
Joyce Ann Strawser
Louisiana State University and Agricultural & Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_disstheses

Recommended Citation
https://digitalcommons.lsu.edu/gradschool_disstheses/4745

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Historical Dissertations and Theses by an authorized administrator of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.
INFORMATION TO USERS

The most advanced technology has been used to photograph and reproduce this manuscript from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book. These are also available as one exposure on a standard 35mm slide or as a 17” x 23” black and white photographic print for an additional charge.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6” x 9” black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI
University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600
An experimental research study on the effect of accrual of nonpension postretirement benefit costs on loan officers' decisions

Strawser, Joyce Ann, Ph.D.
The Louisiana State University and Agricultural and Mechanical Col., 1989
AN EXPERIMENTAL RESEARCH STUDY ON THE EFFECT OF ACCRUAL OF NONPENSION POSTRETIREMENT BENEFIT COSTS ON LOAN OFFICERS' DECISIONS

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

The Department of Accounting

by

Joyce Ann Strawser
B.B.A., Texas A&M University, 1983
May 1989
ACKNOWLEDGEMENTS

I could not have completed this dissertation research without the support and assistance of many special people. I am truly indebted to all of these individuals.

First and foremost, I would like to express my gratitude to the members of my committee: Professors Anthony Curatola, Robert Harper, Margaret Shelton, Stephen Looney, and, most especially, my chairman, Vincent Brenner. All of these members made significant contributions to the research reported here. Perhaps more importantly, they provided valuable advice and encouragement throughout my years as a doctoral student.

I am also grateful to family members and friends who greatly assisted me in preparing and mailing the survey instrument. Special thanks goes to Mattie Porter, who willingly gave of her time and expertise to help me compose and print the questionnaires and mailing labels used in the survey. Appreciation is also extended to my parents, my grandparents, my brothers Jeff and Billy, and Danielle Benjamin for helping with the tedious and time-consuming task of stuffing, labeling, and sorting questionnaires.

A special expression of appreciation goes to my brother Jerry and his wife Susan for putting up with me during my frequent stays in Baton Rouge and helping me so
much in too many ways to mention here. Thanks also to Karen McKenzie and Mike Hoffman for helping me cope with various administrative matters while I was not in residence at LSU.

Most of all, though, I appreciate the love and emotional support provided by my friends and family, who stood by me in times of crisis and never doubted that I would complete this project.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF EXHIBITS</td>
<td>vi</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>vii</td>
</tr>
<tr>
<td><strong>Chapter</strong></td>
<td></td>
</tr>
<tr>
<td>1. OVERVIEW OF THE STUDY</td>
<td>1</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Nature of the Nonpension Postretirement</td>
<td>5</td>
</tr>
<tr>
<td>Benefit Obligation</td>
<td>6</td>
</tr>
<tr>
<td>Legal Status</td>
<td>9</td>
</tr>
<tr>
<td>Nonpension Postretirement Benefits as</td>
<td>11</td>
</tr>
<tr>
<td>Deferred Compensation</td>
<td></td>
</tr>
<tr>
<td>The FASB's Position</td>
<td></td>
</tr>
<tr>
<td>Research Questions</td>
<td>15</td>
</tr>
<tr>
<td>Contributions</td>
<td>18</td>
</tr>
<tr>
<td>Summary</td>
<td>20</td>
</tr>
<tr>
<td>2. REVIEW OF THE LITERATURE</td>
<td>21</td>
</tr>
<tr>
<td>Nonpension Postretirement Benefits as</td>
<td>21</td>
</tr>
<tr>
<td>Deferred Compensation</td>
<td></td>
</tr>
<tr>
<td>Pensions as Deferred Compensation -</td>
<td>22</td>
</tr>
<tr>
<td>Theoretical Perspectives</td>
<td></td>
</tr>
<tr>
<td>Empirical Research on Nonwage Compensation</td>
<td>26</td>
</tr>
<tr>
<td>Ehrenberg</td>
<td>26</td>
</tr>
<tr>
<td>Woodbury</td>
<td>27</td>
</tr>
<tr>
<td>White</td>
<td>28</td>
</tr>
<tr>
<td>Halperin and Tzur</td>
<td>29</td>
</tr>
<tr>
<td>Summary</td>
<td>31</td>
</tr>
<tr>
<td>Empirical Research on Lease and Pension</td>
<td>32</td>
</tr>
<tr>
<td>Obligations</td>
<td></td>
</tr>
<tr>
<td>Empirical Research on Lease</td>
<td>32</td>
</tr>
<tr>
<td>Obligations</td>
<td></td>
</tr>
<tr>
<td>Market Studies</td>
<td>32</td>
</tr>
<tr>
<td>Behavioral Studies</td>
<td>34</td>
</tr>
<tr>
<td>Summary</td>
<td>35</td>
</tr>
</tbody>
</table>
Empirical Research on Pension Obligations .......................... 35
Market Studies ........................................ 36
Behavioral Studies ...................................... 39
Summary .................................................. 39
Implications of Lease and Pension Findings for Nonpension Postretirement Benefit Research . 40
Research on Nonpension Postretirement Benefit Costs and Obligations ........... 41
Vejlupek and Cropsey ........................................ 43
Scott, Adams and Strawser .................................. 45
Gerboth .......................................................... 47
Schwartz and Lorentz ......................................... 48
The FERF Study .............................................. 49
The EBRI Study .............................................. 54
Summary .................................................. 57

3. METHODOLOGY .................................................. 59
Research Hypotheses ........................................... 59
Data Collection .............................................. 61
Subjects .......................................................... 61
Sampling Procedures ......................................... 62
Task .............................................................. 63
The Variables .................................................. 67
Independent Variable ......................................... 67
Dependent Variables ......................................... 74
Decision Variables ............................................. 75
Perception Variables .......................................... 78
Expectations of the Hypotheses .............................. 80
Statistical Analysis ........................................... 84
Decision Variables ............................................. 84
Perception Variables .......................................... 88

4. DATA ANALYSIS .................................................. 89
Data Collection .............................................. 89
Response Rate .................................................. 90
Demographics .................................................. 91
Statistical Analysis - Decision Variables 94
Test of the Experimental Manipulation . 98
Tests of Hypotheses .......................................... 101
Effect of Method of Accounting on Loan Officers' Decisions .......... 101
Nonpension Benefit Obligation Versus Term Loan Debt . 104
Effect of the Existence of a Nonpension Postretirement Benefit Plan ........................................... 106
Statistical Analysis - Perception Variables .......................... 108
Effect of method of Accounting on Perceptions of the ENPB Obligation 110
Summary of the Results ...................................... 112
5. SUMMARY AND CONCLUSIONS ............................................ 115
   Summary ......................................................... 115
   Implications ..................................................... 118
   Limitations ....................................................... 120
   Future Research ................................................. 122

BIBLIOGRAPHY .......................................................... 124

APPENDIX
   A. Sample Questionnaire - NPB-Accrued Statements ............ 131
   B. Sample Questionnaire - NPB-Cash Statements .............. 138
   C. Sample Questionnaire - Equal Debt Statements .......... 145
   D. Sample Questionnaire - No Debt Statements ............ 152
   E. Results of Tests for Effect of Demographic Variable Classification ............. 159
   F. Results of Tests for Nonresponse Bias ..................... 161

VITA ................................................................. 163
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-1</td>
<td>Distribution of Subjects Among Experimental Treatments</td>
<td>91</td>
</tr>
<tr>
<td>4-2</td>
<td>Summary of Demographic Data</td>
<td>92</td>
</tr>
<tr>
<td>4-3</td>
<td>Group Means and Variances for the Decision Variables</td>
<td>95</td>
</tr>
<tr>
<td>4-4</td>
<td>Tests of Hypotheses 1 and 2 - Tamhane Procedure</td>
<td>102</td>
</tr>
<tr>
<td>4-5</td>
<td>Tests of Hypotheses 3 and 4 - Tamhane Procedure</td>
<td>105</td>
</tr>
<tr>
<td>4-6</td>
<td>Tests of Hypotheses 5 and 6 - Tamhane Procedure</td>
<td>107</td>
</tr>
<tr>
<td>4-7</td>
<td>Group Means and Variances for the Perception Variables</td>
<td>110</td>
</tr>
<tr>
<td>4-8</td>
<td>Tests of Hypotheses 7 and 8</td>
<td>111</td>
</tr>
<tr>
<td>4-9</td>
<td>Summary of Hypothesis Tests Results</td>
<td>114</td>
</tr>
<tr>
<td>E-1</td>
<td>Effect of Demographic Variable Classification on Probability Assessment</td>
<td>160</td>
</tr>
<tr>
<td>E-2</td>
<td>Effect of Demographic Variable Classification on Maximum Loan Recommendation</td>
<td>160</td>
</tr>
<tr>
<td>F-1</td>
<td>Comparison of Early and Late Respondents - Probability Variable</td>
<td>162</td>
</tr>
<tr>
<td>F-2</td>
<td>Comparison of Early and Late Respondents - Loan Amount Variable</td>
<td>162</td>
</tr>
<tr>
<td>Exhibit</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>3-1</td>
<td>Financial Statements Representing All Levels of Type of Obligation</td>
<td>65</td>
</tr>
</tbody>
</table>
ABSTRACT

On February 14, 1989, the Financial Accounting Standards Board issued an exposure draft entitled "Employers' Accounting for Postretirement Benefits Other Than Pensions." The provisions of this proposed Statement of Financial Accounting Standards would require that the costs of nonpension postretirement benefits be recognized in employer financial statements over the service lives of employees expected to receive benefits. This study examined the decisions of commercial bank loan officers in an experiment designed to determine whether the proposed accrual of postretirement health care benefits affects the decisions of financial statement users.

The following issues were also addressed: (1) Does the nonpension postretirement benefit obligation affect users' decisions in the same manner as an equivalent amount of term loan debt?, (2) Does the existence of a nonpension postretirement benefit plan affect the decisions of users?, and (3) Does the method of accounting for nonpension postretirement benefits affect users' perceptions of this obligation as a liability. A mail questionnaire approach was used to contact a random sample of commercial bank loan officers. The subjects were asked to analyze the financial statements of a hypothetical loan applicant and provide two lending decisions: (1) an assessment of the applicant's
ability to repay a $3,500,000 term loan and (2) a statement of the maximum loan amount they would lend the hypothetical borrower. Subjects were also asked to react to two statements concerning the nature of an employer's obligation to provide nonpension retiree benefits.

The findings of this research do not support the FASB's view that accrual accounting treatment of nonpension postretirement benefit costs will improve financial statement users' decisions. The findings also do not provide evidence that users view a nonpension postretirement benefit obligation as being any different from other more conventional forms of debt. Similarly, the results do not indicate that the existence of a nonpension postretirement benefit plan has an effect on users' decisions or that the method of accounting for such a plan influences users' perceptions concerning the employer's commitment to provide benefits. However, experimental evidence suggests that failure to find support for these hypotheses might be attributable to a weak manipulation of the independent variable.
CHAPTER 1
OVERVIEW OF THE STUDY

Introduction

In the wake of debate over the proper accounting for the employer's pension liability, increasing attention has been focused on a similar corporate obligation -- the employee's nonpension postemployment benefit package. Often referred to as "other" postemployment benefits, these obligations include all forms of benefits, other than retirement income itself, provided by an employer to former employees and/or their beneficiaries [FASB, 1981]. Examples of nonpension postemployment benefits include retiree health care benefits, life insurance provided outside a pension plan, legal advisory assistance, layoff benefits, and disability benefits. Most employers promise these future benefits to their employees but only a handful recognize that promise in their financial statements.

In his 1984 autobiography Iacocca, Lee Iacocca, chairman of the Chrysler Corporation, characterized the high cost of employee medical benefits as a major problem faced by the auto industry. The following excerpt from this book provides an indication of the materiality of these benefits.

When I came to Chrysler, I saw that Blue Cross/Blue Shield had already become our largest supplier. They were actually billing us more
than our suppliers of steel and rubber! Chrysler, Ford, and GM are now paying $3 billion a year just for hospital, surgical, medical, and dental insurance (H-S-M-D), plus all pharmaceutical bills. At Chrysler, that comes to $600 million or about $600 per car. All told, that adds up to over $1 million a day! [p. 306]

Although the amounts mentioned by Iacocca include the costs of providing medical benefits to active employees as well as retirees, many sources indicate that the obligation for retiree benefits alone is indeed significant. According to a recent Coopers & Lybrand Executive Alert, other postemployment benefits have become, over the past twenty years, much more important than pensions in terms of their cost to the sponsoring employers, the level and variety of benefits involved, and the number of employees covered [Coopers & Lybrand, 1985]. Further, while the vast majority of large employers and even many smaller companies provide medical and life insurance benefits to their retired employees, very few companies disclose liabilities for these obligations in their financial statements or set aside funds in advance to pay them [Searfoss and Erickson, 1988; Stagg, 1988]. A recent Institutional Investor survey indicates that while more than ninety percent of the respondent companies provide their employees with postretirement health and life insurance benefits, only fourteen percent of the respondents reported that they prefund these obligations. Moreover, approximately forty percent of the respondent companies make no attempt whatsoever to estimate the size of these liabilities
Because so few sponsoring companies track postretirement benefit obligations, it is difficult, if not impossible, to accurately estimate the magnitude of these unrecognized liabilities. Nevertheless, some calculations of these amounts have been attempted. In June of 1987, a representative of the Employee Benefit Research Institute testifying before the U.S. House Select Committee on Aging estimated that private employers' unfunded liability for current retirees' health benefits may be as high as $60 billion; when retirees of public employees are added, that amount grows to $85 billion. Incorporating active employees expected to be eligible for postretirement health care benefits increases this obligation even further, with estimates of the full unfunded obligation for postretirement health care ranging from $100 billion (1986 Department of Labor estimate) to $2 trillion (estimated by Joseph Califano, former secretary of the Department of Health, Education, and Welfare). In contrast, the Pension Benefit Guaranty Corporation's $45 billion unfunded liability for pension benefits seems a minor amount [Bureau of National Affairs, 1987, p. 1088].

From an individual employer perspective, a recent survey of 40 major corporations representing a wide variety of industry groups indicates that most companies have postretirement health care obligations ranging from $25 million to $1.5 billion [Bingle Cowin Duggan & Associates,]
1987]. More specifically, the New York Times recently reported that Allied-Signal, Inc.'s total obligation for future retirees was approximately equal to half the company's market capitalization — about $2.25 billion ["Costly Accounting Change Proposed", 1988]. LTV Corporation disclosed a similar figure when, in the course of Chapter 11 proceedings, it recorded a $2.26 billion charge to reflect the potential cost of medical and life insurance benefits for its current and retired employees. LTV said that the change in accounting principle reduced third quarter earnings by $32.1 million ["LTV to Reserve...", 1988].

In a panel discussion focused on the issue of nonpension postretirement benefits, one of the three participating retiree benefits experts described the results of an analysis performed for a client concerned with the potential liability associated with his company's retiree medical benefits program. After developing costs and accrued liabilities under a variety of assumptions and actuarial cost methods, the following alternative results were reported:

- Under one low cost scenario, annual cost would have been comparable to premiums currently being paid, but a liability would have been recorded on the balance sheet which would have more than wiped out the company's entire net worth.

- Under a different scenario, no liability would have been recorded initially but annual cost would have ranged from 130% to over 1000% of the present premiums, depending on inflation assumptions.
Another approach would have required both the recording of a liability of more than ten times net worth and an annual expense of more than ten times the premiums currently being paid [American Academy of Actuaries, 1984].

Nature of the Nonpension Postretirement Benefit Obligation

Historically, the nonpension component of the employee's postretirement benefit package has received little attention from either an accounting or financial control standpoint. Compensation in the form of medical, dental, and life insurance benefits was initially provided only for active employees and the costs of these programs were generally insignificant [Akresh, 1985]. Now, however, with an overwhelming majority of employers providing these benefits after retirement, a combination of two environmental factors -- rapid health care cost inflation and a changing demographic mix -- has led to a dramatic increase in the costs associated with these benefit programs. For the average company, medical plan costs doubled between 1980 and 1983 [Ostuw, 1985, p. 26] and growth in the cost of health care has continued, with increases in medical care cost significantly exceeding the general rate of inflation in recent years [Employee Benefit Research Institute, 1987]. In addition, the significant post-World War II decline in the ratio of active employees to retirees is projected to continue, leaving companies that have been, in effect, borrowing from active employees to pay retirees in danger of being unable to afford to continue paying benefits at present levels [Schwartz and Lorentz, 1986]. Consequently, increased attention and
concern has been focused on the issue of nonpension postretirement benefit costs.

**Legal Status**

A significant number of sponsoring companies have assumed that postretirement benefit packages are obligations that are conditioned on company revenues and may be altered or terminated at the option of the company at any time. For example, in the previously mentioned *Institutional Investor* survey, 42.4 percent of the respondent companies characterized postretirement benefits as voluntary benefits which can be increased or reduced, depending on corporate financial health ["Facing the Costs...", 1985].

Several court decisions involving retirees' ongoing rights to health care benefits have challenged these views, however. U.S. District Court rulings against Bethlehem Steel Corporation and White Farm Equipment Company have established the precedents that: (1) nonunion postretirement benefit packages cannot be revised to require a higher deductible and co-insurance when plan documents do not reserve the right to make these changes [Eardman v. Bethlehem Steel Corporation Employee Welfare Benefit Plans, 1984]; and, (2) retiree health plans may not be terminated even when plan documents contain a clause reserving the right to so terminate [Hansen v. White Farm Equipment Company, T.I.C., 1984].

The White Farm case was especially significant because
in deciding against the defendant, the district court ruled that as a principle of federal common law under the Employee Retirement Income Security Act of 1974 (ERISA), the retired employees of White Farm had a vested right to welfare benefits promised them by the company. The court supported its position by citing a view expressed by the Ohio Supreme Court in a similar case, Cantor v. Berkshire Life Insurance Company [1984]. The court, in the Cantor case, held that an employer cannot offer a retirement system as an inducement to employment and, after an employee accepts employment under such circumstances and becomes eligible for retirement rights, withdraw or terminate the program.

Both Bethlehem and White Farm appealed these decisions, with the Bethlehem appeal ending in a compromise settlement and the White Farm decision being overturned by the appeals court. Nevertheless, more recently, in Musto v. American General Corp. [1985] the U.S. District Court for the Middle District of Tennessee granted an injunction restraining American General from modifying the current retirees' plan to parallel that of active workers. So, at least for the present, it appears that benefits cannot be eliminated for retired employees and probably not for eligible retirees, but probably can be reduced or even terminated for employees who are currently too young to retire.

Congress is also demonstrating an increased concern
with regard to the rights of retirees to nonpension postretirement benefits, causing some observers to predict that the passage of an ERISA-type vesting requirement for other postemployment benefit plans is simply a matter of time [Schwartz and Lorentz, 1986, p. 22; and Hawthorne, 1985, p. 97]. During the drafting of the Deficit Reduction Act of 1984, certain members of Congress advocated the inclusion of vesting protection for nonpension postretirement benefits in the proposed legislation, but ended up settling for the substitution of an order for a Treasury Department study of nonpension benefits. Congressional hearings have also been held in an attempt to investigate certain welfare benefit takebacks and to encourage the passage of legislation that would allow companies to set aside money for nonpension postemployment benefits in the same manner as pensions are funded. In line with that objective, Congressman Rod Chandler R-Wash., has introduced legislation that would provide incentives for employers to prefund retiree health and long-term care benefits by establishing a tax-exempt, defined contribution-type account for these benefits ["Chandler Bill ...", 1987, p. 8]. In addition, in response to the recent bankruptcy of LTV Corporation, the House of Representatives has approved legislation that would require companies undergoing Chapter 11 reorganization to continue paying retirees' health benefits until they negotiate an agreement with the retirees. Under this legislation,
benefits could be modified only if retirees agree to the change or court approval is granted.

In summary, it appears that forces in both the judicial and legislative arenas are moving toward the idea of vesting or guaranteeing employees' rights to promised welfare benefits, invalidating to some extent the previously held position that these benefits can be terminated or reduced at the discretion of the employer.

**Nonpension Postretirement Benefits As Deferred Compensation**

There appears to be some disagreement as to whether nonpension postretirement benefits are provided by employers as a form of deferred compensation or, alternatively, as a gratuity or gift. Both deferred wage theory [De Roode, 1913; Peasando and Rea, 1977; and Bernstein, 1964] and option pricing theory [Treynor, Regan, and Preist, 1976; Logue, 1979] have been advanced in the pension literature as support for the view that employers provide pension benefits in exchange for services performed by employees and not as a gratuity or gift. However, nonpension postretirement benefits do not have all of the characteristics of pension benefits. Specifically, nonpension benefits do not vest during an employee's years of service, as do pension benefits, and may be terminated at an employer's discretion subject, of course, to any collective bargaining restrictions. Consequently, arguments for considering pensions as deferred compensation may not strictly apply to nonpension benefits.
Nevertheless, other literature addressing employee compensation from an economic viewpoint has examined the incentives that operate to induce employers to substitute the payment of nontaxable benefits such as health and life insurance benefits for the payment of monetary compensation [Halperin and Tzur, 1985] and has established that workers view nontaxable benefits as substitutes for wages [Ehrenberg, 1980; White, 1983; and Woodbury, 1983].

Support for considering nonpension postretirement benefits to be a form of deferred compensation is important because it provides justification for the recognition of nonpension postretirement benefit costs and obligations in the financial statements of employers. If nonpension postretirement benefits represent a portion of employee compensation, then those companies that do not provide these benefits may be forced to substitute a higher level of salary or wage in order to compete for employees in current labor markets. For these employers, the entire amount of compensation associated with the period in which employee services are provided will be reflected in the financial statements for that period. Therefore, if the costs and obligations associated with nonpension post-retirement benefits are not accrued during the service lives of employees, those firms that choose not to provide nonpension benefits will be at a disadvantage in competing for the resources provided by both investors and creditors.
The FASB's Position

In its 1982 Preliminary Views and its 1983 Discussion Memorandum, Employers' Accounting for Pensions and Other Postemployment Benefits, the Financial Accounting Standards Board (FASB) has taken the position that the cost of retirees' health care and life insurance benefits should be accrued during the service lives of the employees who are expected to receive these benefits. The Board has tentatively concluded that neither the pay-as-you-go (cash basis) nor the terminal funding (accrual at retirement) methods are acceptable methods for recognizing these costs in accrual-basis financial statements [FASB, 1982]. The basis for the FASB's position is that postemployment benefits are provided to employees in exchange for services rendered to the employer and should be considered a form of deferred compensation and accounted for as such. Therefore, to accomplish the appropriate matching of costs and revenues, the cost of these benefits should be recognized in the years during which employees provide services to the employers rather than during the period in which these payments are made [FASB, 1983].

In the Board's view, the legal status of the nonpension benefit obligation should not be an overriding factor in determining the appropriate accounting treatment.

These views are reaffirmed in an exposure draft of a proposed Statement of Financial Accounting Standards titled "Employers' Accounting for Postretirement Benefits Other Than Pensions," which was issued on February 14, 1989.
FASB Concepts Statement No. 6, *Elements of Financial Statements* defines accounting liabilities as probable future sacrifices of economic benefits arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events [FASB, 1980, par. 28].

In its Preliminary Views, the Board stated that it is inappropriate for accounting purposes to assume that a plan will be terminated in the absence of evidence that termination is likely to occur. This view is consistent with the going concern assumption -- the assumption that business enterprises will continue long enough to fulfill their objectives and commitments. So, in the absence of evidence of plan termination, the nonpension postemployment benefit obligation should be accorded liability status.

The Board conceded that certain of the estimates involved in measuring the cost of health care benefits would be less reliable than those required for other obligations, but maintained that the inability to obtain a precise measure does not provide a basis for failing to report the incurrence of a cost or obligation [FASB, 1982, par. 142]. While it may be difficult to estimate a single dollar figure for the nonpension retiree benefit liability, zero (implied by a failure to accrue) would certainly be an inaccurate representation of the employer's obligation.

The proper method of measuring the cost of and liability for retirees' nonpension postemployment benefits is an issue which remains quite controversial. Because
other postemployment benefits, unlike pension benefits, are not directly tied to the length of employee service, an attribution approach that allocates these benefits to years of service and then calculates the actuarial present value of the benefits (benefit approach) does not have as strong an appeal as it does in the pension case. Nevertheless, the Board concluded that the obligation to provide postretirement benefits is essentially the same as an obligation to provide pensions. As a result, differences between the accounting proposed in the recently-issued exposure draft and pension accounting are limited to those areas in which there are fundamental differences in the nature of the employer's promise to provide the benefits. To the extent possible, the proposed accounting measures cost and obligation amounts by following the terms of the postretirement benefit plan. However, when the terms of a plan do not define how the benefits are earned by employees for individual years of service, the exposure draft will require that the cost of benefits be ratably allocated to service to the eligibility date (date the employee attains eligibility for the maximum benefits earned by that employee under the plan).

Similar to pension accounting, annual net postretirement benefit cost will have five components -- service cost, interest cost, gain or loss amortization, return on plan assets, and amortization of unrecognized prior service cost. The liability recognized under the provisions of the
proposed Statement would be the difference between the costs recorded and any plan contributions or benefits paid. The unrecognized obligation existing at the date of transition to the new standard (transition obligation) will not be recognized immediately. Instead, the transition obligation will be amortized into annual cost over time. However, a minimum liability, based on the obligation attributable to retirees and employees eligible to retire will be prescribed beginning five years after the effective date of the standard. Employers will be required to recognize an additional liability whenever the recognized liability is less than the amount of the minimum liability.

In response to constituent comment letters on the 1983 Discussion Memorandum, the FASB decided to delay issuance of any proposed statement on accounting for other postemployment benefits until further study and analysis of the measurement and recognition issues unique to these benefits could be conducted. However, the magnitude of postretirement health care and life insurance costs and the lack of disclosures regarding these benefits in the financial statements prompted the FASB to issue FASB Statement No. 81, Disclosure of Postretirement Health Care and Life Insurance Benefits (SFAS 81) as a stopgap measure. SFAS 81, which became effective for financial statements issued for periods ending after December 15, 1984, requires those employers that provide health care or life insurance benefits to their employees to disclose (1) a description
of both the benefits provided and the employee groups covered; (2) a description of the accounting and funding policies followed for these benefits; (3) the cost of employee benefits recognized for the period; and, (4) the effect of significant matters affecting the comparability of costs recognized for all periods presented [FASB, 1984].

