacturers. Another reason can be the measurement and specification errors of the market model, as pointed out by King (1969) and Black et al. (1972). That problem will be investigated by using the second market test which is based on actual stock returns rather than expected returns, namely "alterations in the distribution function of security returns."

The Partitioned Sample Test

In order to capture firm (or similar firms) specific reaction to the mandates of SFAS No. 13, the noncapitalizers were partitioned in four portfolios in terms of the effect of capitalizing leases on outstanding debt, and the existence of growth opportunities facing the firm (as measured by expected growth in earnings per share).

The daily average normal returns and the significance levels for the five portfolios (four noncapitalizers plus the capitalizers portfolio) are given in Table 14 (p. 103). The results indicate that: (1) there was a differential market reaction, and (2) that market reaction started five days prior to the announcement date. Portfolio No. 1, lessees of high debt effect and high growth, exhibited negative and significant abnormal return from day -5 to day -3, and then on the announcement date. Portfolio No. 2, lessees of high debt effect and low growth,

Table 14

Daily Average Abnormal Return
(The Partitioned Test)

DAY	F HD & HG	F HD & LG	F LD & HG	F LD & LG	F CAPITALIZERS
- 10	001884 (.49)	003376 (.68)	000070 (.26)	001702 (.34)	000199 (.03)
- 9	003168 (.86)	002012 (.39)	007321 (1.73)**	004056 (.81)	001210 (.38)
- 8	-002198 (- .58)	-006451 (-1.31)	-004887 (-1.18)	-005182 (-1.05)	002293 (.75)
- 7	004644 (1.46)	-007211 (-1.42)	-000931 (- .22)	-005166 (-1.05)	003305 (1.06)
- 6	005580 (1.67)**	001070 (.24)	005115 (1.24)	-000239 (- .24)	-001133 (- .36)
- 5	-005642 (-1.64)**	002153 (.46)	003655 (.85)	008183 (1.56)	-000350 (- .11)
- 4	-009862 (-2.59)*	-006448 (-1.93)*	007913 (1.79)**	008780 (1.75)**	004903 (1.49)
- 3	-005701 (-1.69)**	-002084 (- .62)	-006422 (-1.56)	002194 (.42)	001728 (.56)
- 2	000735 (.18)	-004708 (-1.92)*	-006830 (-1.58)	-010575 (-2.05)*	-008047 (-2.51)*
- 1	001881 (.48)	005483 (1.07)	026588 (6.13)*	-004282 (- .85)	-001104 (- .35)
0	-005882 (-1.62)**	001124 (.22)	028088 (6.22)*	012367 (2.09)*	005337 (1.69)**
+ 1	002828 (.74)	-004931 (- .98)	000432 (.10)	001470 (.29)	-004165 (-1.34)
+ 2	-004356 (-1.14)	004655 (.93)	-002677 (- .64)	-010523 (-1.94)*	-000142 (- .05)
+ 3	-002879 (- .75)	002860 (.56)	003779 (.91)	001422 (.28)	003266 (1.05)
+ 4	002742 (.70)	-002672 (- .51)	002814 (.67)	005130 (1.07)	002274 (.71)
+ 5	-006913 (-1.81)**	-006080 (-1.21)	-002502 (- .61)	-004460 (- .91)	-003501 (-1.04)
+ 6	003867 (1.03)	001320 (.26)	007246 (1.76)*	-007291 (-1.49)	003303 (1.15)
+ 7	-000332 (- .08)	-002724 (- .54)	004810 (1.16)	004029 (.82)	000752 (.24)
+ 8	000954 (.25)	001807 (.36)	-011800 (-2.61)	003500 (.71)	004122 (1.34)
+ 9	-002447 (- .62)	000855 (.16)	001134 (.26)	012558 (2.48)*	002112 (.66)
+ 10	-003524 (- .95)	-003054 (- .65)	002298 (.54)	-000954 (- .19)	-006125 (-1.96)*

* SIGNIFICANT AT .05

** SIGNIFICANT AT .10

had negative and significant abnormal return on both day -4, and the announcement date. Portfolio No. 3, lessees of low debt effect and high growth, exhibited positive and significant abnormal return on days -5, -1, and the announcement date. These positive unexpected returns are not consistent with the hypothesis, but can be attributed to the characteristics of the portfolio. These companies had no (or minimal) debt agreement violation, and of high growth. Portfolio No. 4, lessees of low debt effect and low growth opportunities, had significant unexpected returns on days -4, -2, 0, and +2. Nevertheless, the signs of these unexpected returns are mixed between positive and negative. That behavior is explained by the uncertainty surrounding the potential effect on these firms. Portfolio No. 5, capitalizers, had negative abnormal return on day -2, and positive on the announcement date. This portfolio should not have reacted to the mandates of SFAS No. 13, since companies in that portfolio did not have to change their accounting for leases, or to restate prior years' financial statements. The negative effect on day -2 can be explained as to reflect the general uncertainty associated with the general issue, the regulation of accounting for leases, until one day later when it became clear that there had been no potential impact on that group from the new mandates. Thus, market participants gave some appreciation to

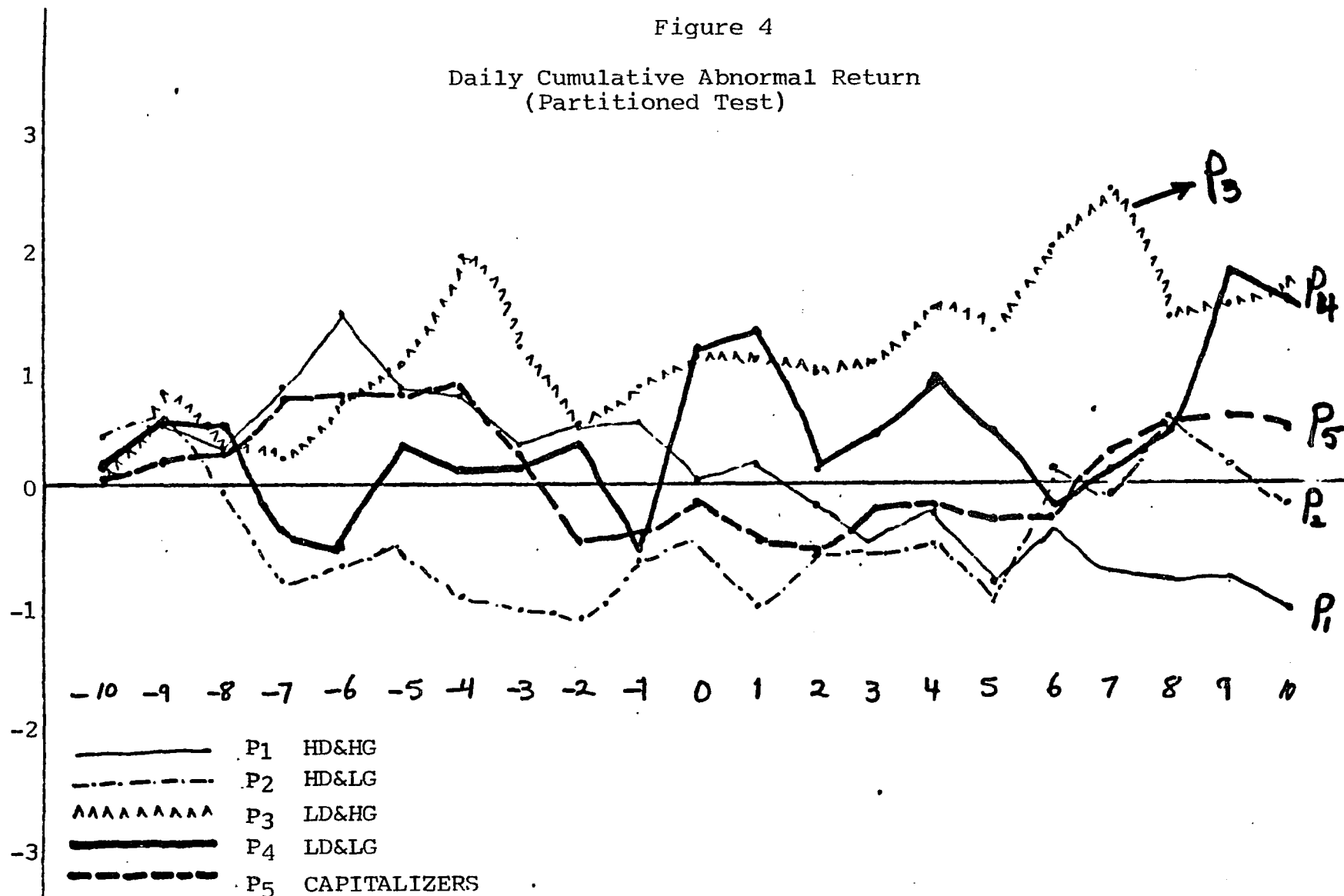
Table 15

Daily Cumulative Abnormal Return
(The Partitioned Test)

