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Louisiana State University and Agricultural & Mechanical College

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ESOPs AND TAX POLICY: AN EMPIRICAL INVESTIGATION OF THE IMPACT OF ESOPs ON COMPANY OPERATING PERFORMANCE

The Louisiana State University and Agricultural and Mechanical Col.

PH.D. 1979

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ESOPs AND TAX POLICY: AN EMPIRICAL INVESTIGATION
OF THE IMPACT OF ESOPs ON COMPANY
OPERATING PERFORMANCE

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

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ABSTRACT

An employee stock ownership plan (ESOP) is a deferred compensation program that qualifies under Internal Revenue Code (IRC) section 401 to grant tax benefits to corporations and employees of corporations. A corporation receives a tax benefit by transferring shares of its own stock to a tax exempt trust (ESOT) established for the benefit of its employees. The employees are not taxed until distributions from the trust are received, and taxation at that time is favorable.

Since ESOPs are related to tax incentives, the issue of tax policy has been raised. Advocates of ESOP tax incentives maintain that ESOPs benefit society by increasing business efficiency. This increased efficiency is a result of increased productivity of workers who are motivated by their participation in ESOPs.

The objective of this study was to provide ESOP policy makers with empirical evidence which would be useful in the formulation of future ESOP policy. Specifically, the investigation attempted to reveal (A) whether
any relationship exists between company operating performance and ESOPs and (B) the nature of any relationship which might be found to exist.

This investigation was carried out in three phases. First, an econometric model was formulated which could be used to test the general hypotheses of the study. Second, the data for the model were collected through a questionnaire survey of 1136 potential ESOP companies. Third, the data were analyzed and the hypotheses were tested by statistically validating the model.

A multiple linear regression model was specified using company profit as the criterion variable and certain quantifiable characteristics of an ESOP as explanatory variables. Normalized versions of operating income and after-tax net income were used as profit measures to form two separate models when regressed against the common set of explanators. The analysis was cross-sectional in nature since the data collected on the questionnaires represented company activity for the year of 1977.

Of the 1136 companies surveyed, 750 to 850 are estimated to actually be ESOP companies. A total of 165 usable replies were received resulting in a response rate of approximately 20%. The replies were distributed as follows:

viii
Manufacturing companies  80
Trading companies  40
Service companies  45
Total usable responses  165

The sample was partitioned into these subsets to make the analysis more useful. Thus, eight estimating equations were calculated using the least squares method. Equations were estimated for the pooled data and each of the three subsets in both of the models that were developed.

Statistically significant relationships were found only in the operating income model for the manufacturing company subset indicating a positive relationship between operating income and the ESOP for manufacturing companies. Further, the statistically significant variables in this overall relationship were percentage of company common stock owned by the ESOP and percentage of ESOP-covered employees who had vested interests in the plan which were both positively correlated to the criterion variable.

The results of the study support the general encouragement of ESOPs through tax policy. The results also indicate that ESOP policy makers should place greater emphasis on real transfers of ownership through ESOPs by encouraging the use of common stock and liberal vesting schedules.
CHAPTER I

INTRODUCTION

Background

If we are ever going to curb the economic inflation which seems to bedevil us, we must find some way in which to encourage each man and woman to become more productive in his and her job. Providing each individual an ownership share in his employer, making him a partner with his employer in the profits which his labor generates, can provide us with an excellent step in that direction.¹

The above statement was made by Senator Russell B. Long in a Senate Finance Committee hearing on Employee Stock Ownership Plans (ESOPs). The statement is representative of the sentiment toward ESOPs of many influential members of the U.S. Congress.

An ESOP is a deferred compensation program which qualifies under the Internal Revenue Code (IRC) to grant tax benefits to both corporations and employees of corporations. Since 1974 many U.S. business firms have

adopted ESOPs and the business literature has presented a great number of articles on this subject. The American experience with ESOPs has raised many issues that cut across several disciplines. This study attempts to provide empirical evidence which can be used by the policy makers who will decide whether or not ESOPs are to become an integral part of the American way of life.

ESOPs in General

ESOPs generally involve corporate contributions to an exempt trust and subsequent distributions from the trust to the covered employees (participants). Since the tax exempt status of the trust is critical to the successful operation of an ESOP, the term ESOT (employee stock ownership trust) is often used in reference to these plans.

In order to obtain the tax exempt status of the trust and other tax benefits, an employee benefit plan must be qualified under the appropriate provisions of the Employee Retirement Income Security Act of 1974 (ERISA)\(^2\) and the Internal Revenue Code (IRC). To be qualified, a plan must be established pursuant to a written instrument. This plan document must contain all the details of the plan.\(^3\) These details must, of course, comply with the various provisions of ERISA and the IRC which apply to the type of plan involved.


\(^3\)ERISA section 402.
All ESOPs, then, are generally subject to the many restrictions contained in title I of ERISA and subchapter D of the IRC that apply to qualified plans. One of these restrictions prohibits a plan from holding more than 10% of its trust assets in employer securities. However, ESOPs as well as profit sharing plans and money purchase pension plans are specifically exempted from this restriction. Such plans are referred to as "eligible individual account plans" in ERISA. These plans are permitted to invest up to 100% of their trust fund assets in employer securities. Other restrictions which apply to qualified plans relate to participation, vesting, nondiversion of assets, forfeitures, funding, and fiduciary responsibilities. A thorough discussion of these rules is beyond the scope of this study.

As qualified plans in general and eligible individual account plans in particular, all ESOPs have the following common characteristics:

1. There is no minimum level of contributions required.

---

4ERISA section 407(a)(2).
5ERISA section 407(b)(1).
6ERISA section 407(d)(3).
7Treas. Reg. sections 1.401-1(b)(1)(iii) and 1.401-1(b)(2).
2. Corporate contributions to the trust result in deductions or credits depending on the type of ESOP.\(^8\) These contributions are generally in the form of employer stock or cash to be used to acquire employer stock. The deduction or credit, then, is based on the value of the stock.\(^9\) This aspect of ESOPs requires that closely-held stock be valued "in good faith by the trustee or the named fiduciary."\(^{10}\)

3. The contributions, even though deductible by the corporation, are not taxed as income to the trust or the participants.\(^{11}\)

4. Income earned by the trust assets is not taxed to the trust or the participants.\(^{12}\)

5. Distributions to the participants are generally made in lump-sum form and thus qualify for favorable tax treatment. A distributee may elect to have the taxable portion of a lump-sum distribution taxed separately using a ten-year averaging formula. Under this election, the taxable portion of the distribution which applies to pre-1973 participation is taxed as a long-term capital gain unless the distributee further

\(^{8}\)IRC section 404(a) or IRC section 46(a)(2).

\(^{9}\)U.S. v. General Shoe Corp, 282 F.2d 9 (6th Cir.1960).

\(^{10}\)ERISA section 3(18).

\(^{11}\)IRC sections 401(a), 402(a)(1) and 501(a).

\(^{12}\)Ibid.
elects to use the ten-year averaging formula for the full amount.\(^{13}\)

There are, however, three distinctly different forms of ESOPs. This report will refer to these forms separately as A) stock bonus plans, B) leveraged ESOPs and C) investment credit ESOPs.

Throughout this report the term "ESOP" is used in a general sense to refer to all three types of ESOPs where no distinction is necessary. Where a distinction is necessary, the above-mentioned terms will be used. Further, the term "ESOT" is used to refer specifically to the trust which is a necessary part of an ESOP.

**Stock Bonus Plans**

The stock bonus plan (SBP) is the simplest form of ESOP. SBPs are allowed a good deal of flexibility with respect to contributions. There are no ERISA or Code specifications as to the form of contributions or to the formula for determining the amount of contributions. Annual contributions are not required but contributions must be "recurring and substantial."\(^{14}\) However, the IRC does put a limit on the maximum deduction which is available for contributions to an SBP in one year. This limit is generally 15% of covered compensation.

\(^{13}\)IRC section 402(a) and (e).

\(^{14}\)Treas. Reg. section 1.401-1(b)(2).
although the limit is raised to 25% if the SBP is combined with a money purchase pension plan. Carryforwards are available for annual contributions less than or greater than the 15% limit.\textsuperscript{15} Further, the contributions must be allocated to participant accounts according to a "definite predetermined formula."\textsuperscript{16}

Flexibility is also permitted with respect to the trust fund investments. Although SBPs are permitted to invest up to 100% of their trust fund assets in employer securities, no minimum level of investment in employer securities is required. However, SBPs are required to make distributions only in the form of employer stock.\textsuperscript{17} This requirement, in effect, mandates investment of trust assets in employer stock at some point prior to distribution. The SBP may acquire the necessary employer stock from the sponsoring corporation or from another shareholder.\textsuperscript{18} However, an SBP is prohibited from using an installment approach in acquiring stock.\textsuperscript{19} Further, since SBPs are qualified plans, the

\textsuperscript{15}IRC sections 404(a)(3)(A) and 404(a)(7).
\textsuperscript{16}Treas. Reg. section 1.401-1(b)(1)(ii).
\textsuperscript{17}Treas. Reg. section 1.401-1(b)(1)(iii).
\textsuperscript{18}ERISA section 408(e) and IRC section 4975(d)(13).
\textsuperscript{19}ERISA section 406(a)(1)(B) and IRC section 4975(c)(1)(B).
the trust assets must be managed prudently for the exclusive benefit of the participants.\textsuperscript{20}

IRC Section 401(a)(22) requires SBPs holding more than 10\% of trust assets in employer securities to pass-through voting rights to the participants. If the sponsoring corporation is publicly held, complete voting rights must be passed through. If the sponsoring corporation is closely held, pass-through of voting rights is required only with respect to corporate actions that require the approval of more than a majority of shareholders. However, as noted above, an SBP is not required to invest in voting stock.