An appendix to SFAS 81 contains a statement which acknowledges that "the required disclosures do not provide users with all the information necessary for a complete understanding of the financial effects of an employer's postretirement health care and life insurance benefit plans" [FASB, 1984]. The Board emphasizes that these disclosures are merely an interim measure pending completion of the nonpension postemployment benefits project and are not sufficient for decision-making purposes.

**Research Questions**

The FASB has proposed the use of accrual techniques to account for the costs of nonpension postemployment benefits. This proposal, if adopted, will result in a change in the amounts being recognized as periodic cost as well as the possibility of reporting a previously unrecognized liability. Furthermore, since the majority of companies that provide nonpension postemployment benefit plans currently account for the associated expense on a pay-as-you-go basis, this change could result in a significant increase in the cost of estimating expense and
liability amounts. The computation of the cost of current and future retiree nonpension benefits is a relatively complex task. For example, in the case of medical benefits, calculation of the present value of the anticipated benefits involves assumptions concerning mortality rates, early retirement probabilities, percentage of married employees and age of spouses, as well as medical care inflation rates. Participants in a study designed to assess employer attitudes concerning the appropriate accounting treatment for nonpension postemployment benefits indicated that the costs associated with these calculations would be significant, probably approaching the costs of calculating pension expense [Akresh, 1985, p. 94].

In addition, many respondents to the FASB's Preliminary Views have expressed concern over the possible economic effects of the Board's proposal. These commentators believe that if employers are required to accrue the costs of nonpension postemployment benefits, they may reduce or discontinue these benefits [Vejlulek and Cropsey, 1984, p. 90]. Similarly, in the foreward to a policy study conducted by the Employee Benefit Research Institute (EBRI) [1987], EBRI president Dallas Salisbury asserted that "booking" even a portion of the retiree liability "could affect the value of corporations, their ability to borrow, and their willingness to provide retiree health benefits to future workers and retirees."

The Board's proposal mandates a change that would
almost certainly have a significant impact on employers sponsoring nonpension postemployment benefit plans. Indeed, FASB staff members directing the project on postemployment benefits other than pensions recently stated that the Board's final decisions "probably will have a greater effect on financial statements than any other FASB pronouncement" [FASB, 1988, p. 1]. However, there is no empirical evidence that suggests that the proposed accounting treatment would add to users' understanding of the financial statements. In fact, a National Association of Accountants survey of Fortune 1000 company chief financial officers revealed a widespread sentiment that any additional disclosure of postretirement benefits "would only add to the complexity of financial reporting and would be of no informational value to investors or analysts" [McGee, 1984].

It is important to determine whether the proposed change to accrual accounting for nonpension postemployment benefits will provide information that is "useful" to financial statement users in their decision making processes. The current study tests the effects of the accrual of nonpension postretirement benefits on the decisions made by one type of financial statement user -- the bank loan officer. The following research question is addressed:

Would the recognition of employee nonpension post-retirement benefit costs on an accrual basis significantly impact decisions made by financial statement users?
As a result of investigating the major research question, the following ancillary questions are also examined:

Does the nonpension postretirement benefit obligation affect the decisions of financial statement users in the same manner as these decisions would be affected by an equivalent amount of debt in the form of a term loan?

Does the existence of an employee nonpension postretirement benefit plan affect the decisions of financial statement users?

Does the method of accounting for employee nonpension postretirement benefits affect financial statement users' perceptions of this obligation as a liability?

Contributions

The current research attempts to provide evidence on the impact of method of accounting (pay-as-you-go vs. accrual) for nonpension postretirement benefits on decisions made by commercial bank loan officers. Of specific interest is whether application of the accrual method proposed by the FASB in its 1982 Preliminary Views provides creditors with information that is "useful" in the sense that it impacts on the decisions which they render. This question has practical significance because, if the method of accounting has no impact on the decisions made by the loan officers, then the change proposed by the Board, although theoretically correct, might be opposed on the grounds that the costs of providing accrual accounting information exceed the associated benefits. According to Statement of Financial Accounting Concepts No. 1, Objectives of Financial Reporting of Business Enterprises,
Cost benefit considerations may indicate that information understood or used by only a few should not be provided [FASB, 1978, par. 36].

An additional contribution of this research is related to the effect of a switch to the accrual method on the company's financial condition as perceived by users. Specifically, the results of the proposed research will indicate whether or not a switch to accrual accounting for nonpension postretirement benefit plans affects the ability of a corporation that offers these benefits to its employees to obtain bank financing.

Another benefit of this research is the determination of whether lenders treat accrued nonpension postretirement benefit obligations as debt equivalents. Loan officers may believe that the future effects of nonpension benefit plan sponsorship are too uncertain to be incorporated into their decisions in the same manner as more traditional forms of obligations. If this is true, an obligation associated with the provision of employee nonpension benefits would have less effect on perceived creditworthiness than an equal obligation in the form of a term loan.

Finally, the proposed research provides insight into the effect of the existence of a nonpension postretirement benefit plan on a company's perceived financial condition. Comparison of the responses of subjects receiving financial statements for companies that provide nonpension postretirement benefits with the responses of subjects receiving statements for a company that does not provide
such benefits will indicate whether the existence of a nonpension postretirement benefit plan affects loan granting decisions. All else being equal, it is logical to assume that the existence of a nonpension postretirement benefit plan should result in additional risk to the lender, causing a decrease in the perceived quality of a company's financial condition. However, if the results suggest that the existence of a nonpension postretirement benefit plan does not impact on creditworthiness, it may be that creditors do not consider this type of obligation to be a true liability and consequently ignore its effect on the financial condition of a borrower.

**Summary**

This chapter has presented a general overview of the study. The nature, significance, and legal status of the employer's nonpension postretirement benefit obligation were discussed. In addition, the FASB's position with respect to accounting for these benefit promises was summarized and the research questions of interest were presented. The remaining chapters will present a review of the literature, a description of the methodology used in the study, the results of the data analysis, and the conclusions of the research.
CHAPTER 2
REVIEW OF THE LITERATURE

The literature review is divided into three major sections: (1) a discussion of whether nonpension post-retirement benefits represent a form of deferred compensation; (2) a review of empirical research on accounting for lease and pension obligations; and, (3) a summary of the literature addressing the costs and obligations associated with nonpension postretirement benefit plans.

Nonpension Postretirement Benefits As Deferred Compensation

The primary justification for accrual-basis recognition of nonpension postretirement benefit costs and obligations is the characterization of nonpension benefits as a form of deferred compensation. If postretirement benefits are provided to employees in exchange for services then, according to the matching principle, the cost associated with such benefits should be recognized in the years during which employees provide services. However, as mentioned earlier, there is some disagreement as to whether nonpension postretirement benefits represent deferred compensation. In fact, the FASB's 1981 Discussion Memorandum Employers' Accounting for Pensions and Other Postemployment Benefits, includes a discussion of whether
nonpension postemployment benefits represent a form of deferred compensation or a discretionary award made by the employer to its employees.

To provide insight into the nature of nonpension postretirement benefits, this section reviews the literature which presents a theoretical or empirical basis for viewing pensions and other benefits as components of total employee compensation.

Pensions As Deferred Compensation—Theoretical Perspectives

Stone [1982, pp. 3-6] presents a discussion of three alternative theoretical perspectives from which pension arrangements have been analyzed — deferred wage theory, option pricing theory, and agency theory. All three of these frameworks provide justification for viewing pension promises as deferred wages and lead to a rejection of the theory that pensions are gifts or rewards given to employees by a grateful employer.

Deferred wage theory implies that the pension component of the employee's compensation package has a current economic value to the employee and is a direct result of labor market competition. Under deferred wage theory, total compensation consists of instantaneous compensation such as wages and immediately realizable fringe benefits as well as the promise of future benefits (pension and nonpension postemployment benefits). Employees are willing to forego current wages and certain fringe benefits because the promise of future benefits has
a current economic value.

DeRoode [1913], one of the earliest advocates of deferred wage theory, characterized the demand for pensions as a demand for higher wages, with wages defined as the total return the employee obtains from his labor. He maintained that the real cost of a pension system is actually paid not by the employer, but by the employee, who foregoes an increase of wages which might otherwise be obtained except for the existence of the pension system [1913, p. 287]. Anecdotal evidence of the substitution of pension benefits for current wages is provided by Rea and Peasando [1977, p. 10] and Bernstein [1964, p. 12].

Deferred wage theory, however, fails to satisfactorily explain certain common characteristics of pension arrangements, especially deferred vesting provisions and policies of plan underfunding. As Stone [1982, p. 4] points out, describing pension promises as deferred wages suggests that employees will provide services in exchange for future benefits, foregoing current consumption, only when the receipt of promised benefits is certain. But, for the majority of employees, the receipt of these benefits is uncertain. The features of most private pension plans force the employee to bear substantial risk, with the most obvious example being that an employee will receive nothing if he quits or is discharged prior to vesting.

In light of the deficiencies of deferred wage theory, option pricing theory has been advanced as an alternative
framework for viewing pension claims [Treynor, Regan, and Priest, 1976; Logue, 1979]. Option pricing theory involves specific recognition of the pension claim as a contingent contract. Under this framework, at the time an employee is hired, he or she accepts a contingent claim or "call option" against the employing firm. The employee agrees to provide service in exchange for a future benefit that is dependent upon such factors as the employee remaining with the employer until vesting occurs, the employer's ability to provide the benefits as they become payable, and changes in the social security benefit system. This view of pension claims furnishes a compromise between the extremes of the gratuity and deferred wage views.

Agency theory has also been proposed as an explanation of the reasons firms offer pension plans and the manner in which the benefits and risks of plan sponsorship are shared by employers and employees. Logue [1979] suggests that benefit sharing among employees and with the firm provides incentives for employees to bear the risk that they will leave the service of the employer, voluntarily or involuntarily, prior to vesting. According to Logue, the foregone deferred wages of those employees who leave the firm before vesting can be spread among surviving employees, enabling the surviving group to enjoy an increased level of benefits than would otherwise be received. In addition, Logue asserts that employers induce their employees to accept the risk inherent in the
contingent claim contract by sharing the cost savings associated with pension arrangements. Vesting provisions, by providing incentives for long-term employment, reduce turnover rates and, consequently, hiring and training costs. Vesting provisions also decrease monitoring costs by inducing employees to work harder with less supervision to avoid being terminated prior to vesting. Logue indicates that these savings are passed on to employees in the form of increased compensation to offset the risk that is assumed by taking a portion of compensation in the form of a contingent claim or option.

Stone states that these three theoretical frameworks, although useful for analyzing pension arrangements, are insufficient in establishing a well-articulated, integrated statement of pension theory [1982, p. 6]. However, despite the lack of an established theory, Peasando and Clarke [1983, p. 733] note that many in the accounting profession now accept the economic view that pension benefits represent a form of deferred compensation.

There is no apparent reason why nonpension postretirement benefits could not be analyzed within the context of these three frameworks. Because nonpension postretirement benefits "vest" only upon retirement and are not guaranteed by ERISA regulations, the receipt of these benefits involves a higher degree of uncertainty than the receipt of pension benefits. Thus, the contingent claim represented by the nonpension postretirement benefit is more risky than
the pension claim. Nevertheless, these two alternatives are conceptually similar and provide the identical incentives to employees.

Empirical Research on Nonwage Compensation

To date, empirical research has been concerned with the measurement of market equilibrium tradeoffs among various components of compensation as well as the estimation of workers' preferences for wage and nonwage benefits. Certain researchers have limited their consideration of nonwage compensation to pension benefits while others have included such nonpension benefits as life and health insurance in their investigations. This research is summarized below.

Ehrenberg (1980)

Ehrenberg's study was an attempt to determine whether a tradeoff exists between retirement system characteristics and wages in the public sector. Ehrenberg confined his analysis to pension retirement benefits and included retirement system characteristics such as the existence of a compulsory retirement age, the minimum age of eligibility for retirement benefits, the percentage of salary that employees receive for minimum regular retirement benefits, and the employees' retirement contributions as a fraction of their annual salaries. Cross-sectional regression estimates for uniformed municipal employees (policemen and firefighters) were analyzed. The estimates were based upon data from two separate national surveys of municipalities.
Ehrenberg's results suggest that, other things equal, increases in uniformed employees' retirement system contributions lead to compensating increases in salaries, while retirement systems with more "generous" characteristics are associated to some extent with lower salaries. Ehrenberg's findings also indicate that the extent of retirement system underfunding is related to the perceptions of both employers and employees as to the probability that promised retirement benefits will not be fully paid and that these perceptions are reflected in compensating wage differentials. That is, increases in the extent of retirement system underfunding are associated with increases in employee wage levels.

Woodbury (1983)

Woodbury characterized his study as an explicit attempt to estimate workers' preferences for wage and nonwage benefits. Woodbury used the Transcendental Logarithmic indirect utility function (a particular specification of the general indirect utility function in the price of wages, the price of fringes, income, and control variables characterizing the workplace) to yield estimates of workers' preferences for wage and nonwage compensation and to derive certain elasticity estimates of interest. The indirect utility function was estimated using two different data sets, one obtained from surveys published by the U.S. Department of Labor, Bureau of Labor Statistics and the other drawn from a survey of school
districts published in the Census of Governments.

Woodbury's estimates of elasticity of substitution between wages and fringe benefits consistently exceeded unity, indicating that wages and wage supplements are readily substituted for each other. He further noted that when fringes were defined as health and life insurance benefits plus pensions, wages and fringes were extremely good substitutes. In contrast, when pension benefits were excluded from the definition of fringes, the estimated elasticity of substitution was considerably lower.

Woodbury also noted a much higher income elasticity of demand for retirement benefits than for either health or life insurance benefits. This finding indicates that an employee's preference for retirement benefits is more sensitive to income changes than is his preference for health and life insurance benefits. Other results of this study indicate that larger establishments pay a larger proportion of their benefits as supplemental benefits and that collective bargaining coverage shifts the mix of total compensation toward supplemental benefits.

White (1983)

A study by White also provides evidence that employees view nonwage benefits as substitutes for monetary compensation. The objective of this study was to determine whether employee preferences for educational, retirement, legal, life insurance, and health insurance benefits are influenced by either tax treatment or employee job
classification. Experimental subjects from four service-type organizations were asked to divide their total salaries among cash and five noncash benefits, with the noncash benefits described as being taxable in only one-half of the sample. White's results suggest that employees prefer that a portion of their salaries be paid in noncash benefits and that employee preferences for these benefits are diverse. White found that tax treatment affected the preferences for only education, retirement, and legal benefits, while job classification influenced the preferences for all of the noncash benefits except life insurance.

Halperin and Tzur (1985)

Halperin and Tzur attempted to explain the incentives that operate to induce employers to substitute the payment of nontaxable benefits such as health and life insurance benefits for the payment of monetary compensation. These authors developed a model of a compensation package to be given to an employee who has already performed his or her task for a contracted fee. The fee is payable either entirely in cash or in any combination of cash and nontaxable benefits which provides the worker with the same level of utility as the receipt of the agreed-upon after-tax cash, alone. The employer's objective is to determine the combination of money and nontaxable benefits which minimizes total compensation expense while keeping the worker at the same utility level he would have attained if
he had received after-tax money with no benefits.

The solution to this problem is for the employer to substitute any nontaxable benefit for monetary compensation as long as the marginal rate of substitution of after-tax wages for the particular benefit is greater than \((1 - \text{employee's tax rate})\). Thus, the employer has an incentive to pay nontaxable benefits instead of salary.

The authors demonstrate that the compensation packages of lowly paid employees would contain only those benefits such as health insurance which have a high marginal rate of substitution for after-tax wages even at low levels of income. Then, as income increases, the marginal rate of substitution of after-tax wages for a larger number of benefits and perquisites becomes greater than \((1 - \text{employee's tax rate})\), causing these benefits to be included in the compensation package. This analysis leads to the following conclusions:

1. Health insurance benefits are provided to lowly as well as highly paid employees.

2. Perquisites become a more favored form of compensation as employees' income increases [p. 671].

By incorporating the existence of minimum wage laws and IRS auditing of maximum deductible benefits, the authors develop a four-region expansion path of the optimal combinations of monetary compensation and nontaxable benefits which shows that

1. An employee at or near the minimum wage for his or her occupation may receive increases in compensation in the form of increased nontaxable benefits [p. 675],
(2) A broad class of middle management employees are paid the maximum legal benefits for their job classification [p. 678], and

(3) The employer may authorize the payment of questionable perquisites to highly compensated executives [p. 679].

Summary

Empirical research on wage and nonwage compensation clearly indicates that employees view pension retirement benefits and such current benefits as health insurance and life insurance as substitutes for monetary compensation. Unfortunately, research examining tradeoffs between and preferences for wage and nonwage benefits has not considered nonpension retirement benefits, probably because the provision of such benefits has only recently become widespread. Consequently, a conclusion concerning the nature of nonpension postretirement benefits can not be made on the basis of empirical research conducted to date.

Interestingly, the FASB's 1982 Preliminary Views noted that most respondents to the 1981 Discussion Memorandum agreed with the basic view that postemployment benefits are a form of compensation, concluding that there is no conceptual basis for distinguishing between postemployment benefits to be paid in cash (pensions) and those provided in kind (other benefits). This position provides support for the FASB's view that postemployment benefits are provided in exchange for services and lends credibility to the Board's conclusion that the costs associated with employees' benefits should be recognized in those years.
during which the employees render services.

Empirical Research on Lease and Pension Obligations

The proposed change in accounting for nonpension postemployment benefits is similar to changes made by earlier authoritative pronouncements in the areas of both pension and lease accounting in that the Board would require the recognition of an off balance sheet obligation. For this reason, research which has examined the extent to which unrecognized pension and lease liabilities were reflected in security prices and individual decisions is of interest and might provide some expectations as to the degree to which nonpension benefit obligations are already incorporated by the market and individual users.

Empirical Research on Lease Obligations

Several research studies have attempted to investigate the effect of different methods of accounting for financial leases, some concentrating on aggregate market level effects and others concerned with effects on individual decisions and judgments. The basic objective of all these studies is the assessment of the information content of various changes in lease disclosure requirements, specifically, those changes mandated by ASR No. 147 and SFAS 13.

Market Studies

Market level studies have provided evidence concerning the impact of lease disclosure and lease capitalization on
stock prices and bond risk premiums. An empirical study by Ro [1978] examined the impact of the extended lease disclosures mandated by ASR No. 147 on the pricing of securities. Ro found that the capitalized lease disclosure along with the income effect disclosure required by the SEC significantly affected the distribution of security returns. In addition, his results indicated that firms disclosing only the present value of minimum lease commitments were less significantly affected than those companies which disclosed both present value and income effects of capitalizing leased assets and that the security prices of high-risk firms were more affected than the security prices of low-risk firms. In contrast, Abdel-khalik [1981] reported that no significant changes in average risk-adjusted stock returns or market-based measures of risk were associated with the change in accounting for leases. Moreover, the findings of Abdel-khalik [1981] and Abdel-khalik, Thompson and Taylor [1978] indicate that bond prices were not significantly affected by the release of information in accordance with ASR No. 147 or by the capitalization of leases.

Studies by Bowman [1980] and Finnerty, Fitzsimmons, and Oliver [1980] were concerned with the impact of lease capitalization on systematic risk. Bowman examined the association of a lease variable based on the capitalized value of leases reported under ASR No. 147 with market risk measured prior to public availability of ASR No. 147 data.
His results suggest that information disclosed in accordance with ASR No. 147 was impounded in market-based systematic risk prior to the actual adoption of ASR No. 147. Finnerty, Fitzsimmons, and Oliver investigated the effects of three critical events -- ASR No. 147, the FASB's August 1977 exposure draft on lessee accounting, and SFAS 13 -- on the market-determined systematic risk of companies that used leasing extensively. They concluded that there was no systematic effect on the market's assessment of risk brought about by the change in financial reporting requirements associated with these events.

**Behavioral Studies**

In reporting the results of behavioral study he conducted, Abdel-khalik [1981] indicated that, when questioned directly, financial analysts and bank loan officers stated that lease capitalization had not affected their evaluation of lessee companies in general. However, when presented with condensed financial statements, they evaluated a company that did not capitalize leases more favorably, in terms of risk and profit performance, than an otherwise identical company that did capitalize leases.

Wilkins and Zimmer [1983] conducted a field experiment to investigate the effects of alternate lease accounting and financing methods on loan officers' decisions and assessments of the ability to repay term loans. Their results indicate that loan officers' responses are affected by different levels of financial leverage of profitable
companies, but not by various methods of fixed asset financing or reporting of financial leases. Wilkins and Zimmer attempted to justify the inconsistency of their results with the findings of Abdel-khalik [1981] by pointing out that Abdel-khalik attributed the significance of his reported lease effect to the responses of analysts rather than bankers.

Summary

Most of the empirical research in the area of lease accounting indicates that share and bond prices behave as if capital market participants perceive footnoted leases to be the equivalent of debt finance. That is, share and bond prices are not affected by the prescription of capitalization. It is interesting to note that ASR No. 147 information appears to have been impounded by the market before such data was publicly available. Bowman [1980, p. 21] suggested that this might be a result of individuals forming estimates of the capitalized value of leases from other publicly available information such as disclosures of rental expense, public announcements of lease commitments and records of ownership.

Behavioral research in the lease area, although not extensive, suggests that bank loan officers understand and incorporate the impact of lease footnote disclosures, while financial analysts do not.

Empirical Research on Pension Obligations

Empirical research in the pension area has focused on
the nature of the employer's pension obligation by examining the effect of unfunded pension obligations on market risk and common stock values. If unfunded pension benefits are viewed as a component of corporate debt, then, according to the theories of Modigliani and Miller [1958, 1963] and Hamada [1969], equity investors should demand an additional risk premium for investing in firms with unfunded pension benefits and the market value of a firm's common stock should be reduced by the existence of unfunded pension obligations.

**Market Studies**

Oldfield [1977] was the first to investigate the impact of unfunded pension obligations on common stock valuation. Oldfield adapted Modigliani and Miller's model for explaining the market value of a firm's common stock by adding a measure of unfunded vested benefits, and ran a cross-sectional regression on a sample of firms. Oldfield's results indicate that the market treats the reported book value of unfunded vested benefits as an accurate, but understated, representation of the employer's true pension obligation.

Gersovitz [1980] refined the work of Oldfield by explicitly considering the limitation of pension sponsor liability imposed by ERISA. Gersovitz found that unfunded benefits above a certain level do not impair the value of a firm's shares, an effect he interpreted as being related to the liability limitation. In addition, the results of his
analysis support Oldfield's findings that the stock market perceives reported unfunded vested benefits to be an understatement of the firm's pension obligation.

Feldstein and Seligman [1981] employed multiple regression techniques to test the impact of unfunded vested pension benefits and several other variables on the total market value and equity of the firm. Regression models which included the value of unfunded liabilities based on past and prior service cost as independent variables were also analyzed. Feldstein and Seligman concluded that unfunded vested benefits are regarded as an understatement of a company's total pension obligation even though the market ignores unfunded past and prior service cost.

Daley [1984] considered the effect of a third measure of pension cost, pension expense, on the market value of equity. Daley used a cross-sectional equity valuation model to assess the consistency of pension expense, unfunded vested benefits, and unfunded prior service costs with pension cost estimates impounded in aggregate security prices. Daley's findings support earlier conclusions concerning the market's recognition of future pension costs in setting equity value, but suggest that pension expense provides a measure of pension cost which is more consistent with the market valuation process than measures provided by unfunded vested benefits or unfunded prior service costs.

Landsman [1986] extended previous research by examining the separate effects that pension assets and
pension liabilities have upon the market value of equity. Landsman's study differs from earlier pension studies in that the cross-sectional market valuation model utilized is based on the balance sheet identity and the benchmark coefficients for pension assets and liabilities are derived from the Miller [1977] model of capital market equilibrium. Landsman's results suggest that pension fund assets and liabilities are valued by the market in the same manner as other corporate assets and liabilities. In addition, the findings of his study are consistent with the idea that pension fund property rights lie entirely with the sponsoring firm.

Dhaliwal [1986] investigated the question of whether capital market participants regard unfunded vested benefits as equivalent to debt when assessing firm risk. Dhaliwal used regression analysis to test the effect of unfunded vested pension obligations on the explanatory power of a model of systematic risk based on Hamada's [1972] model. The results of his analysis support the hypothesis that the market views these pension liabilities not only as a form of debt, but as a form of debt which is strictly equivalent to conventional debt in terms of its impact upon firm risk. In contrast to earlier studies, Dhaliwal's findings do not indicate that reported unfunded vested pension liabilities understate the after-tax effects of future pension cash flows.
Behavioral Studies

Harper, Mister and Strawser [1987] conducted an experiment to determine whether financial statement users treat pension information included in a footnote as they would a balance sheet liability and whether the treatment of balance sheet versus footnote disclosure of pension liabilities differs between "sophisticated" and "less sophisticated" users. The researchers found that when presented with the pension information in the balance sheet, a significantly greater number of subjects included the pension obligation in the numerator of a debt-equity ratio than when the identical information was presented as a supplemental note to the balance sheet. However, there was no evidence of a differential impact on users with differing levels of sophistication.

Summary

Pension market studies suggest that the effects of pension plan sponsorship are reflected in market risk and security prices. The findings of most of these studies indicate that reported unfunded vested benefits are treated by the market as an understatement of the firm's pension obligation. The results of Daley's study, however, suggest that pension expense provides a measure of pension cost that is more consistent with the market valuation process than the measure provided by unfunded vested benefits. That is, market participants appear to be using pension expense rather than unfunded vested benefits in estimating
pension obligations. In addition, the findings of Landsman's study indicate that pension fund property rights lie fully with the plan sponsor.

From an individual user perspective, the results of the study conducted by Harper, Mister and Strawser indicate that financial statement users are more likely to characterize a pension obligation as a component of debt when it is recognized as a liability in the balance sheet than when it is disclosed as footnote information. The authors note that while their study provides evidence that the format of disclosure changes perceptions of debt, further research is necessary to determine the decision contexts (e.g., loan or line of credit decisions) in which these changed perceptions will make a difference.