DAY	F HD & HG	F HD & LG	F LD & HG	F LD & LG	CAPITALIZERS
- 10	001894	003376	000870	001702	000199
- 9	005053	005388	008197	005758	001400
- 8	002854	-001152	003304	000576	003703
- 7	008499	-008362	002373	-004589	007008
- 6	014079	-007292	007487	-004826	005875
- 5	008437	-005001	011144	003353	005525
- 4	007451	-009588	019058	012134	006209
- 3	003350	-011672	012635	014329	002349
- 2	004085	-012143	005796	003753	-005697
- 1	005967	-006659	008455	-000528	-006802
0	000084	-005535	011264	011838	-001467
+ 1	002904	-010466	011696	013309	-005633
+ 2	-001453	-005810	009019	002785	-005775
+ 3	-004332	-002950	012798	004209	-002580
+ 4	-001588	-005622	015613	009339	-000234
+ 5	-008503	-011703	013110	004878	-003735
+ 6	-004635	001504	020357	-002422	-000323
+ 7	-005568	-001209	025670	001616	000319
+ 8	-004614	000597	014120	005117	004441
+ 9	-007062	001453	015261	017666	006554
+ 10	-010586	-001604	017560	016720	000428

Figure 4

Daily Cumulative Abnormal Return
(Partitioned Test)



companies in that portfolio as demonstrated by the positive and significant abnormal return on the announcement date.

The daily cumulative abnormal return, CAR, provides more insights of that problem. The CARs are given in Table 15 (p. 105), and illustrated graphically in Figure 4 (p. 106).

From Table 15, portfolio No. 1 had a positive, but diminishing, CAR from day -5 until it became negative on day +2. Furthermore, CAR continued to be negative from day +2 to day +10. That pattern of behavior indicates that the market reacted negatively to lessees of high debt and high growth from day -5 to day +10, which suggests that the mandates of SFAS No. 13 created a permanent market reaction for this group of lessees. Portfolio No. 2 had negative CARs from day -8 to day +5. That pattern indicates a temporary market reaction. Companies in that portfolio are of high debt but low growth. The sensitivity to debt financing created a negative market reaction. However, since these lessees had low growth the effect of the mandates on growth realization was minimal, and the negative impact was recovered again.

Portfolio No. 3, lessees of low debt effect and high growth had positive CARs over the entire testing period. Again that reflects upon the characteristics of these companies. They are of low debt financing, so

the mandates of SFAS No. 13 would not have caused any difficulty in raising new capital. Thus, high growth opportunities of that group have higher realization probability which were appreciated by the market. Portfolio No. 4, lessees of low debt and low growth, had a random behavior of CARs, which indicates no effect for the mandates of SFAS No. 13. Portfolio No. 5, capitalizers, had negative, but insignificant, CARs over the period of day -2 to day +6.

Multivariate Test of CARs

To test that the CARs of the five portfolios are statistically different from each other, the multivariate analysis of variance test was conducted. The results are given in Table 16 (p. 109). The results show that the portfolios had statistically different cumulative abnormal returns. The test shows a T^2 value of 23.93, which is significant at .0001 level of confidence. The model also shows that the portfolios classification explains 47 percent of the CARs' behavior.

The Regression Test

Another procedure to test for the economic impact of mandating SFAS No. 13 is to regress the CARs of individual lessee on the variables that were hypothesized to cause the economic effect, and which were worsened by the new regulation. Specifically, to regress CAR on the

Table 16

Test Statistics of Multivariate Analysis
of Portfolio Cumulative Abnormal Return

DEPENDENT VARIABLE : CAR

SOURCE	DF	SUM OF SQ	MEAN SQ
MODEL	4	.002980	.000741
ERROR	100	.003112	.000031
TOTAL	104	.006092	

T (APPROXIMATE OF F VALUE) WITH (4,100) DF = 23.93

PROBABILITY $>$ F = .0001

R-SQUARED = .489

return on investment, debt to equity ratio, management compensation plans, growth in leasing activities, and effective tax rates. The CAR was calculated for each firm for four different intervals over the testing period:

Day -10 to -5 = CAR 1

Day -10 to 0 = CAR 2

Day -10 to +5 = CAR 3

Day -10 to +10 = CAR 4

The results of that test are presented in Table 17 (p. 111). In the first regression, CAR 1, all variables, except debt, are in the right direction but statistically not significant. The debt variable is statistically significant but in the wrong direction. In the second regression, CAR 2, the debt variable took the right sign but is insignificant. However, the explanatory power of the model is very low, with R^2 of 1.7 percent. In the third regression, CAR 3, the results still are not significant. In the fourth regression, the explanatory power of the model improved with R^2 of 6.9 percent, and both debt financing and growth in leasing are statistically significant and are in the right direction. Management compensation plans, and return on investment have the right sign but are not statistically significant.

Table 17

The Regression of Cumulative Abnormal Return, CAR, on the Choice Variables

CAR1 : Day -10 to Day -5

CAR2 : Day -10 to Day 0

CAR3 : Day -10 to Day 5

CAR4 : Day -10 to Day 10

MODEL	ROI	DER	MCP	GL	TAX	R
EXPECTED SIGN	+	-	-	-	+	
CAR1	.05517 (.38)	.01587 (2.37)*	-.00833 (-.92)	-.00015 (.05)	.00054 (1.19)	.061
CAR2	-.03819 (-.18)	-.00387 (-.43)	-.00688 (-.56)	-.00420 (-.15)	-.00056 (-.88)	.017
CAR3	.19072 (.78)	-.01066 (-.94)	.01082 (.70)	-.00016 (.47)	-.00073 (.88)	.047
CAR4	.15234 (.55)	-.02443 (-1.91)*	-.00681 (-.39)	-.00769 (1.97)*	-.00027 (-.30)	.069

* SIGNIFICANT AT .05

Altering the Distribution Function
of Security Returns

The use of security abnormal return as a measure of the impact of firm specific event is criticized on the basis that the market model has several shortcomings which introduce measurement and specification errors to security expected returns. Therefore, the results of the abnormal return cannot be totally attributed to the event under consideration.

In order to confirm the results of the abnormal return procedure, stated in prior section, a second procedure based on actual security returns is currently recommended (Beaver, 1981; Gonades, 1975, and Hawawini et al., 1982, among others). That procedure is called "altering the distribution function of security returns" after the event as compared to before the event. The null hypothesis to be tested under that procedure is:

$$\text{Mean } P_i/\theta_B - \text{Mean } P_i/\theta_A = 0$$

$$\text{Variance } P_i/\theta_B - \text{Variance } P_i/\theta_A = 0$$

where:

θ_B = the set of public information available to investors before the announcement of the exposure draft of SFAS No. 13;

θ_A = the set of public information available to investors after the announcement of the exposure draft of SFAS No. 13;

P_i = portfolio i , and i runs from 1 to 5.

The hypothesis says that there is no change in mean and variance of portfolio returns of affected lessee companies after the exposure draft of SFAS No. 13 as compared to before. The rejection of any part of the hypothesis is sufficient to prove that SFAS No. 13 had some economic impact on affected lessee companies. The results of that test are presented below.

A. No Partitioning

Table 18 (p. 114) presents the test statistics of the change in means and standard deviations of portfolio returns under no partitioning of the experimental group. The results indicate that both portfolios, the affected and nonaffected lessee companies, have adverse change in means and standard deviations of portfolio returns. The experimental group had change in mean return of $(-.002158)$, and standard deviation of $(-.000438)$. These changes are significant at .05 and .10 respectively.