**Leveraged ESOPs**

A leveraged ESOP results when an ESOT obtains a bank loan which is guaranteed by the sponsoring corporation and uses the proceeds to purchase stock from the sponsoring corporation. As part of the loan agreement the corporation is committed to make annual cash contributions to the trust sufficient to amortize the loan. Generally, an ESOT is prohibited from obtaining a loan that is guaranteed by the sponsoring corporation,\textsuperscript{21} and it is unlikely that a bank would make a loan to an ESOT absent such guarantee. However, ERISA included an

\textsuperscript{20}ERISA section 404(a)(1).

\textsuperscript{21}See note 19.
exception to this prohibition for leveraged ESOPs. This exemption also enables a leveraged ESOP to engage in an installment purchase of employer stock.\textsuperscript{2}\textsuperscript{2}

IRC Section 4975(e)(7) defines a leveraged ESOP as a defined contribution plan:

(A) which is a stock bonus plan which is qualified, or a stock bonus plan and a money purchase plan both of which are qualified under section 401(a), and which are designed to invest primarily in qualifying employer securities; and (B) which is otherwise defined in regulations prescribed by the Secretary.\textsuperscript{2}\textsuperscript{3}

Leveraged ESOPs are, therefore, generally subject to the same tax rules as SBPs. In addition, IRC section 4975(e)(7) (through IRC section 409A) permits leveraged ESOPs to distribute cash subject to a participant's right to demand employer securities. The proposed Technical Corrections Act of 1979 will change the effective date of this provision to apply to distributions made after December 31, 1979.\textsuperscript{2}\textsuperscript{4} IRC section 4975(e)(7) (through IRC section 409A) also requires closely-held corporations to grant leveraged ESOP participants the right to sell any distributed stock back to the corporation under a fair valuation formula.

\textsuperscript{2}\textsuperscript{2}ERISA section 408(b)(3) and IRC section 4975(d)(3).

\textsuperscript{2}\textsuperscript{3}A similar definition is contained in ERISA section 407(d)(6). The term "individual account plan" appears in ERISA in lieu of "defined contribution plan."

\textsuperscript{2}\textsuperscript{4}H.R. 2797 and S. 614, 96th Cong., 1st sess., section 101(a)(5)(B).
The Technical Corrections Act of 1979 will also conform the section 4975 definition of "qualifying employer securities" to the definition that is given to the term "employer securities" in section 409A(1) which applies to investment credit ESOPs.\(^{25}\) The definition in section 409A(1) essentially limits qualifying employer securities to common stock or preferred stock that is convertible at a reasonable price.

**Investment Credit ESOPs**

Investment credit ESOPs were created as a temporary program by the Tax Reduction Act of 1975.\(^{26}\) These plans, therefore, are often referred to as TRASOPs. However, the Revenue Act of 1978 incorporated most of the TRASOP provisions of the Tax Reduction Act of 1975 into the IRC by adding new section 409A.\(^ {27}\) Although these plans now have a 1983 expiration date, they have apparently become a permanent part of the IRC.\(^ {28}\) Also, these plans are officially referred to as "ESOPs" in the IRC as distinguished from the term "leveraged ESOPs" which is now the term used in IRC section 4975. This report uses the term "investment credit ESOPs" to avoid confusion.

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\(^{25}\) Proposed Act, section 101(a)(5)(C)


\(^{27}\) Pub. L. No. 95-600, section 141(a).

\(^{28}\) IRC section 46(a)(2)(E).
Pursuant to an investment credit ESOP, a corporation is allowed a tax credit of 1% in addition to the regular 10% investment tax credit permitted by IRC sections 38, 46 et seq. That is, the corporation is allowed up to 11% of its investment in qualified property as a credit against its tax liability instead of the regular 10%. To obtain this additional tax credit the corporation must transfer stock with an aggregate value equal to the additional credit to an ESOT.\(^{29}\) Another credit of up to 1/2% is allowed if the corporation contributes stock equal in value to this extra credit and the employees also contribute cash equal to this extra credit.\(^{30}\) Thus, the additional ESOP investment tax credit can total 1 1/2% of the investment in qualified property.

Investment credit ESOPs are generally subject to the same rules which apply to SBPs. In addition, contributions must be made in the form of "employer securities" which, as mentioned above, means common stock or convertible preferred.\(^{31}\) However, contributions can be in the form of cash if such cash is used to purchase employer securities within 30 days of the contribution.\(^{32}\) Like leveraged ESOPs, investment credit ESOPs can distribute

\(^{29}\)IRC section 48(n)(1)(A).
\(^{30}\)IRC section 48(n)(1)(B).
\(^{31}\)IRC section 409A(1).
\(^{32}\)IRC section 48(n)(3).
cash subject to a participant's right to demand stock and, in the case of closely-held stock, put options must be granted under a fair valuation formula.\textsuperscript{33}

Investment credit ESOPs also have certain other unique characteristics. First, contributions to a plan must be allocated to participant accounts for the plan year the additional credit is taken in proportion to participant compensation. However, compensation in excess of $100,000 is disregarded.\textsuperscript{34} Second, participants must have nonforfeitable rights to any stock allocated to their accounts.\textsuperscript{35} Third, allocated stock cannot be distributed for seven years except in the case of separation from service, death, or disability.\textsuperscript{36} Finally, a corporation may reduce its contributions to the plan as a partial reimbursement for the costs of establishing and administering the plan. As reimbursement for establishing the plan, the corporation may reduce its contribution (for the year of plan establishment) by the amount of the establishment costs not to exceed the sum of A) 10\% of the first $100,000 of required contributions, and B) 5\% of required contributions in excess of $100,000.\textsuperscript{37}

\textsuperscript{33}IRC section 409A(h).
\textsuperscript{34}IRC section 409A(b).
\textsuperscript{35}IRC section 409A(c).
\textsuperscript{36}IRC section 409A(d).
\textsuperscript{37}IRC section 409A(i)(1)
As reimbursement for annual administrative expenses, the corporation may reduce its annual contribution by the lesser of:

(A) the sum of

(i) 10 percent of the first $100,000 of the dividends paid to the plan with respect to stock of the employer during the plan year ending with or within the employer's taxable year, and (ii) 5 percent of the amount of such dividends in excess of $100,000 or

(B) $100,000.38

Historical Development of ESOPs

Metzger traces the ESOP concept back to the 1840 to 1850 period in Germany. Johann Heinrich Von Thunen used the ESOP approach in his farming business. Metzger states that the profits of the business were reinvested in capital assets that were titled to the workers. He further states that the program included the maintenance of individual employee accounts that were credited annually with shares of the profit.39

Although various forms of employee participation have been used in the U.S. and Europe for many years, the ESOP approach was quite limited until 1974. In that year Congress passed the Employee Retirement Income Security Act. ERISA, sometimes referred to as the Pension Reform

38IRC section 409A(i)(2).

39Submission by Bert L. Metzger, President, Profit Sharing Research Foundation, Hearings, 1978, p. 531.
Act of 1974, essentially tightened the rules for administering private pension plans. ERISA has apparently promoted ESOPs in two ways. First, the Act permits only leveraged ESOPs to engage in the leveraging procedure described above. This provision of ERISA is generally traced to Senator Russell Long who got the idea of leveraged ESOPs from Louis O. Kelso. Kelso is generally considered to be the originator of the ESOP concept although his theories seem to be limited to the use of leveraged ESOPs as capital formation vehicles. The second way that ERISA promoted ESOPs is less direct. ERISA contains harsh penalties for imprudent management of pension fund assets. Since ESOPs are permitted to invest primarily in employer securities, diversification of trust fund assets is not required. ERISA, therefore, may have encouraged ESOPs and simultaneously discouraged traditional pension plans. Since vast numbers of traditional pension plans have been discontinued since 1974, there is a possibility that ESOPs are being used as substitutes or replacements for traditional plans.

---


The Tax Reduction Act of 1975 also promoted ESOP formation. As mentioned above, this law created the investment credit ESOP.