Implications of Lease and Pension Findings for Nonpension Postretirement Benefit Research

The results of market research studies in both the lease and pension areas are consistent with the theory of capital market efficiency in the semi-strong form. Fama [1970] defined the three major forms of market efficiency as follows:

1. The market is efficient in the weak form if prices fully reflect information regarding the past sequences of prices.

2. The market is efficient in the semi-strong form if prices fully reflect all publicly available information, including financial statement data.

3. The market is efficient in the strong form if prices fully reflect all information, including inside information.
Semi-strong form efficiency implies that information regarding pension and lease obligations reported in financial statements or in any other public communication will be reflected in security prices; the empirical research in these areas supports this theory.

However, information concerning the nonpension postretirement benefit obligations of most companies is not publicly available. The only indication of the magnitude of nonpension plan costs is provided by SFAS No. 81 disclosures. For the majority of employers, these disclosures are limited to information regarding costs recognized on a pay-as-you-go basis. Although pay-as-you-go costs might provide a basis for estimating accrual basis costs and obligations, accrual basis information is not explicitly provided in any published communication. Therefore, information regarding nonpension postretirement benefit obligations will be fully reflected in security prices only if strong-form efficiency holds. In any event, the extent to which nonpension postemployment obligations are reflected in market prices provides no evidence as to the ability of individuals to incorporate such information in their decision-making processes.

Research on Nonpension Postretirement Benefit Costs and Obligations

Unfortunately, there is only very limited published research in the area of accounting for employee nonpension postretirement benefits. This may be largely due to the
difficulty involved in obtaining data quantifying this type of corporate obligation. Although most companies have been required to disclose information concerning postretirement benefit plans under SFAS No. 81 for five years (SFAS No. 81 became effective for accounting periods ending after December 15, 1984), these disclosures are essentially limited to benefit costs recognized during the period under the particular accounting method used by the reporting company. A National Accounting Research Service (NAARS) data base survey of 1984 published financial statements taken in conjunction with a study sponsored by the Financial Executives Research Foundation revealed that only nine of 4,000 companies provided disclosures of accrual for other postemployment benefits [Akresh, et. al., 1984, p. 35]. An analysis of the financial statements of these nine firms revealed that these disclosures contain insufficient information to determine the postretirement benefit obligation incurred by the sponsoring firm as of the financial statement date (the amount of the present value of the obligation which is associated with services already rendered).

Consequently, almost all of the literature concerning employee postretirement benefits is limited to work that points out the potential materiality of these obligations to the sponsoring employer and surveys that document the nature and prevalence of these benefit plans. The more significant papers addressing the postretirement benefit
issue are summarized in this section.

Vejlupek and Cropsey (1984)

A paper authored by two former FASB staff members [Vejlupek and Cropsey, 1984] discusses the materiality of other postemployment benefits costs, the factors that led to the Board's decision to add the project to its agenda, and the basis of the 1982 Preliminary Views proposal concerning postemployment benefits.

Vejlupek and Cropsey demonstrate the potential materiality of other postemployment benefits by citing several statements made by interested parties or appearing in the financial press that indicate the magnitude of the associated obligation. One example they provide is a comment made by Joseph A. Califano Jr. in a 1983 speech to the Economic Club of Detroit. Califano, chairman of Chrysler Corporation's committee on health care, estimated that in 1983 U.S. companies would pay $77 billion in health insurance premiums for their employees and retirees, an amount greater than the dividends those companies would pay during the same year. As additional evidence of the magnitude of the unrecognized obligation, these authors cite a 1984 Wall Street Journal article which discussed a $636 million charge to income made by U.S. Steel for employee-related costs. According to Vejlupek and Cropsey, a significant portion of the charge was attributable to previously unrecognized health care and life insurance costs. These authors maintain that the materiality of
these costs to employers necessitates that financial statement users be aware that companies provide such benefits and have access to information concerning the costs involved.

Vejlupek and Cropsey also discuss the basis of the FASB's Preliminary Views proposal that the costs of postretirement health care and life insurance benefits be accrued over the periods in which employee services are rendered. They focus their discussion on certain of the problems noted by respondents to the Preliminary Views and 1983 Discussion Memorandum, specifically, concerns regarding the legal nature of the nonpension postemployment obligation and the difficulties involved in accurate measurement of health care costs. Vejlupek and Cropsey also identify potential economic consequences as a concern expressed by many of these respondents. These authors counter economic consequences arguments by asserting that adverse economic consequences might also result from failure to change accounting rules that do not reflect economic reality in a neutral and unbiased manner.

Vejlupek and Cropsey state that many commentators believe that the employer's liability for nonpension postemployment benefits will be significant if accrual accounting is adopted. Moreover, because few employers prefund these benefit plans, the liability for nonpension benefits may be many times the net liability associated with pension benefits.
Scott, Adams and Strawser (1988)

Four years after the Vejlupek and Cropsey article was published, a second group of FASB staff members authored a paper discussing the development of the exposure draft on accounting for postretirement benefits other than pensions. The primary objective of the paper was to provide insight into the deliberations and reasoning behind the conclusions contained in the Board's expected exposure draft.

The authors identified the question of whether there is an obligation for promised benefits that should be recognized in the employer's financial statements as the most important issue considered by the Board in its deliberations on retiree welfare benefits. Concepts Statement No. 5, Recognition and Measurement in Financial Statements of Business Enterprises states that an item and information about it should be recognized in the financial statements when four fundamental criteria are met—definition, relevance, measurability and reliability. The authors explain that controversy concerning the legitimacy of accruing the obligation for retiree welfare benefits centers on the related criteria of measurability and reliability. Specifically, opponents of the Board's tentative conclusion to require accrual over employee service lives assert that the uncertainty involved in projecting the obligation for health care benefits is so great that it results in an unreliable liability measure.

In response to that argument, the authors point out
that the existence and financial effects of transactions need not be certain for them to qualify as assets and liabilities. In fact, estimates and approximations are frequently necessary in accrual basis financial statements. In the Board's view, nonrecognition of the obligation to provide retiree welfare benefits impairs the usefulness and integrity of the employer's financial statements. The Board believes that it is possible for employers to produce a best efforts measure of that obligation that is sufficiently reliable and relevant to justify balance sheet recognition as well as footnote disclosure. And, over time, developments in actuarial science and familiarity with estimates of the postretirement benefit obligation will lead to better estimates and more widespread acceptance and understanding by users.

Scott, Adams and Strawser also summarize the Board's past and current thinking with regard to the method of assigning or attributing benefits to years of employee service. The method proposed by the Board would recognize the compensation cost of an employee's benefits over the service period to the date the employee obtains eligibility for the maximum benefit earned under the plan. This method follows the plan's benefit formula when benefits are defined in terms of individual years of service and assumes a ratable benefit formula when they are not.

The authors characterize the accounting treatment proposed by the Board as being generally consistent with
the basic concepts embodied in FASB Statement No. 87, *Employers' Accounting for Pensions*, with departures resulting primarily from the underlying differences between the nature of pensions and retiree welfare benefits. They state that employers can begin preparing themselves now for the transition to the new accounting standard by looking at their retiree welfare plans to identify those employees and dependents covered by the plan, gather demographic information on plan participants, and compile and review historical claim cost information.

Gerboth (1988)

Gerboth presents the case for those who believe that our limited experience with the cost of other postemployment benefits makes it premature to require accrual accounting. Gerboth begins by acknowledging that accounting theory, business information needs, economic substance, and the legal environment all support the conclusion that the cost of retiree benefits should be accrued as compensation over employee service lives, with a liability recognized for some portion of the unfunded benefit obligation. However, in his view, the measurement difficulties involved in quantifying the employer's obligation for these benefits are currently so formidable that they argue for a deferral of any proposal for accrual.

Gerboth cites the first step in the measurement process, the projection of the amount and timing of future benefit payments, as the major obstacle to recognition.
The projection of retiree welfare benefits requires management to make certain assumptions about the future, some of which can be quite troublesome. Gerboth identifies three assumptions in particular as being the most onerous: (1) the rate of increase in the general level of health care costs, (2) assumptions as to future changes in plan terms, and (3) assumptions as to future changes in legal and regulatory requirements.

Gerboth maintains that the combined effect of an unpredictable rate of health care inflation, ongoing employer efforts to control the costs, and simultaneous cost shifting by the federal government to the employer creates a level of uncertainty in projecting future benefit payments that would render resulting cost and obligation estimates irrelevant. Instead of the proposed accrual of benefit costs, the author advocates continuation of pay-as-you-go recognition of costs coupled with information about the company's postemployment benefit plans and the circumstances that bear on the future direction of plans' cost. However, Gerboth concludes on a positive note by expressing his belief that, given more time and experience with the behavior of these benefit costs, it will be possible in the future to produce a cost measure that is sufficiently relevant and reliable to warrant accrual accounting treatment.

Schwartz and Lorentz (1986)

Schwartz and Lorentz [1986] report the results of a
recent survey of SFAS No. 81 disclosures conducted by Ernst & Whinney. This survey consisted of a random selection of 100 annual reports issued by public companies subsequent to the effective date of SFAS No. 81.

The researchers found that only 52 of the 100 annual reports selected included at least some of the disclosures required by SFAS No. 81. Presumably, the remaining 48 companies either did not sponsor a postretirement benefit plan or experienced immaterial benefit costs. Of the 52 companies reporting benefit information, 47 disclosed use of the pay-as-you-go accounting method, while five indicated that an accrual-basis method was used in accounting for at least a portion of their postretirement benefits (only one company used an actuarially computed accrual for health benefits).

Schwartz and Lorentz note that for 45 of the 52 annual reports reviewed, the percentage of retirees' costs to total operating costs was less than one percent. In addition, none of the five companies disclosing some form of accrual measure had retiree-cost-to-total-operating-costs ratios in excess of one percent.

The FERF Study

In a recent study sponsored by the Financial Executives Research Foundation (FERF), financial models were developed to illustrate the manner in which alternative actuarial procedures might affect the measurement of costs and obligations of typical nonpension
postemployment benefit plans [Akresh, 1985]. The objectives of the modeling process were: (1) to illustrate comparative financial results of alternative methods of recognizing expense for other postemployment benefits, and (2) to determine the sensitivity of these costs and liabilities to various actuarial assumptions. The basic model used in the FERF study is an unfunded hospital/medical benefit program which assumes the following monthly average per capita costs for each covered individual:

- $71.00 for hospital/medical coverage expense prior to age 65, and
- $23.00 for hospital/medical coverage after age 65 for a program that is coordinated with Medicare benefits

Sixty percent of the employee population was assumed to be married, with spouses treated as individuals separately covered.

The modeling process analyzed results under the following alternative actuarial cost methods. In all cases, plan costs rather than plan benefits, were forecast.

1. Non-projected accrued benefit with the actuarial losses attributable to hospital/medical care cost escalation spread over the remaining working life of the active group.

2. Non-projected accrued benefit with the actuarial losses attributable to hospital/medical care cost escalation with respect to retirees recognized immediately; other losses spread over the remaining working life of the active group.

3. Projected accrued benefit service prorated.

4. Entry age normal.
(5) Aggregate.
(6) Terminal Funding.
(7) Pay-as-you-go.

Non-projected actuarial cost methods differ from projected actuarial cost methods in that non-projected methods do not anticipate increases in the cost of postemployment benefits in determining the amounts of both employer expense and liability. Instead, with a non-projected method, increases in health care expenses are recognized only when the plan costs actually increase because of health care inflation, plan amendment, or other factors, such as changes in Medicare program legislation. The non-projected accrued benefit cost method defines the unit of benefit assigned to each year as the total accrued benefit earned as of the end of that year less the total accrued benefit which had been earned as of the beginning of the year. The projected accrued benefit service prorate cost method defines the unit of benefit assigned to each year as the total projected plan benefit divided by total expected service, thus assigning a constant unit benefit amount to each year. This method is identical to the non-projected accrued benefit method except that health care inflation assumptions are included.

Under the entry age normal cost method, the annual cost or normal cost is the annual amount required to provide for benefits under the assumption that the current benefit plan has always been in effect. Prior service cost
is that portion of the total cost of the plan allocated to years prior to the date of obligation measurement. Prior service cost is equal to the present value of future obligations less the present value of future normal costs. This prior service cost is usually amortized levelly over a fixed period of years.

The aggregate cost method spreads the total unfunded or unprovided cost of future benefits for all covered employees over the employees' average future service lives. Under this method prior service cost is amortized over the average service lives of all employees.

Several different sets of plan assumptions were used to investigate the impact that changes in various elements of plan experience can have on the other postemployment benefit obligation. The following assumed health care inflation rates were used in the various models:

(1) 0% future health care inflation.
(2) 5% per year health care inflation.
(3) inflation of 10% per year for 15 years and 5% per year thereafter.
(4) inflation of 15% per year for 15 years and 5% per year thereafter.
(5) inflation of 15% per year for 15 years, 10% per year for 15 years, and 5% per year thereafter.

Arbitrarily selected alternative interest rates of 0%, 8%, and 15% were used in the modeling process, and modeling was performed for three different hypothetical employee and retiree populations -- a mature population, an immature population, and an overmature population.
The results of the modeling process demonstrate that financial reporting expense clearly will be higher if accrual accounting standards are adopted. In addition, a comparison between the several accrual accounting methods indicates that the non-projected accrued benefit method produces the lowest present value of the plan obligation and consequently the lowest expense levels in each year, while the entry age normal method gives the highest amounts. With regard to the effect of changes in the assumed health care inflation rate, the various models indicate the sensitivity of present value determination to the particular inflation factor chosen and the resultant variability of expense levels under different rates.

The study results also indicate that while a change in the interest rate assumption can result in substantial changes in the individual components of expense level, these changes tend to offset each other so that overall expense is not materially affected. For example, the use of a high interest rate would result in a smaller postemployment benefit obligation and a lower current expense level; however, interest expense on the recorded liability would be higher.

Because statistical methods were not used in the FERF study, conclusions concerning statistical significance could not be made. Moreover, this study did not consider the impact of accrual versus pay-as-you-go accounting methods for postemployment benefits on the decisions made
by the users of financial statements.

The EBRI Study

The Employee Benefit Research Institute (EBRI) also sponsored a study that used actuarial techniques to analyze advance funding and expensing of retiree medical benefits. The study, "Measuring and Funding Corporate Liabilities for Retiree Health Benefits," was conducted by several members of the consulting actuarial firm of Milliman and Robertson. Using three different model groups, the researchers estimated the magnitude of retiree health benefit liabilities and investigated alternative funding methods under several economic scenarios. The effects of changes in benefits and possible future policy changes were also measured.

The analyses were based on the following sample employee and retiree populations:

(1) Stable Group - a reasonable mature and stable group that is projected to continue to grow. This group is typical of many large companies. The stable group has an initial population (population at date of first liability estimation) of 8,412 active employees and 1,588 retirees.

(2) Older, Declining Group - an older, mature group that is gradually declining. Turnover is high at all ages and durations of employment. The older group started with 6,968 actives and 3,032 retirees.

(3) New Group - a group formed just five years prior to the first year of liability estimation. This group has a high average age at employment and relatively high turnover. The initial population consisted of 9,986 active employees and 14 retirees.

For each of these populations the number of covered
retirees and spouses, distributed by age and sex, are projected for each of fifty years into the future. The initial employee and retiree populations were used as a starting point and assumptions regarding turnover or separation, retirement, mortality, and probability of marriage at retirement were used to project future populations.

All values reported in the study are based on assumed annual per capita medical plan costs. Benefits costs used represent a fairly low level of benefits ($500 deductible, 75% coinsurance, $7,500 annual out-of-pocket limit). Unlike the FERF study, which assumed a constant annual per capita claim cost, the EBRI study increases per capita cost with the age of the covered retiree or spouse. Costs were assumed to rise by 2.5% with each year of life.

The study presents results under each of the following alternative accrual methods:

1. Accrual at retirement.
2. Accrual at eligibility for retirement.
3. Ratable accrual from date of hire to age 65 - total benefit is accrued ratably over the period from the employee's hire date to age 65.
4. Ratable accrual from date of hire to earliest eligibility for retirement - benefits begin accruing at the date of hire but are fully accrued at earliest eligibility for retirement.
5. Ratable accrual over fixed period of service - benefits accrued over a fixed period, such as 25 years.

Cost and obligation amounts were modeled using a seven percent discount rate and three distinct medical care cost
trend scenarios - low, medium, and high. Each of the trend scenarios starts with annual medical care cost increases of ten percent (the approximate level during recent years) and decreases gradually to a five percent annual rate of increase. This decline occurs over periods of fifteen, twenty-five, and thirty-five years for the low, medium, and high scenarios, respectively.

The cost of funding retiree medical benefits was also calculated for each of the various models using advance funding methods borrowed from pension practice. Comparing the results of the several funding methods with pay-as-you-go expense revealed that advance funding costs continue to exceed pay-as-you-go costs even after fifty years for a stable or growing employee population.

The researchers also analyzed the sensitivity of the calculated benefit values to changes in economic assumptions and plan design. The changes considered in this phase of the research included a one-year increase in life expectancy, a doubling of the rate of early retirement, elimination of pre-65 coverage, and various plan coverage extensions. The study results demonstrate that changes in such key variables can cause percentage changes in retiree health care liabilities varying from a negative twenty-five percent to a positive one hundred percent.

It is difficult to identify any general conclusions resulting from the researchers' modeling efforts because
the resulting cost and obligation amounts are so dependent upon the specific combination of assumptions modeled. However, the study does show the complexities inherent in retiree health care benefit cost and obligation determination and emphasize the tremendous amount of variability that can result from minor differences in variable specification.

The researchers made no attempt to evaluate the cost and obligation amounts in terms of statistical significance or relative to other obligation amounts or total assets. The study also did not provide any basis for conclusions as to whether accrual accounting for postretirement health care benefits would enhance or improve the decisions of financial statement users.

Summary

Research on the costs and obligations associated with the provision of a nonpension postretirement benefit plan has been too limited to support any significant conclusions. Anecdotal evidence from specific companies and the statements of benefits experts has suggested that the employer's nonpension postretirement benefit obligation is quite substantial in many cases, particularly in the steel and automotive industries. In contrast, the study reported by Schwartz and Lorentz [1986] found that pay-as-you-go costs for most of the sample companies and accrual-basis costs for the five firms that voluntarily disclosed such information were under one percent of total operating
costs. However, the apparent insignificance of these findings might be attributed, at least in part, to two factors: (1) costs recognized on a pay-as-you-go basis are lower than those recognized on an accrual basis; and, (2) companies that voluntarily disclose accrual information could provide misleading results since there is a self-selection bias involved in the sample (i.e., companies that have high accrual basis nonpension postretirement benefit costs will have an incentive not to disclose this information).

Finally, although they provide insight as to the manner in which alternative actuarial procedures affect the measurement of nonpension benefit costs and obligations, the FERF and EBRI studies are limited to an analysis of average nonpension postretirement benefit costs and, therefore, contribute no evidence on the range of costs and obligations experienced by nonpension benefit plan sponsors. These studies also express no conclusions concerning the manner in which users' judgments and decisions might be affected by the prescription of accrual accounting.
CHAPTER 3
METHODOLOGY

This chapter discusses the methodology that was used to collect and analyze the data needed to determine whether recognition of employee nonpension postretirement benefits (ENPBs) on an accrual basis would significantly affect decisions made by financial statement users. The topics presented in this section include the research hypotheses, data collection, the variables, the expectations of the hypotheses, the statistical analysis, and the limitations of the study.

Research Hypotheses

As stated earlier, the primary purpose of this study is to answer the following research question: Would the recognition of ENPBs on an accrual basis significantly impact decisions made by financial statement users?

Three additional issues were examined in the process of investigating the primary research question: 1) Does the ENPB obligation affect financial statement users' decisions in the same manner as an equivalent amount of debt in the form of a term loan?; 2) Does the existence of an ENPB plan affect the decisions of financial statement users?; and, 3) Does the method of accounting for ENPBs affect financial statement users' perceptions of this obligation as a liability?
To investigate these research questions, the following hypotheses, stated in the null form, were tested. The first two hypotheses address the major research question concerning the effect of accrual accounting for ENPBs:

H1: Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a positive effect on loan officers' assessments of a borrower's ability to repay a term loan.

H2: Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a positive effect on the maximum loan amount recommended by bank loan officers.

The next two hypotheses are designed to determine whether the ENPB obligation affects users' decisions in the same manner as term loan debt:

H3: The presence of a term loan, versus an ENPB obligation, on a firm's balance sheet has either no effect or a positive effect on loan officers' assessments of a borrower's ability to repay a term loan.

H4: The presence of a term loan, versus an ENPB obligation, on a firm's balance sheet has either no effect or a positive effect on the maximum loan amount recommended by bank loan officers.

Hypotheses H5 and H6 examine the effect of the existence of an ENPB plan:

H5: The existence of an ENPB plan has either no effect or a positive effect on bank loan officers' assessments of a borrower's ability to repay a term loan.

H6: The existence of an ENPB plan has either no effect or a positive effect on the maximum loan amount recommended by bank loan officers.

The final set of hypotheses is concerned with the effect of method of accounting on users' perceptions of the ENPB
obligation as a liability:

H7: Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a negative effect on bank loan officers' perceptions of this obligation as a firm commitment.

H8: Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a negative effect on bank loan officers' views concerning accrual of this obligation.

Data Collection

The discussion of data collection is divided into three areas -- the subjects of interest, the sampling procedures, and the experimental task.

Subjects

The experimental subjects used in this research are commercial bank loan officers. This group of subjects is assumed to represent a subgroup of the population of creditors, one of the primary financial statement user groups identified by the Financial Accounting Standards Board [FASB, 1980, par. 34].

Bank loan officers are relevant subjects for this research because these individuals focus on measures of debt magnitude, such as the debt-to-equity ratio, in their decision processes. The results of both attitude surveys and experimental studies have demonstrated that the debt-to-equity ratio and other ratios that measure debt magnitude are used by lenders in their assessment of creditworthiness [Zimmer, 1979; Abdel-Khalik and El-Sheshi, 1980; Dietrich and Kaplan, 1982; and Stephens, 1980]. In
fact, evidence collected by Gibson [1983] indicates that commercial loan officers characterize the debt-to-equity ratio as the financial ratio of greatest importance in the loan assessment process. Because most ENPB obligations are unfunded, the prescription of accrual accounting techniques will have a negative impact on the debt-to-equity ratios of firms sponsoring such benefit plans. Bank loan officers may be more likely than financial analysts or other user groups to incorporate this effect into their decisions because of their particular sensitivity to the debt-to-equity ratio.

Sampling Procedures

A random sample of commercial bank loan officers was selected from the Robert Morris Associates 1986-1987 Member Roster (RMA Directory). An advantage of using the RMA Directory as a sampling frame is that, unlike a bank directory, it provides sufficient information to allow the questionnaire to be addressed to specific loan officers, a technique that has been found to enhance response rate [Dillman, 1972; Dillman and Frey, 1974]. To ensure that the individual who actually responds to the questionnaire is qualified, biographical information, including education and experience, was requested from each respondent. The responses of any subject who possessed less than three years experience, or whose largest loan approval in the past was less than the loan amount selected and specified by the researcher ($3,500,000) were to be excluded from the
The bank loan officers participating in this study had to be accustomed to dealing with relatively large companies as the financial statements used in this experiment represent an entity having total assets in excess of $30,000,000. Banks with less than $50,000,000 in assets were eliminated from the frame prior to sampling to help ensure that the respondents would be comfortable with the financial statements of the hypothetical company. The appropriate sample size was determined after the research instrument was pretested on a group of thirty-seven commercial bank loan officers. Using a formula incorporating the pretest variance and a 0.10 bound on the error of estimation [Cochran, 1977, pp. 77-78], a minimum sample size of 52 subjects per cell was calculated. An initial 1250 subject sample was chosen to ensure that at least 52 responses per cell would be obtained given a 20 percent response rate and a subsequent 20 percent reduction in respondents due to failure to meet the qualifications for sample inclusion.

Task

Each subject received a research instrument consisting of: (1) a single set of financial statements.

The requirement that the subject have a past loan approval in excess of $3,500,000 was subsequently eliminated because it was too restrictive (29% of the respondents would have been excluded from the sample). In addition, the results of an ANOVA failed to detect differences in responses due to the magnitude of past loan approvals (see Chapter 4 for details).
with related notes and financial information for a hypothetical loan applicant; and, (2) demographic questions concerning the respondent's present job title, age, experience, education, and size and range of loans approved. Each respondent was asked to analyze the statements and accompanying financial information as he or she would in practice and to: 1) state the maximum loan amount he or she would recommend granting to the company; and, 2) provide his or her assessment of the ability of the applicant to repay a 5-year term loan of $3,500,000 (justification of the loan amount and 5-year term is provided in the variables section). The subjects were instructed to assume, in performing this task, that they were making the loan decision within a competitive environment.

To accomplish the manipulation of the independent variable (type of obligation), four different sets of financial statements were constructed and used in the experiment. Each set of statements is a rearrangement of actual financial information obtained from a company that currently maintains an established ENPB plan. The four sets of financial statements used in the experiment are identical in all respects except for the differences caused by varying the levels of the independent variable. (The specific manner in which the independent variable is manipulated is discussed in detail in the variables section.) The four sets of statements representing all levels of type of obligation are given in Exhibit 3-1.
EXHIBIT 3-1
FINANCIAL STATEMENTS REPRESENTING ALL LEVELS OF TYPE OF OBLIGATION

NPB-Accrued (Group 1) - Statements of a company that provides nonpension postretirement benefits to its employees and accounts for the associated costs on an accrual basis. (i.e. liability)

NPB-Cash (Group 2) - Statements of a company that provides nonpension postretirement benefits to its employees and accounts for the associated costs on a pay-as-you-go basis. (i.e. no liability)

Equal Debt (Group 3) - Statements of a company that does not provide nonpension postretirement benefits to its employees but has a term loan obligation equal to the unfunded nonpension benefit obligation accrued in NPB-Accrued statements.