What is inconsistent with the theory is that the control group (nonaffected lessees) had adverse and significant change in both mean and standard deviation of portfolio returns. Even when considering the power of differences in the change between both experimental and control portfolios, the results are insignificant. Although the differences, $P_1 - P_2$, show that affected lessee companies had higher change in mean and standard

Table 18

Test Statistics of the Change in Mean and Standard
Deviation of Portfolio Returns : No Partitioning

Variable	Mean	Standard Deviation	t-value
<u>Portfolio 1</u> (Experimental Group)			
A. Changes in mean return	-.002158	.0034185	-5.888*
B. Changes in SD	-.000438	.006345	-1.664**
<u>Portfolio 2</u> (Control Group)			
A. Changes in mean return	-.000923	.002450	-2.260*
B. Changes in SD	.001314	.003655	2.156*
(P ₁ - P ₂)			
A. Changes in mean return	-.001235	.004480 ^a	-1.397
B. Changes in SD	.000876	.005738 ^a	.422

(a) pooled standard deviation calculated as:

$$\sqrt{\frac{(n_1-1) s_1^2 + (n_2-1) s_2^2}{n_1+n_2-2}}$$

*Significant at .05 or less

**Significant at .10

deviations, these differences are not statistically significant. The insignificance of differences in changes between the portfolios may be attributed to the aggregation effect of considering all affected lessee companies as one portfolio. The fact that these companies had different levels of debt financing and growth opportunities may have caused a differential impact of regulating SFAS No. 13. However, that differential effect is mitigated by aggregating all affected lessees in one portfolio.

B. The Partitioned Sample

In order to capture the differential market reaction, the above test was applied after partitioning the experimental group into four portfolios, in terms of debt and growth, as indicated before.

Table 19 (p. 116) shows the test statistics of changes in means and standard deviations of portfolio returns. The results indicate that all five portfolios had a negative change in mean portfolio return after the announcement of the exposure draft of SFAS No. 13. For changes in standard deviation, the results show that only portfolios 1, 2, and 5 had significant change.

To test whether these changes are statistically and significantly different from each other, the T^2 Hotelling test and the Pairwise t tests were conducted.

Table 19

Test Statistics of the Change in Mean and
Standard Deviation of Portfolio Returns:
The Partitioned Test

Portfolio	Difference in Mean	Difference in Standard Deviation
1	-.002493 (-1.951)*	-.000963 (-1.871)**
2	-.002762 (-2.995)*	-.003117 (-2.997)*
3	-.002478 (-3.065)*	.000809 (.588)
4	-.001873 (-4.107)	.001408 (.721)
5	-.000923 (-2.204)*	.001314 (2.157)*

*Significant at .05 or lower

**Significant at .10

Table 20 (p. 118) presents the statistics of the multivariate analysis of variance of the five portfolios. Using changes in portfolios' mean returns, the results indicate that the portfolios are not statistically different from each other, where F value is 1.49 and the probability of rejecting null hypothesis while it is true is .2088. However, using changes in standard deviations, the results indicate that portfolios are different from each other with F value of 2.65 and .0369 level of significance. The overall interaction, using both mean and standard deviations, indicates that portfolios are still different from each other at alpha of .0611.

Table 21 (p. 119) presents test statistics of pairwise t-test. The results again prove a differential market reaction. Under differences in changes in mean portfolio return, changes in portfolios 1, 2, and 3 are significantly different from the control portfolio, P₅. As indicated earlier, portfolio No. 1 is of high debt and high growth, portfolio No. 2 is of high debt but low growth, and portfolio No. 3 is of high growth but low debt.

Under differences in changes in portfolios' variances, the results reconfirm the differential market reaction. Portfolios 1, 2, 3 had higher increase in variance than those of portfolios 4 and 5. Furthermore, portfolios 4 and 5 are not statistically different from

Table 20

Multivariate Analysis of Variance For
Changes in Mean and Standard Deviation
of Portfolio Returns

Dependent Variable

A. Differences in Mean Portfolio Return

Source	DF	Sum of Square	Mean Square	F-Value
Model	4	.00006040	.00001570	1.49
Error	118	.00119358	.00001012	
Total	122	.00125398		

$$R^2 = .048$$

$$\text{Probability } F = .2088$$

B. Differences in Standard Deviations

Model	4	.00032994	.00008249	2.65
Error	118	.00367902	.00003118	
Total	122	.0040896		

$$R^2 = .082$$

$$\text{Probability } F = .0369$$

The overall effect of both variables has

F value of: 1.90

Probability $>$ F: .0611

Table 21

The Pairwise T-Statistics for Differences
in Changes in Mean and Standard Deviation
of Portfolio Returns

	Differences in Mean Return	Differences in Standard Deviation
$P_1 - P_2$	.000269 (.214)	.002154 (1.569)
$P_1 - P_3$	.000985 (.659)	-.001771 (-1.15)
$P_1 - P_4$	.000381 (.795)	-.002371 (-1.871)**
$P_1 - P_5$	-.001569 (-1.89)**	-.002277 (-1.862)**
$P_2 - P_3$	.000284 (.563)	-.003925 (-2.23)*
$P_2 - P_4$	.000888 (.912)	-.004525 (-2.85)*
$P_2 - P_5$	.001838 (2.17)*	-.004423 (-3.12)*
$P_3 - P_4$	-.000604 (.793)	-.000600 (-.793)
$P_3 - P_5$	-.001554** (-1.89)	-.000506 (-.932)
$P_4 - P_5$	-.0009503 (-.397)	.000093 (.089)

*Significant at .05 or lower

**Significant at .08

each other in terms of changes in both mean and standard deviation.

Taking the results of the distribution function tests together, one may say that test is of higher power than the abnormal return test in some aspects. For example, portfolios 2 and 3 had positive abnormal return under the abnormal return test, which is inconsistent with the hypothesis, turned out to have significant decline in mean portfolio, and significant increase in variance, for portfolio 2 only, under the distribution function test.

To integrate the results of the different procedures employed in that chapter, to test for the economic impact of mandating SFAS No. 13, one can fairly conclude that:

- the market reacted differently to each firm (or group of similar firms);
- the partitioning of the experimental group into portfolios in terms of debt effect and growth improved the test of abnormal return;
- the regression test of CARs on the determining variables showed that both debt financing and the magnitude of leasing activities are important factors in determining the economic impact of SFAS No. 13;
- the use of actual security returns, alteration in the distribution function, is an improved

procedure over the typical abnormal return procedure;

-the mandates of SFAS No. 13 have had economic impact on affected lessees. The magnitude of the effect depends on firm specific level of debt financing and magnitude of leasing transactions.

PLEASE NOTE:

**This page not included with
original material. Filmed as
received.**

University Microfilms International

CHAPTER IX

CONCLUSIONS AND RECOMMENDATIONS

Introduction

This final chapter summarizes the findings of the project and arrives at some important conclusions. Conclusions about the factors that influence lessees' choice of accounting method are first discussed. Then, the conclusions about the economic impact of mandating SFAS No. 13 are stated. Finally, the chapter points out recommendations for further research.

Summary and Conclusions

From the analysis provided in Chapter II, Theory of the Firm, the study emphasized that under uncertainty about managerial behavior, monitoring and contracting activities have become essential characteristics to the existence of the firm. To the extent that most contracting agreements are made in terms of accounting and financial variables, the study hypothesized that management selection of accounting practices is influenced by the monitoring and contracting agreements. Specifically, the chapter hypothesized that corporations that are subject to monitoring and contracting agreements tend to

choose the accounting policies that relax the constraints of such agreements. Furthermore, assuming the company already selected its optimal set of accounting policies, a mandatory accounting policy that requires the company to change its current accounting policy may influence the economics of the firm. The mandatory change would cause violations of ex ante agreements for firms required to change. That violation, and under costly negotiations, induces a set of managerial behavior that alters corporate financing and operating policies.

Chapter III provides analysis for the research problem, accounting for leases. The analysis shows that lessees enjoyed greater discretion in accounting for leases prior to the mandates of SFAS No. 13. The criteria for classifying leases as capital versus operating leases were loose and readily circumvented by lessees to avoid lease capitalization. From financial reporting point of view, accounting for leases under operating lease method improves financial measures of leverage and profitability. Prior to SFAS No. 13 similar leases were accounted for differently by different firms.