Since 1974 there have been several other ESOP provisions injected into the tax law. However, in the evolution of ESOPs, ERISA and the Tax Reduction Act of 1975 were unquestionably the critical events. Table 1 below illustrates the pattern of ESOP formation apparently flowing from this legislation.

**TABLE 1**

**PATTERN OF ESOP FORMATION**

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<th>Period</th>
<th>Estimated Number of New Plans Established</th>
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<td>1955 - 1970</td>
<td>300</td>
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<tr>
<td>1970 - 1976</td>
<td>100</td>
</tr>
<tr>
<td>1976</td>
<td>856</td>
</tr>
<tr>
<td>1977</td>
<td>988</td>
</tr>
</tbody>
</table>

Source: Address delivered by Robert W. Smiley, Jr. to the first annual meeting of the ESOP Council of America in Los Angeles, California, May 8, 1978.

**The Need for Research**

**ESOPs and Tax Policy**

The above discussion indicates that ESOP formation depends, to some extent, on tax incentives. The subject of tax incentives is controversial on two levels. First,
there is disagreement on whether the government should use tax incentives in general. Second, among those who feel that the use of tax incentives is appropriate, there is much disagreement over which tax incentives are justifiable.

On the first level of the tax incentive controversy, there seem to be two schools of thought. Many tax policy commentators feel that the income tax should be neutral. That is, the government should not attempt to influence economic behavior with the use of tax deductions and credits. Proponents of the neutral approach to taxation believe that economic behavior should be influenced only by free market forces. When these forces do not result in optimality, then other nontax fiscal instruments or regulatory devices should be used to correct the imperfection. The other school of thought in this controversy takes an optimization approach to tax policy. Proponents of this approach emphasize the difficulty of achieving economic efficiency in a power-based economy. This group believes that the government should use all the devices at its disposal in attempting to correct the imperfections of the market system. 3

Tax policy with respect to ESOPs clearly falls into the second level of the tax incentive controversy.

Assuming an optimization approach to taxation, tax benefits for ESOPs should be justified economically. Tax benefits in the form of deductions and credits are equivalent to direct government expenditures. The term "tax expenditures" is generally used to describe these special tax provisions which actually reduce tax revenues.  

Smith states that "... the good effects of wise government expenditures should more than offset the bad effects of the taxation which pays for the outlays." The good effects that may result from a tax expenditure are referred to as "external benefits." To justify a tax expenditure, then, the benefits flowing therefrom must reach beyond the group that receives the tax deduction or credit. A justifiable tax expenditure must produce external benefits for society at large.

After the enactment of ERISA, the ESOP concept burst onto the American business scene as a new and powerful tool of corporate finance. In those early ESOP days (1975-76) the tax incentives necessary to encourage the 

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47See Thomas L. Dana, "Mighty Kelso, His Brain Child is an Idea Whose Time Has Come," Barron's, July 21, 1975, p. 3.
adoption of ESOPs were related to the capital formation problem. That is, leveraged ESOPs were touted as a low-cost means for corporations to raise capital:

... (T)he difference between this and conventional finance is that when a particular financing process is completed, the employees have bought stock, paid for it out of what the underlying capital produced, in pretax dollars which accelerates the process because the law permits this to be done, and the corporation has gotten the advantage of **low-cost capital**. ... (I)t has very strong implications for monetary reform and the acceleration of the ability of the economy to raise **newly formed capital**--one of the most serious problems facing our country today (emphasis added)."^{8}

Clearly, capital formation is contemplated as an external benefit by Kelso in the above quote. Further, he apparently ties this result to the assumption that a leveraged ESOP permits a corporation to raise low-cost capital. However, as revealed in Chapter III, this low-cost capital assumption has not held up well under subsequent analyses.

In more recent days, ESOP advocates have emphasized another aspect of ESOPs as justification for further tax incentives. ESOPs are also seen as a mechanism which can increase corporate profits by increasing worker productivity. The following quotes are descriptive of this perceived connection between ESOPs and corporate profits:

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. . .(I)f employees have a piece of the action, one would expect that they would perform more responsively and more productively. . . The employees would have a mutual interest with the employer in increasing the productivity and profitability of the firm.49

In terms of employee motivation, our productivity increased very, very substantially in all areas of our company . . . From a financial point of view, our employee stock ownership has been a resounding success . . . We have had 3 profitable years after a series of unsatisfactory years . . . 50

(Senator Long speaking) Mr. Strickland will you give us your thoughts about employee motivation as it results from employee stock ownership? (Mr. Strickland responding) Yes, Mr. Chairman. I could talk for a long time about that . . . In terms of net profit before tax, per employee, the five leading retailers ranged from $1,000 per employee to about $3,500 per employee. Lowe's last year was $8,800 net profit, before tax, per employee. We think that speaks well for their desire and their drive.51

The external benefits flowing from ESOP tax incentives according to the employee motivation view of ESOPs are related to overall industrial efficiency resulting from increased labor productivity.


50Statement by J. R. Boulis, Chairman and President, South Bend Lathe Company, Hearings, 1978, pp. 94, 95.

ESOPs and Management Policy

The theory that ESOPs motivate workers is also of interest to corporate management. If this theory is valid, ESOPs would generate external benefits as explained above. However, management is interested in the internal benefit of increased profit. Therefore, if ESOPs can be justified on the basis of increased labor productivity for tax policy, the same justification would apply to management policy making. That is, any evidence which would support ESOP formation from the standpoint of tax policy would also support the concept of ESOP use as a management tool.

Related Research

Very little evidence is available to support the motivation theory of ESOPs. Two research projects were recently completed, however, which suggested the possibility of further research on this theory. First, Conte and Tannenbaum studied the relationship between company profit and certain ESOP-related variables. Second, a group of MBA students at UCLA completed a survey which gathered information from companies with ESOPs.

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Conte and Tannenbaum developed an econometric model designed to explain the relationship between pre-tax profit and ESOPs. That is, pre-tax profit was the criterion variable and certain ESOP-related variables were the explanatory variables in a cross-section multiple linear regression model. The data for the model were gathered from firms with ESOPs. The analysis revealed a statistically significant relationship between pre-tax profit and the percentage of equity owned by workers for the companies in the sample. The sample, however, included only twenty companies. Robert Strauss, former U.S. Special Counselor on Inflation, commented on this study by stating that "... the sample is too small to be very definitive."54

The UCLA study was nonscientific in nature. That is, no hypotheses were tested. The purpose of the survey was to gather descriptive information about existing ESOPs and their sponsoring corporations. The most significant aspect of this study was that the survey generated 186 responses from ESOP companies. The researchers used, as their data source, a mailing list of potential ESOP companies compiled by the ESOP Council of America.

These two studies, then, are obvious complements to each other. Each one possesses what the other lacks.

54"Hearings, 1978, p. 165."
The data source used by the UCLA group could be combined with the approach used by Conte and Tannenbaum to produce a study that would provide significant evidence relative to the fundamental effects of ESOPs. Such evidence, as indicated above, would be quite useful to both tax and management policy makers.

**Scope of the Study**

**Objectives**

As stated in the first section of the chapter, the primary purpose of this study is to provide the kind of empirical evidence described above. The findings of the study, then, will constitute evidence either for or against the claims of ESOP advocates relative to the impact of ESOPs on company operating performance.

**Methodology**

The details of the research design used in the study are contained in Chapter IV. In general, however, the study combines the complementary aspects of the two studies described above. A modified version of the econometric model developed by Conte and Tannenbaum is employed. This study includes different variables and also partitions the sample into more homogeneous subsets. The sample consists of 165 companies that responded to a questionnaire survey which employed the data source of the UCLA study.
The models developed in this study, as described in Chapter IV, are used to test the following hypotheses.

(1) There is no statistically significant relationship between company operating performance and the ESOP-related variables.

(2) There is no statistically significant relationship between company operating performance and the percentage of a company's stock owned by the ESOP.

(3) There is no statistically significant relationship between company operating performance and the size of the contribution that has been made to the ESOP.

(4) There is no statistically significant relationship between company operating performance and the period of time the ESOP has been in existence.

(5) There is no statistically significant relationship between company operating performance and the percentage of ESOP-covered employees who have vested interests in the ESOP.

Organization of the Study

This chapter as well as Chapters II and III review the ESOP literature relevant to the study. Some of the more important ESOP issues are examined in these chapters. The details of the empirical research are contained in Chapters IV and V. The research design and data collection are described in Chapter IV. The results of the data analysis and hypothesis tests are presented in Chapter V. Finally, Chapter VI contains the conclusions and recommendations of the study.
CHAPTER II

ESOP ACCOUNTING AND FINANCIAL REPORTING

Introduction

The purpose of this chapter is to discuss ESOP problems and issues relative to accounting and financial reporting. The impact of ESOPs on the balance sheet and income statement is discussed in terms of financial accounting theory and existing pronouncements. ESOP disclosure rules are discussed even though there are no specific pronouncements in this area. Finally, the impact of the securities laws on various ESOP transactions is considered.