No Debt (Group 4) - Statements of a company that does not provide nonpension postretirement benefits to its employees and has no compensating liability. (i.e. control)
Each bank loan officer selected in the sampling phase of the research was randomly assigned to one of four groups, with all the respondents in each group receiving only one of the four sets of financial information (see Exhibit 3-1). Thus, each loan officer was exposed to only a single treatment and performed the experimental task only once.

In addition to providing an assessment of the ability to repay the specified term loan and indicating the maximum loan amount, all subjects were asked to respond to two statements designed to assess their perception of the nonpension postretirement benefit obligation as a liability. (These statements are identified and discussed in the Perception Variables section.) As part of the analysis, the mean responses of the group receiving financial statements that reflect accrual accounting treatment of nonpension benefit cost (Group 1 - NPB Accrued) were compared with the mean responses of the group receiving statements that account for benefit costs on a pay-as-you-go basis (Group 2 - NPB Cash). The purpose of this comparison is to ascertain whether the accounting method used by a company affects the bank loan officer's perception of the nature of the nonpension postretirement benefit obligation. The perception question is positioned among several other unrelated questions concerning various elements of the hypothetical financial statements in order to avoid sensitizing the respondents to the research
question under investigation.

A mail questionnaire approach was used to contact the bank loan officers and solicit their responses. In an attempt to increase the response rate and thus reduce the incidence of nonresponse bias, a second mailing of the questionnaire was employed. A second copy of the questionnaire was sent to those subjects who failed to respond within three weeks of the date of the initial mailing. Respondents were offered a summary of the research results as an incentive to complete and return the questionnaire. In addition, as a further incentive to respond to the questionnaire, a cash award of $100 was given to two respondents chosen in a random drawing from all of the completed questionnaires received. Respondents who wished to be eligible for the random drawing were asked to provide their names and addresses.

The Variables

The current research is concerned with one independent variable and four dependent or response variables. Each of the levels of the independent variable and each of the dependent variables of interest are discussed below and justification is provided for their inclusion in the study.

Independent Variable

One independent variable is manipulated in this study: the type of obligation included in the financial statements of the hypothetical loan applicant. The levels
of this variable are: (1) a nonpension postretirement benefit obligation accrued in the financial statements; (2) a nonpension postretirement benefit obligation mentioned in the notes to the financial statements with pay-as-you-go cost information disclosed; (3) no nonpension postretirement benefit obligation, but equal debt in the form of a term loan; and, (4) neither a nonpension postretirement benefit obligation nor a compensating liability.

The first level of the independent variable (accrued nonpension postretirement benefit obligation) is of interest in the current research because it represents the method of accounting for nonpension postretirement benefits proposed by the FASB in its 1982 Preliminary Views and recently-issued exposure draft. This level was operationalized by constructing financial statements that reflect the application of accrual accounting techniques to the costs associated with an employee postretirement health care benefit plan. Specifically, the balance sheet includes as a liability the unfunded present value of the hypothetical company's obligation for these nonpension postretirement benefits and the income statement includes the current period's nonpension postretirement benefit expense calculated on an accrual basis.

The hypothetical financial statements were derived from the statements of the Eaton Corporation, a Fortune 500 company. Eaton was selected because of its degree of labor intensity relative to other Fortune 500 companies. To
ensure an effective experimental manipulation, the hypothetical company must be fairly highly labor intensive; generally, holding constant such factors as plan coverage and design and employee population characteristics, the more labor intensive a company, the more significant the nonpension benefit costs and obligation relative to total costs and obligations. A random sample of 100 Fortune 500 companies was selected and ranked by the ratio of total assets to employees. Eaton was the thirty-third company in the list, moving from the smallest ratio of assets to employees to the largest. Eaton also met the criteria of having reported positive net income for the years 1985 and 1986, and having the policy of providing nonpension postretirement benefits to substantially all of its employees.

Because of the lack of available data concerning the costs and obligations associated with the nonpension postretirement benefit plans of most employers as well as the cost involved in estimating these amounts for specific companies, the nonpension benefit amounts reflected in the hypothetical company financial statements are based on a

2 At a recent meeting of the FASB's Task Force on Employers Accounting for Postemployment Benefits other than Pensions, William Ihlandfeldt of Shell Oil Company estimated that it would cost Shell approximately $50,000 to gather the internal data necessary for the calculation of Shell's existing obligation to employees and retirees, while Thomas Nelson of Milliman & Robertson stated that actuarial determination of an employers cost and obligation under accrual techniques currently being contemplated by the FASB would cost a company significantly more than $10,000.
modeling of annual per capita medical plan costs sponsored by the Employee Benefit Research Institute (see pages 53-57 for a description of this study). The cost and obligation amounts included in the statements are those that were actuarially determined in the EBRI study and subsequently inflated to reflect the number of Eaton employees. These figures were also adjusted so that their calculation would correspond as closely as possible to the FASB's current tentative conclusions with regard to the determination of postretirement health care benefit obligation and expense amounts.

The amounts disclosed and accrued in the financial statements are based on the following assumptions:

1. annual per capita medical care costs for each covered individual, starting at $781 for 55-year-old retirees and increasing by 2.5% with each year of age;

2. a stable group (typical of most large companies);

3. a medium medical care cost trend scenario (begins with annual medical care cost increases of ten percent and decreases over twenty-five years to a five percent annual increase);

4. ratable accrual of benefits from date of hire to age 65, and

5. a 7% discount rate.

The assumptions listed above were selected from the several alternative combinations of assumptions modeled in the EBRI study because they are reasonable, and in some cases, conservative in nature. For example, the incurred claim cost assumption selected results in a maximum annual per capita expense for a retiree under age sixty-five of
$975.00, an amount which is substantially lower than the 1986 average per capita health care expenditure of $1,076.00. The health care cost trend rate chosen also seems conservative when compared with an actual increase in costs between 1985 and 1986 of 8.4% [Health Care Financing Administration, June 1987]. The projected accrued benefit actuarial cost method selected reflects the then current FASB leanings with respect to the method of attributing postretirement health care benefits to years of service. Finally, the 7% discount rate selected is relatively close to the 8.5% median pension discount rate assumption determined from a sample of 205 Fortune 500 companies at year-end 1986 [Ring, 1987].

The financial statements prepared in this manner are subsequently referred to as NPB-Accrued statements. These statements include accrued nonpension postretirement benefit obligations of $4,778,000 for 1986 and $5,386,000 for 1987, deferred nonpension postretirement benefit costs of $2,432,000 for 1986 and $2,280,000 for 1987, and nonpension postretirement benefit expense of $760,000 for 1986 and $890,000 for 1987. A copy of the NPB-Accrued statements is included in Appendix A.

The second level (nonpension costs on a pay-as-you-go basis) was selected for inclusion because it represents the method by which most sponsors of nonpension benefit plans currently account for the associated costs [Akresh, et. al., 1985, p. 3; Dopkeen, 1987, p. 11; Liebtag, 1987,
This level was operationalized by constructing financial statements that recognize as expense only those amounts actually disbursed for retirees' health care claims in the current period and include the required SFAS 81 disclosures. As is the case in present practice, these statements provide no other indication of the magnitude of the present value of the employer's unfunded obligation for employee postretirement health care benefits. The financial statements prepared in this manner are subsequently referred to as NPB-Cash statements; a copy of these statements is included in Appendix B.

NPB-Accrued and NPB-Cash statements are based on and derived from the same postretirement health care benefit costs and plan assumptions. These two sets of statements represent identical actual cost information, but NPB-Accrued statements reflect this cost information on an accrual basis while NPB-Cash statements incorporate the same information on a pay-as-you-go basis. A comparison of the responses of subjects receiving NPB-Accrued statements with the responses of subjects receiving NPB-Cash statements will indicate whether the method used to account for nonpension postretirement benefit costs affects the recommendations and decisions of loan officers (Hypotheses 1 and 2).

The third level of type of obligation was obtained by developing financial statements that represent a company that does not offer employee postretirement health care
benefits but has a term loan of the same magnitude as the unfunded obligation accrued in NPB-Accrued statements. In the balance sheet of these statements, which are presented in Appendix C, the balance of "Long-Term Debt" is increased by the amount of the nonpension postretirement benefit obligation accrued in NPB-Accrued statements and the caption "Long-term investments" is substituted for "Deferred Nonpension Benefit Costs". The income statement differs from the one included in the NPB-Accrued statements only in that interest expense, instead of nonpension postretirement benefit expense, is charged to income; the expense amounts and the resulting net income figure is the same for the two sets of statements. Consequently, Equal Debt statements represent a company that is identical to the NPB-Accrued company except for the substitution of a term loan obligation for an unfunded postretirement health care benefit obligation. A comparison of subject responses to NPB-Accrued and Equal Debt statements will provide evidence as to whether a nonpension postretirement benefit obligation affects loan officers' decisions in the same manner as term loan debt (Hypotheses 3 and 4).

The fourth level of the type of obligation variable was operationalized by developing financial statements for a company that does not provide employee postretirement health care benefits and, consequently, has no obligation for such benefits. However, these No Debt statements differ from the Equal Debt statements described above in
that the No Debt statements contain no compensating liability. No Debt statements, therefore, represent a company with a stronger (i.e. lower) debt-to-equity ratio and a lesser amount of cash outflows relative to the companies represented by NPB-Accrued and Equal Debt statements. No Debt statements differ from NPB-Cash statements only in that the income statement included in NPB-Cash statements contains a deduction for the amount of current period disbursements for postretirement health care benefit claims. In effect, the No Debt company appears to be in better financial condition (more creditworthy) than NPB-Accrued, NPB-Cash, and Equal Debt companies and is designed to serve as a control case. A copy of No Debt statements appears in Appendix D.

A comparison of subject responses to NPB-Accrued and NPB-Cash statements with subject responses to No Debt statements will indicate whether bank loan officers' recommendations and decisions are affected by the existence of a nonpension postretirement benefit plan (Hypotheses 5 and 6).

**Dependent Variables**

Four response or dependent variables were measured in this study. Two of these variables are the results of lending decisions (maximum loan amount recommended and assessment of ability to repay) and the other two are perception variables associated with the loan officer's view of the postretirement benefit obligation.
Decision Variables

Previous research on the responses of bank loan officers to financial statements has incorporated a wide variety of experimental tasks and response variables. Several studies have asked lenders to state the maximum amount that they would be willing to lend to hypothetical loan applicants [Oliver, 1972; Abdel-khalik, 1973; Estes and Reimer, 1977; Keys, 1978; Firth, 1979]. Other studies have involved the prediction of bankruptcy [Kennedy, 1975; Libby, 1975; Casey, 1980; Zimmer, 1980] or the prediction of loan default [Abdel-khalik and El-Sheshai, 1980; and Zimmer, 1981].

Libby [1979] and Johnson and Pany [1984] asked lenders to make an accept/reject recommendation for a specified loan amount. Then, participants accepting the loan proposal were asked to provide the interest rate premium that they would charge the applicant. Participants rejecting the loan were asked to estimate the premium that they believed would be charged by alternate financial institutions willing to accept the loan proposal.

In a study conducted by Wilkins and Zimmer [1983] (mentioned earlier in conjunction with the review of the lease literature), loan officers were asked to assess the ability of loan applicants to repay two separate four-year term loan amounts and to state the maximum amount they would lend to each applicant. These researchers chose the ability to repay variable after reviewing the professional
banking literature which indicates "that the primary purpose of financial analysis by loan officers is to assess the ability of the applicant to repay" [1983, p. 753]. Wilkins and Zimmer acknowledge that practicing loan officers do not ordinarily make decisions concerning the maximum amount they would lend to specific applicants. However, these researchers included maximum amount loaned as a dependent variable to test for correlations between the two tasks. Wilkins and Zimmer note that the experimental results obtained for the alternative task variables were essentially the same and that the two variables were significantly correlated.

A slightly modified version of the experimental task used in the Wilkins and Zimmer study is employed in the current research. Each subject is required to: 1) assess the ability of the hypothetical applicant to repay a five-year term loan of $3,500,000; and, 2) state the maximum loan amount that the subject is willing to grant the hypothetical applicant.

An assessment of ability to repay a specified five-year term loan is included as a dependent variable because, as Wilkins and Zimmer note, assessment of the ability to repay is the primary objective of a lender's analysis of financial information. Loan officers are asked to assess ability to repay by stating the probability which they believe is associated with the applicant's subsequent repayment of the loan amount on a timely basis.
The loan application is for a long-term loan as opposed to a short-term loan because additional emphasis is placed on leverage and profitability ratios and less on liquidity and turnover ratios as the length of a loan is increased [Backer and Gosman, 1979, p. 56]. The five-year maturity will be used because, based on a study of senior officers of selected large banks reported by Hayes [1977, p. 112], most term loan maturities range from five to seven years, with seven years representing the longest term loan which loan officers do not characterize as rarely or never granted. The loan is described as a general obligation loan being requested for the purpose of acquiring essential business assets since the expansion of fixed assets is the most common purpose for which term loans are given [Hale, 1983, p. 152].

The size of the loan was determined by calculating the loan amount necessary to change the company's debt-equity ratio from just under the median Robert Morris Associates debt-equity ratio to an amount at one-fifth of the interval between the company's ratio and the lower quartile RMA debt-equity ratio. The loan amount calculated in this manner was then adjusted upward to $3,500,000 as a result of discussions with three practicing commercial bank loan officers.

In addition to an assessment of ability to repay, each subject is asked to provide the maximum loan amount he or she would be willing to grant the hypothetical borrower.
Then, the effect of type of obligation on the results of the performance of two distinct tasks can be determined. This will increase the external validity of the study because it allows the results to be generalized to two different tasks. Also, the use of an additional dependent variable will make it possible to examine the internal consistency of subject responses by calculating the correlation between the two variables. If subjects are attending to the experimental task, their assessments of ability to repay should be positively correlated with the maximum loan amount they would be willing to recommend.

Perception Variables

Each loan officer was also asked to provide responses for two additional variables. The subjects were asked to respond to the following statements, using a seven-point Likert scale:

The postretirement health and life insurance benefit plan provided by Gamma Corporation

a) is a firm commitment that is likely to be met regardless of corporate profitability.

b) should be accrued as a liability in the financial statements.

1..........Strongly Disagree
2..........Moderately Disagree
3..........Slightly Disagree
4..........Neither Agree nor Disagree
5..........Slightly Agree
6..........Moderately Agree
7..........Strongly Agree

A comparison of the mean response of the group receiving
the accrual accounting treatment of nonpension postretirement benefit costs with the mean response of the group receiving the pay-as-you-go treatment of the benefit costs will indicate whether the accounting method used by a company affects a loan officer's perception of the non-pension postretirement benefit obligation as a liability.

(Hypotheses 7 and 8)

Subjects were also asked to provide Likert scale responses to each of the following unrelated statements:

1. Goodwill recorded as the result of the acquisition of a company should be
   a) recorded indefinitely as an asset.
   b) recorded initially as an asset and amortized over future years.
   c) immediately written off against equity.

2. Research and development costs should be
   a) expensed as incurred.
   b) capitalized only when future benefits in excess of costs are certain as of year end.
   c) capitalized when future benefits in excess of costs are probable as of year end.

3. In accounting for the pension plans of Gamma Corporation
   a) when total pension fund assets exceed the actuarial present value of accumulated vested pension plan benefits, the excess amount of the fund should be disclosed as an asset in the balance sheet.
   b) when total pension fund assets are less than the actuarial present value of accumulated vested pension plan benefits, the deficiency should be disclosed as a liability in the balance sheet.

4. The amount of deferred taxes resulting from timing differences in book and tax income should be disclosed
   a) as a liability in the balance sheet.
   b) as an equity item.
   c) in the footnotes to the financial statements.
These four statements were included solely for the purpose of disguising the objective of the research task; subject responses to these statements were not be analyzed in the current study.

**Expectations of the Hypotheses**

The first two hypotheses address the major research question. These hypotheses deal with the effect of the method of accounting for nonpension postretirement benefits on the two decision variables.

**H1:** Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a positive effect on loan officers' assessments of a borrower's ability to repay a term loan. (NPB-Accrued vs. NPB-Cash)

**H2:** Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a positive effect on the maximum loan amount recommended by bank loan officers. (NPB-Accrued vs. NPB-Cash)

It was expected that Hypotheses H1 and H2 would be rejected. Accrual accounting for nonpension postretirement benefits is expected to provide information that is both more complete and accurate with respect to the costs and obligations associated with the provision of such benefits relative to the pay-as-you-go method. However, a failure to reject Hypotheses H1 and H2 might be explained by the fact that loan officers do not consider nonpension postretirement benefit obligations to be a true liability of the sponsoring company. If this is the case, then there would be an indication that the information provided by the accrual accounting treatment of such benefits would be
irrelevant to the bank loan officers and would not affect their decisions.

The next two hypotheses are designed to determine if bank loan officers treat the nonpension postretirement benefit obligation as the equivalent of debt in the form of a term loan.

**H3:** The presence of a term loan, versus an ENPB obligation, on a firm's balance sheet has either no effect or a positive effect on loan officers' assessment of a borrower's ability to repay a term loan. (Equal debt vs. NPB-Accrued)

**H4:** The presence of a term loan, versus an ENPB obligation, on a firm's balance sheet has either no effect or a positive effect on the maximum loan amount recommended by bank loan officers. (Equal debt vs. NPB-Accrued)

It was difficult to predict the outcome of hypotheses H3 and H4. The lease and pension literature discussed in the literature review section indicates that the market treats lease obligations and unfunded vested pension benefits as debt equivalents. In addition, behavioral research in the lease area [Wilkins and Zimmer, 1983] suggests that bank loan officers treat both capitalized and footnoted lease obligations as the equivalent of debt finance.

However, as discussed earlier, the employer's legal liability for the provision of nonpension postretirement benefits, especially to those employees who have not yet reached retirement age, remains an open question. Consequently, lenders might feel that the nonpension postretirement benefit obligation should not be
incorporated into their judgments in the same manner as the undisputed liability associated with a term loan. This would explain a rejection of H3 and H4.

Tests of H3 and H4 might provide additional insight into the outcome of tests of H1 and H2. If H1 and H2 are not rejected, a rejection of H3 and H4 would provide support for the explanation that method of accounting does not affect lenders' decisions because loan officers do not consider nonpension postretirement benefit obligations to be a liability of the firm. If lenders do not believe that nonpension postretirement benefit obligations are liabilities, the information provided by the method of accounting for these obligations would not be incorporated into their judgments and decisions.

The next two hypotheses consider the effect of the existence of a nonpension postretirement benefit plan on the dependent decision variables.

H5: The existence of an ENPB plan has either no effect or a positive effect on the bank loan officers' assessments of a borrower's ability to repay. (NPB-Accrued vs. No Debt and NPB-Cash vs. No Debt; or, NPB-Accrued and NPB-Cash vs. No Debt)

H6: The existence of an ENPB plan has either no effect or a positive effect on the maximum loan amount recommended by the bank loan officers. (NPB-Accrued vs. No Debt and NPB-Cash vs. No Debt; or, NPB-Accrued and NPB-Cash vs. No Debt)

The tests of H5 and H6 will depend upon the outcome of H1. If H1 is rejected, the means of groups receiving NPB-Accrued and NPB-Cash statements will be separately compared with the mean of the group receiving No Debt.
statements. However, if H1 is not rejected, groups receiving NPB-Accrued and NPB-Cash statements will be combined and a contrast comparison will be used to test H5 and H6.

It is anticipated that Hypotheses H5 and H6 will be rejected. All else being equal, the existence of a nonpension postretirement benefit plan should result in increased risk for the lender, causing a decrease in the perceived quality of a company's financial condition and, consequently, a decrease in both decision variables. However, failure to find any effect of the existence of a nonpension postretirement benefit plan on the assessment of ability to repay and maximum amount loaned could occur if subjects believe that nonpension postretirement benefit obligations are not really corporate liabilities. Moreover, if H1 and H2 are not rejected, failure to reject H5 and H6 would provide support for the conclusion that the method of accounting has no effect because loan officers simply ignore obligations associated with the sponsorship of nonpension postretirement benefit plans.

The final set of hypotheses is concerned with the effect of the method of accounting for nonpension postretirement benefits on the bank loan officer's perception of the obligation associated with the provision of these benefits.

H7: Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a negative effect on bank loan officers' perceptions of this obligation as a firm commitment. (NPB-Accrued vs. NPB-Cash)
H8: Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a negative effect on bank loan officers' views concerning accrual of this obligation. (NPB-Accrued vs. NPB-Cash)

These hypotheses are expected to be rejected. It seems reasonable to believe that loan officers might interpret the accrual of the costs associated with employee nonpension postretirement benefits as an implicit acknowledgment of unconditional responsibility for payment. Beaver [1981, p. 164] states that the format used to display financial data could convey information regarding management's expectations although such an effect has not been empirically documented.

**Statistical Analysis**

The discussion of the statistical analysis is divided into two sections -- the analysis of the decision variables and the analysis of the perception variables. The analysis of the decision variables differs from that of the perception variables because the perception variables will be analyzed only for those subjects assigned to groups 1 and 2.

**Decision Variables**

Tests of the six hypotheses associated with the dependent variables (assessment of ability to repay and loan amount recommended) will involve the evaluation of a specified, limited subset of all possible contrasts among means (the specific contrasts to be evaluated are stated in
the expectations of hypotheses section). These contrasts, because they are specified prior to the performance of the experiment, are referred to as planned or *a priori* contrasts. The analysis of *a priori* contrasts differs from the analysis of an experiment in which the primary emphasis is placed on testing whether or not an independent variable or variables affects one or more dependent variables. In the latter case, a significance test (overall F test) is performed and, in the event significance is detected, *a posteriori* or post hoc comparisons are used to determine which contrast(s) among means is (are) significant. On the other hand, *a priori* or planned comparisons are conducted without reference to an overall test of significance.

*A priori* comparison procedures should be used in situations such as the current research in which an experiment is designed to test a limited set of hypotheses and the tests used to evaluate these hypotheses represent the focus of the analysis. *A priori* tests are more appropriate than post hoc tests for analyzing a select, limited number of contrasts because *a priori* test statistics are more powerful than those designed to test all pairwise comparisons or all possible contrasts [Kirk, 1982, p. 106]. Although *a priori* comparison procedures involve the use of multiple t-tests, the results of *a priori* comparisons differ from the results of several independent t-tests. This is because *a priori* tests, by taking into account the number of comparisons being made,
control the probability of making one or more type I errors at or less than the specified alpha rate. Conversely, when independent t-tests are used the probability of one or more type I errors increases with the number of contrasts made.

In the current research, the contrasts associated with the specified research hypotheses are not orthogonal. That is, these contrasts can be expressed as linear combinations of other contrasts and, consequently, contain redundant information. Therefore, test statistics designed for the evaluation of a priori nonorthogonal contrasts should be used. Two different test statistics were to be calculated: 1) Dunnett's test for contrasts involving a control; and, 2) Sidak's modification of Dunn's multiple comparison procedure (Dunn-Sidak procedure).

Dunnett's test was to be used to test hypotheses H5 and H6 and to determine whether the manipulation of type of obligation provides sufficient impact. Dunnett's test is designed to compare p - 1 treatment means with a control-group mean while controlling the probability of incorrectly rejecting one or more of the associated null hypotheses at a specified alpha [Dunnett, 1955]. Dunnett's test was selected to compare group 1 and group 2 with group 4 (control group). This procedure will provide evidence as to whether H5 and H6 can be rejected. In addition, the comparison of group 3 with group 4 will allow an assessment of the strength of the experimental manipulation. If the null hypothesis $\mu_3 - \mu_4 = 0$ is not rejected, the amount of
the term loan obligation included in the Equal Debt statements and, equivalently, the amount of the NPB obligation, may not be significant enough to affect loan officers' decisions. In other words, failure to reject this hypothesis may imply that the manipulation of type of obligation is inadequate.

Sidak's modification of Dunn's multiple comparison procedure was used to test hypotheses H1, H2, H3, and H4. The Dunn-Sidak procedure can be used to test any number of planned or a priori contrasts while controlling the probability of making one or more type I errors at the specified alpha or less [Kirk, 1982, p. 111].

Both Dunnett's test and the Dunn-Sidak procedure use a test statistic based on the Student's t distribution. As a result, these significance tests are based on the assumptions that the parent populations are approximately normal and the population variances are homogeneous across groups. These assumptions will be tested for both variables prior to the performance of the comparison procedures. In the event that these assumptions are not met, an appropriate data transformation will be attempted or robust procedures for a priori contrasts [Kirk, 1982, p. 120-121] and nonparametric techniques will be used.

Although the present research involves more than one dependent decision variable, a univariate approach was employed. This is because the research is concerned with the effect of the independent variable on the two response
variables taken separately as opposed to being considered as a single response vector. Nevertheless, some consideration had to be given to the fact that the levels of type of obligation are being compared more than once. If no adjustment is made to compensate for this fact, the probability of one or more type I errors will be greater than the nominal significance level. To avoid the effects of an inflated significance level, analysis of each of the two dependent variables was conducted at a level of significance that is one-half of the desired experimentwise significance level of 0.10.

Perception Variables

The two-sample t-test was used to compare the response means for the group receiving the accrual accounting treatment of nonpension postretirement benefits (NPB-Accrued) with the response means of the group receiving the pay-as-you-go treatment of nonpension benefit costs (NPB-Cash). A Mann-Whitney-Wilcoxon test was also performed. Analysis of the two perception variables was conducted at a level of significance of one-half of the experimentwise alpha level.
This chapter presents and discusses the results of the data collection and analyses described in Chapter 3, the methodology chapter. The first section describes the sample and data collection procedures. The second and third sections present details of the statistical analysis of the decision variables and the perception variables, respectively. These two sections include a description of the statistical procedures performed as well as the results of the tests of hypotheses. The empirical findings are summarized in the final section.

Data Collection

This study examined the decisions of commercial bank loan officers in an experiment designed to determine whether the accrual of postretirement health care benefits affects the decisions of financial statement users. A mail questionnaire approach was used to contact subjects who were randomly selected from the Robert Morris Associates 1986-1987 Member Roster. After analyzing a single set of financial statements representing one of the four experimental treatments (the four treatments - NPB Accrued, NPB Cash, No Debt, and Equal Debt - were described in detail in Chapter 3, Methodology), each subject was asked
to make two lending decisions. Specifically, the loan officers were asked to (1) assess the hypothetical loan applicant's ability to repay a $3,500,000, five-year term loan and (2) state the maximum amount that they would recommend lending the applicant. Subject perceptions concerning the employer's obligation to provide postretirement health care benefits were also elicited.