SFAS No. 13 tightened the criteria of classifying leases as operating ones. SFAS No. 13 identifies four specific criteria and requires that a lease should be capitalized even if the lease conditions meet only one of the criteria. Furthermore, the statement required that

leases which were entered into prior to its effective date and meet the current criteria should be capitalized on a retroactive basis. Lessees demonstrated great concern about the negative consequences of SFAS No. 13 on reported accounting numbers. They claimed that compliance with SFAS No. 13 would worsen reported measures of leverage and profitability. In fact, the analysis of actual data about the effect of capitalizing off-balance sheet leases shows that a significant increase in outstanding debt, and material decline in income and retained earnings could have been incurred had these leases capitalized on retroactive basis.

The determinants of lessee choice of lease accounting treatment are analyzed in Chapter IV. The chapter introduces some economic and behavioral variables which affect lessees' accounting choices. These variables are derivatives of the agency model. The first variable is corporate performance and political costs. That hypothesis states that low operating performance lessees tend to use noncapitalized lease accounting in order to improve reported profitability, while high operating performance lessees tend to use capital lease accounting to reduce reported profitability which, in turn, reduces signalling of monopoly profits and the likelihood of political costs. The second variable is debt financing and restrictive debt agreements. That

variable states that lessees that heavily use debt financing and subject to restrictive debt agreements tend to use operating lease accounting to relax the covenants constraints and enhance their ability to raise new capital. The third variable is management compensation plans that are tied to accounting income. That variable states that managements that have compensation plans tied to accounting income have motives to select operating lease accounting to maximize reported income, and hence their compensation income. The fourth hypothesis is growth in leasing activities. Under this hypothesis, it is argued that the magnitude of leasing activities is important in the decision of accounting for leases. Lessees that exhibit growth in leasing activities have higher motives to choose operating lease accounting to maximize long run benefits.

The empirical results of both the discriminant analysis model, and the probit regression model support the above hypotheses. The measures of performance and political costs (return on investment, and effective tax rate) have negative and significant association with operating lease accounting. In contrast the measures of debt financing, management compensation plans, and growth in leasing activities have positive and significant association with operating lease accounting. The model has high performance (R^2), and predictability rate.

The design of the study has contributed to the high results. Companies included in the study have clean membership. The treatment group includes lessees used operating lease accounting for all of their leases, while the control group includes lessees used capital lease accounting for all their leases. Also, off-balance sheet financing leases were considered in measuring the debt variable of noncapitalizers in order to be comparable with the debt measure of capitalizers. These characteristics of the research design reduced measurement errors, which enhance the model performance and prediction.

The second dimension of the study was directed to the analysis and investigation of the economic consequences of the mandates of SFAS No. 13. The study provided three factors for why negative economic consequences were expected as the results of complying with SFAS No. 13, for affected lessees. These factors are: (1) violation of debt agreements and debt capacity displacement; (2) alteration of the probability of growth opportunities realization, and (3) uncertainty about management response, which increases the risk of stockholders.

Capitalization of leases as asset purchase with a related liability increases the percentage of debt in relation to total capital or net worth. That increase in debt financing percentage may bring on violation of debt covenant, and technical default. In order to maintain

existing debt covenants, and to avoid reaching technical default, lessees may take some adaptive actions like:

- (1) buying existing leases;
- (2) issuing new equity;
- (3) redeem outstanding debts, and
- (4) renegotiate leases' terms to avoid capitalization.

All of these actions displace debt capacity of existing as well as future capital assets. Debt financing saves cash flows through debt tax sheltering, while debt capacity displacement reduces these savings.

In the market model, corporate growth opportunities are impounded in the stock market value. Compliance with SFAS No. 13 on retroactive basis reduces the firm's ability to raise new debt. New projects would be financed by equity capital or low levered capital. That change in the financing policy makes new projects, that were acceptable under old financing policy, unacceptable afterwards. In addition, capitalization of leases reduces corporate profitability (as compared with non-capitalization) which increases management accounting exposure. The net effect is that management may reject growth projects that were acceptable, otherwise.

From the analysis of both debt capacity displacement, and growth realization hypotheses, it is clear that the mandates of SFAS No. 13, could have created real economic impact unless actions of adaptive behavior are taken by management. However, stockholders possess

minimal information about the specific course of action that management will take. Securities of affected lessees become of higher risk. Investors are motivated to eliminate, from their portfolios, securities that they possess minimal information about. With the majority of investors behaving that way, securities of affected lessees suffer price decline.

The research methodology used to test for the economic impact of the mandates of SFAS No. 13 is the market test of security price behavior around the announcement of the first exposure draft of the statement. Portfolios of the treatment group were constructed in terms of the level of the impact of lease capitalization on outstanding debt, and corporate level of growth. The test was conducted in three steps: first, the existence of abnormal security return around the announcement period; second, the cumulative abnormal return was then regressed on the determinants of lease accounting policy choice, and third, using actual security prices, a test of changes in the distribution function of security returns was conducted.

The empirical results of the three versions of the market test indicate that there had been a differential economic impact on affected lessees. Portfolio No. 1, lessees of high debt financing and high growth rate exhibited negative and significant abnormal return for

the five trading days preceding the exposure draft and including the announcement date. Furthermore, that impact seemed to be permanent since the negative cumulative abnormal return continued up to the end of the testing period. Portfolio No. 2, lessees of high debt but low growth, had negative abnormal return for the week preceding the announcement, and on the announcement date. However, in terms of cumulative abnormal return that negative impact was recovered one week later, and the price behavior returned to random movement again. Portfolio No. 3, lessees of low debt effect but of high growth, exhibited a positive abnormal return around the announcement. That portfolio had the minimal effect of the mandates and, at the same time, has good economic prospects. These two characteristics created a market appreciation to the stock. Portfolio No. 4, lessees of low debt effect and low growth, had no significant market reaction. Portfolio No. 5, capitalizing lessees, exhibited a random distribution of the abnormal return on both sides of the exposure draft date with positive and negative signs. However, on the announcement date, that portfolio had a significant and positive abnormal return. These companies were not affected by the mandates of SFAS No. 13. The positive abnormal return on day zero can be attributed to the fact that these companies have been using a more accurate accounting method and producing

more useful information.

The result of the regression model, where the cumulative abnormal return was regressed on the choice variables, shows that only debt financing and growth in leasing activities are significant explanatory variables. Other variables have the expected sign but are not significant.

To test whether there had been a change in the distribution function (mean and variance) of security returns after the mandates of SFAS No. 13 as compared to before, the results indicate that portfolios No. 1 (high debt and high growth), No. 2 (high debt and low growth), and No. 3 (high growth and low debt), had significant decline in mean security returns, and increase in variance in comparison to the control portfolio No. 5 (capitalizers). Portfolio No. 4 (low debt and low growth) had no significant changes.

The main conclusions of the findings of this study are:

1. Lessees' choices of the accounting method for leases are influenced by some economic and behavioral variables. These variables are corporate debt financing and the existence of restrictive debt covenants; management compensation plans tied to accounting income; corporate performance and political costs, and the magnitude of leasing activities.

2. The mandates of SFAS No. 13 had differential economic impact on affected lessees. That impact depends on the level of corporate debt financing, and the existence of growth opportunities facing the company.

Recommendations For Further Research

A normal extension of this project is to replicate the study with a bigger sample. The big sample size allows the researcher to arrive at general conclusions. An interesting group of study is lessees that used mix of accounting policies in accounting for their leases. An examination of the financial characteristics of that group would help in fully understanding lessees' accounting choices. Another dimension is to study the industry effect on accounting for leases. Some industries are heavily using leasing rather than buying assets. Examples of these industries are airlines, departmental stores, and fast food chains. Finally, and more important, is the use of the portfolio construction methodology used in this study for testing the market reaction to other regulated accounting areas.

APPENDIX A

EXAMPLE TO ILLUSTRATE THE EFFECTS OF DIFFERENT ACCOUNTING TREATMENTS (CAPITALIZATION/NONCAPITALIZATION) OF LEASES BY LESSEES ON KEY FINANCIAL VARIABLES.

Assume that two firms, firm X and firm Y, are identical in all aspects but the way they account for leases. Company X has been accounting for its leases as noncapital ones (operating), while company Y capitalizing its leases.