Balance Sheet Considerations

The ESOP Loan

The most serious issue in ESOP accounting is related to the leveraged ESOP. There is some controversy over whether or not the bank loan should be reported as a liability on the balance sheet of the employer company. If the liability is not reported by the company, then the leveraged ESOP can be used as a means of off-balance sheet financing. Indeed this concept was probably the major selling point for ESOPs after the enactment of ERISA. Consider the following
passage taken from one of the first articles to appear on ESOPs:

The ESOT technique introduces a new strategy: it encourages a firm to use an employee benefit plan not only to help workers but also to accumulate new capital.

For example, say a company needs to raise $1 million of capital. Under conventional financing, it would borrow the money from a bank and receive a tax deduction solely on its interest payments, not on the principal. Since it is re-paying the loan in after-tax dollars, to service the $1 million debt it must gross over $2 million. However, under the ESOT concept, the firm sets up an Employee Stock Ownership Trust, and issues $1 million worth of stock. The trust borrows the money from a bank (with the company acting as guarantor), buys the stock and hands over to the company the $1 million in cash.

Since the trust carries the loan as a liability, the company has added $1 million to its net worth, which shows up as such on the balance sheet.1

A Statement of Position (SOP 76-3) issued by the AICPA Accounting Standards Executive Committee recommends that the ESOP loan be reported as a liability of the sponsoring corporation.2 The same recommendation is contained in an SEC Staff Accounting Bulletin (SAB No. 8).3

However, theoretical arguments can be made for both sides of this issue. The case for not reporting the debt

1Dana L. Thomas, "Mighty Kelso: His Brainchild is Idea Whose Time Has Come," Barron's, July 21, 1975, p. 3.
3CCH SEC Accounting Rules, par. 7001.
on the balance sheet of the employer company is based on
the definition of a liability while the opposing argument
is based on the accounting doctrine of substance over form.
These two opposing views will be evaluated in the following
paragraphs.

The ESOP debt should not be reported on the employer
company balance sheet if it does not satisfy the definition
of a liability. Since the bank loan of the leveraged ESOP
would, in almost all cases, be guaranteed by the employer
company, the loan could be considered to be a contingent
liability which may or may not be reported on the balance
sheet.

The most authoritative definition of a liability
is contained in APB Statement No. 4: "Liabilities --
economic obligations of an enterprise that are recognized
and measured in conformity with generally accepted account­
ing principles." This definition is so vague, however,
that it is of little use from a practical standpoint.

Other definitions of a liability which are con­
tained in respected sources of accounting literature are
as follows:

1. An amount . . . payable in money, or in
goods or services . . . particularly,
any debt (a) due or past due (current
liability), (b) due at a specified time

"APB Statement No. 4, "Basic Concepts and Prin­
ciples Underlying Financial Statements of Business Enter­
in the future (e.g., funded cost, accrued liability), or (c) due only on failure to perform a future act (deferred income, contingent liability).  

2. A liability is a service, valuable in money, which a proprietor is under existing legal (or equitable) duty to render a second person (or set of persons) and which is not unconditionally an agreed set-off to its full amount against specific services of equal or greater money value due from this second person to the proprietor.  

3. The interests or equities of creditors (liabilities) are claims arising from past activities or events which, in the usual case, require for their satisfaction the expenditure of corporate resources. 

The above definitions seem to provide considerable justification for considering the ESOP to be a contingent liability of the employer company. Hendriksen, in discussing the basic characteristics of liabilities, provides even more support for this approach:

The obligation must, of course, exist at the present time. That is, it must arise out of some past transaction or event. It may arise from the acquisition of goods or services,

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from losses already sustained for which the firm is liable, or from the expectation of losses for which the firm has obligated itself. Obligations contingent upon future events should not be included unless there is a reasonable probability that these events will occur. 

If the bank loan of the ESOP is considered to be a contingent liability of the employer company, then the company would not recognize a liability and related charge unless both of the following conditions are met:

a. Information available prior to issuance of the financial statements indicates that it is probable that an asset has been impaired or a liability had been incurred at the date of the financial statements. It is implicit in this condition that it must be probable that one or more future events will occur confirming the fact of the loss.

b. The amount of the loss can be reasonably estimated.

So long as the ESOT is financially able to meet its obligations under the loan agreement, then, the employer corporation would not be required to report the loan as a liability on its balance sheet.

The situation is reflexive, however, in that the financial capacity of the ESOT depends directly on the employer corporation itself. Therefore, the question of whether or not to recognize the liability would seem to

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relate to the financial health of the employer corporation. If the financial viability of the corporation is in doubt and if it appears that the corporation will not be able to meet its obligations, the ESOT loan should be recognized as a liability. Otherwise, the loan should simply be disclosed as a contingent liability.

The contrary position which is supported by SOP 76-3 and SAB No. 8 emphasizes the economic substance of the arrangement rather than the legal form:

Financial accounting emphasizes the economic substance of events even though the legal form may differ from the economic substance and suggest different treatment.¹⁰

This view would report the bank loan as a liability of the corporation. The assumption is that since there is, in reality, no economic substance to the ESOT, the bank is actually making the loan to the corporation. Consider, for example, the following quote from a Big Eight partner:

. . . its the conclusion of most accountants that the debt, although legally one of the trust, should be regarded in substance as a debt of the corporation. Therefore, the apparent capital infusion will be treated as debt rather than equity.¹¹

This view is further confirmed in a recent article by a bank president:

¹⁰APB Statement No. 4, par. 127.

The strength of a loan to an ESOP—excepting special conditions, government guarantees, etc.—rests on the strength of the company.12

SOP 76-3 and SAB No. 8 provide some guidance on this issue, but their questionable authority seems to leave open the possibility of alternative accounting approaches.

If the ESOP loan is recorded as a liability of the corporation, SOP 76-3 recommends that the related debit be reported as a reduction of stockholders' equity.13 APB Opinion 25 requires the same treatment in recording the debit relating to the issuance of compensatory stock options.14 The recognition of an asset in either case could not be justified theoretically.

The liability could, theoretically, be reduced either (A) as the corporation makes its obligatory contributions to the ESOT or (B) as the ESOT repays the loan. The first approach views the liability as a debt of the corporation to the ESOT. The second approach views the bank loan as being, in substance, a debt of the corporation. This latter approach is consistent with the substance over form view discussed above and is recommended by SOP 76-3.15


13SOP 76-3, par. 7.


15SOP 76-3, par. 8.
The related debit could also be reduced as in (A) or (B) above. The debit could be amortized in conjunction with the reduction of the liability. This approach recommended by SOP 76-3, views the debit strictly as a contra-account to the liability.\textsuperscript{16} Alternatively, the debit could be reduced as the ESOT-held shares are allocated to participant accounts. This approach views the shares, constructively, as treasury stock until they are actually transferred to participant accounts.

\textbf{Tax Allocation}

Another balance sheet problem relates to the carry-forward provisions that apply to employer contributions to an ESOP. Where a company makes a contribution that exceeds the 15\% limit prescribed in the Code, the compensation expense reported on the income statement will exceed the deduction allowed on the tax return. This situation raises the question of interperiod tax allocation and the deferred tax liability.

If interperiod tax allocation is applied to this situation, the deferred tax liability would be reduced and a tax benefit would be recognized. The reason for this result is simply that the tax provision based on reported earnings would be less than the tax liability as determined by the tax return (assuming that there are

\textsuperscript{16}Ibid.
no other tax/accounting differences). If, on the other hand, tax allocation is not applied, then the deferred tax liability account is not affected and the tax benefit is not recognized.

SOP 76-3 states that the tax effects of any timing differences should be reflected in accordance with APB Opinion No. 11. Paragraph 53 of that pronouncement states that:

The conclusions of this Opinion, including particularly the matters discussed in paragraphs 42-50 on tax deductions resulting from operating losses, also apply to other unused deductions and credits for tax purposes that may be carried backward or forward in determining taxable income (for example, capital losses, contribution carryovers, and foreign tax credits).17

Accordingly, paragraph 45 states that:

... the Board has concluded that the tax benefits of loss carry forwards should not be recognized until they are actually realized, except in unusual circumstances when realization is assured beyond any reasonable doubt at the time the loss carry forwards arise. (emphasis in original)18

Apparently, tax allocation should not be applied to this situation since it would be difficult to determine that subsequent use of the contribution carryforward would be assured beyond any reasonable doubt.

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18Ibid., par. 45.
Income Statement Considerations

Compensation Expense

When a company makes a contribution to an ESOP it is generally accounted for as compensation expense. This treatment applies whether the contribution is in cash or in stock. However, if the company contributes stock, the value of the stock must be determined. If the stock is closely held, valuation may be a problem.

In the case of publicly-held stock, APB Opinion No. 25 states that:

. . . the unadjusted quoted market price of a share of stock of the same class that trades freely in an established market should be used in measuring compensation.19

The Board, prior to making the above assertion, acknowledged the fact that the market quote is not always the best evidence of the fair value of shares. Nonetheless, it concluded that market quotes should be used for this purpose.