Response Rate

A total of 1250 questionnaires was mailed to the group of bank loan officers identified in the sample selection process. (Subjects were randomly assigned to one of the four questionnaire case groups, with two groups composed of 312 subjects and the other two containing 313 subjects.) Of these 1250 questionnaires, 263 were completed and returned by the respondents, resulting in an overall response rate of 22.4%. However, only 254 of the 263 returned questionnaires (21.6% of all questionnaires that successfully reached bank loan officers) were usable. The nine unusable questionnaires were from subjects who failed to provide one or more of the response variables of

---

1 In calculating the response rate of 22.4%, a total of seventy-four returned questionnaires was not included in the denominator. Forty-one of these questionnaires were from individuals who indicated that they were unable or unqualified to respond to the survey. Eighteen of these people were not loan officers, thirteen were retired, and ten explained that their employer maintained a policy of not responding to survey questionnaires. An additional thirty-three questionnaires were undeliverable due to bad addresses. Thus, 337 questionnaires were received, 263 were at least partially completed, and 254 were usable.
interest or failed to meet the requirements for inclusion in the final sample (three or more years of experience and employment with a financial institution having assets in excess of $50,000,000). The distribution of usable responses among the four experimental treatments is depicted in Table 4-1.

### TABLE 4-1.

**DISTRIBUTION OF SUBJECTS AMONG EXPERIMENTAL TREATMENTS**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>NPB-Cash</th>
<th>NPB-Accrued</th>
<th>No Debt</th>
<th>Equal Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects</td>
<td>37</td>
<td>72</td>
<td>76</td>
<td>47</td>
</tr>
</tbody>
</table>

**Demographics**

Certain demographic information was requested from the subjects to assess their qualifications for inclusion in the study. In addition, this information allowed the researcher to determine whether the sampling procedures successfully provided a cross section of subjects representative of the population of commercial bank loan officers. Subjects were asked to respond to questions concerning their (1) years of experience as a loan officer, (2) highest educational level completed, (3) dollar range of loan decisions in which they participate, (4) the manner in which loans are approved at the bank for which they work, and (5) the approximate size of their financial institution. The demographic data are summarized in Table 4-2.
TABLE 4-2

SUMMARY OF DEMOGRAPHIC DATA

EXPERIENCE AS BANK LOAN OFFICERS

<table>
<thead>
<tr>
<th>Number of Years</th>
<th>Number of Subjects *</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - 5</td>
<td>90</td>
<td>35.4</td>
</tr>
<tr>
<td>6 - 9</td>
<td>46</td>
<td>18.1</td>
</tr>
<tr>
<td>10 - 20</td>
<td>96</td>
<td>37.8</td>
</tr>
<tr>
<td>Over 20</td>
<td>22</td>
<td>8.7</td>
</tr>
<tr>
<td></td>
<td>254</td>
<td>100.0</td>
</tr>
</tbody>
</table>

HIGHEST EDUCATIONAL LEVEL ATTAINED

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Number of Subjects</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some College</td>
<td>17</td>
<td>6.7</td>
</tr>
<tr>
<td>Bachelors Degree</td>
<td>97</td>
<td>38.3</td>
</tr>
<tr>
<td>Some Graduate Work</td>
<td>64</td>
<td>25.3</td>
</tr>
<tr>
<td>Masters Degree or Higher</td>
<td>75</td>
<td>29.7</td>
</tr>
<tr>
<td></td>
<td>253</td>
<td>100.0</td>
</tr>
</tbody>
</table>

DOLLAR MAGNITUDE OF LOAN DECISIONS

<table>
<thead>
<tr>
<th>Loan Decision (In Millions)</th>
<th>High of Normal Range Number</th>
<th>Percent</th>
<th>Highest Decision Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1</td>
<td>44</td>
<td>17.6</td>
<td>20</td>
<td>8.0</td>
</tr>
<tr>
<td>1.0 - 3.49</td>
<td>97</td>
<td>38.8</td>
<td>54</td>
<td>21.6</td>
</tr>
<tr>
<td>3.5 - 9.9</td>
<td>42</td>
<td>16.8</td>
<td>61</td>
<td>24.4</td>
</tr>
<tr>
<td>Over 10.0</td>
<td>67</td>
<td>26.8</td>
<td>115</td>
<td>46.0</td>
</tr>
<tr>
<td></td>
<td>250</td>
<td>100.0</td>
<td>250</td>
<td>100.0</td>
</tr>
</tbody>
</table>

SIZE OF FINANCIAL INSTITUTION

<table>
<thead>
<tr>
<th>Assets (In Millions)</th>
<th>Number of Subjects</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 to 99.9</td>
<td>11</td>
<td>4.4</td>
</tr>
<tr>
<td>100 to 249.9</td>
<td>61</td>
<td>24.4</td>
</tr>
<tr>
<td>250 to 499.9</td>
<td>19</td>
<td>7.6</td>
</tr>
<tr>
<td>500 to 749.9</td>
<td>14</td>
<td>5.6</td>
</tr>
<tr>
<td>750 to 1,000</td>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>Over 1,000</td>
<td>139</td>
<td>55.6</td>
</tr>
<tr>
<td></td>
<td>250</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* Number of Subjects differs from question to question. Subjects did not answer all questions.
Respondents appear to be experienced loan officers with strong educational backgrounds. Bank loan officers participating in the study reported levels of experience ranging from three to thirty-seven years (recall from Chapter 3 that subjects reporting less than three years were deleted from the group of usable responses). The average experience as a loan officer was ten years. As noted in Table 4-2, approximately 93 percent of the participants had earned at least a bachelors degree. In addition, about 55 percent (139 out of 253) of all respondents had completed some graduate study.

Subjects were asked to provide both the dollar range of loan decisions in which they are normally involved and the highest dollar loan decision in which they had ever participated. Approximately 44 percent (109 out of 250) of the bank loan officers providing responses indicated that they are normally involved in loan decisions of at least the magnitude required by the experimental task ($3,500,000). In addition, only 30 percent (74 out of 250) of the respondents had never been involved in a loan decision of $3,500,000 or more. Thus, it seems that the research task provided to the subjects was representative of duties performed in their usual work environment.

The experimental subjects were drawn from financial institutions that are relatively large in size. As Table 4-2 indicates, slightly over 55 percent of the participating bank loan officers were employed by financial
institutions having over $1 billion in assets. Seventy-one percent of the respondents indicated that, at their financial institutions, loans were approved with the input of a committee.

Separate one-way ANOVAs and Kruskal-Wallis tests were used to test the effect of the different levels of each demographic variable on reported probability assessments and loan recommendations (the dependent variables of interest in the current research). The results indicated that there were no significant differences between the various demographic variable classifications for either dependent variable. For example, the probability assessments and loan recommendations of more experienced loan officers did not differ significantly from those of their less experienced counterparts. This was true for all demographic characteristics investigated. As a result, preliminary evidence indicates that the findings of this research are not influenced by demographic differences between subjects.

Statistical Analysis - Decision Variables

The discussion of the statistical analysis is presented in two sections. This section addresses the analysis of the two decision variables -- assessment of ability to repay and loan amount recommendation. The

Appendix E contains a summary of the results of tests of the effect of demographic variable classification on probability assessments and maximum loan recommendations.
following section describes the analysis of the perception variables associated with the subjects' view of the nonpension postretirement benefit obligation.

Table 4-3 presents a summary of the treatment means and variances for both of the decision variables. The results of both Pearson and Spearman correlation tests provide strong evidence (p-value < .01) that these two variables are significantly positively correlated (Pearson coefficient = .37288, Spearman coefficient = .58384). This finding suggests that bank loan officers' assessments of ability to repay are positively associated with the maximum loan amounts they would be willing to recommend for the hypothetical applicant, an outcome which supports the conclusion that, on an overall basis, subjects were consistent in their reactions to the experimental stimulus.

---

**TABLE 4-3**

GROUP MEANS AND VARIANCES FOR THE DECISION VARIABLES

<table>
<thead>
<tr>
<th>Probability</th>
<th>Maximum Loan Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>No Debt</td>
<td>.842895</td>
</tr>
<tr>
<td>NPB-Cash</td>
<td>.842712</td>
</tr>
<tr>
<td>NPB-Accrued</td>
<td>.803611</td>
</tr>
<tr>
<td>Equal Debt</td>
<td>.750851</td>
</tr>
</tbody>
</table>

*In trillions of dollars squared* 

Note, however, that the ordering of the treatment groups with respect to the mean response differs across the
two independent variables. Specifically, for the probability variable, the mean responses to the four treatment cases are ordered in a manner consistent with the expectations of the hypotheses; the responses for the maximum loan amount are not in the expected order. This result might be due to the greater degree of response variance associated with the maximum loan amount variable. It may also be an indication that loan officers' decisions concerning loan amount recommendations are not influenced as strongly by debt-equity considerations as are their assessments of probability of repayment.

In Chapter 3, two specific a priori nonorthogonal comparison procedures were identified as being the statistical tests most appropriate to evaluate the six hypotheses associated with the two decision variables (assessment of ability to repay and loan amount recommendation) investigated in this research. Dunnett's test for contrasts involving a control was selected to test hypotheses H5 and H6 and to determine whether the type of obligation treatment was successfully manipulated. Hypotheses H1, H2, H3, and H4 were to be evaluated using Sidak's modification of Dunn's multiple comparison procedure [Kirk, 1982, p. 111]. Both of these comparison procedures use a test statistic based on the Student's t distribution and, therefore, are dependent on assumptions

---

3 See Chapter 3, Methodology for a complete listing of the research hypotheses.
of approximately normally distributed parent populations and homogeneity of variance across groups.

A modified Kolmogorov-Smirnov statistic [Stephens 1974] was used to test whether the decision variable responses were derived from a population having an approximately normal distribution. The results indicated rejection of the normality assumption for both probability of repayment and loan amount recommendation at a 0.01 significance level (p-value < .01). Next, a technique developed by Box and Cox [1964] was used in an attempt to find the most appropriate transformation to normality for both variables. Application of the Box-Cox methodology suggested a 6.7 exponent for the probability variable and an exponent of 0.4 for the loan amount recommendation. In both cases, the transformation of the dependent variable suggested by this technique failed to correct the departure from normality. An arcsin transformation was then attempted for the probability variable; this transformation was also unsuccessful. And, because tests for equality of variance are highly sensitive to the normality assumption, the assumption of homogeneous variance was not tested. Consequently, the statistical tests initially selected could not be used to analyze the raw data obtained in this research.

For comparative purposes, a rank transformation was applied to the original observations and Dunnett's test and Sidak's modification of Dunn's multiple comparison procedure were used to evaluate the ranked data. The results of the hypotheses tests were consistent with the results of the statistical analysis reported in the study.
Instead, the Tamhane procedure, a robust procedure for a priori nonorthogonal contrasts was performed. The results of the Tamhane procedure are not sensitive to violations of the assumptions of a normal distribution and equality of variances across groups. The critical difference that a pairwise comparison must exceed in order to reject the hypothesis of no difference between group means for the Tamhane procedure is:

\[ t_{DS} \frac{\alpha/2, c, v'}{\left( \hat{\sigma}^2 / n_j \right) + \left( \hat{\sigma}^2 / n_{j'} \right)} \]

where \( t_{DS} \frac{\alpha/2, c, v'}{n_j} \) is obtained from the t distribution using the Sidak multiplicative inequality [Kirk, 1982, p. 121]. The Tamhane test is, essentially, a t-test that is modified to control the experimentwise error rate for the number of contrasts being made. This procedure can be used to test any number of a priori nonorthogonal contrasts while controlling experimentwise error at a specified alpha rate or less.

The Tamhane procedure was used to evaluate the six hypotheses involving assessment of ability to repay and loan amount recommendation (H1-H6) as well as to test the strength of the experimental manipulation. The results of these tests are presented and discussed in the following two subsections.

Test of the Experimental Manipulation

Perhaps the most critical test performed in this
research is the comparison of the responses of the group receiving No Debt statements with the responses of the group receiving Equal Debt statements. The comparison of these two groups is important because it provides an opportunity to assess the strength or impact of the experimental manipulation. If the null hypothesis $\mu_{ND} - \mu_{ED} = 0$ is not rejected, the magnitude of the term loan obligation included in the Equal Debt statements, and consequently, the amount of the nonpension postretirement benefit obligation accrued, may not be significant enough to affect the responses of the loan officers. That is, failure to reject this hypothesis implies that the manipulation of type of obligation performed in this research is not adequate. The Tamhane procedure was used to compare the means of these two groups for both assessment of probability of repayment and maximum loan amount recommended.

If the manipulation of type of obligation was successful, one would expect to find a significantly lower probability assessment for those subjects exposed to the Equal Debt statements. Bank loan officers responding to No Debt statements had a mean probability assessment of 84.3 percent; the mean probability assessment of individuals receiving Equal Debt statements was 75.1 percent. Therefore, the difference between means for this comparison is 9.2 percent. The p-value associated with this calculated difference for a one-tailed test is 0.071,
indicating that the null hypothesis of no difference in means can only be rejected at a level of significance of 0.071 or greater.

Similarly, the null hypothesis of no difference in means could not be rejected for the loan amount recommendation. The Tamhane critical difference for this variable at a 0.05 (0.10) level of significance was determined to be $2,805,932 ($2,493,453). The actual difference in means was only $218,464 — the group receiving No Debt statements had a mean loan amount recommendation of $3,972,408 and the group exposed to the Equal Debt statements had a mean recommendation of $4,190,872. The difference between means was in the wrong direction and not statistically, or practically, significant.

These results imply that the manipulation of type of obligation was not strong enough to allow any differences between the experimental groups to be observed, particularly for the loan amount variable. This finding is disturbing because the subsequent detection of any significant between-group differences for this decision variable is now unlikely and, in fact, may be viewed as suspect. That is, it will be difficult to conclude that the rejection of any of the hypotheses concerning loan

As explained in Chapter 3, the desired experimentwise alpha must be halved in order to analyze both dependent decision variables. Consequently, to maintain an overall error rate of 0.10, a significance level of 0.05 must be specified for each dependent variable.
amount recommendations is due to the experimental treatment applied to those particular groups. Accordingly, all subsequent results relating to this variable should be interpreted with caution.

Tests of Hypotheses

This subsection discusses the results of the tests of the six hypotheses that relate to the two decision variables. The three major groups of hypotheses examined relate to: (1) the effect of method of accounting on decisions, (2) the nonpension benefit obligation versus term loan debt, and (3) the effect of the existence of a nonpension postretirement benefit plan.

Effect of Method of Accounting on Loan Officers' Decisions

The primary research question addressed in this study is:

Would the recognition of employee nonpension post-retirement benefit costs on an accrual basis significantly impact decisions made by financial statement users?

This question was investigated by testing the following one-tailed hypotheses (stated in the null form):

H1: Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a positive effect on loan officers' assessments of a borrower's ability to repay a term loan.

H2: Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a positive effect on the maximum loan amount recommended by bank loan officers.

Table 4-4 summarizes the results of the tests of H1 and H2 using the Tamhane procedure with an experimentwise
error rate of 0.10. The results depicted show that the relationship between NPB-Accrued and NPB-Cash groups is as expected. That is, subjects evaluating the NPB-Cash statements perceived the loan applicant as being more likely to repay the $3,500,000 loan (84.3 percent) than did those individuals receiving the NPB-Accrued statements (80.4 percent). Similarly, loan officers participating in the NPB-Cash group recommended a higher maximum loan amount than did their peers in the NPB-Accrued group ($4,257,474 versus $3,839,028).

As the table indicates, hypotheses H1 and H2 could not be rejected at a 0.05 level of significance. It was expected that accrual accounting for nonpension postretirement benefits would provide more complete and accurate information concerning the costs and obligations associated with the promise to provide such benefits to future retirees. It was anticipated that the quantification and accrual of the employer's obligation on the face of the
financial statements would create a company that was perceived by the subjects to be much less creditworthy than the pay-as-you-go company, resulting in significantly lower assessments of ability to repay and maximum loan amount recommendations. While the relationships are in the expected direction, the differences are not statistically significant.

One possible explanation for the failure to detect a difference is that loan officers do not consider nonpension postretirement benefit obligations to be a true liability (and, therefore, a future obligation) of the sponsoring company. Loan officers may be among those who believe that nonpension benefit payments to retirees are discretionary costs that can be reduced or eliminated by the employer when financial hardship threatens. Alternatively, loan officers may assess this obligation as being subordinate to a term loan debt obligation (such as bonds payable) in terms of the commitment to pay. If either condition exists, the information provided by accrual accounting treatment of nonpension postretirement benefit costs would be irrelevant to the bank loan officers and would not affect their decisions.

A second possible explanation relates to the manipulation of the variable used to operationalize the nonpension postretirement benefit obligation. As previously acknowledged, this manipulation may not have been successful. Given the somewhat questionable effect of
the experimental manipulation, a much more plausible explanation is that the magnitude of the nonpension postretirement benefit obligation was simply not great enough, relative to the financial position of this company, to create a difference in users' decisions.

Nonpension Benefit Obligation Verus Term Loan Debt

The second research question investigates whether bank loan officers treat the nonpension postretirement benefit obligation as a debt equivalent (that is, as equivalent to more traditional liabilities such as notes and bonds payable):

Does the nonpension postretirement benefit obligation affect the decisions of financial statement users in the same manner as these decisions would be affected by an equivalent amount of debt in the form of a term loan?

As indicated above, the failure to reject H1 and H2 may have resulted from the fact that loan officers do not consider the employer's obligation for nonpension postretirement benefits to be equivalent to other forms of debt. Tests of the following one-tailed hypotheses (stated in the null form) were used to evaluate the second research question.

H3: The presence of a term loan, versus an ENPB obligation, on a firm's balance sheet has either no effect or a positive effect on loan officers' assessments of a borrower's ability to repay a term loan.

H4: The presence of a term loan, versus an ENPB obligation, on a firm's balance sheet has either no effect or a positive effect on the maximum loan amount recommended by bank loan officers.
The results of tests of these two hypotheses are provided in Table 4-5. An examination of the group means reveals no clear relationship between the responses of subjects receiving NPB-Accrued statements and subjects receiving Equal Debt statements. While loan officers exposed to the NPB-Accrued treatment perceived their loan applicant to be more capable of repaying the $3,500,000 term loan (80.4 percent versus 75.1 percent) their average maximum loan amount ($3,839,028) was lower than that recommended by the Equal Debt group ($4,190,872). These results are somewhat contradictory to the initial expectation that the NPB Accrued company would be viewed as being at least as creditworthy as the Equal Debt company.

Note, however, that the between-group differences observed are not statistically significant. Once again, neither hypothesis could be rejected at the 0.05

<table>
<thead>
<tr>
<th>Group Means</th>
<th>Actual Difference</th>
<th>Critical Difference</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPB Accrued</td>
<td>Equal Debt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3</td>
<td>.803611</td>
<td>.750851</td>
<td>.052768</td>
</tr>
<tr>
<td>H4</td>
<td>$3,839,028</td>
<td>$4,190,872</td>
<td>351,844</td>
</tr>
</tbody>
</table>

* alpha = .05 for a one-tailed test, d.f. = 91, number of contrasts = 4
** alpha = .05 for a one-tailed test, d.f. = 54, number of contrasts = 4
significance level. Consequently, there is no evidence that loan officers consider a nonpension postretirement benefit obligation to be any different from other more conventional forms of long-term debt. In other words, it appears that loan officers view the nonpension postretirement benefit obligation as a liability of the sponsoring employer. This finding is important because it casts some doubt upon one possible explanation of the failure to reject hypotheses H1 and H2. Specifically, it does not support the argument that method of accounting for nonpension postretirement benefits does not affect lenders' decisions because they do not consider this obligation to be a liability of the employer.

Effect of the Existence of a Nonpension Postretirement Benefit Plan

The third research question examines the effect of the existence of an ENPB plan:

Does the existence of an employee nonpension post-retirement benefit plan affect the decisions of financial statement users?

Tests of this research question were provided by hypotheses H5 and H6 (one-tailed and stated in the null form):

H5: The existence of an ENPB plan has either no effect or a positive effect on bank loan officers' assessments of a borrower's ability to repay a term loan.

H6: The existence of an ENPB plan has either no effect or a positive effect on the maximum loan amount recommended by bank loan officers.

The method used to evaluate H5 and H6 was dependent upon the outcome of H1 and H2. Because H1 and H2 were not
rejected, groups receiving NPB-Accrued and NPB-Cash
statements were treated as essentially equivalent. The
response means for these two groups were averaged (a simple
average was calculated) and a contrast comparison used to
test both H5 and H6. The outcome of these comparisons is
presented in Table 4-6.

<table>
<thead>
<tr>
<th>Group</th>
<th>Actual Difference</th>
<th>Critical Difference</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H5</td>
<td>.032511</td>
<td>.06146</td>
<td>&gt;.10</td>
</tr>
<tr>
<td>H6</td>
<td>73,665</td>
<td>1,035,325**</td>
<td>&gt;.10</td>
</tr>
</tbody>
</table>

* alpha = .05 for a one-tailed test, d.f. = 102, number of
contrasts = 4

** alpha = .05 for a one-tailed test, d.f. = 107, number of
contrasts = 4

As explained in the methodology chapter, hypotheses H5
and H6 were expected to be rejected. Holding other
variables constant, the existence of a nonpension
postretirement benefit plan should result in a decrease in
the perceived quality of a company's financial condition
and a corresponding decrease in both decision variables.
As Table 4-6 indicates, the average probability assessment
of the two groups exposed to loan applicants who maintain a
nonpension postretirement benefit plan (81.0 percent) is
indeed lower than the mean probability assessment made by
loan officers responding to statements of a company that does not maintain such a plan (84.3 percent). Similarly, subjects receiving NPB-Cash and NPB-Accrued statements recommended, on average, a lower maximum loan amount ($3,898,743) than that recommended by the No Debt group ($3,972,408).

The between group differences were in the direction anticipated but were not statistically significant at the specified alpha level. As a result, hypotheses H5 and H6 were not rejected.

Failure to find any effect of sponsorship of a nonpension postretirement benefit plan on the two dependent variables might have occurred because bank loan officers do not view the obligation associated with these benefit plans as a corporate liability. Continuing this logic, failure to reject H5 and H6 could be used to explain the finding of no effect for method of accounting (hypotheses H1 and H2). That is, one might conclude that method of accounting has no effect because loan officers simply ignore obligations associated with the sponsorship of nonpension postretirement benefit plans. This conclusion, however, would be dependent on the assumption that the operationalization of the type of obligation variable was successful and must therefore be expressed with caution. Further, the findings regarding H3 and H4 do not support this conclusion.

Statistical Analysis - Perception Variables

Loan officers participating in the study were also
asked to respond to two statements designed to assess their perception of the obligation for nonpension postretirement benefits of the hypothetical company examined in this research. The subjects were asked to provide their reaction to the following two statements, using a seven-point Likert scale (with one indicating strong disagreement and seven representing strong agreement):

The postretirement health and life insurance benefit plan provided by Gamma Corporation

a) is a firm commitment that is likely to be met regardless of corporate profitability.

b) should be accrued as a liability in the financial statements.

As explained in Chapter 3, this task was included to address the question of whether the accounting method used by a company (accrual vs. pay-as-you-go) affects a loan officer's perception of the nonpension postretirement benefit obligation as a liability. Therefore, although all subjects provided Likert scale responses to these statements, the analysis is limited to the responses of those individuals who were exposed to NPB-Accrued and NPB-Cash statements. Table 4-7 provides a summary of the perception variable treatment means and variances for these two groups.

Not surprisingly, the Likert responses to both statements did not appear to be derived from a distribution reasonably approximating the normal distribution. In fact, the assumption of normality was rejected for both variables, commitment and accrual, at a 0.01 significance
TABLE 4-7

GROUP MEANS AND VARIANCES FOR THE PERCEPTION VARIABLES

<table>
<thead>
<tr>
<th></th>
<th>Commitment Mean</th>
<th>Commitment Variance</th>
<th>Accrual Mean</th>
<th>Accrual Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPB-Cash</td>
<td>4.2203</td>
<td>4.1972</td>
<td>5.5932</td>
<td>2.8292</td>
</tr>
<tr>
<td>NPB-Accrued</td>
<td>4.5000</td>
<td>4.3472</td>
<td>5.7083</td>
<td>2.6937</td>
</tr>
</tbody>
</table>

level (p-value < .01). Consequently, both the two sample t-test and its nonparametric alternative, the Mann-Whitney U test were used to compare the means of the two groups. The results of these comparisons are presented in following subsection.

Effect of Method of Accounting on Perceptions of the ENPB Obligation

The fourth and final research question is concerned with the effect of method of accounting for nonpension postretirement benefits on users' perception of the associated obligation. This question is stated as follows:

Does the method of accounting for employee nonpension postretirement benefits affect financial statement users' perceptions of this obligation as a liability?

This issue was investigated by testing the following related hypotheses:

H7: Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a negative effect on bank loan officers' perceptions of this obligation as a firm commitment.

H8: Recognition of ENPBs on an accrual basis (as opposed to a pay-as-you-go basis) has either no effect or a negative effect on bank loan officers' views concerning accrual of this obligation.
As explained earlier, the evaluation of H7 and H8 was accomplished by using both the two sample t-test and the Mann-Whitney U test to compare the means of the NPB-Accrued group with the NPB-Cash group. Table 4-8 summarizes the results of these tests.