On January 1, 1976 both companies, X and Y, leased a property from company Z, the lessor, with the following assumptions:

lessor's cost of the leased property	\$ 5,000,000
fair value of the leased property on 1/176	5,000,000
estimated economic life of the property	10 years

Lease Terms:

- 1- the lease has a fixed noncancelable term of 5 years with a rental of \$1,000,000 payable at the beginning of each year;
- 2- the lessee guarantees the residual value at the end of the lease term of \$1,500,000, and the lessee is to receive any excess of the sale price of the property over the guaranteed amount at the end of the lease term;
- 3- the lease is renewable periodically based on a schedule of rentals and guarantees of the residual value over time;
- 4- the rentals specified are deemed to be fair;

5- the lessee depreciates his own properties on a straight line basis, and his borrowing rate is 10% .

Computation of Minimum Lease payments:

minimum rentals (\$1,000,000 x 5).....	\$ 5,000,000
lessee guarantee of residual value	
at the end of the lease term.....	<u>1,500,000</u>
Total minimum lease payments	6,500,000

Classification:

The above lease , according to SFAS No. 13, is qualified as capital lease since the present value of minimum lease payments is greater than 90 percent of the leased property's fair market value at the inception date* . However, prior to SFAS No. 13 the lease does not qualify as capital lease, and the treatment was deemed discretionary to management. Therefore, in this example, company X chose operating accounting treatment while company Y chose capitalization treatment.

Calculations*:

Present value of annual rental payments.....	\$4,169,860
(1,000,000 x 4.16986)	
Present value of guaranteed residual	931,380
(1,500,000 x .62092)	<u> </u>
Total present value	5,101,240
90% of the fair market value	4,500,000

Here , the present value of minimum lease payments (\$5,101,240) is greater than 90 percent of its fair market value(\$4,500,000) .

For the year ended December 31, 1976, the following balances as related to the lease should appear in company Y's financial statements:

Property under Capital Lease.....	\$4,300,000
(5,000,000 - 700,000 Dep. Exp.).	
Obligations under Capital Lease.....	4,000,000
(5,000,000 - First year payment 1,000,000)	
Interest Expense.....	500,000
(5,000,000 - 1,000,000) 12.5%	
Depreciation expense.....	700,000
(5,000,000 - 1,500,000) /5	

Had company X accounted for its lease as operating one, while company Y accounted for its lease as capital lease, the following compared financial statements and key financial ratios (variables) should have resulted:

Income Statement

12/31/1976

	Company	
	X	Y
Revenue	12,500,000	12,500,000
Expenses (but lease)	(10,000,000)	(10,000,000)
Lease expenses:		
lease rentals	(1,000,000)	000
Interest Expense	000	(500,000)
Depreciation Expense	000	(700,000)
	1,500,000	1,300,000
Income before taxes	1,500,000	1,300,000
Income Tax Expense (50%)	(750,000)	(650,000)
	750,000	650,000
Net Income	750,000	650,000
Dividends made 1976	300,000	300,000

Statement of Financial Position

12/31/1976

	<u>Company</u>	
	<u>X</u>	<u>Y</u>
<u>Assets:</u>		
Cash	420,000	420,000
Inventory	830,000	830,000
Accounts Receivable	200,000	200,000
Other Assets	<u>800,000</u>	<u>800,000</u>
Total Current Assets	<u>2,250,000</u>	<u>2,250,000</u>
Property, Plant and Equipment (net of Dep.)	(1) <u>3,000,000</u>	<u>7,300,000</u>
Total Assets:	<u>5,250,000</u>	<u>9,550,000</u>
<u>Liabilities & Ownership</u>		
Accounts Payable	600,000	600,000
Other Current Liabilities	(2) <u>400,000</u>	<u>1,462,500</u>
Total Current Liability	<u>1,000,000</u>	<u>2,062,500</u>
Bonds Payable (5%)	2,000,000	2,000,000
Obligations Under Capital Lease	(3) <u>000</u>	<u>3,437,500</u>
Long-Term Debt	<u>2,000,000</u>	<u>5,437,500</u>
<u>Stockholders' equity</u>		
Preferred Stock (10%)	500,000	500,000
Common Stock	500,000	500,000
Paid-in Capital	800,000	800,000
Retained Earnings	<u>450,000</u>	<u>350,000</u>
Total Stock H.E.	<u>2,250,000</u>	<u>2,150,000</u>
Total Liabilities & Stockholders	<u>5,250,000</u>	<u>9,550,000</u>

Footnotes:

(1) = 3,000,000 + 5,000,000 - 700,000 (Dep. Exp.)

(2) = 400,000 + 500,000 (Interest payable) + 562,500
(next year reduction of lease obligations)

(3) = 4,000,000 - 562,500 next year reduction of lease
obligations

Key Financial Variables (ratios):

	<u>Company</u>	
	<u>X</u>	<u>Y</u>
<u>Measures of Profitability</u>		
Earnings per share (a)	14 ⁰⁰	13 ⁰⁰
Return on total assets (b)	15%	10%
Return on net worth (c)	33%	30%
Return on invested capital (d)	19%	13%
<u>Measures of Short-Term Liquidity</u>		
Current ratio (e)	2.3	: 1.1
Quick ratio (f)	1.4	: .7
Times interest earned (g)	7.5	: 1.1
<u>Long-term Liquidity (solvency)</u>		
Long-term debt to C. equity (h)	1.1	: 3.3
Long-term debt to net worth (i)	.9	: 2.5
Long-term debt to invested capital (j)	.5	: .72

a)	$x = (750,000 - 50,000) / 50,000$	=	$14^{\underline{00}}$
	$y = (650,000 - 50,000) / 50,000$	=	$13^{\underline{00}}$
b)	$x = \frac{750,000 + [100,000 (1-.5)]}{5,250,000}$	=	15%
	$y = \frac{650,000 + 600,000 (1-.5)}{9,550,000}$	=	10%
c)	$x = 750,000 / 2,250,000$	=	33%
	$y = 650,000 / 2,150,000$	=	30%
d)	$x = \frac{750,000 + (100,000) (1-.5)}{4,250,000}$	==	19%
	$y = \frac{650,000 + 600,000 (1-.5)}{7,270,000}$	=	12.5%
e)	$x = 2,250,000 / 1,000,000$	=	2.25
	$y = 2,250,000 / 2,062,500$	=	1.1
f)	$x = (2,250,000 - 830,000) / 1,000,000$	=	1.4
	$y = (2,250,000 - 830,000) / 2,062,500$	=	.69
g)	$x = 750,000 / 100,000$	=	7.5
	$y = 650,000 / 600,000$	=	1.1
h)	$x = 2,000,000 / 1,750,000$	=	1.1
	$y = 5,437,500 / 1,650,000$	=	3.3
i)	$x = 2,000,000 / 2,250,000$	=	.9
	$y = 5,437,000 / 2,150,000$	=	2.5
j)	$x = 2,000,000 / 4,250,000$	=	.5
	$y = 5,437,500 / 7,587,500$	=	.72

APPENDIX B

NAMES OF COMPANIES INCLUDED IN THE SAMPLE (SHOWING THE
EFFECT OF LEASE CAPITALIZATION ON OUTSTANDING DEBT)

First: Names of Capitalizers

<u>No.</u>		<u>Percentage of Lease debt to total debt</u>
1.	Alpha Portland Industries	27
2.	A.O. Smith Corp.	8
3.	Amstar Corp.	22
4.	Armco Steel Corp.	30
5.	Arvin Industries Inc.	15
6.	Baird Atomic Inc.	5
7.	Brockway Glass Co. Inc.	5
8.	The Budd Co. & sub.	10
9.	Central Soya Co. Inc.	5
10.	Certainteed Corp.	23
11.	The Cessna Aircraft Co.	15
12.	The Coca Cola Co.	100
13.	Colgate-Palmolive Co.	9
14.	Eagle-Picher Industries	27
15.	Emhart Corp.	5
16.	Georgia Pacific Corp.	35
17.	H.H. Robertson Co.	20
18.	Hobart Corporation	10
19.	Inland Steel Co.	22
20.	Interlake Inc.	23
21.	Iowa Beef Processors, Inc.	47
22.	Kennecott Copper Corp.	5
23.	Lenox Incorporated	33
24.	Lukens Steel Co.	185
25.	Marhoefer Packing Co. Inc.	15
26.	National Presto Industries Inc.	285
27.	National Starch and Chemical Corp.	5
28.	National Steel Corporation	5
29.	Opelika Manufacturing Corporation	27
30.	Penn Traffic Co.	185
31.	Quaker State Oil Refining Co.	10
32.	Sola Basic Industries	12
33.	Sparton Corporation	18
34.	Stanedyne Inc.	5
35.	The Superior Oil Co.	11
36.	Union Camp Corporation	64
37.	United States Tobacco Co.	41
38.	Universal Leaf Tobacco Co.	45
39.	UV Industries Inc.	39
40.	W.T. Hall Printing Co.	43
41.	Wheeling Pittsburgh Steel Corporation	28