In cases where closely-held stock is contributed to an ESOP, the valuation problem is, of course, more difficult. Opinion 25 provides little guidance:

If a quoted market price is unavailable, the best estimate of the market value of the stock should be used.20

The best estimate for financial accounting purposes, however, would apparently be the value which is determined for

19APB Opinion No. 25, par. 10(a).
20Ibid.
tax purposes. Criteria for valuing closely-held stock are listed in Rev. Rul. 59-60 (1959-1 CB 237).

The above rules apply whether the company issues new stock or treasury stock:

Measuring compensation by the cost to an employer corporation of reacquired (treasury) stock that is distributed through a stock option, purchase, or award plan is not acceptable practice.  

The Opinion does, however, make an exception where the corporation:

(1) reacquires during the fiscal period for which the stock is to be awarded and (2) awards shortly thereafter to employees for services during that period.

If these two conditions apply, the cost of the treasury stock may be used in determining the compensation expense.

In the case of a leveraged ESOP, compensation expense relevant to the plan may not be based on the contribution. Although SOP 76-3 recommends that the cash payment to the ESOT be allocated between compensation expense and interest expense, another approach is theoretically conceivable. Strauss states that a "... more sophisticated approach would be to measure compensation expense based on the fair value of the shares allocated annually by the trust to the employees."  

\[21\] Ibid., par. 11(a).
\[22\] Ibid.
Earnings Per Share

In the case of a leveraged ESOP, there is some question as to how the ESOP-acquired shares should be handled for the purpose of computing earnings per share. Hennessee and Giese suggest one approach as follows:

If the ESOP has no economic substance, and if the ESOP debt is to be treated as a liability of the corporation, then the conclusion that the shares held by the ESOP should be considered outstanding for purposes of computing earnings per share is materially inconsistent.\(^2\)

However, that approach would clearly violate the spirit if not the letter of APB Opinion No. 15. Although that Opinion does not deal specifically with this problem, the required treatment with respect to convertible bonds that qualify as common stock equivalents would seem to indicate that the shares should be considered outstanding for EPS purposes. Furthermore, both SOP 76-3 and SAB No. 8 specify that such shares should be treated as outstanding stock for EPS purposes.

Additional Investment Tax Credit

A final income statement problem relates to the investment credit ESOP. Accounting for the regular investment tax credit has, of course, been a controversial matter in financial accounting theory since the early 1960's.

The debate, for all practical purposes, ended in 1971 when Congress provided in Section 101(c) of the Revenue Act of 1971 that corporations could use either the "deferred method" or the "flow-through method" of accounting for the credit. There is some question, however, whether this choice would also apply to the additional credit allowed for an ESOP. Since the additional credit is subject to the same IRC Sections as is the regular credit, it would, seemingly, also be subject to the same accounting treatment. However, SOP 76-3 specifically states that only the flow-through method should be used in accounting for the additional credit.25

Disclosure

There are no disclosure requirements specifically applying to ESOPs to be found in the authoritative literature. APB Opinion No. 25 refers to paragraph 15 of ARB No. 43 for disclosure requirements which apply to the compensation arrangements that are discussed in that Opinion.26 However, paragraph 15 of ARB No. 43 applies to stock option and purchase plans:

In connection with financial statements, disclosure should be made as to the status of the option or plan at the end of the period of report, including the number of shares under option, the option price, and the number of shares as to which options were exercised during the period, disclosure should be made of the

25SOP 76-3, par. 14.
26APB Opinion No. 25, par. 19.
number of shares involved and the option price thereof.\textsuperscript{27}

Information as to the status of the plan, number of shares under option, and number of shares exercised might possibly be applied to ESOPs. In the case of an ESOP, however, shares contributed to the plan in current and prior periods could be disclosed rather than shares under option and shares exercised.

Opinion 25 also refers to Regulation S-X for other disclosure requirements.\textsuperscript{28} These disclosures which apply to pension and retirement plans in general are as follows:

1. A brief description of the essential provisions of any employee pension or retirement plan and of the accounting and funding policies related thereto shall be given.

2. The estimated cost of the plan for each period for which an income statement is presented shall be stated.

3. The excess, if any, of the actuarially computed value of vested benefits over the total of the pension fund and any balance sheet pension accruals, less any pension prepayments or deferred charges, shall be given as of the most recent practicable date.

4. If a plan has not been fully funded or otherwise provided for, the estimated amount that would be necessary to fund or otherwise provide for the past service cost of the plan shall be disclosed.

\textsuperscript{27}Accounting Research Bulletin No. 43, "Restatement and Revision of Accounting Research Bulletins," (New York: AICPA, 1953), Ch.13, par. 15

\textsuperscript{28}APB Opinion No. 25, par. 19.
as of the date most recently determined.

5. A statement shall be given of the nature and effect of significant matters affecting comparability of pension costs for any periods for which income statements are presented.29

Of the five requirements listed above, probably numbers (1) and (2) would be the only disclosures which would apply to ESOPs.

APB Opinion No. 8 might represent another source for ESOP disclosure rules. That pronouncement lists the following disclosure requirements for defined benefit pension plans:

1. A statement that such plans exist, identifying or describing the employee groups covered.

2. A statement of the company's accounting and funding policies.

3. The provision for pension cost for the period.

4. The excess, if any, of the actuarially computed value of vested benefits over the total of the pension fund and any balance sheet pension accruals, less any pension prepayments or deferred charges.

5. Nature and effect of significant matters affecting comparability for all periods presented, such as changes in accounting methods (actuarial cost method, amortization of past and prior service cost, treatment of actuarial gains and losses, etc.), changes in circumstances (actuarial

29 CCH SEC Accounting Rules, par. 216.
assumptions, etc.), or adoption or amend­ment of a plan.30

These requirements are obviously similar to those listed in Reg. S-X and items (1), (2), and (3) would seem to apply to ESOPs.

Finally, Accounting Trends and Techniques contains the following ESOP disclosure from the financial statements of the Dennison Manufacturing Company:

Note H: Employee Stock Benefit Plans--In 1975 and 1976, the company adopted an Employee Stock Ownership Plan (ESOP) and a Stock Savings Plan (SSP) to improve the company's employee benefit plans by enabling most employees to acquire shares of the company's Common Stock. The cost of the ESOP is borne by the company through annual contributions to an Employee Stock Ownership Trust in amounts determined by the Board of Directors. The SSP provides for employee and company contributions up to a specified amount.

Shares of Common Stock acquired by the plans are to be allocated to each employee and are held until the employee's retirement or death. Contributions to the plans amounted to $1,169,000 in 1976.

At December 31, 1976, the Employee Stock Ownership Trust was indebted to the company in the amount of $5,027,000, which has been shown as a deduction from shareholders' equity in the consolidated balance sheet. In 1976, the Trust acquired 242,325 shares of Common Stock held in the treasury for $5,202,000, the fair market value on the date of sale.31

Based on the above information, the minimum financial statement disclosure with respect to an ESOP would seem to be

30APB Opinion No. 8, par. 46.

as follows:

1. A description of the plan and employee groups covered.

2. A statement of accounting policies relevant to the ESOP.

3. The value of and the number of shares contributed to the ESOP for each period for which an income statement is shown.

Securities Law

All of the major operations of an ESOP are potentially subject to registration with the Securities and Exchange Commission (SEC). The Securities Act of 1933 and the Securities Exchange Act of 1934 require SEC registration in the case of any "offer to sell," "sale" or "delivery" of a "security." The provisions of these Acts may apply to the following ESOP transactions:

1. Creating an interest in the plan for a participant.

2. The transfer of stock from the sponsoring corporation to the ESOT.

3. The distribution of stock to a participant.

4. The subsequent sale of ESOT-distributed stock by a participant.

5. The purchase by the ESOT of employee stock from a shareholder of the sponsoring corporation.

SEC registration will be required for each of the above transactions unless the transaction is not within the scope of the Securities Acts or is subject to an exemption contained in the Acts.
Participant Interests in the Plan

A participant's interest in the plan may be a security under the 1933 Act. Registration of the plan with the SEC is required unless the plan falls into one of the three categories discussed below.

(1) A specific exemption is available in section 3(a)(2) of the 1933 Act subject to three conditions. First, the ESOP trustee must be a bank. Second, the plan must be noncontributory. Third, the total amount invested in employer securities cannot exceed the total amount of employer contributions to the ESOT. This last condition might be a problem for a leveraged ESOP.

(2) A compulsory ESOP may be able to avoid the registration of participant interests by invoking the "no sale theory." That is, the creation of a participant interest in an ESOP does not constitute a "sale" of a security and is thus not within the scope of the Securities Acts. The no sale theory is supported in the case of a compulsory ESOP because the participant makes no investment decision. Also, the no sale theory has been supported by the SEC. 32

(3) The Daniel case offers a third possibility for

nonregistration of participant interests in an ESOP. In this case, the Supreme Court ruled that a participant's interest in a defined benefit pension plan was not a security under the Securities Acts. However, the decision did not apply to contributory plans and the application of the decision to defined contribution plans is uncertain.