<table>
<thead>
<tr>
<th></th>
<th>NPB-Accrued</th>
<th>NPB-Cash</th>
<th>T Statistic</th>
<th>P-Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>H7</td>
<td>4.5000</td>
<td>4.2203</td>
<td>.7712</td>
<td>.2210</td>
</tr>
<tr>
<td>H8</td>
<td>5.7083</td>
<td>5.5932</td>
<td>.3940</td>
<td>.3471</td>
</tr>
</tbody>
</table>

Mann-Whitney U:

<table>
<thead>
<tr>
<th></th>
<th>NPB-Accrued</th>
<th>NPB-Cash</th>
<th>Z Approximation</th>
<th>P-Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>H7</td>
<td>67.64</td>
<td>64.00</td>
<td>.5517</td>
<td>.29055</td>
</tr>
<tr>
<td>H8</td>
<td>68.31</td>
<td>63.19</td>
<td>.8075</td>
<td>.20970</td>
</tr>
</tbody>
</table>

* P-Value associated with a one-tailed test

The results provided by the two statistical tests are consistent - the null hypothesis of no effect or a negative effect could not be rejected for either perception variable. This finding is in conflict with the initial expectation; accrual of the nonpension postretirement benefit promise was expected to be interpreted by users as an implicit acknowledgement of unconditional responsibility.
for future payment. Accordingly, subjects exposed to NPB-Accrued statements were expected to express stronger agreement with the two perception statements than subjects reacting to NPB-Cash statements. In comparison to the NPB-Cash group, the NPB-Accrued group did express stronger agreement with the statement that the obligation was a firm commitment (4.5 for NPB-Accrued versus 4.22 for NPB-Cash). The NPB-Accrued group also reported a stronger agreement with the assertion that the obligation should be accrued as a liability in the financial statements (5.7083 versus 5.5932). Again, however, neither between-group difference was significant.

The failure to detect a statistically significant difference in perceptions may imply that the format used to report nonpension postretirement benefit data does not convey useful information concerning management's intentions or expectations with regard to this benefit promise. Alternatively, it may be an artifact of the questionable strength of the independent variable manipulation.

**Summary of the Results**

A randomly selected sample of 263 commercial bank loan officers participated in an experiment designed to determine whether the accrual of nonpension postretirement benefits affects the decisions and perceptions of financial statement users. The loan officers were asked to analyze the financial statements of a hypothetical loan applicant
and provide two lending decisions: (1) an assessment of the applicant's ability to repay a $3,500,000 term loan and (2) the maximum loan amount they would recommend lending the hypothetical borrower. Subject perceptions concerning the nature of an employer's obligation to provide nonpension postretirement benefits were also elicited.

A total of eight research hypotheses were developed to investigate this research question. A summary of these hypotheses and their outcomes is provided in Table 4-9.

Examination of Table 4-9 reveals that this research failed to produce any statistically significant results. As mentioned throughout this chapter, the inability to detect differences in treatment groups and, consequently, reject any of the null hypotheses may be largely attributed to a weak manipulation of the independent variable - type of obligation. This problem will be discussed in detail in Chapter 5, Summary and Conclusions.
<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Accrual of ENPBs has no effect or a positive effect on assessments of ability to repay</td>
<td>Fail to Reject (Tamhane test)</td>
</tr>
<tr>
<td>H2: Accrual of ENPBs has no effect or a positive effect on maximum loan amounts recommended</td>
<td>Fail to Reject (Tamhane test)</td>
</tr>
<tr>
<td>H3: Term loan vs. ENPB obligation has no effect or a positive effect on assessments of ability to repay</td>
<td>Fail to Reject (Tamhane test)</td>
</tr>
<tr>
<td>H4: Term loan vs. ENPB obligation has no effect or a positive effect on maximum loan amounts recommended</td>
<td>Fail to Reject (Tamhane test)</td>
</tr>
<tr>
<td>H5: Existence of an ENPB plan has no effect or a positive effect on assessments of ability to repay</td>
<td>Fail to Reject (Tamhane test)</td>
</tr>
<tr>
<td>H6: Existence of an ENPB plan has no effect or a positive effect on assessments of ability to repay</td>
<td>Fail to Reject (Tamhane test)</td>
</tr>
<tr>
<td>H7: Accrual of ENPBs has no effect or a positive effect on perceptions of commitment</td>
<td>Fail to Reject (t-test, Mann-Whitney U)</td>
</tr>
<tr>
<td>H8: Accrual of ENPBs has no effect or a positive effect on perceptions of accrual</td>
<td>Fail to Reject (t-test, Mann-Whitney U)</td>
</tr>
</tbody>
</table>
CHAPTER 5
SUMMARY AND CONCLUSIONS

Chapter 5 presents the summary and major conclusions of this research project. The topics discussed in this chapter, in order of presentation, are: the summary of the research project, the implications of the study's findings, the limitations of the research, and suggestions for additional research in this area.

Summary

Accounting for the costs of employer-sponsored nonpension postretirement benefit plans is an issue that has recently captured the attention of the accounting profession and the financial press. An overwhelming majority of employers provide nonpension postretirement benefits, such as health care and life insurance benefits, to former employees and their dependents. However, because current standards are silent as to the accounting treatment of the benefit costs, very few employers currently recognize this obligation in their financial statements or set aside funds in advance to provide for future payment.

The Financial Accounting Standards Board has been considering the issue of accounting for nonpension post-retirement benefits since 1979, when the topic was initially added to the Board's agenda as part of the
pensions project. On February 14, 1989, after ten years of identifying and researching the accounting issues particular to this type of benefit, the Board issued an exposure draft of a proposed Statement of Financial Accounting Standards entitled *Employers' Accounting for Postretirement Benefits Other Than Pensions*. The accounting treatment proposed by the Board is generally consistent with the basic concepts embodied in FASB Statement No. 87, *Employers' Accounting for Pensions*. Basically, the exposure draft requires that the cost of nonpension postretirement benefits be accrued over the service lives of those employees expected to receive benefits and, to the extent that the obligation to provide future benefits to retirees and employees eligible to retire is not funded, it must be recorded as a liability on the face of the financial statements.

If the provisions of the FASB's recently-issued exposure draft are incorporated without change into a final standard, the majority of employers will soon recognize, for the first time, a liability for their obligation to provide nonpension benefits to retirees (a liability which is generally not offset by any accumulated assets). Many commentators have characterized the potential effects of the proposed accounting change as nothing short of disastrous, predicting dire consequences ranging from large decreases in the annual net income of the nation's largest corporations [EBRI, 1977] to the elimination of
"many a company's entire net worth" [Gerboth, 1988, p.38].

Implicit in the FASB's decision to require accrual is the Board's belief that accrual accounting information will enhance users' understanding and appreciation of the financial condition and operating results of companies providing nonpension benefits to retirees. That is, the Board holds the view that accrual accounting treatment of nonpension postretirement benefit costs will provide information that will impact the decisions of financial statement users. The primary purpose of this research was to determine whether the proposed change to accrual accounting will provide information that is useful to financial statement users in their decision-making processes.

In the process of investigating the primary research question, the following issues were also addressed: (1) Does the nonpension postretirement benefit obligation affect financial statement users' decisions in the same manner as an equivalent amount of debt in the form of a term loan?, (2) Does the existence of a nonpension post-retirement benefit plan affect the decisions of financial statement users?, and (3) Does the method of accounting for nonpension postretirement benefits affect financial statement users' perceptions of this obligation as a liability? These issues were investigated by examining the decisions and perceptions of commercial bank loan officers.

A mail questionnaire approach was used to contact loan
officers who were randomly selected from the Robert Morris Associates 1986-1987 Member Roster. The loan officers were asked to analyze the financial statements of a hypothetical loan applicant and provide two lending decisions: (1) an assessment of the applicant's ability to repay a $3,500,000 term loan and (2) a statement of the maximum loan amount they would recommend lending the hypothetical borrower. Subjects were also asked to provide their reactions to two statements concerning the nature of an employer's obligation to provide nonpension retiree benefits.

A total of eight hypotheses were developed to test the four research questions. Unfortunately, none of these hypotheses could be rejected at an experimentwise significance level of 0.10. In other words, no statistically significant differences between the response means of treatment groups were detected for any of the decision or perception variables.

Implications

Given the inability to reject any of the research hypotheses, it is somewhat difficult to identify any important implications of this research. Statistically speaking, failure to reject a null hypothesis precludes the expression of a conclusion as to the actual state of the issue being tested. At this point, new hypotheses should be generated or improvements in the design of the study contemplated. However, some explanations may be advanced as to why the hypotheses were not rejected.
In the case of the present research, the issue is complicated by the fact that the manipulation of the independent variable, type of obligation, was ineffective. The results of the manipulation check indicate that the magnitude of the additional obligation included in the Equal Debt and NPB-Accrued statements was not significant enough to affect the decisions or perceptions of the loan officer subjects. Apparently, the additional liability was simply not large enough, given the financial condition of this applicant, to cause loan officers concern. Accordingly, the most plausible explanation for a failure to reject each hypothesis is the fact that the experimental treatments were not sufficiently different.

The strongest statement that can be made regarding the primary research question is that the findings of this research do not support the FASB's view that accrual accounting treatment of the costs associated with an employer's nonpension postretirement benefit plan will improve or enhance financial statement users' decisions. The findings also do not provide any evidence that users view a nonpension postretirement benefit obligation as being any different from other more conventional forms of debt. Similarly, the results do not indicate that the existence of a nonpension postretirement benefit plan has an effect on users' decisions or that the method of accounting for such a plan influences users' perceptions concerning the nature of the employer's commitment to
provide benefits.

Limitations

Certain limitations are inherent in the methodology which was employed in the current research. First, the use of a mail questionnaire approach generally results in a relatively low response rate, and consequently, some degree of nonresponse bias may be present. The response rate for this study was 22.4 percent, a rate that is low but not unusual for this type of research. A technique suggested by Oppenheim [1966] was used in an attempt to determine whether the findings of this research were distorted by nonresponse bias. Specifically, for each of the four questionnaire cases and both of the two decision variables, the response means of the first third of the respondents were compared with the response means of the last third using two-sample t-tests. No significant differences were detected between the responses of the early respondents and the responses of the late respondents for either variable.

A second limitation results from the nature of the experimental task. A certain amount of control over the quality of subject responses was sacrificed since the experimental task was not personally administered by the

1 Oppenheim argued that late respondents are similar to nonrespondents and, consequently, may be used as surrogates for nonrespondents. He advocated testing for differences between the early and late respondents as a means of detecting possible nonresponse bias.

2 See Appendix F for a summary of the results of tests for nonresponse bias.
 researcher. A self-administered experimental task is based on the assumption that the appropriate respondents performed the task to the best of their ability. To the extent that this assumption is not valid, the research results are biased. Techniques which were described in the data collection subsection of the Methodology chapter were used to help reduce the effects of these limitations.

Another limitation resulting from the use of a questionnaire format is related to the simplification of an ordinarily complex task. The amount of information provided to respondents had to be restricted in order to keep the research instrument and the experimental task at a reasonable length. However, discussions with practicing bank loan officers and a pretest of the questionnaire were used to help ensure that all necessary information was included.

The research results are based on the responses of only one group of financial statement users -- commercial bank loan officers. To the extent that bank loan officers are not representative of other user groups, the generalizability of the research results is impaired. Moreover, the research considered only a small sample of the population of practicing bank loan officers. While the demographic information gathered suggests a somewhat heterogeneous sample group, the results would perhaps be different if responses could be obtained for the entire population of commercial bank loan officers.
Finally, although some of the issues relating to the appropriateness of recognizing ENPB costs on an accrual basis are identified and discussed, this study makes no conclusions as to the proper treatment of such costs. Instead, the method of accounting for ENPB costs most frequently used in practice (pay-as-you-go) was compared with the method proposed by the FASB in its 1982 Preliminary Views and reaffirmed in its recently issued exposure draft, Employers' Accounting for Postretirement Benefits Other Than Pensions (accrual basis).

Future Research

At the time this research study was conceived and designed, alternatives for investigating issues relating to nonpension postretirement benefits were severely limited. There were no authoritative accounting pronouncements in this area and most employers had only the vaguest notion of the magnitude of their obligation to provide retiree benefits or even the manner in which such an obligation should be measured. In the years that have elapsed since that time, awareness and controversy concerning this topic has increased dramatically and a methodology for measuring and recognizing this obligation has been identified and proposed by the FASB. These developments have opened up new and exciting research vistas in the nonpension postretirement benefit area.

First, now that the exposure draft of the proposed accounting change has been issued, researchers can
investigate the effect of its issuance on companies sponsoring such benefit plans by examining the sequence of security prices for those companies on and around the release date. The results of this investigation could be used to support the negative economic consequences hypothesized by some commentators. Other research might be aimed at determining whether the proposed accounting change results in the reduction or elimination of nonpension post-retirement benefit plans or the substitution of additional pension benefits for nonpension benefits.

Future research could also improve upon the design of this study in an attempt to find significant results. One modification might involve the manipulation of the degree of leverage or financial condition of the loan applicant. It could be that a nonpension postretirement benefit obligation does affect users' decisions when the sponsoring company is less creditworthy or more highly leveraged. In addition, the impact of accrual accounting for these benefits on the decisions of other user groups such as financial analysts or investors could be investigated.
BIBLIOGRAPHY


Coopers & Lybrand, Executive Alert (New York: Coopers & Lybrand Communications Department, 1985).


Financial Accounting Standards Board, Discussion Memorandum, Employers' Accounting for Pensions and Other Postemployment Benefits (FASB, 1983).


"Health Plans May Leave Retirees Out In The Cold," Businessweek (December 17, 1984), pp. 105-106.


Ring, T., "Rule Leads to Discount Rate Shift," Pensions and Investment Age (September 21, 1987), p. 36.


APPENDIX A

SAMPLE QUESTIONNAIRE - NPB-ACCruED STATEMENTS
Introduction:

The following three pages provide the consolidated financial statements and selected related notes for the Gamma Corporation and subsidiaries (a publicly traded corporation). Gamma Corporation would like to obtain a five-year, general obligation, term loan in the amount of $3,500,000 at an interest rate of 9.5% (assume that 9.5% is the rate currently available to long-term borrowers of similar quality to Gamma Corporation). The funds will be used to acquire essential business assets.

Please analyze the financial statements and accompanying information as you would in practice and provide your best response to the following two questions:

1. What is your assessment of Gamma Corporation's ability to repay the $3,500,000 term loan? (State the probability, from 0 percent to 100 percent, that you believe is associated with Gamma's subsequent repayment.)

   I believe that there is a ______ percent probability that the Gamma Corporation will repay the $3,500,000 loan amount in full and on a timely basis.

2. If Gamma Corporation came to your bank seeking funds, what is the maximum amount (assuming a five-year term and an interest rate of 9.5%) that you would recommend lending Gamma Corporation? Assume that Gamma currently has no other loans from your bank.

   I would recommend a loan in the amount of $__________.

To facilitate your analysis, the lower, median, and upper quartiles of some key ratios for companies in the same industry classification as Gamma Corporation are presented below. These figures were obtained from Robert Morris Associates' 1987 Annual Statement Studies.

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Lower Quartile</th>
<th>Median</th>
<th>Upper Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>1.3</td>
<td>1.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Quick</td>
<td>.6</td>
<td>1.0</td>
<td>1.6</td>
</tr>
<tr>
<td>Debt/Equity</td>
<td>2.4</td>
<td>1.3</td>
<td>.6</td>
</tr>
<tr>
<td>Sales/Assets</td>
<td>1.3</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Sales/Receivables</td>
<td>5.4</td>
<td>7.1</td>
<td>8.6</td>
</tr>
<tr>
<td>COGS/Inventory</td>
<td>2.6</td>
<td>4.3</td>
<td>7.7</td>
</tr>
</tbody>
</table>

After responding to questions 1 and 2 above, please turn to pages 5 and 6 to complete this questionnaire.
### Gamma Corporation and Subsidiaries

#### Consolidated Balance Sheets

(Thousands of Dollars)

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>December 31</th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Assets:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>156</td>
<td>129</td>
<td></td>
</tr>
<tr>
<td>Marketable Securities</td>
<td>3,281</td>
<td>6,643</td>
<td></td>
</tr>
<tr>
<td>Accounts Receivable, net</td>
<td>8,345</td>
<td>6,964</td>
<td></td>
</tr>
<tr>
<td>Inventories (Note 1)</td>
<td>6,814</td>
<td>5,301</td>
<td></td>
</tr>
<tr>
<td>Other current assets</td>
<td>2,270</td>
<td>1,443</td>
<td></td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td></td>
<td>20,866</td>
<td>20,480</td>
</tr>
<tr>
<td>Property, Plant and Equipment (net)</td>
<td>9,916</td>
<td>8,870</td>
<td></td>
</tr>
<tr>
<td>Excess of Cost over Net Assets of Acquisitions</td>
<td>3,158</td>
<td>568</td>
<td></td>
</tr>
<tr>
<td>Deferred Nonpension Benefit Costs</td>
<td>2,280</td>
<td>2,432</td>
<td></td>
</tr>
<tr>
<td>Other Assets</td>
<td>2,084</td>
<td>1,945</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td></td>
<td>$38,304</td>
<td>$34,295</td>
</tr>
</tbody>
</table>

| LIABILITIES AND SHAREHOLDERS' EQUITY | | | |
| **Current Liabilities:** | | | |
| Accounts payable | 2,129 | 1,723 |
| Short-term debt | 163 | 239 |
| Current maturities of long-term debt | 147 | 110 |
| Accrued compensation | 772 | 812 |
| Accrued income and other taxes | 179 | 390 |
| Other current liabilities | 3,028 | 2,423 |
| **Total Current Liabilities** | | 6,418 | 5,697 |
| Long-Term Debt - less current portion (Note 3) | 6,327 | 4,362 |
| Other Long-Term Liabilities | 2,183 | 2,079 |
| Deferred Income Taxes | 1,523 | 1,113 |
| Accrued Nonpension Benefit Costs (Note 4) | 5,386 | 4,778 |
| **Total Long-Term Liabilities** | | 15,419 | 12,332 |
| **TOTAL LIABILITIES** | | 21,837 | 18,029 |

| Shareholders' Equity | | | |
| Serial Preferred Shares | 2 | 2 |
| Common Shares | 216 | 234 |
| Capital in excess of par value | 3,767 | 4,052 |
| Retained Earnings | 12,910 | 12,752 |
| Foreign currency translation adjustments | (428) | (774) |
| **Total Shareholders' Equity** | | 16,467 | 16,266 |

**TOTAL LIABILITIES AND SHAREHOLDER'S EQUITY**

<table>
<thead>
<tr>
<th></th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL</strong></td>
<td>$38,304</td>
<td>$34,295</td>
</tr>
</tbody>
</table>
### STATEMENTS OF CONSOLIDATED INCOME

<table>
<thead>
<tr>
<th>Year Ended December 31</th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Thousands of Dollars)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Net Sales</strong></td>
<td>$66,641</td>
<td>$62,386</td>
</tr>
<tr>
<td><strong>Costs and Expenses:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of products sold</td>
<td>50,949</td>
<td>46,535</td>
</tr>
<tr>
<td>Selling and administrative expenses</td>
<td>8,700</td>
<td>8,187</td>
</tr>
<tr>
<td>Research and development expenses</td>
<td>1,341</td>
<td>1,236</td>
</tr>
<tr>
<td>Provision for exiting businesses</td>
<td>747</td>
<td>-0-</td>
</tr>
<tr>
<td><strong>Total Costs and Expenses</strong></td>
<td>61,737</td>
<td>55,958</td>
</tr>
<tr>
<td><strong>Income From Operations</strong></td>
<td>4,904</td>
<td>6,428</td>
</tr>
<tr>
<td><strong>Other income and (deductions):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest expense</td>
<td>(642)</td>
<td>(585)</td>
</tr>
<tr>
<td>Interest income</td>
<td>384</td>
<td>492</td>
</tr>
<tr>
<td>Other income, net</td>
<td>112</td>
<td>303</td>
</tr>
<tr>
<td><strong>Total Other income and (deductions):</strong></td>
<td>(146)</td>
<td>210</td>
</tr>
<tr>
<td><strong>Income Before Income Taxes</strong></td>
<td>4,758</td>
<td>6,638</td>
</tr>
<tr>
<td>Income Taxes</td>
<td>1,784</td>
<td>2,675</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>$2,974</td>
<td>$3,963</td>
</tr>
<tr>
<td><strong>Earnings Per Share</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>$6.29</td>
<td>$8.45</td>
</tr>
<tr>
<td>Fully diluted</td>
<td>6.01</td>
<td>8.03</td>
</tr>
</tbody>
</table>

### STATEMENTS OF CONSOLIDATED CHANGES IN FINANCIAL POSITION

<table>
<thead>
<tr>
<th>Year Ended December 31</th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Thousands of Dollars)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Funds From Operations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Income</td>
<td>$2,974</td>
<td>$3,963</td>
</tr>
<tr>
<td>Items included not affecting funds:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation and amortization</td>
<td>1,039</td>
<td>961</td>
</tr>
<tr>
<td>Noncurrent deferred taxes and other liabilities</td>
<td>1,398</td>
<td>1,235</td>
</tr>
<tr>
<td>Other, net</td>
<td>168</td>
<td>88</td>
</tr>
<tr>
<td><strong>Funds Provided From Operations</strong></td>
<td>5,579</td>
<td>6,247</td>
</tr>
<tr>
<td><strong>Uses of Funds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisitions of businesses, less net current assets</td>
<td>(3,700)</td>
<td>(96)</td>
</tr>
<tr>
<td>Expenditures for Plant, Property, and Equipment</td>
<td>(1,446)</td>
<td>(1,164)</td>
</tr>
<tr>
<td>Cash dividends</td>
<td>(392)</td>
<td>(584)</td>
</tr>
<tr>
<td>Foreign currency translation adjustment, net</td>
<td>327</td>
<td>99</td>
</tr>
<tr>
<td>Changes in current assets and liabilities, net</td>
<td>(2,961)</td>
<td>(2,325)</td>
</tr>
<tr>
<td>Other, net</td>
<td>82</td>
<td>(203)</td>
</tr>
<tr>
<td><strong>Funds Provided before Financing Activities</strong></td>
<td>(2,511)</td>
<td>1,974</td>
</tr>
<tr>
<td><strong>Financing Activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net (purchase) issuance of Common Shares</td>
<td>(2,727)</td>
<td>69</td>
</tr>
<tr>
<td>Payments of long-term debt</td>
<td>(188)</td>
<td>(739)</td>
</tr>
<tr>
<td>Long-term borrowings</td>
<td>2,167</td>
<td>591</td>
</tr>
<tr>
<td>Increase (decrease) in short-term debt</td>
<td>(76)</td>
<td>(50)</td>
</tr>
<tr>
<td><strong>Net change in Cash and Short-Term Investments</strong></td>
<td>$(3,335)</td>
<td>$1,845</td>
</tr>
</tbody>
</table>
Selected Notes to the Financial Statements

1. Inventories - Inventories are accounted for using the last-in, first-out (LIFO) method and are carried at the lower of cost or market.

2. Depreciation and Amortization - Depreciation and amortization are computed by the straight-line method for financial statement purposes. Depreciation of plant and equipment is provided over the useful lives of the various classes of assets. Excess of cost over net assets of businesses acquired is amortized over forty years. Other intangible assets, principally patents, are amortized over their respective lives.

3. Long-Term Debt - Long-Term debt consists of various notes and debentures with interest rates ranging from 7 to 12.10 percent. The aggregate sinking fund requirements and annual maturities of long-term debt are $147,000 in 1988, $152,000 in 1989, $98,000 in 1990, $117,000 in 1991 and $72,000 in 1992.

4. Retirement benefit plans - The Company and its subsidiaries have non-contributory defined benefit pension plans covering the majority of employees. In the first quarter of 1987, the Company adopted Statement of Financial Accounting Standards No. 87 - Employers' Accounting for Pensions - for determining pension expense for these plans. Pension expense for these plans for 1987 was $189,000 compared to $379,000 in 1986 and $384,000 in 1985. The funded status of these plans and the amounts recognized in the consolidated balance sheet at December 31, 1987 are presented below (in thousands of dollars).

<table>
<thead>
<tr>
<th></th>
<th>Overfunded</th>
<th>Underfunded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuarial present value of benefit obligation at December 31, 1987:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accumulated Benefit Obligation</td>
<td>$7,555</td>
<td>$999</td>
</tr>
<tr>
<td>Value of future salary projections</td>
<td>1,326</td>
<td>-0-</td>
</tr>
<tr>
<td>Projected Benefit Obligation</td>
<td>8,881</td>
<td>999</td>
</tr>
<tr>
<td>Fair value of plan assets at 12/31/87</td>
<td>9,718</td>
<td>609</td>
</tr>
<tr>
<td>Pension asset (liability) recognized in consolidated balance sheet at 12/31/87</td>
<td>$(408)</td>
<td>$(101)</td>
</tr>
</tbody>
</table>

The Company also provides certain health care and life insurance benefits for retired employees. Substantially all of the Company's employees become eligible for these benefits when they retire. The estimated cost of these benefits is actuarially determined and accrued over the employees' service lives. The unfunded projected benefit obligation associated with these benefits is included in the balance sheet under "Accrued Nonpension benefit costs". Nonpension benefit expense, which is included in the cost of products sold, was $890,000 in 1987 and $760,000 in 1986.

5. Reductions in Retained Earnings - The balance of Retained Earnings was reduced by $2,424,000 in 1987 and $57,000 in 1986 as a result of the purchase of shares for treasury. In addition, the declaration of cash dividends decreased Retained Earnings by $392,000 in 1987 and $584,000 in 1986.
Please provide your opinion (without regard to pronouncements of authoritative bodies such as the Financial Accounting Standards Board) concerning each of the following statements by circling the appropriate response according to the scale shown below. For example, circling "1" on the scale means that you "strongly disagree" with the statement.