Second: Names of Noncapitalizers

No.		Potential % In- crease in Debt If Capitalizing
1.	Action Industries Inc.	28
2.	Addressograph Multi. Corp.	25
3.	Albertson's Inc.	115
4.	Alco Standard Corp.	15
5.	Allied Stores Corp.	60
6.	AMAX Inc.	8
7.	American Air Filter Co.	12
8.	American Brands Inc.	3
9.	American Hospital Supply	3
10.	American Standard Inc.	ND.
11.	AMFAC Inc.	24
12.	Arden-Mayfair Inc.	57
13.	Ashland Oil Inc.	33
14.	Atlantic Richfield Co.	47
15.	Beatrice Foods Co.	42
16.	Bemis Co. Inc.	11
17.	Big Star Foods Inc.	113
18.	Borg Warner Acceptance	ND
19.	Braniff International	63
20.	Burroughs Corporation	12
21.	CBS Inc.	89
22.	Chock Full O'Nuts Corporation	78
23.	City Stores Co.	22
24.	Cluett Peabody & Co.	43
25.	Combustion Engineering	25
26.	Commonwealth Oil	5
27.	Compagnie International	2
28.	Conagra Inc.	15
29.	Consolidated Package Corporation	68
30.	Copperwelled Corporation	2
31.	Crane Co.	21
32.	Crown Central Petroleum	16
33.	Crown Zellerbach	14
34.	Culbro Corporation	6
35.	Dart & Kraft Inc.	190
36.	Deere & Company	7
37.	Del Monte Corporation	12
38.	Dentsply International	5
39.	E.I. Dupont De Nemours	8
40.	Eastern Airlines	103
41.	Ethyle Corporation	8
42.	Evans Products	100
43.	First National Stores	100
44.	Frontier Airlines	52

ND : no disclosure by the company

45.	GAF Corporation & sub.	16
46.	Gamble-Skogmo Inc.	29
47.	General Foods Corp.	10
48.	Goldblatt Brothers Inc.	13
49.	Grand Union	240
50.	The Great Atlantic & Pacific Tea Co.	148
51.	Great Western United	24
52.	The Greyhound Corporation	9
53.	Gulf & Western Industries	ND
54.	Hardee's Food Systems	138
55.	Harnischteger Corporation	19
56.	Hart Schaffner & Marx Co.	15
57.	Hawaiian Airlines	124
58.	H.J. Heinz Co.	10
59.	Heublein Inc.	29
60.	The Hoover Co.	20
61.	Insilco Corp.	13
62.	International Multifoods Corp.	12
63.	International Telephone & Telegraph	15
64.	Joslyn Manufacturing Co.	5
65.	Koppers Co. Inc.	16
66.	The Kroger Co.	29
67.	Levi Strauss & Co.	ND
68.	J.B. Lippincott Co.	14
69.	Lockheed Aircraft	7
70.	R.H. Macy & Co.	48
71.	Marathon Oil	ND
72.	Marriott Corporation	14
73.	Marshall Field	69
74.	Nabisco Inc.	31
75.	National Tea Co.	72
76.	Neptune International Corporation	11
77.	Northrop Corporation	17
78.	Norton Simon Inc.	7
79.	Occidental Petroleum Co.	23
80.	Pennawalt Corporation	20
81.	J.C. Penney Co.	89
82.	Pennzoil Co.	5
83.	Peoples Drug Stores	208
84.	Pepsi Cola Co.	45
85.	Phelps Dodge Corp.	10
86.	Pitney-Bowe Inc.	35
87.	PSA Inc.	77
88.	Purolator Inc.	61
89.	Ralston Purina	83
90.	R.J. Reynolds Industries	9
91.	ROHM & Haas Co.	ND
92.	SCM Corporation	42
93.	G.D. Searle & Co.	7
94.	Sears Roebuck & Co.	32
95.	The Sherwin Williams Co.	17
96.	Standard Brands Inc.	70

97.	Standard Oil Co. of California	39
98.	Standard Oil Co. (Indiana)	20
99.	J.P. Stevens	8
100.	Tenneco Inc.	ND
101.	Texaco Inc.	24
102.	Triangle Industries Inc.	7
103.	Union Oil Co. of California	29
104.	United Brands	ND
105.	United Merchant & MFG	42
106.	United Nuclear Corporation	2
107.	Walgreen Co.	64
108.	Walter Kidde & Co.	17
109.	Ward Foods Inc.	7
110.	Warner Lambert Corp.	7
111.	Westpoint Pepperell Inc.	48
112.	F.W. Woolworth	195
113.	I.C. Industires	28

APPENDIX CILLUSTRATIVE EXAMPLE OF THE IMPACT OF LEASE CAPITALIZATION
ON GROWTH OPPORTUNITIES UNDERTAKING

Assume the following conditions about firm K (a hypothesized case):

- total capitalized assets	\$ 10,000,000
- equity capital	5,000,000
- debt capital	5,000,000
- off-balance sheet leases	6,000,000

Firm K has a growth investment project of \$5,000,000. The minimum rate of return that matches the operating characteristics of the project for all equity capital financing is 25%. However, the project is expected to yield only 18%.

From the data set above, firm K has a financing policy of 50% equity and 50% debt. According to Brealy and Myers (1981) the project adjusted rate of return is a function of corporate capital structure:

$$R^* = R_d(1-T) \frac{D}{V} + R_e \frac{E}{V}$$

where:

R^* = the adjusted rate of return

R_d = the borrowing rate of firm K

R_e = the rate of return on equity capital

V = the value of the firm

T = corporate income tax rate

So, for company K, the adjusted(hurdle) rate of return is:

$$R^* = .15(1-.5).5 + .25 (.5) = 16.25\%$$

Conclusion I

Firm K, under its current financing policy, is willing to take the investment project since the expected rate of the project (18%) exceeds the company's hurdle rate of return (16.25%). However, the firm will reject the project if to be financed by all equity capital. The hurdle return for all equity capital is 25%.

Had firm K complied with SFAS No. 13, the debt financing percentage would have risen significantly ($11,000,000 / 15,000,000 = .73$). That increase in debt financing from 50% to 73% constrains firm K in raising new debt, and may bring on violation of existing debt covenants. The following actions can be adapted by firm K:

- 1) finance the new project by all equity capital (issue new equity). Under this condition the project is not attractive to firm K since its expected return is less than the equity rate of return.
- 2) employ lower percentage of debt in financing the new project. Assume the company was able to raise as much as 20% debt of the total value of the new project. Then its adjusted rate of return is :

$$R^* = .15(1-.5) .2 + .25(.8) = 21.5\%$$
 , which is higher than the project's rate of return. Again the project will be rejected.
- 3) the firm was able to get debt financing of the same old percentage, 50% of capitalized assets, but the

interest rate was raised to 20%. Here , the adjusted rate of return is:

$R^* = .2(1-.5).5 + .25(.5) = 22.5\%$, which still higher than the project expected rate of return.

Conclusion II

Capitalization of off-balance sheet leases by company K can affect it's investing decisions through the expected alterations in the firm's hurdle rate of return.

APPENDIX D

CHARACTERISTICS OF THE PROBIT REGRESSION MODEL

In cases where the dependent variable is qualitative or discrete (i.e., takes values of 1,2,3,..., etc.), the Ordinary Least Square regression model becomes inappropriate to use for regression because the variable violates the assumptions of : 1) that the dependent variable is continuous and normally distributed; 2) homoscedasticity.