Transfer of Stock From the Employer to the ESOT

The SEC staff has ruled that the no sale theory applies to employer contributions of stock to the ESOT. However, where the ESOT purchases stock from the employer, the no sale theory may not apply. In this case, two exemptions are possible under the 1933 Act. First, the sale may qualify under section 4(2) as a private placement. This provision requires that the purchaser of the stock be in a position to obtain and understand any needed information on the issuer. Second, the sale may qualify under section 3(a)(11) of the Act as an intra-state issuance. To satisfy this provision the employer and the ESOT must reside in the same state.


ESOT Distribution of Stock to a Participant

The no sale theory generally applies to ESOT distributions.36 There are, however, two exceptions. First, the SEC staff has ruled that a sale occurs when the participant can elect to receive distributions in the form of either cash or securities.37 Second, a sale occurs when the distributed stock was purchased with employee contributions.38

Sale of Stock by a Participant

If distributed stock has been registered with the SEC, the participant is under no restrictions in disposing of his shares. However, if the stock has not been registered, it is restricted stock under SEC rule 144.39 When a participant receives restricted stock, he cannot sell it to anyone other than the ESOT for a period of two years. However, this holding period begins upon vesting of the stock.40

38See note 35.
ESOT Purchase of Stock From Employer Shareholder

Section 4(1) of the 1933 Act contains a registration exemption which would apply to shareholder sales to an ESOT providing the shareholder is not an officer, director or major shareholder. A shareholder sale to an ESOT might also qualify as a private placement or an intrastate issue. Otherwise registration would be required.

Summary

In terms of financial accounting, ESOPs involve balance sheet, income statement and disclosure problems. The balance sheet problems relate to reporting of the ESOP loan and tax allocation. The income statement problems relate to measurement of compensation expense and earnings per share and to accounting for the additional investment tax credit. Supplementary disclosures relevant to ESOPs must be determined by referring to pronouncements that pertain to other deferred compensation programs since the ESOP-related pronouncements do not provide guidance in this area.

In terms of securities law, all of the typical ESOP transactions have the potential of falling under the jurisdiction of the federal securities acts. To avoid SEC registration, an ESOP transaction must be effectively exempted from SEC regulation by definition or specifically exempted by statutory law. If an exemption is not available for a given ESOP transaction, SEC registration is required.
CHAPTER III

MANAGEMENT ASPECTS OF ESOPs

Introduction

This chapter discusses ESOPs in terms of management decision making. First, the financial effects of the various ESOP forms are analyzed. Second, the possible impact of an ESOP on organizational behavior is explored. Finally, ESOPs are compared to various alternative employee benefit plans.

ESOP Financial Analysis

There are many ways to analyze ESOPs in cost/benefit terms. ESOPs involve costs and benefits to society in general, to the government, to corporations, to employees, etc. However, to evaluate ESOPs in terms of financial management at the corporate level, the focus must be on the existing shareholders. That is, the potential impact of an ESOP decision must be considered in terms of the welfare of the shareholder group in existence prior to the ESOP decision. This approach to corporate financial management is widely accepted as
indicated by Weston and Brigham: "... the operating goal of the firm is to maximize the value of stockholders' equity."¹

Financial Effects of ESOPs

The financial welfare of existing shareholders can be affected by an ESOP's impact on a corporation's cash flow, earnings, net assets and shares outstanding. To determine the potential impact of an ESOP in specific quantitative terms, assumptions must be made about the behavior of these variables as well as other variables that would be affected by an ESOP decision. Since these assumptions would differ from firm to firm, a quantitative analysis in numerical terms is somewhat limited. The literature contains many of these numerical analyses and one of these will be referred to in the analysis below. However, this study presents a more general analysis of the financial effects of ESOPs which can be applied to any ESOP decision-making situation. The analysis shows the effects of an ESOP on a firm's cash flow, earnings, net assets and shares outstanding and is applied separately to each of the three basic ESOP forms.

Stock Bonus Plans

When a firm adopts a stock bonus plan, shares of stock are contributed to the ESOT usually on an annual basis. These contributions result in the following favorable effects to the existing shareholders:

1. Cash flow is increased by the amount of the tax deduction which is equal to the fair market value (FMV) of the contributed shares.

2. The shares which are transferred to the trust give the employees an ownership interest in the firm which may motivate them to become more productive. This increase in worker productivity would increase earnings, net assets and cash flow.

3. The additional working capital may be reinvested in the business and may in turn generate additional earnings which will increase net assets and cash flow.

The adverse effects of a stock bonus plan to existing shareholders are as follows:

1. The additional compensation expense recorded when the shares are transferred to the ESOT decreases earnings and net assets.

2. The increase in shares outstanding decreases both earnings and net assets on a per share basis (dilution).

3. Any dividends paid on the ESOT-held shares will decrease cash flow and net assets.
An analysis of the financial effects of a stock bonus plan generally leads to the conclusion reached by Hartman et al:

There is no difference between issuing stock to an ESOP and issuing stock to the public while making a cash contribution to an employee fund.²

However, as revealed in the above analysis, a difference in the two alternatives may exist if the ESOP motivates workers to become more productive. Hartman et al acknowledge this possibility but they cannot include the effects of this possibility if their numerical analysis.³

Hartman et al also point out that a stock bonus plan can be especially useful to a closely-held corporation:

Contributions to the ESOP involve no flotation or underwriting costs. Thus, creation of an ESOP by a small company can enable that firm to obtain $100,000 for $100,000 worth of stock.⁴

A stock bonus plan may be financially advantageous to a corporation if it motivates workers to become more productive. Further, an SBP can be a financially attractive way for a closely-held corporation to issue additional shares of stock.

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³Ibid., p. 28.
⁴Ibid.
Leveraged ESOPs

Pursuant to the adoption of a leveraged ESOP, the ESOT obtains a bank loan, which is guaranteed by the corporation, and uses the proceeds to purchase stock from the corporation. The corporation makes subsequent cash contributions to the ESOT which are used to repay the loan. The tax deductibility of these subsequent contributions has misled some analysts into thinking that this arrangement, in effect, permits the corporation to deduct both interest and principal portions of the loan payments. That is, the loan is repaid with pre-tax dollars rather than after-tax dollars. Consider the following statement by Kelso:

... (a corporation) can borrow and then in after-tax dollars, out of its internal cash flow, we repay the loan ... Through the ESOP, the corporation can finance its growth on pre-tax dollars. One pre-tax dollar does the work of two.  

This erroneous conclusion results from an incomplete financial analysis of a leveraged ESOP.

A leveraged ESOP produces the following favorable effects for existing shareholders:

1. Cash flow and net assets are increased by the amount of the loan.

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2. Cash flow is increased by the amount of the tax deduction resulting from the subsequent cash contributions.

3. The shares transferred to the ESOT may, as mentioned above, result in an increase in worker productivity which would cause an increase in earnings, net assets and cash flow.

4. The increase in working capital from the above effects may be reinvested in the business and may in turn generate additional earnings which will increase net assets and cash flow.

The corresponding adverse effects are as follows:

1. The recording of the ESOP loan on the books of the corporation, as recommended by the AICPA and the SEC (see Chapter II), causes net assets to be decreased by the amount of the loan. This liability is reduced as the loan is repayed.

2. The shares transferred to the ESOT decrease both earnings and net assets on a per share basis.

3. The subsequent cash contributions decrease cash flow. These contributions must also be recorded as compensation expense (see Chapter II) and thereby decrease earnings and net assets.

The above analysis and the numerical analysis presented by Hartman et al both lead to the following conclusion regarding the financial impact of a leveraged ESOP:
the employee corporation could achieve the same tax savings by borrowing directly from the bank, repaying the loan normally, and contributing stock equal to the value of the principal payment to any qualified plan.6

Kelso's claim that a leveraged ESOP enables a company to repay a loan with pre-tax dollars simply does not hold up under the above analysis. This analysis clearly supports the assertion made by Huene:

A company, through an ESOP, does achieve additional tax deductions by increasing employee compensation—pay more, deduct more—but more tax deductions do not necessarily save money. Since all compensation programs are from pre-tax dollars—the payments being deductible—one must consider whether spending pre-tax dollars that might otherwise be retained necessarily reduces cost (emphasis in original).7

This analysis and the numerical analysis of Hartman et al reveal that leveraged ESOPs do not provide relatively low-cost debt capital. However, leveraged ESOPs can be used advantageously to achieve certain transfer-of-ownership objectives. First, a leveraged ESOP can be used to create a market for existing shareholders (of a closely-held company) who wish to dispose of a portion of their holdings. If a shareholder sells shares back to a closely-held corporation, the proceeds are generally taxed as ordinary income unless the redemption includes the

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shareholders' total interest in the company.8 However, a partial sell-out to an ESOT may qualify for capital gain treatment. Second, a corporation can be sold to the employees through a leveraged ESOP. This technique will result in the employees assuming control of the corporation and the previous shareholders receiving a fair price for their shares. Finally, a leveraged ESOP can be used by a corporation to dispose of a division. The division would be transferred to a newly formed corporation, then the shares of the new corporation would be purchased by a leveraged ESOT.