1...........Strongly Disagree  
2...........Moderately Disagree  
3...........Slightly Disagree  
4...........Neither Agree nor Disagree  
5...........Slightly Agree  
6...........Moderately Agree  
7...........Strongly Agree

1. Goodwill recorded as the result of a business acquisition should be  
   a) recorded indefinitely as an asset.............1 2 3 4 5 6 7  
   b) recorded initially as an asset and amortized  
      over future years..........................1 2 3 4 5 6 7  
   c) immediately written off against equity......1 2 3 4 5 6 7

2. The postretirement health and life insurance benefit plan provided  
   by Gamma Corporation  
   a) is a firm commitment that is likely to be met  
      regardless of corporate profitability........1 2 3 4 5 6 7  
   b) should be accrued as a liability in the  
      financial statements........................1 2 3 4 5 6 7

3. Research and development costs incurred by Gamma Corporation should  
   be  
   a) expensed as incurred........................1 2 3 4 5 6 7  
   b) capitalized only when the future benefits in  
      excess of cost are certain as of year end....1 2 3 4 5 6 7  
   c) capitalized when future benefits in excess  
      of costs are probable as of year end........1 2 3 4 5 6 7

4. The amount of deferred taxes resulting from timing differences in  
   book and tax income should be disclosed  
   a) as a liability in the balance sheet...........1 2 3 4 5 6 7  
   b) as an equity item............................1 2 3 4 5 6 7  
   c) in footnotes to the financial statements.....1 2 3 4 5 6 7

5. In accounting for the pension plans of Gamma Corporation  
   a) when total pension fund assets exceed the actuarial  
      present value of accumulated pension plan benefits,  
      the excess amount of the fund should be disclosed  
      as an asset in the balance sheet.............1 2 3 4 5 6 7

   b) when total pension fund assets are less than the  
      actuarial present value of accumulated pension  
      plan benefits, the deficiency should be disclosed  
      as a liability in the balance sheet...........1 2 3 4 5 6 7
Please answer the following general questions.

1. How many years have you served as a loan officer? ________ years

2. What is the highest educational level that you have completed? (please circle one)
   a. high school
   b. some college
   c. bachelors degree
   d. some graduate work
   e. masters degree or higher

3. What is the dollar range of loan decisions in which you are normally involved?
   from $__________________ to $__________________

   What is the highest dollar loan decision in which you have been involved?
   $______________________________

4. In the bank for which you work, are loans approved by yourself or by yourself and a committee? (please circle one)
   a. yourself
   b. yourself and a committee
   c. other (please specify) ______________________________

5. What is the approximate size of your bank, in terms of assets? (please circle one)
   a. under $25,000,000
   b. $25,000,000 to $49,999,999
   c. $50,000,000 to $99,999,999
   d. $100,000,000 to 249,999,999
   e. $250,000,000 to $499,999,999
   f. $500,000,000 to $749,999,999
   g. $750,000,000 to $1,000,000,000
   h. over $1,000,000,000

6. In your opinion, is the loan amount reasonable relative to the financial condition of the company (i.e., large enough to take seriously, but not so large that it would never be granted)?
   Yes ______  No ______

7. In your opinion, is the loan term reasonable? Yes ______  No ______

8. If you were to use the debt/equity ratio in your analysis, what amounts would you use for debt and equity?
   Debt ______________________  Equity ______________________

If you would like to be eligible for the random drawings for the two $100 cash awards, please provide your name and address below.

THANK YOU VERY MUCH FOR YOUR HELP.
Please return the questionnaire in the enclosed envelope.
Introduction:

The following three pages provide the consolidated financial statements and selected related notes for the Gamma Corporation and subsidiaries (a publicly traded corporation). Gamma Corporation would like to obtain a five-year, general obligation, term loan in the amount of $3,500,000 at an interest rate of 9.5% (assume that 9.5% is the rate currently available to long-term borrowers of similar quality to Gamma Corporation). The funds will be used to acquire essential business assets.

Please analyze the financial statements and accompanying information as you would in practice and provide your best response to the following two questions:

1. What is your assessment of Gamma Corporation's ability to repay the $3,500,000 term loan? (State the probability, from 0 percent to 100 percent, that you believe is associated with Gamma's subsequent repayment.)

   I believe that there is a ______ percent probability that the Gamma Corporation will repay the $3,500,000 loan amount in full and on a timely basis.

2. If Gamma Corporation came to your bank seeking funds, what is the maximum amount (assuming a five-year term and an interest rate of 9.5%) that you would recommend lending Gamma Corporation? Assume that Gamma currently has no other loans from your bank.

   I would recommend a loan in the amount of $__________.

To facilitate your analysis, the lower, median, and upper quartiles of some key ratios for companies in the same industry classification as Gamma Corporation are presented below. These figures were obtained from Robert Morris Associates' 1987 Annual Statement Studies.

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Lower Quartile</th>
<th>Median</th>
<th>Upper Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>1.3</td>
<td>1.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Quick</td>
<td>.6</td>
<td>1.0</td>
<td>1.6</td>
</tr>
<tr>
<td>Debt/Equity</td>
<td>2.4</td>
<td>1.3</td>
<td>.6</td>
</tr>
<tr>
<td>Sales/Assets</td>
<td>1.3</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Sales/Receivables</td>
<td>5.4</td>
<td>7.1</td>
<td>8.6</td>
</tr>
<tr>
<td>COGS/Inventory</td>
<td>2.6</td>
<td>4.3</td>
<td>7.7</td>
</tr>
</tbody>
</table>

After responding to questions 1 and 2 above, please turn to pages 5 and 6 to complete this questionnaire.
GAMMA CORPORATION AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(Thousands of Dollars)

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>December 31</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1987</td>
<td>1986</td>
</tr>
<tr>
<td>Current Assets:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>156</td>
<td>129</td>
</tr>
<tr>
<td>Marketable Securities</td>
<td>3,281</td>
<td>6,643</td>
</tr>
<tr>
<td>Accounts Receivable, net</td>
<td>8,345</td>
<td>6,964</td>
</tr>
<tr>
<td>Inventories (Note 1)</td>
<td>6,814</td>
<td>5,301</td>
</tr>
<tr>
<td>Other current assets</td>
<td>2,270</td>
<td>1,443</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td><strong>20,866</strong></td>
<td><strong>20,480</strong></td>
</tr>
<tr>
<td>Property, Plant and Equipment (net)</td>
<td>9,916</td>
<td>8,870</td>
</tr>
<tr>
<td>Excess of Cost over Net Assets of Acquisitions</td>
<td>3,158</td>
<td>568</td>
</tr>
<tr>
<td>Other Assets</td>
<td>2,084</td>
<td>1,945</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td><strong>$36,024</strong></td>
<td><strong>$31,863</strong></td>
</tr>
</tbody>
</table>

| LIABILITIES AND SHAREHOLDERS' EQUITY       |       |       |
| Current Liabilities:                       |       |       |
| Accounts payable                          | 2,129  | 1,723 |
| Short-term debt                           | 163    | 239   |
| Current maturities of long-term debt       | 147    | 110   |
| Accrued compensation                       | 772    | 812   |
| Accrued income and other taxes             | 179    | 390   |
| Other current liabilities                  | 3,028  | 2,423 |
| **Total Current Liabilities**              | **6,418** | **5,697** |
| Long-Term Debt - less current portion (Note 3) | 6,327  | 4,362 |
| Other Long-Term Liabilities                | 2,183  | 2,079 |
| Deferred Income Taxes                      | 2,722  | 2,027 |
| **Total Long-Term Liabilities**            | **11,232** | **8,468** |
| **TOTAL LIABILITIES**                      | **17,650** | **14,165** |

| Shareholders' Equity                      |       |       |
|Serial Preferred Shares                    | 2      | 2     |
|Common Shares                              | 216    | 234   |
|Capital in excess of par value             | 3,767  | 4,052 |
|Retained Earnings                          | 14,817 | 14,184 |
|Foreign currency translation adjustments   | (428)  | (774) |
|**Total Shareholders' Equity**             | **18,374** | **17,698** |

**TOTAL LIABILITIES AND SHAREHOLDER'S EQUITY**

$36,024 $31,863
### STATEMENTS OF CONSOLIDATED INCOME

**Year Ended December 31**  
**1987** | **1986**  
--- | ---  
**Net Sales** | $66,641 | $62,386  
**Costs and Expenses:**  
Cost of products sold | 50,189 | 45,905  
Selling and administrative expenses | 8,700 | 8,187  
Research and development expenses | 1,341 | 1,236  
Provision for exiting businesses | 747 | 0  
**Total Costs and Expenses** | 60,977 | 55,328  
**Income From Operations** | 5,664 | 7,058  
**Other income and (deductions):**  
Interest expense | (642) | (585)  
Interest income | 384 | 492  
Other income, net | 112 | 303  
**Total Other income and (deductions)** | (146) | 210  
**Income Before Income Taxes** | 5,518 | 7,268  
Income Taxes | 2,069 | 2,927  
**Net Income** | $3,449 | $4,341  
**Earnings Per Share**  
Primary | $7.30 | $9.26  
Fully diluted | 6.96 | 8.79

### STATEMENTS OF CONSOLIDATED CHANGES IN FINANCIAL POSITION

**Year Ended December 31**  
**1987** | **1986**  
--- | ---  
**Funds From Operations**  
Net Income | $3,449 | $4,341  
Items included not affecting funds:  
Depreciation and amortization | 1,039 | 961  
Noncurrent deferred taxes and other liabilities | 923 | 857  
Other, net | 168 | 88  
**Funds Provided From Operations** | 5,579 | 6,247  
**Uses of Funds**  
Acquisitions of businesses, less net current assets | (3,700) | (96)  
Expenditures for Plant, Property, and Equipment | (1,446) | (1,164)  
Cash dividends | (392) | (584)  
Foreign currency translation adjustment, net | 327 | 99  
Changes in current assets and liabilities, net | (2,961) | (2,325)  
Other, net | 82 | (203)  
**Funds Provided before Financing Activities** | (2,511) | 1,974  
**Financing Activities**  
Net (purchase) issuance of Common Shares | (2,727) | 69  
Payments of long-term debt | (188) | (739)  
Long-term borrowings | 2,167 | 591  
Increase (decrease) in short-term debt | (76) | (50)  
**Net change in Cash and Short-Term Investments** | $(3,335) | $1,845
Selected Notes to the Financial Statements

1. Inventories - Inventories are accounted for using the last-in, first-out (LIFO) method and are carried at the lower of cost or market.

2. Depreciation and Amortization - Depreciation and amortization are computed by the straight-line method for financial statement purposes. Depreciation of plant and equipment is provided over the useful lives of the various classes of assets. Excess of cost over net assets of businesses acquired is amortized over forty years. Other intangible assets, principally patents, are amortized over their respective lives.

3. Long-Term Debt - Long-Term debt consists of various notes and debentures with interest rates ranging from 7 to 12.10 percent. The aggregate sinking fund requirements and annual maturities of long-term debt are $147,000 in 1988, $152,000 in 1989, $98,000 in 1990, $117,000 in 1991 and $72,000 in 1992.

4. Retirement benefit plans - The Company and its subsidiaries have noncontributory defined benefit pension plans covering the majority of employees. In the first quarter of 1987, the Company adopted Statement of Financial Accounting Standards No. 87 - Employers' Accounting for Pensions - for determining pension expense for these plans.

Pension expense for these plans for 1987 was $189,000 compared to $379,000 in 1986 and $384,000 in 1985. The funded status of these plans and the amounts recognized in the consolidated balance sheet at December 31, 1987 are presented below (in thousands of dollars).

<table>
<thead>
<tr>
<th>Description</th>
<th>Overfunded</th>
<th>Underfunded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuarial present value of benefit obligation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accumulated Benefit Obligation</td>
<td>$7,555</td>
<td>$999</td>
</tr>
<tr>
<td>Value of future salary projections</td>
<td>1,326</td>
<td>-</td>
</tr>
<tr>
<td>Projected Benefit Obligation</td>
<td>8,881</td>
<td>999</td>
</tr>
<tr>
<td>Fair value of plan assets at 12/31/87</td>
<td>9,718</td>
<td>609</td>
</tr>
<tr>
<td>Pension asset (liability) recognized in</td>
<td>$(408)</td>
<td>$(101)</td>
</tr>
<tr>
<td>consolidated balance sheet at 12/31/87</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Company also provides certain health care and life insurance benefits for retired employees. Substantially all of the Company's employees become eligible for these benefits when they retire. The Company recognizes expense as claims or premiums are paid. These costs totaled $130,000 for 1987 and $130,000 for 1986.

5. Reductions in Retained Earnings - The balance of Retained Earnings was reduced by $2,424,000 in 1987 and $57,000 in 1986 as a result of the purchase of shares for treasury. In addition, the declaration of cash dividends decreased Retained Earnings by $392,000 in 1987 and $584,000 in 1986.
Please provide your opinion (without regard to pronouncements of authoritative bodies such as the Financial Accounting Standards Board) concerning each of the following statements by circling the appropriate response according to the scale shown below. For example, circling "1" on the scale means that you "strongly disagree" with the statement.

1. Goodwill recorded as the result of a business acquisition should be
   a) recorded indefinitely as an asset............1 2 3 4 5 6 7
   b) recorded initially as an asset and amortized over future years.........................1 2 3 4 5 6 7
   c) immediately written off against equity........1 2 3 4 5 6 7

2. The postretirement health and life insurance benefit plan provided by Gamma Corporation
   a) is a firm commitment that is likely to be met regardless of corporate profitability........1 2 3 4 5 6 7
   b) should be accrued as a liability in the financial statements..........................1 2 3 4 5 6 7

3. Research and development costs incurred by Gamma Corporation should be
   a) expensed as incurred..........................1 2 3 4 5 6 7
   b) capitalized only when the future benefits in excess of cost are certain as of year end....1 2 3 4 5 6 7
   c) capitalized when future benefits in excess of costs are probable as of year end........1 2 3 4 5 6 7

4. The amount of deferred taxes resulting from timing differences in book and tax income should be disclosed
   a) as a liability in the balance sheet..........1 2 3 4 5 6 7
   b) as an equity item.............................1 2 3 4 5 6 7
   c) in footnotes to the financial statements....1 2 3 4 5 6 7

5. In accounting for the pension plans of Gamma Corporation
   a) when total pension fund assets exceed the actuarial present value of accumulated pension plan benefits, the excess amount of the fund should be disclosed as an asset in the balance sheet........1 2 3 4 5 6 7
   b) when total pension fund assets are less than the actuarial present value of accumulated pension plan benefits, the deficiency should be disclosed as a liability in the balance sheet........1 2 3 4 5 6 7
Please answer the following general questions.

1. How many years have you served as a loan officer? ________ years

2. What is the highest educational level that you have completed? (please circle one)
   a. high school
   b. some college
   c. bachelors degree
   d. some graduate work
   e. masters degree or higher

3. What is the dollar range of loan decisions in which you are normally involved?
   from $______________ to $______________

   What is the highest dollar loan decision in which you have been involved?
   $______________________________

4. In the bank for which you work, are loans approved by yourself or by yourself and a committee? (please circle one)
   a. yourself
   b. yourself and a committee
   c. other (please specify) ______________________________

5. What is the approximate size of your bank, in terms of assets? (please circle one)
   a. under $25,000,000
   b. $25,000,000 to $49,999,999
   c. $50,000,000 to $99,999,999
   d. $100,000,000 to 249,999,999
   e. $250,000,000 to $499,999,999
   f. $500,000,000 to $749,999,999
   g. $750,000,000 to $1,000,000,000
   h. over $1,000,000,000

6. In your opinion, is the loan amount reasonable relative to the financial condition of the company (i.e., large enough to take seriously, but not so large that it would never be granted)?
   Yes_____  No______

7. In your opinion, is the loan term reasonable? Yes______ No_____

8. If you were to use the debt/equity ratio in your analysis, what amounts would you use for debt and equity?

   Debt ______________________  Equity ______________________

If you would like to be eligible for the random drawings for the two $100 cash awards, please provide your name and address below.

THANK YOU VERY MUCH FOR YOUR HELP.
Please return the questionnaire in the enclosed envelope.
APPENDIX C

SAMPLE QUESTIONNAIRE - EQUAL DEBT STATEMENTS
Introduction:

The following three pages provide the consolidated financial statements and selected related notes for the Gamma Corporation and subsidiaries (a publicly traded corporation). Gamma Corporation would like to obtain a five-year, general obligation, term loan in the amount of $3,500,000 at an interest rate of 9.5% (assume that 9.5% is the rate currently available to long-term borrowers of similar quality to Gamma Corporation). The funds will be used to acquire essential business assets.

Please analyze the financial statements and accompanying information as you would in practice and provide your best response to the following two questions:

1. What is your assessment of Gamma Corporation's ability to repay the $3,500,000 term loan? (State the probability, from 0 percent to 100 percent, that you believe is associated with Gamma's subsequent repayment.)

   I believe that there is a ________ percent probability that the Gamma Corporation will repay the $3,500,000 loan amount in full and on a timely basis.

2. If Gamma Corporation came to your bank seeking funds, what is the maximum amount (assuming a five-year term and an interest rate of 9.5%) that you would recommend lending Gamma Corporation? Assume that Gamma currently has no other loans from your bank.

   I would recommend a loan in the amount of $___________.

To facilitate your analysis, the lower, median, and upper quartiles of some key ratios for companies in the same industry classification as Gamma Corporation are presented below. These figures were obtained from Robert Morris Associates' 1987 Annual Statement Studies.

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Lower Quartile</th>
<th>Median</th>
<th>Upper Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>1.3</td>
<td>1.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Quick</td>
<td>.6</td>
<td>1.0</td>
<td>1.6</td>
</tr>
<tr>
<td>Debt/Equity</td>
<td>2.4</td>
<td>1.3</td>
<td>.6</td>
</tr>
<tr>
<td>Sales/Assets</td>
<td>1.3</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Sales/Receivables</td>
<td>5.4</td>
<td>7.1</td>
<td>8.6</td>
</tr>
<tr>
<td>COGS/Inventory</td>
<td>2.6</td>
<td>4.3</td>
<td>7.7</td>
</tr>
</tbody>
</table>

After responding to questions 1 and 2 above, please turn to pages 5 and 6 to complete this questionnaire.
### GAMMA CORPORATION AND SUBSIDIARIES

#### CONSOLIDATED BALANCE SHEETS

(Thousands of Dollars)

#### ASSETS

<table>
<thead>
<tr>
<th></th>
<th>December 31</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1987</td>
<td>1986</td>
</tr>
<tr>
<td><strong>Current Assets:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>156</td>
<td>129</td>
</tr>
<tr>
<td>Marketable Securities</td>
<td>3,281</td>
<td>6,643</td>
</tr>
<tr>
<td>Accounts Receivable, net</td>
<td>8,345</td>
<td>6,964</td>
</tr>
<tr>
<td>Inventories (Note 1)</td>
<td>6,814</td>
<td>5,301</td>
</tr>
<tr>
<td>Other current assets</td>
<td>2,270</td>
<td>1,443</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td><strong>20,866</strong></td>
<td><strong>20,480</strong></td>
</tr>
<tr>
<td><strong>Property, Plant and Equipment (net)</strong></td>
<td><strong>9,916</strong></td>
<td><strong>8,870</strong></td>
</tr>
<tr>
<td>Excess of Cost over Net Assets of Acquisitions</td>
<td><strong>3,158</strong></td>
<td><strong>568</strong></td>
</tr>
<tr>
<td>Long-Term Investments</td>
<td><strong>2,280</strong></td>
<td><strong>2,432</strong></td>
</tr>
<tr>
<td>Other Assets</td>
<td>2,084</td>
<td>1,945</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td><strong>$38,304</strong></td>
<td><strong>$34,295</strong></td>
</tr>
</tbody>
</table>

#### LIABILITIES AND SHAREHOLDERS' EQUITY

<table>
<thead>
<tr>
<th></th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Liabilities:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts payable</td>
<td>2,129</td>
<td>1,723</td>
</tr>
<tr>
<td>Short-term debt</td>
<td>163</td>
<td>239</td>
</tr>
<tr>
<td>Current maturities of long-term debt</td>
<td>147</td>
<td>110</td>
</tr>
<tr>
<td>Accrued compensation</td>
<td>772</td>
<td>812</td>
</tr>
<tr>
<td>Accrued income and other taxes</td>
<td>179</td>
<td>390</td>
</tr>
<tr>
<td>Other current liabilities</td>
<td>3,028</td>
<td>2,423</td>
</tr>
<tr>
<td><strong>Total Current Liabilities</strong></td>
<td><strong>6,418</strong></td>
<td><strong>5,697</strong></td>
</tr>
<tr>
<td>Long-Term Debt - less current portion (Note 3)</td>
<td><strong>11,713</strong></td>
<td><strong>9,140</strong></td>
</tr>
<tr>
<td>Other Long-Term Liabilities</td>
<td><strong>2,183</strong></td>
<td><strong>2,079</strong></td>
</tr>
<tr>
<td>Deferred Income Taxes</td>
<td><strong>1,523</strong></td>
<td><strong>1,113</strong></td>
</tr>
<tr>
<td><strong>Total Long-Term Liabilities</strong></td>
<td><strong>15,419</strong></td>
<td><strong>12,332</strong></td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td><strong>21,837</strong></td>
<td><strong>18,029</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shareholders' Equity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serial Preferred Shares</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Common Shares</td>
<td>216</td>
<td>234</td>
</tr>
<tr>
<td>Capital in excess of par value</td>
<td>3,767</td>
<td>4,052</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>12,910</td>
<td>12,752</td>
</tr>
<tr>
<td>Foreign currency translation adjustments</td>
<td>(428)</td>
<td>(774)</td>
</tr>
<tr>
<td><strong>Total Shareholders' Equity</strong></td>
<td><strong>16,467</strong></td>
<td><strong>16,266</strong></td>
</tr>
</tbody>
</table>

**TOTAL LIABILITIES AND SHAREHOLDER'S EQUITY**

<table>
<thead>
<tr>
<th></th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Liabilities and Shareholder's Equity</strong></td>
<td><strong>$38,304</strong></td>
<td><strong>$34,295</strong></td>
</tr>
</tbody>
</table>
## STATEMENTS OF CONSOLIDATED INCOME

<table>
<thead>
<tr>
<th>Year Ended December 31</th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Thousands of Dollars)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Net Sales</strong></td>
<td>$66,641</td>
<td>$62,386</td>
</tr>
<tr>
<td><strong>Costs and Expenses:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of products sold</td>
<td>$50,402</td>
<td>$45,894</td>
</tr>
<tr>
<td>Selling and administrative expenses</td>
<td>$8,700</td>
<td>$8,187</td>
</tr>
<tr>
<td>Research and development expenses</td>
<td>$1,341</td>
<td>$1,236</td>
</tr>
<tr>
<td>Provision for exiting businesses</td>
<td>$747</td>
<td>-0-</td>
</tr>
<tr>
<td><strong>Total Costs and Expenses</strong></td>
<td>$61,190</td>
<td>$55,317</td>
</tr>
<tr>
<td><strong>Income From Operations</strong></td>
<td>$5,451</td>
<td>$7,069</td>
</tr>
<tr>
<td><strong>Other income and (deductions):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest expense</td>
<td>$(1,189)</td>
<td>$(1,226)</td>
</tr>
<tr>
<td>Interest income</td>
<td>$384</td>
<td>$492</td>
</tr>
<tr>
<td>Other income, net</td>
<td>$112</td>
<td>$303</td>
</tr>
<tr>
<td><strong>Total Other income and (deductions)</strong></td>
<td>$(693)</td>
<td>$(431)</td>
</tr>
<tr>
<td><strong>Income Before Income Taxes</strong></td>
<td>$4,758</td>
<td>$6,638</td>
</tr>
<tr>
<td><strong>Income Taxes</strong></td>
<td>$1,784</td>
<td>$2,675</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>$2,974</td>
<td>$3,963</td>
</tr>
</tbody>
</table>

**Earnings Per Share**
- **Primary** $6.29 $8.45
- **Fully diluted** 6.01 8.03

## STATEMENTS OF CONSOLIDATED CHANGES IN FINANCIAL POSITION

<table>
<thead>
<tr>
<th>Year Ended December 31</th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Thousands of Dollars)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Funds From Operations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Income</td>
<td>$2,974</td>
<td>$3,963</td>
</tr>
<tr>
<td>Items included not affecting funds:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation and amortization</td>
<td>$1,039</td>
<td>961</td>
</tr>
<tr>
<td>Noncurrent deferred taxes and other liabilities</td>
<td>$1,028</td>
<td>975</td>
</tr>
<tr>
<td>Other, net</td>
<td>$168</td>
<td>88</td>
</tr>
<tr>
<td><strong>Funds Provided From Operations</strong></td>
<td>$5,209</td>
<td>5,987</td>
</tr>
<tr>
<td><strong>Uses of Funds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisitions of businesses, less net current assets</td>
<td>$(3,700)</td>
<td>$(96)</td>
</tr>
<tr>
<td>Expenditures for Plant, Property, and Equipment</td>
<td>$(1,446)</td>
<td>$(1,164)</td>
</tr>
<tr>
<td>Cash dividends</td>
<td>$(392)</td>
<td>$(584)</td>
</tr>
<tr>
<td>Foreign currency translation adjustment, net</td>
<td>$327</td>
<td>99</td>
</tr>
<tr>
<td>Changes in current assets and liabilities, net</td>
<td>$(2,961)</td>
<td>$(2,325)</td>
</tr>
<tr>
<td>Other, net</td>
<td>$82</td>
<td>$(203)</td>
</tr>
<tr>
<td><strong>Funds Provided before Financing Activities</strong></td>
<td>$(2,881)</td>
<td>1,714</td>
</tr>
<tr>
<td><strong>Financing Activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net (purchase) issuance of Common Shares</td>
<td>$(2,727)</td>
<td>69</td>
</tr>
<tr>
<td>Payments of long-term debt</td>
<td>$(340)</td>
<td>$(739)</td>
</tr>
<tr>
<td>Long-term borrowings</td>
<td>$2,537</td>
<td>851</td>
</tr>
<tr>
<td>Sales of Long-Term Investments</td>
<td>$152</td>
<td>-0-</td>
</tr>
<tr>
<td>Increase (decrease) in short-term debt</td>
<td>$(76)</td>
<td>$(50)</td>
</tr>
<tr>
<td><strong>Net change in Cash and Short-Term Investments</strong></td>
<td>$(3,335)</td>
<td>$1,845</td>
</tr>
</tbody>
</table>
Selected Notes to the Financial Statements

1. Inventories - Inventories are accounted for using the last-in, first-out (LIFO) method and are carried at the lower of cost or market.

2. Depreciation and Amortization - Depreciation and amortization are computed by the straight-line method for financial statement purposes. Depreciation of plant and equipment is provided over the useful lives of the various classes of assets. Excess of cost over net assets of businesses acquired is amortized over forty years. Other intangible assets, principally patents, are amortized over their respective lives.