The "probit" model bridges the above inconsistency by expressing the dependent variable, say Y_i , in terms of a linear probability. That is :

$$Y_i = \begin{cases} P_i/1 & \text{if } y= 1 \\ 1-P_i & \text{if } y= 0 \end{cases}$$

In the above equation P_i is the probability that the event will occur given the independent variable X_i ; and $1-P_i$ is the probability that the event will not occur. With this transformation, the dependent variable becomes continuously distributed,²¹ although practically the model preserves the truncation assumption.

In our case the probit model will take the form:

$$Y_i = XB + M$$

where X is the matrix of the explanatory variables, B is a vector of regression coefficients, and M is a vector of

²¹See in details, G.Jude, W. Griffiths, R. Hill, and T.Lee, The Theory and Practice of Econometrics (New York: John Willy and Sons, 1978).

disturbances. The model assumes:

- a) $M_i \sim \text{IN}(0,1)$
- b) the variable V is normally distributed with $E(V) = 0$, and variance = 1
- c) the probability of the variable (V) represents the normal density function of (V) and has a cumulative distribution function as :

$$P(V) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^V e^{-x^2} dx$$
 , and from that function we get the expected value of Y_i :

$$E(Y_i) = \int_{-\infty}^{X_i B} P(V) d(V) , \text{ and expected } M_i :$$

$$E(M_i) = \int_{-\infty}^{X_i B} P(V) - X_i B = 0$$

To estimate the model coefficients (B), Probit uses the Maximum Likelihood Estimates (MLE) method.

BIBLIOGRAPHY

- Abdel-Khalik, A. Rashad. "The Effect of Aggregating Accounting Reports on the Quality of the Lending Decision: An Empirical Investigation." Empirical Research in Accounting: Selected Studies. Supplement to Journal of Accounting Research (1973), pp. 104-138.
- _____. "The Economic Effects on Lessees of FASB Statement No. 13, Accounting for Leases." Research Report, FASB, Stamford, Connecticut, 1981.
- _____; Thompson, Robert B. and Taylor, Robert E. "The Impact of Reporting Leases off the Balance Sheet on Bond Risk Premiums." In FASB Research Report, Economic Consequences of Financial Accounting Standards: Selected Papers: FASB, 1978.
- _____. and Keller, Thomas. "Earnings or Cash Flows: An Experiment on Functional Fixation and the Valuation of the Firm." Studies in Accounting Research #16. Sarasota, Florida: American Accounting Association, 1979.
- _____. and McKeown, J. "Understanding Accounting Changes in an Efficient Market: Evidence of Differential Reaction." The Accounting Review (October 1978), pp. 851-868.
- Alchian, Armen and Harold Demsetz. "Production, Information Costs, and Economic Organization." American Economic Review (December 1971), pp. 777-795.
- Anthony, R. and Dreaden, J. Management Control Systems. Homewood, Illinois: Richard D. Irwin, 1980.
- Archibald, T. Ross. "Stock Market Reaction to the Depreciation Switch Back." Accounting Review (January 1972), pp. 22-30.
- Baker, E. Richard. "Leasing and the Setting of Accounting Standards: Mapping the Labyrinth." Journal of Accounting, Auditing and Finance (Spring 1980), pp. 197-206.

- Ball, R. "Changes in Accounting Techniques and Stock Prices." Empirical Research in Accounting. Selected Studies. Supplement to Journal of Accounting Research 10 (1972), pp. 159-178.
- _____ and Foster, G. "Corporate Financial Reporting: A Methodological Review of Empirical Research. Studies on Current Research Methodologies in Accounting." Supplement to Journal of Accounting Research (1982), pp. 161-248.
- Beaver, W. "Market Efficiency." The Accounting Review Vol. LVI, No. 1 (January 1981), pp. 23-37.
- _____. "Economic Properties of Alternative Security Return Method." Journal of Accounting Research (Spring 1981), pp. 163-184.
- Ben-Zion, Uri and Sol. S. Shalit. "Size, Leverage, and Dividend Record as Determinants of Equity Risk." The Journal of Finance (September, 1975), pp. 1015-1026.
- Bernstein, Leopold A. Financial Statement Analysis: Theory, Application, and Interpretation. Homewood, Illinois: Richard D. Irwin, Inc., 1974.
- Biddle, Gary. "Accounting Methods and Management Decisions: The Case of Inventory Costing and Inventory Policy." Journal of Accounting Research (Supplement 1980), pp. 235-280.
- Black, F., M. Jensen and M. Scholes. "The Capital Asset Pricing Model: Some Empirical Tests." In M. Jensen (ed.), Studies in the Theory of Capital Markets (New York: M. Praeger, Publishers, 1972), pp. 79-121.
- Boulding, K. "Implications for General Economics of More Realistic Theories of the Firm." American Economic Review (May 1952), pp. 30-44.
- Bowen, Robert, Eric Noreen and John Lacey. "Determinants of the Corporate Decision to Capitalize Interest." Journal of Accounting and Economics 3, pp. 151-179.
- Bowman, R. G. "The Theoretical Relationships Between Systematic Risk and Financial (Accounting) Variables." The Journal of Finance #3 (June 1979), pp. 617-630.
- _____. "The Debt Equivalence of Leases: An Empirical Investigation." The Accounting Review (April 1980), pp. 237-253.

- Brozen, Y. "Significance of Profit Data for Antitrust Policy." The Antitrust Bulletin (1969), pp. 119-139.
- Casey, Cornelius J. "Variation in Accounting Information Load: The Effect on Loan Officers' Prediction of Bankruptcy." The Accounting Review (January 1980), pp. 36-49.
- Chen, A. H. and H. Kim. "Theories of Corporate Debt Policy: A Synthesis." The Journal of Finance (May 1979), pp. 371-385.
- Collins, D. W., M. S. Rozeff and D. Dhaliwal. "The Economic Determinants of Market Reaction to Proposed Mandatory Accounting Changes in the Oil and Gas Industry: A Cross-Sectional Analysis." Journal of Accounting and Economics 3 (1981), pp. 37-71.
- Cooper, W. "Theory of the Firm: Some Suggestions for Revision." American Economic Review (December 1949), pp. 1204-1222.
- Cyert, R. and James March. A Behavioral Theory of the Firm. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963.
- Dhaliwal, Dan S. "The Effects of the Firm's Capital Structure on the Choice of Accounting Methods." The Accounting Review (January 1980), pp. 78-84.
- Dieter, Richard. "Is Lessee Accounting Working?" The CPA Journal (August 1979), pp. 13-19.
- _____ and Arthur Wyatt. "Get It Off The Balance Sheet!" Financial Executive (January 1980), pp. 42-48.
- Duke, R., Thomas Dyckman and John A. Elliott. "Accounting for Research and Development Costs: The Impact on Research and Development Expenditures." Journal of Accounting Research, Supplement (1980), pp. 1-37.
- Dykman, Thomas R. and Abbie J. Smith. "The Effects of the Issuance of the Exposure Draft and FASB Statement No. 19 on the Security Returns of Oil and Gas Producing Companies." A FASB Research Report. Stamford, Connecticut: FASB, 1978.
- Elam, R. "The Effect of Lease Data on The Predictive Ability of Financial Ratios." The Accounting Review (January 1975), pp. 25-43.

- El-Gazzar, Samir, Steven Lilien and Victor Pastena.
"Accounting for Leases by Lessees: A Positive Approach."
Working Paper. Baruch College: 1983.
- Evans, T., W. Folks and M. Jillings. FASB Research Report.
The Impact of Statement of Financial Accounting Stan-
dards No. 8 on the Foreign Exchange Risk Management
Practices of American Multinationals: An Economic
Impact Study. Stamford, Connecticut: FASB, 1978.
- Fama, E. "Agency Problems and the Theory of the Firm."
Journal of Political Economy (April 1980), pp. 288-307.
- _____. "Stock Returns, Real Activity, Inflation, and
Money." American Economic Review 71 (1981), pp. 545-
565.
- Ferrara, W., T. James and D. Mark. The Lease-Purchase
Decision. New York: National Association of Accoun-
tants, 1979.
- Felton, J. "Concentration, Condition of Entry, and Profit
Rates." Mississippi Valley Journal of Business and
Economics (Spring 1966), pp. 1-13.
- Folgeston, James H. "The Impact of Changes in Accounting
Principles on Restrictive Covenants in Credit Agreement
and Indentures." The Business Lawyer (January 1978),
pp. 769-787.
- Foster, G. "Quarterly Accounting Data: Time Series
Properties and Predictive-Ability Results." The
Accounting Review (January 1977), pp. 1-21.
- _____. Financial Statement Analysis. Englewood Cliffs,
New Jersey: Prentice-Hall, Inc., 1978.
- _____. "Accounting Policy Decisions and Capital
Market Research." Journal of Accounting and Economics 2
(1980), pp. 29-62.
- Gonedes, N. J. "Capital Market Equilibrium and Annual
Accounting Numbers: Empirical Evidence." Journal of
Accounting Research (Spring 1974), pp. 26-62.
- _____. "Risk, Information, and Effects of Special
Accounting Items on Capital Market Equilibrium."
Journal of Accounting Research (Autumn 1975), pp. 220-
256.