**Investment Credit ESOPs**

The additional ESOP investment tax credit can be taken in conjunction with an existing ESOP or a new investment credit ESOP can be formed. Either way, the corporation takes the tax credit and transfers shares of equal value to the ESOT. The favorable effects of this operation to the existing shareholders are as follows:

1. The tax credit reduces both tax liability and tax expense resulting in increased cash flow, increased earnings and increased net assets.

2. The transfer of shares to the ESOT may result in increased worker productivity which would increase earnings, net assets and cash flow.

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8IRC section 302(c).
3. The additional working capital from the above effects could be reinvested in the business and might generate additional earnings which would increase net assets and cash flow.

The corresponding adverse effects are as follows:

1. The transfer of shares to the trust reduces both earnings and net assets on a per share basis.

2. Compensation expense is recorded when the shares are transferred to the ESOT.

Since the increase in compensation expense is directly offset by the reduction in tax expense, the net result of the investment credit ESOP operation is that the government has purchased the stock for the employees. Generally, this same objective could be achieved by selling stock to the public at FMV. However, there are two important exceptions to this generality. First, the company may not be able to sell stock to the public at FMV without incurring substantial costs of registration and underwriting. Second, under an investment credit ESOP, the newly issued shares are beneficially owned by the employees rather than non-employee shareholders, and the company may benefit from this employee ownership.

The Financial Decision

The analyses presented above form the framework necessary to make a financial management decision regarding
ESOPs. That is, these models can be used to decide whether an ESOP should be adopted, continued, expanded or used for a particular purpose. A given firm can use the models by developing its own figures for the variables discussed.

The above analysis clearly reveals that, in most ESOP decision-making situations, the critical variables are earning power and employee motivation. That is, an ESOP will benefit the existing shareholders only if the firm can earn an acceptable rate of return on additional working capital and if the ESOP motivates workers. Earning power is an attribute that depends on the overall economics of a given firm. Employee motivation is a topic that has received considerable attention in the management literature and is discussed below.

ESOPs and Organizational Behavior

The previous section considered the possibilities of using ESOPs to achieve management goals from a financial point of view. This section evaluates ESOPs from a behavioral point of view. The importance of this aspect of ESOPs is evident throughout this report and the ESOP literature in general. This section attempts to establish a theoretical framework for the motivation theory of ESOPs.
Expectancy Theory

There are several theories of motivation which have been used to explain employee work behavior. One which has gained much support in the recent management literature is referred to as "expectancy theory." Expectancy theory can be used as the basis for a motivation theory of ESOPs.

Steers and Porter describe expectancy theory as follows:

... this theory argues that motivational force to perform - or effort - is a multiplicative function of the expectancies, or beliefs, that individuals have concerning future outcomes times the value they place on those outcomes (emphasis in original).10

Mayes describes the theory conceptually with the following equation:

\[ \text{Motivation} = \text{Expectancy} \times \text{Valence}^{11} \]

The expectancy factor in the equation is composed of two types of expectancies. \( E \rightarrow P \) is the expectancy that increased effort will lead to increased job performance. \( P \rightarrow 0 \) is the expectancy that increased job performance will lead to a certain outcome. Valence is the value

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10Ibid., p. 181.

associated with the anticipated outcome. A more complete equation would be:

\[ M = (E + P)(P + 0)(V) \]

According to this theory, then, a person's motivational force to perform can be influenced by changing one or more of the independent variables in the above equation. The expectancy variables are subjective probability estimates ranging from 0 to +1.0. Valence is a measure of preference ranging from -1.0 to +1.0. Therefore, an individual's motivation to perform a given task will be high if his \( E + P \) and \( P + 0 \) expectancies are high and if he places a high value \( (V) \) on the anticipated outcome of his performance.

**Employee Ownership and Organizational Integration**

Long studied the effects of employee ownership on job attitudes.\(^{12}\) His theoretical model hypothesized that employee ownership increased employee motivation by increasing organizational integration. He defined organizational integration as "... the degree to which the individual perceives that attainment of organizational goals will result in satisfaction of his personal goals and needs."\(^{13}\) He further reasoned that employee ownership increased integration because the major organizational


\(^{13}\) Ibid., p. 12.
goal of profit maximization is a benefit to the employees if they are also owners. That is, employee ownership "... would strengthen the relationship between organizational performance and individual reward \( P_{\text{org}} + R_{\text{ind}} \)."¹⁴

In terms of expectancy theory, integration affects the individual's valence of increased organizational performance \( P_{\text{org}} \). That is, as integration increases, the employee places a higher value on the anticipated outcome of increased organizational performance. Long reasons that this increased valence of organizational performance might motivate a workforce in two ways. First, the individual may perceive a strong relationship between his own job effort and the performance of the organization. That is, his \( E \rightarrow P \) and \( P \rightarrow O \) expectancies may be high where the outcome expected is \( P_{\text{org}} \). Second, an individual employee might perceive a relationship between \( P_{\text{org}} \) and the performance of other employees \( P_{\text{oth}} \). Thus, \( P_{\text{oth}} \rightarrow P_{\text{org}} \). If an employee perceives that \( P_{\text{oth}} \rightarrow P_{\text{org}} \), he might encourage other employees to increase their job effort resulting in peer pressure.¹⁵

Long tested his theory on a medium-sized trucking company which had recently been purchased by its employees. Through a series of questionnaires and interviews he attempted to measure changes in job attitudes resulting

¹⁴Ibid.

¹⁵Ibid., pp. 15, 16.
from the change to employee ownership. His conclusion, based on a statistical analysis of the data, was that job satisfaction and job effort of the employees were both increased.

ESOPs and Employee Ownership

Long's study argues well for the motivational impact of employee ownership. However, the trucking company that he studied was directly owned by the employees. His theoretical framework and his empirical results do not, therefore, directly support the ESOP motivation theory. Additional analysis is necessary to establish the motivational potential of an ESOP.

Although an ESOP does not result in direct employee ownership of a firm, its potential as an employee motivator rests on the assumption that the ESOP participants perceive an ownership interest flowing from the ESOP. The validity of this assumption is critical to the motivation theory of ESOPs. Therefore, a comparison of ESOP ownership to direct ownership is necessary.

When an employee directly owns shares of stock in his employer corporation, he is truly a part owner of the business. As such, he possesses the various rights of corporate stock ownership. That is, he has the legal right to participate in any liquidating distributions or distributions of profit and to participate in shareholder
voting. He also has the right to sell his shares at his discretion.

When an employee participates in an ESOP he is the beneficial owner of the securities that have been credited to his account. Two shortcomings of ESOP ownership may be encountered at this point. First, the securities credited to an employee's ESOT account may be subject to vesting requirements. The employee can be certain of ultimately owning only the shares that have vested in his account. As Chapter I pointed out, investment credit ESOPs are required to grant immediate 100% vesting in the plan, but other ESOPs are subject only to the vesting requirements of ERISA. The second limitation of ESOP ownership relevant to the securities held in the trust involves the type of securities credited to an employee's account. Although leveraged ESOPs and investment credit ESOPs are now required to hold either common stock or convertible preferred, stock bonus plans may hold other types of investments (see Chapter I). These two problems could, therefore, cause an ESOP to fall substantially short of direct ownership as an employee motivator.

Other limitations of ESOP ownership do not appear to be as serious as those discussed above. Leveraged ESOPs and investment credit ESOPs are required to pass-through complete or limited voting rights to participants at present and SBPs will be subject to this requirement beginning in 1980 (see Chapter I). Dividends paid on
stock allocated to a participant's account must either be credited to the account or passed-through to the participant. Finally, the ESOP participant does not have the right to dispose of the stock credited to his account. However, this limitation should not detract from an ESOPs potential as a motivator. If an employee desires to sell his ownership interest in his employer, he apparently would not be motivated by either direct ownership or ESOP ownership.

If an ESOP arrangement involves shares of common stock that are fully or partially vested, it should have the same motivating effects on employees as a direct ownership arrangement. That is, employees participating in an ESOP receive the same benefit from increased $P_{org}$ as those who own shares directly. The wealth of an ESOP participant is increased by employer profits in the same magnitude as other shareholders.

The expectancy theory model of employee ownership developed by Long should, therefore, apply to ESOPs because the economic incentives of an ESOP are essentially the same as those of direct ownership. However, whether the theory holds in practice may depend on how well the details of the ESOP are communicated to the employees. If the participants are not informed about their interests in the plan, they cannot perceive the benefits of employee ownership. The assumption that employees perceive an ownership interest flowing from an ESOP appears to be valid in
theory, but in practice the assumption may depend on effective communication.