3. Long-Term Debt - Long-Term debt consists of various notes and debentures with interest rates ranging from 7 to 12.10 percent. The aggregate sinking fund requirements and annual maturities of long-term debt are $147,000 in 1988, $152,000 in 1989, $98,000 in 1990, $117,000 in 1991 and $72,000 in 1992.

4. Retirement benefit plans - The Company and its subsidiaries have non-contributory defined benefit pension plans covering the majority of employees. In the first quarter of 1987, the Company adopted Statement of Financial Accounting Standards No. 87 - Employers' Accounting for Pensions - for determining pension expense for these plans. Pension expense for these plans for 1987 was $189,000 compared to $379,000 in 1986 and $384,000 in 1985. The funded status of these plans and the amounts recognized in the consolidated balance sheet at December 31, 1987 are presented below (in thousands of dollars).

<table>
<thead>
<tr>
<th>Actuarial present value of benefit obligation at December 31, 1987:</th>
<th>Overfunded</th>
<th>Underfunded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accumulated Benefit Obligation</td>
<td>$7,555</td>
<td>$999</td>
</tr>
<tr>
<td>Value of future salary projections</td>
<td>1,326</td>
<td>0</td>
</tr>
<tr>
<td>Projected Benefit Obligation</td>
<td>8,881</td>
<td>999</td>
</tr>
<tr>
<td>Fair value of plan assets at December 31, 1987</td>
<td>9,718</td>
<td>609</td>
</tr>
<tr>
<td>Pension asset (liability) recognized in consolidated balance sheet at 12/31/87</td>
<td>$(408)</td>
<td>$(101)</td>
</tr>
</tbody>
</table>

5. Reductions in Retained Earnings - The balance of Retained Earnings was reduced by $2,424,000 in 1987 and $57,000 in 1986 as a result of the purchase of shares for treasury. In addition, the declaration of cash dividends decreased Retained Earnings by $392,000 in 1987 and $584,000 in 1986.
Please provide your opinion (without regard to pronouncements of authoritative bodies such as the Financial Accounting Standards Board) concerning each of the following statements by circling the appropriate response according to the scale shown below. For example, circling "1" on the scale means that you "strongly disagree" with the statement.


1. Goodwill recorded as the result of a business acquisition should be
   a) recorded indefinitely as an asset...........1 2 3 4 5 6 7
   b) recorded initially as an asset and amortized
to future years.........................1 2 3 4 5 6 7
   c) immediately written off against equity......1 2 3 4 5 6 7

2. The postretirement health and life insurance benefit plan provided by Gamma Corporation
   a) is a firm commitment that is likely to be met
      regardless of corporate profitability........1 2 3 4 5 6 7
   b) should be accrued as a liability in the
      financial statements....................1 2 3 4 5 6 7

3. Research and development costs incurred by Gamma Corporation should be
   a) expensed as incurred......................1 2 3 4 5 6 7
   b) capitalized only when the future benefits in
      excess of cost are certain as of year end....1 2 3 4 5 6 7
   c) capitalized when future benefits in excess
      of costs are probable as of year end.......1 2 3 4 5 6 7

4. The amount of deferred taxes resulting from timing differences in
   book and tax income should be disclosed
   a) as a liability in the balance sheet........1 2 3 4 5 6 7
   b) as an equity item..........................1 2 3 4 5 6 7
   c) in footnotes to the financial statements....1 2 3 4 5 6 7

5. In accounting for the pension plans of Gamma Corporation
   a) when total pension fund assets exceed the actuarial
      present value of accumulated pension plan benefits,
      the excess amount of the fund should be disclosed
      as an asset in the balance sheet..........1 2 3 4 5 6 7
   b) when total pension fund assets are less than the
      actuarial present value of accumulated pension
      plan benefits, the deficiency should be disclosed
      as a liability in the balance sheet........1 2 3 4 5 6 7
Please answer the following general questions.

1. How many years have you served as a loan officer? ________ years

2. What is the highest educational level that you have completed? (please circle one)
   a. high school d. some graduate work
   b. some college e. masters degree or higher
   c. bachelors degree

3. What is the dollar range of loan decisions in which you are normally involved?
   from $______________ to $______________
   What is the highest dollar loan decision in which you have been involved?
   $____________________________________

4. In the bank for which you work, are loans approved by yourself or by yourself and a committee? (please circle one)
   a. yourself
   b. yourself and a committee
   c. other (please specify) ______________________________

5. What is the approximate size of your bank, in terms of assets? (please circle one)
   a. under $25,000,000 e. $250,000,000 to $499,999,999
   b. $25,000,000 to $49,999,999 f. $500,000,000 to $749,999,999
   c. $50,000,000 to $99,999,999 g. $750,000,000 to $1,000,000,000
   d. $100,000,000 to 249,999,999 h. over $1,000,000,000

6. In your opinion, is the loan amount reasonable relative to the financial condition of the company (i.e., large enough to take seriously, but not so large that it would never be granted)?
   Yes_______    No_______

7. In your opinion, is the loan term reasonable? Yes_______ No_______

8. If you were to use the debt/equity ratio in your analysis, what amounts would you use for debt and equity?
   Debt_________________________   Equity_________________________

If you would like to be eligible for the random drawings for the two $100 cash awards, please provide your name and address below.

THANK YOU VERY MUCH FOR YOUR HELP.
Please return the questionnaire in the enclosed envelope.
APPENDIX D

SAMPLE QUESTIONNAIRE - NO DEBT STATEMENTS
Introduction:

The following three pages provide the consolidated financial statements and selected related notes for the Gamma Corporation and subsidiaries (a publicly traded corporation). Gamma Corporation would like to obtain a five-year, general obligation, term loan in the amount of $3,500,000 at an interest rate of 9.5% (assume that 9.5% is the rate currently available to long-term borrowers of similar quality to Gamma Corporation). The funds will be used to acquire essential business assets.

Please analyze the financial statements and accompanying information as you would in practice and provide your best response to the following two questions:

1. What is your assessment of Gamma Corporation's ability to repay the $3,500,000 term loan? (State the probability, from 0 percent to 100 percent, that you believe is associated with Gamma's subsequent repayment.)

I believe that there is a ______ percent probability that the Gamma Corporation will repay the $3,500,000 loan amount in full and on a timely basis.

2. If Gamma Corporation came to your bank seeking funds, what is the maximum amount (assuming a five-year term and an interest rate of 9.5%) that you would recommend lending Gamma Corporation? Assume that Gamma currently has no other loans from your bank.

I would recommend a loan in the amount of $__________.

To facilitate your analysis, the lower, median, and upper quartiles of some key ratios for companies in the same industry classification as Gamma Corporation are presented below. These figures were obtained from Robert Morris Associates' 1987 Annual Statement Studies.

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Lower Quartile</th>
<th>Median</th>
<th>Upper Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>1.3</td>
<td>1.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Quick</td>
<td>.6</td>
<td>1.0</td>
<td>1.6</td>
</tr>
<tr>
<td>Debt/Equity</td>
<td>2.4</td>
<td>1.3</td>
<td>.6</td>
</tr>
<tr>
<td>Sales/Assets</td>
<td>1.3</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Sales/Receivables</td>
<td>5.4</td>
<td>7.1</td>
<td>8.6</td>
</tr>
<tr>
<td>COGS/Inventory</td>
<td>2.6</td>
<td>4.3</td>
<td>7.7</td>
</tr>
</tbody>
</table>

After responding to questions 1 and 2 above, please turn to pages 5 and 6 to complete this questionnaire.
GAMMA CORPORATION AND SUBSIDIARIES  
CONSOLIDATED BALANCE SHEETS  
(Thousands of Dollars)

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>December 31</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1987</td>
</tr>
<tr>
<td><strong>Current Assets:</strong></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$277</td>
</tr>
<tr>
<td>Marketable Securities</td>
<td>3,457</td>
</tr>
<tr>
<td>Accounts Receivable, net</td>
<td>8,345</td>
</tr>
<tr>
<td>Inventories (Note 1)</td>
<td>6,786</td>
</tr>
<tr>
<td>Other current assets</td>
<td>2,261</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td>21,126</td>
</tr>
<tr>
<td>Property, Plant and Equipment (net)</td>
<td>9,916</td>
</tr>
<tr>
<td>Excess of Cost over Net Assets of Acquisitions</td>
<td>3,158</td>
</tr>
<tr>
<td>Other Assets</td>
<td>2,084</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td>$36,284</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LIABILITIES AND SHAREHOLDERS' EQUITY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1987</td>
</tr>
<tr>
<td><strong>Current Liabilities:</strong></td>
<td></td>
</tr>
<tr>
<td>Accounts payable</td>
<td>$2,129</td>
</tr>
<tr>
<td>Short-term debt</td>
<td>163</td>
</tr>
<tr>
<td>Current maturities of long-term debt</td>
<td>147</td>
</tr>
<tr>
<td>Accrued compensation</td>
<td>772</td>
</tr>
<tr>
<td>Accrued income and other taxes</td>
<td>282</td>
</tr>
<tr>
<td>Other current liabilities</td>
<td>3,028</td>
</tr>
<tr>
<td><strong>Total Current Liabilities</strong></td>
<td>6,521</td>
</tr>
<tr>
<td>Long-Term Debt - less current portion (Note 3)</td>
<td>6,327</td>
</tr>
<tr>
<td>Other Long-Term Liabilities</td>
<td>2,183</td>
</tr>
<tr>
<td>Deferred Income Taxes</td>
<td>2,722</td>
</tr>
<tr>
<td><strong>Total Long-Term Liabilities</strong></td>
<td>11,232</td>
</tr>
<tr>
<td><strong>TOTAL LIABILITIES</strong></td>
<td>17,753</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shareholders' Equity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Preferred Shares</td>
<td>2</td>
</tr>
<tr>
<td>Common Shares</td>
<td>216</td>
</tr>
<tr>
<td>Capital in excess of par value</td>
<td>3,767</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>14,974</td>
</tr>
<tr>
<td>Foreign currency translation adjustments</td>
<td>(428)</td>
</tr>
<tr>
<td><strong>Total Shareholders' Equity</strong></td>
<td>18,531</td>
</tr>
</tbody>
</table>

**TOTAL LIABILITIES AND SHAREHOLDER’S EQUITY** | $36,284 | $31,993 |
### STATEMENTS OF CONSOLIDATED INCOME

<table>
<thead>
<tr>
<th></th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Sales</strong></td>
<td>$66,641</td>
<td>$62,386</td>
</tr>
<tr>
<td><strong>Costs and Expenses:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of products sold</td>
<td>50,059</td>
<td>45,775</td>
</tr>
<tr>
<td>Selling and administrative expenses</td>
<td>8,700</td>
<td>8,187</td>
</tr>
<tr>
<td>Research and development expenses</td>
<td>1,341</td>
<td>1,236</td>
</tr>
<tr>
<td>Provision for exiting businesses</td>
<td>747</td>
<td>-0-</td>
</tr>
<tr>
<td><strong>Total Costs and Expenses</strong></td>
<td>60,847</td>
<td>55,198</td>
</tr>
<tr>
<td><strong>Income From Operations</strong></td>
<td>5,794</td>
<td>7,188</td>
</tr>
<tr>
<td><strong>Other income and (deductions):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest expense</td>
<td>(642)</td>
<td>(585)</td>
</tr>
<tr>
<td>Interest income</td>
<td>384</td>
<td>492</td>
</tr>
<tr>
<td>Other income, net</td>
<td>112</td>
<td>303</td>
</tr>
<tr>
<td><strong>Total Other Income and (Deductions)</strong></td>
<td>(146)</td>
<td>210</td>
</tr>
<tr>
<td><strong>Income Before Income Taxes</strong></td>
<td>5,648</td>
<td>7,398</td>
</tr>
<tr>
<td><strong>Income Taxes</strong></td>
<td>2,118</td>
<td>2,981</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>$3,530</td>
<td>$4,417</td>
</tr>
<tr>
<td><strong>Earnings Per Share</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>$7.47</td>
<td>$9.42</td>
</tr>
<tr>
<td>Fully diluted</td>
<td>7.13</td>
<td>8.95</td>
</tr>
</tbody>
</table>

### STATEMENTS OF CONSOLIDATED CHANGES IN FINANCIAL POSITION

<table>
<thead>
<tr>
<th></th>
<th>1987</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Funds From Operations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Income</td>
<td>$3,530</td>
<td>$4,417</td>
</tr>
<tr>
<td>Items included not affecting funds:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation and amortization</td>
<td>1,039</td>
<td>961</td>
</tr>
<tr>
<td>Noncurrent deferred taxes and other liabilities</td>
<td>923</td>
<td>857</td>
</tr>
<tr>
<td>Other, net</td>
<td>168</td>
<td>88</td>
</tr>
<tr>
<td><strong>Funds Provided From Operations</strong></td>
<td>5,660</td>
<td>6,323</td>
</tr>
<tr>
<td><strong>Uses of Funds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisitions of businesses, less net current assets</td>
<td>(3,700)</td>
<td>(96)</td>
</tr>
<tr>
<td>Expenditures for Plant, Property, and Equipment</td>
<td>(1,446)</td>
<td>(1,164)</td>
</tr>
<tr>
<td>Cash dividends</td>
<td>(392)</td>
<td>(584)</td>
</tr>
<tr>
<td>Foreign currency translation adjustment, net</td>
<td>327</td>
<td>99</td>
</tr>
<tr>
<td>Changes in current assets and liabilities, net</td>
<td>(2,875)</td>
<td>(2,271)</td>
</tr>
<tr>
<td>Other, net</td>
<td>82</td>
<td>(203)</td>
</tr>
<tr>
<td><strong>Funds Provided before Financing Activities</strong></td>
<td>(2,344)</td>
<td>2,104</td>
</tr>
<tr>
<td><strong>Financing Activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net (purchase) issuance of Common Shares</td>
<td>(2,727)</td>
<td>69</td>
</tr>
<tr>
<td>Payments of long-term debt</td>
<td>(188)</td>
<td>(739)</td>
</tr>
<tr>
<td>Long-term borrowings</td>
<td>2,167</td>
<td>591</td>
</tr>
<tr>
<td>Increase (decrease) in short-term debt</td>
<td>(76)</td>
<td>(50)</td>
</tr>
<tr>
<td><strong>Net change in Cash and Short-Term Investments</strong></td>
<td>$(3,168)</td>
<td>$1,975</td>
</tr>
</tbody>
</table>
Selected Notes to the Financial Statements

1. Inventories - Inventories are accounted for using the last-in, first-out (LIFO) method and are carried at the lower of cost or market.

2. Depreciation and Amortization - Depreciation and amortization are computed by the straight-line method for financial statement purposes. Depreciation of plant and equipment is provided over the useful lives of the various classes of assets. Excess of cost over net assets of businesses acquired is amortized over forty years. Other intangible assets, principally patents, are amortized over their respective lives.

3. Long-Term Debt - Long-Term debt consists of various notes and debentures with interest rates ranging from 7 to 12.10 percent. The aggregate sinking fund requirements and annual maturities of long-term debt are $147,000 in 1988, $152,000 in 1989, $98,000 in 1990, $117,000 in 1991 and $72,000 in 1992.

4. Retirement benefit plans - The Company and its subsidiaries have non-contributory defined benefit pension plans covering the majority of employees. In the first quarter of 1987, the Company adopted Statement of Financial Accounting Standards No. 87 - Employers' Accounting for Pensions - for determining pension expense for these plans. Pension expense for these plans for 1987 was $189,000 compared to $379,000 in 1986 and $384,000 in 1985. The funded status of these plans and the amounts recognized in the consolidated balance sheet at December 31, 1987 are presented below (in thousands of dollars).

<table>
<thead>
<tr>
<th>Actuarial present value of benefit obligation at December 31, 1987:</th>
<th>Overfunded</th>
<th>Underfunded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accumulated Benefit Obligation</td>
<td>$7,555</td>
<td>$999</td>
</tr>
<tr>
<td>Value of future salary projections</td>
<td>1,326</td>
<td>-0-</td>
</tr>
<tr>
<td>Projected Benefit Obligation</td>
<td>8,881</td>
<td>999</td>
</tr>
</tbody>
</table>

Fair value of plan assets at
December 31, 1987
9,718 609

Pension asset (liability) recognized in consolidated balance sheet at 12/31/87
$(408) $(101)

5. Reductions in Retained Earnings - The balance of Retained Earnings was reduced by $2,424,000 in 1987 and $57,000 in 1986 as a result of the purchase of shares for treasury. In addition, the declaration of cash dividends decreased Retained Earnings by $392,000 in 1987 and $584,000 in 1986.
Please provide your opinion (without regard to pronouncements of authoritative bodies such as the Financial Accounting Standards Board) concerning each of the following statements by circling the appropriate response according to the scale shown below. For example, circling "1" on the scale means that you "strongly disagree" with the statement.

1. Strongly Disagree
2. Moderately Disagree
3. Slightly Disagree
4. Neither Agree nor Disagree
5. Slightly Agree
6. Moderately Agree
7. Strongly Agree

1. Goodwill recorded as the result of a business acquisition should be
   a) recorded indefinitely as an asset...........1 2 3 4 5 6 7
   b) recorded initially as an asset and amortized
      over future years.........................1 2 3 4 5 6 7
   c) immediately written off against equity.......1 2 3 4 5 6 7

2. The postretirement health and life insurance benefit plan provided
   by Gamma Corporation
   a) is a firm commitment that is likely to be met
      regardless of corporate profitability........1 2 3 4 5 6 7
   b) should be accrued as a liability in the
      financial statements......................1 2 3 4 5 6 7

3. Research and development costs incurred by Gamma Corporation should
   be
   a) expensed as incurred..........................1 2 3 4 5 6 7
   b) capitalized only when the future benefits in
      excess of cost are certain as of year end....1 2 3 4 5 6 7
   c) capitalized when future benefits in excess
      of costs are probable as of year end..........1 2 3 4 5 6 7

4. The amount of deferred taxes resulting from timing differences in
   book and tax income should be disclosed
   a) as a liability in the balance sheet........1 2 3 4 5 6 7
   b) as an equity item..........................1 2 3 4 5 6 7
   c) in footnotes to the financial statements....1 2 3 4 5 6 7

5. In accounting for the pension plans of Gamma Corporation
   a) when total pension fund assets exceed the actuarial
      present value of accumulated pension plan benefits,
      the excess amount of the fund should be disclosed
      as an asset in the balance sheet............1 2 3 4 5 6 7
   b) when total pension fund assets are less than the
      actuarial present value of accumulated pension
      plan benefits, the deficiency should be disclosed
      as a liability in the balance sheet.........1 2 3 4 5 6 7
Please answer the following general questions.

1. How many years have you served as a loan officer? _____ years

2. What is the highest educational level that you have completed? (please circle one)
   a. high school
   b. some college
   c. bachelors degree
   d. some graduate work
   e. masters degree or higher

3. What is the dollar range of loan decisions in which you are normally involved?
   from $______________ to $_____________

   What is the highest dollar loan decision in which you have been involved?
   $______________________________________________

4. In the bank for which you work, are loans approved by yourself or by yourself and a committee? (please circle one)
   a. yourself
   b. yourself and a committee
   c. other (please specify) ______________________________

5. What is the approximate size of your bank, in terms of assets? (please circle one)
   a. under $25,000,000
   b. $25,000,000 to $49,999,999
   c. $50,000,000 to $99,999,999
   d. $100,000,000 to 249,999,999
   e. $250,000,000 to $499,999,999
   f. $500,000,000 to $749,999,999
   g. $750,000,000 to $1,000,000,000
   h. over $1,000,000,000

6. In your opinion, is the loan amount reasonable relative to the financial condition of the company (i.e., large enough to take seriously, but not so large that it would never be granted)?
   Yes_____ No_____

7. In your opinion, is the loan term reasonable? Yes_____ No_____

8. If you were to use the debt/equity ratio in your analysis, what amounts would you use for debt and equity?

   Debt ______________________ Equity _____________________

If you would like to be eligible for the random drawings for the two $100 cash awards, please provide your name and address below.

THANK YOU VERY MUCH FOR YOUR HELP.
Please return the questionnaire in the enclosed envelope.
APPENDIX E

RESULTS OF TESTS FOR EFFECT OF DEMOGRAPHIC VARIABLE CLASSIFICATION
### TABLE E-1

**EFFECT OF DEMOGRAPHIC VARIABLE CLASSIFICATION ON PROBABILITY ASSESSMENT**

#### ANOVA Results:

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>F Value</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Experience</td>
<td>.66</td>
<td>.5839</td>
</tr>
<tr>
<td>Educational Level</td>
<td>.36</td>
<td>.8752</td>
</tr>
<tr>
<td>High of Loan Decision Range</td>
<td>.65</td>
<td>.5884</td>
</tr>
<tr>
<td>Highest Dollar Loan Decision</td>
<td>.78</td>
<td>.5108</td>
</tr>
<tr>
<td>Size of Financial Institution</td>
<td>.79</td>
<td>.6115</td>
</tr>
<tr>
<td>Method of Loan Approval</td>
<td>.29</td>
<td>.8323</td>
</tr>
</tbody>
</table>

#### Kruskal-Wallis Results:

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Chi-Square Approximation</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Experience</td>
<td>.92</td>
<td>.8204</td>
</tr>
<tr>
<td>Educational Level</td>
<td>3.86</td>
<td>.5695</td>
</tr>
<tr>
<td>High of Loan Decision Range</td>
<td>1.64</td>
<td>.6500</td>
</tr>
<tr>
<td>Highest Dollar Loan Decision</td>
<td>1.69</td>
<td>.6384</td>
</tr>
<tr>
<td>Size of Financial Institution</td>
<td>8.08</td>
<td>.4261</td>
</tr>
<tr>
<td>Method of Loan Approval</td>
<td>.35</td>
<td>.9497</td>
</tr>
</tbody>
</table>

### TABLE E-2

**EFFECT OF DEMOGRAPHIC VARIABLE CLASSIFICATION ON MAXIMUM LOAN RECOMMENDATION**

#### ANOVA Results:

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>F Value</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Experience</td>
<td>.55</td>
<td>.6560</td>
</tr>
<tr>
<td>Educational Level</td>
<td>1.48</td>
<td>.1943</td>
</tr>
<tr>
<td>High of Loan Decision Range</td>
<td>.98</td>
<td>.4023</td>
</tr>
<tr>
<td>Highest Dollar Loan Decision</td>
<td>1.61</td>
<td>.1848</td>
</tr>
<tr>
<td>Size of Financial Institution</td>
<td>.55</td>
<td>.8194</td>
</tr>
<tr>
<td>Method of Loan Approval</td>
<td>.19</td>
<td>.9031</td>
</tr>
</tbody>
</table>

#### Kruskal-Wallis Results:

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Chi-Square Approximation</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Experience</td>
<td>.81</td>
<td>.8473</td>
</tr>
<tr>
<td>Educational Level</td>
<td>8.22</td>
<td>.1448</td>
</tr>
<tr>
<td>High of Loan Decision Range</td>
<td>7.24</td>
<td>.2387</td>
</tr>
<tr>
<td>Highest Dollar Loan Decision</td>
<td>7.67</td>
<td>.2096</td>
</tr>
<tr>
<td>Size of Financial Institution</td>
<td>6.74</td>
<td>.5648</td>
</tr>
<tr>
<td>Method of Loan Approval</td>
<td>1.18</td>
<td>.7574</td>
</tr>
</tbody>
</table>
APPENDIX F

RESULTS OF TESTS FOR NONRESPONSE BIAS
RESULTS OF TESTS FOR NONRESPONSE BIAS

<table>
<thead>
<tr>
<th>TABLE F-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPARISON OF EARLY AND LATE RESPONDENTS</td>
</tr>
<tr>
<td>PROBABILITY VARIABLE</td>
</tr>
<tr>
<td>Group Means</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>NPB-Accrued</td>
</tr>
<tr>
<td>NPB-Cash</td>
</tr>
<tr>
<td>No Debt</td>
</tr>
<tr>
<td>Equal Debt</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE F-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPARISON OF EARLY AND LATE RESPONDENTS</td>
</tr>
<tr>
<td>LOAN AMOUNT VARIABLE</td>
</tr>
<tr>
<td>Group Means</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>NPB-Accrued</td>
</tr>
<tr>
<td>NPB-Cash</td>
</tr>
<tr>
<td>No Debt</td>
</tr>
<tr>
<td>Equal Debt</td>
</tr>
</tbody>
</table>
VITA

JOYCE A. STRAWSER

45 River Drive South
Apartment #1709
Jersey City, NJ 07310

Baruch College
17 Lexington Avenue
New York, NY 10010

EDUCATION

Louisiana State University, Baton Rouge, LA
PhD in Accounting, May 1989

Texas A&M University, College Station, TX
Bachelor of Business Administration, May 1983
Major - Accounting

PUBLICATIONS

"The Rule of 78's in Light of Revenue Ruling 83-84," (co-author) TAXES - The Tax Magazine
(April 1985)

"Income Taxes and Financial Reporting: The Basic Issues," (co-author) Oil & Gas Tax Quarterly
(March 1985)


EXPERIENCE

Instructor, Baruch College - New York, NY
(September 1, 1988 - present)

Postgraduate Intern, FASB - Norwalk, CT
(July 1987 - July 1988)

Teaching Assistant, LSU - Baton Rouge, LA
(August 1986 - May 1987)

Summer Intern, Arthur Andersen & Co. - Houston, TX
(May 1983 - August 1983)

HONORS

American Accounting Association Consortium Fellow (1985)
Louisiana State University Alumni Federation Fellow (1983 - 1986)
Beta Alpha Psi
Beta Gamma Sigma Honor Society

PROFESSIONAL CERTIFICATION

Passed CPA Exam - November 1984

163
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Joyce Ann Strawser

Major Field: Accounting

Title of Dissertation: "An Experimental Research Study on the Effect of Accrual of Nonpension Postretirement Benefit Costs on Loan Officers' Decisions"

Approved:

[Signature]
Major Professor and Chairman

[Signature]
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signature]
Audrey P. Cristola

[Signature]
Stephen W. Looney

[Signature]
Margaret Shelton

[Signature]
Robert M. Haug Jr.

[Signature]
Devery M. Lane

Date of Examination:

April 3, 1989