- Gonedes, N. J. and N. Dopuch. "Capital Market Equilibrium, Information Production, and Selecting Accounting Techniques: Theoretical Framework and Review of Empirical Work." Studies on Financial Accounting Objectives. 1974 Supplement to the Journal of Accounting Research 12, pp. 48-129.
- _____. "Evidence on the Tax Effects of Inflation Under Historical Cost Accounting Methods." Journal of Business 54 (1981), pp. 227-270.
- Gordon, Myrton, B. N. Horwitz and P. T. Meyers. "Accounting Measurements and Normal Growth of the Firm." In Ijiri, Jaedicke and Nelson (eds), Research in Accounting Measurements (AAA 1966), pp. 221-231.
- Gujarati, D. Basic Econometrics. New York: McGraw-Hill Book Company, 1978.
- Hagerman, R. L. and M. E. Zmijewski. "Some Economic Determinants of Accounting Policy Choice." Journal of Accounting and Economics 1 (1979), pp. 141-161.
- Haley, Charles W. and Lawrence D. Shall. The Theory of Financial Decisions. New York: McGraw Hill, 1973.
- Hall, Richard. Organizations, Structure and Process. 2nd ed. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1977.
- Hamada, S. Robert. "The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks." The Journal of Finance (May 1972), pp. 435-451.
- Harring, J. R. "Accounting Rules and the Accounting Establishment." Journal of Business, Vol. 52 (1979).
- Harrison, T. "Different Market Reactions to Discretionary and Nondiscretionary Accounting Changes." Journal of Accounting Research (Spring 1977), pp. 84-107.
- Hawawini, G. and P. Michel. "Mandatory Financial Disclosure and Stock Prices." Working Paper. Baruch College (February 1982).
- Holthausen, R. "Evidence on the Effect of Bond Covenants and Management Compensation Contracts on the Choice of Accounting Techniques: The Case of the Depreciation Switch-Back." Journal of Accounting and Economics 3 (1981), pp. 73-109.

- Jensen, Michael C. and William H. Meckling. "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure." Journal of Financial Economics (October 1976), pp. 305-360.
- Johnson, C. "Management's Role in External Accounting Measurements." In R. Jaedicke, Y. Ijiri and O. Nielson (eds.), Research in Accounting Measurements (AAA), pp. 88-100.
- Johnson, J. Econometrics Methods. New York: McGraw-Hill Book Company, 1972.
- Judge, G., W. Griffiths, R. Hill, and T. Lee. The Theory and Practice of Econometrics. New York: John Wiley & Sons, 1978.
- Larker, D. and Revsine, L. "The Oil and Gas Accounting Controversy: An Analysis of Economic Consequences." The Accounting Review (October 1983), pp. 706-732.
- Leftwich, Richard. "The Impact of Mandatory Changes in Accounting Principles on Corporate Loan Agreements." Journal of Accounting and Economics (1980), pp. 3-36.
- _____. "Accounting Information in Private Markets: Guidance from Private Lending Agreements." The Accounting Review (January 1983), pp. 23-42.
- Leibenstein, H. "A Branch of Economics is Missing: Macro-Micro Theory." Journal of Economics Literature (June 1979), pp. 477-502.
- Lev, Baruch. "The Impact of Accounting Regulations on Stock Market: The Case of Oil and Gas Companies." The Accounting Review (July 1979).
- Levy, Haim. "Equilibrium in An Imperfect Market: A Constraint on the Number of Securities in the Portfolio." Economic Review 68 (1978), pp. 643-658.
- Lilien, Steven and Victor Pastena. "Determinants of Intra-method Choice in the Oil and Gas Industrv." Journal of Accounting and Economics 4, pp. 145-170.
- Mann, M. "Seller Concentration, Barriers for Entry, and Rates of Return in Thirty Industries 1950-1960." The Review of Economics and Statistics (1966), pp. 269-307.

- Mansfield, E. "Entry, Gibrat's Law, Innovation and Growth of Firms." The American Economic Review 42 (1962), pp. 1023-1042.
- Manson, J. R. and Anthony Downs. "A Theory of Large Managerial Firms." The Journal of Political Economy. The University of Chicago Press. (June 1965), pp. 211-236.
- Modigliani, F. and M. Miller. "The Cost of Capital, Corporate Finance, and the Theory of Investment." American Economic Review (June 1958), pp. 148-261.
- _____ and _____. "Dividend Policy, Growth and the Valuation of Shares." The Journal of Business. Vol. XXXIV. (October 1961), pp. 411-433.
- Myers, S. C. "Determinants of Corporate Borrowing." Journal of Financial Economics (November 1977).
- Nakayama, Mie, Steven Lilien and Martin Benis. "Due Process and FASB No. 13." Management Accounting. Vol. LXII, No. 10 (April 1981), pp. 49-53.
- Ng, David. "An Information Economics Analysis of Financial Reporting and External Auditing." The Accounting Review (October 1978), pp. 910-920.
- Patell, J. "Corporate Forecasts of Earnings Per Share and Stock Price Behavior: Empirical Tests." Journal of Accounting Research (Autumn 1976), pp. 246-276.
- Prakash, P. and Rappaport, A. "Information Inductance and Its Significance for Accounting." Accounting Organization and Society 2, No. 1 (1977), pp. 29-38.
- Pratt, J. "Risk Aversion in The Small and in The Large." Econometrics, Vol. 32 (January-April 1964), pp. 123-136.
- Ro, Byung T. "The Disclosure of Capitalized Lease Information and Stock Prices." Journal of Accounting Research (Autumn 1978), pp. 315-40.
- Ross, S. "The Economic Theory of Agency: The Principal's Problem." American Economic Review (May 1973), pp. 134-139.

- Scherer, F. Industrial Market Structure and Economic Performance. Rand McNally College Publishing Co., 1970.
- Siegfried, John. "Determinants of Antitrust Activity." Journal of Law and Economics (October 1975), pp. 559-581.
- Smith, Clifford and Jerold Warner. "On Financial Contracting: An Analysis of Bond Covenants." Journal of Financial Economics (July 1979), pp. 117-161.
- Spence, M. "The Economics of Internal Organization: An Introduction." The Bell Journal of Economics (Spring 1975), pp. 163-172.
- Stigler, G. Capital and Rates of Return in Manufacturing Industries: A Study by the National Bureau of Economics Research. Princeton University Press, 1963.
- Stieglitz, Joseph E. "A Re-examination of Mogiliani-Miller Theorem." The American Economic Review (1974), pp. 784-793.
- Stone, C. Where the Law Ends: The Social Control of Corporate Behavior. New York: Harper & Row, 1975.
- Sunder, S. "Relationship Between Accounting Changes and Stock Prices: Problems of Measurement and Some Empirical Evidence." Empirical Research in Accounting: Selected Studies. Supplement to Journal of Accounting Research (1973), pp. 1-45.
- Watts, Ross L. and J. L. Zimmerman. "Towards a Positive Theory of the Determination of Accounting Standards." The Accounting Review (January 1978), pp. 112-134.
- _____ and _____. "The Demand for and Supply of Accounting Theories: The Market for Excuses." The Accounting Review (April 1979), pp. 273-305.
- Williamson, O. The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964.
- Zimmerman, Jerold. "Taxes and Firm Size." Journal of Accounting and Economics 5 (1983), pp. 119-150.