ESOPs and Communication

Because an ESOP participant does not physically possess any ownership shares until retirement or other separation from service, he cannot perceive an ownership interest flowing from the plan without some form of communication taking place. He must, at a minimum, be informed that (A) the ESOP exists and (B) the ESOT will hold shares of stock in his account. ERISA contains two disclosure requirements that would accomplish this minimum level of communication. First, a summary plan description must be given to any employee within ninety days after becoming a participant in the plan.\(^\text{16}\) Second, an annual report summary, which summarizes the financial operation of the plan, must be distributed to participants within 210 days after the close of the plan year to which it applies.\(^\text{17}\) However, effective organizational communication beyond this minimum level could enhance the motivational effects of an ESOP.

The expectancy theory model reveals that the motivational potential of an ESOP depends to some extent on the individual's \(P + O\) expectancy. This expectancy can be enhanced by effective upward communication. That is,

\(^\text{16}\)ERISA section 104(a)(1)(C).

\(^\text{17}\)ERISA section 104(b)(3).
employees will become more interested in organizational performance if they are able to communicate their ideas upward in the organization. Some form of employee suggestion system can be used for this purpose. Sigband notes that:

There is value in such systems, for millions of dollars are saved as a result of employee suggestions. And the psychological value an employee receives from participation in the company's production procedure is immeasurable.¹⁸

Upward communication gives the employee more input into the overall performance of the organization and thus enhances his P → O expectancy.

Effective downward communication can enhance the motivational impact of an ESOP by reinforcing the implications of employee ownership in the mind of the ESOP participant. All three independent variables in the expectancy theory model can be influenced by downward communication. The individual's E → P expectancy can be increased by communication that explains how he can perform his job more efficiently. An E → O expectancy can be increased by explaining how an employee's job affects organizational performance. Finally, an employee's valence of organizational performance can be increased by explaining how

increased corporate profit benefits him through the ESOP. Effective downward communication in all three of these areas should substantially enhance the motivational potential of an ESOP.

**ESOPs and Other Plans**

Before deciding to adopt an ESOP, management should consider the available alternatives. An ESOP is a deferred compensation program. As such, it is both a compensation plan and a retirement plan. Management should, therefore, compare ESOPs to other types of compensation and retirement plans. Such comparisons are useful even though an ESOP can be used in combination with other plans. Further, these comparisons should be made from the point of view of the employee as well as the employer.

**ESOPs as a Compensation Plan**

If an ESOP is viewed as additional compensation, it should be compared to alternative nonqualified plans. The most comparable alternative is a bonus plan which pays the employee a periodic bonus above his base wage or salary. Bonuses are generally based on either organizational performance or on individual performance.\(^1^9\) A current profit sharing plan pays a periodic bonus based

A Scanlon plan pays a monthly or bimonthly bonus based on an individual's productivity. Both of these plans have employee motivation potential. However, unlike ESOPs, they are not deferred pay plans and IRS qualification is not necessary. Further, bonuses are generally paid in cash although there is no reason why a bonus could not be paid in the form of corporate stock. If a bonus is paid in the form of corporate stock, the employer is allowed a tax deduction equal to the fair market value of the shares paid out.

Advantages of an ESOP. For the employer, an ESOP offers the following advantages over a bonus plan:

1. There is no reduction in working capital when stock is contributed to an ESOT. However, a bonus paid in the form of corporate stock would have the same effect (i.e., a cashless tax deduction).

2. Since employer stock is held in the employee's ESOT account the possibility of appreciation in the value of such stock may provide added incentive for the employee to contribute to company profit. A bonus paid in the form of stock may be sold at the employee's discretion and may,

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22 IRC section 83(h).
therefore, not provide the added motivational impact of employee ownership.

3. An ESOP may reduce turnover. An ESOP that has vesting requirements may encourage employees to continue employment because separation would result in lost benefits.

4. An ESOP may permit management to maintain greater control of corporate ownership than a current stock bonus plan. Pursuant to an ESOP the stock is held by a trustee until distribution at which time it may be reacquired by the use of a right of first refusal in favor of the company or the ESOT.

In comparison to a bonus plan, an ESOP will provide employees with the following advantages:

1. An ESOP is, in effect, a method of forced savings. That is, it helps the employee provide for his retirement.

2. The employee acquires an ownership interest that he would not be able to acquire with a cash bonus unless the employer corporation is publicly owned. However, a bonus paid in the form of corporate stock could have the same effect.

3. Increases in the value of the stock held by the ESOT can result in extraordinary employee benefit. For example, a warehouse laborer retired from Lowe's
Companies, Inc. with approximately $660,000 in his ESOT account.  

4. As discussed in Chapter I, ESOT distributions receive favorable tax treatment.

Disadvantages of an ESOP. As compared to a bonus plan, an ESOP involves the following disadvantages for the employer:

1. An ESOP is more complex and thus more costly to administer. A trustee will probably be engaged and reports must be filed with both the IRS and the Department of Labor. Also, if the stock is closely held, it must be valued annually, and Ludwig strongly recommends the use of a qualified appraiser of corporate stock. 

2. Compared to a cash bonus plan, an ESOP results in dilution of ownership and earnings. Of course, a bonus paid in stock would have the same effect.

Employees suffer the following disadvantages under an ESOP:

1. The employee has no control over the stock in his ESOT account. Since he will receive the stock only

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upon retirement he may never benefit from it.

2. Closely related to the first disadvantage is the possibility of a decline in the value of the stock in the ESOT. The employee may actually receive less than the amounts contributed in monetary terms or, again, possibly receive nothing at all.

ESOP as a Retirement Plan

As retirement plans ESOPs are usually compared to deferred profit sharing plans and defined benefit pension plans. A deferred profit sharing plan is a qualified retirement plan as opposed to a current profit sharing plan which is simply a type of cash bonus plan. ESOPs and deferred profit sharing plans are similar in that they are both defined contribution plans as opposed to defined benefit plans. In a defined contribution plan the contribution formula determines the ultimate retirement benefits payable to the participants. In a defined benefit plan the benefits are predetermined and the contributions are based on actuarial calculations that consider such factors as funding requirements, vesting requirements and mortality rates.

Advantages of an ESOP. For the employer, an ESOP offers the following advantages over the above-mentioned qualified plans:

1. There is no decrease in working capital when company stock is contributed to an ESOP.
2. Since ESOP contributions are not based on profits, an operating loss can be created resulting in an immediate tax benefit.\textsuperscript{25}

3. Although ESOPs and profit sharing plans are both incentive plans, ESOPs may result in added employee motivation because they create employee ownership.

4. An ESOP is easier to administer than a defined benefit plan because the ERISA diversification rule does not apply to the trust fund assets. However, as explained in Chapter I, profit sharing plans are also exempted from this rule.

5. Neither ESOPs nor profit sharing plans can generate a past service liability. Further, the amounts contributed pursuant to an ESOP are completely flexible subject to the maximum benefits discussed in Chapter I. The reader should note, however, that profit sharing contributions are also flexible unless the plan includes a definite contribution formula.\textsuperscript{26}

Compared to profit sharing and defined benefit plans, ESOPs offer employees the following advantages:

1. As mentioned above, ESOPs create employee ownership which may improve job satisfaction.


\textsuperscript{26}Rev. Proc. 56-22, 1956-2 CB 1380.
2. Appreciation in the value of stock held in the trust would add to the employee benefits received under the plan.

Disadvantages of an ESOP. In comparison to profit sharing plans and defined benefit plans, ESOPs result in the following disadvantages for employers:

1. An ESOP causes dilution of ownership and earnings.

2. Annual stock valuation is necessary for closely-held companies.

Employees suffer the following disadvantages under an ESOP as compared to other plans:

1. No credit is received for past service under ESOPs or profit sharing plans.

2. The lack of diversification in the trust fund assets exposes the employees to increased risk.

3. Because of the flexibility in contributions, an ESOP may offer less security than either profit sharing or defined benefit plans.

Combinations

Various combinations of the plans discussed above are possible and may be desirable. For example, an ESOP can be combined with profit sharing to form what Metzger refers to as an EPSOP (employee profit sharing and
ownership plan.)  

This objective can be achieved either by a profit sharing plan investing heavily in employer stock or by basing ESOP contributions on company profits. As another alternative, a company might use an ESOP as a supplemental plan to a conventional defined benefit plan. Such a combination would avoid several of the disadvantages listed above. However, the reader should note that each additional plan requires additional administrative expense.

Summary

From the perspective of corporate management, ESOPs have financial, behavioral and other administrative implications. ESOP decision making requires separate analysis in each of these managerial areas.

The financial effects of an ESOP should be analyzed in terms of the welfare of the existing stockholder group. Each type of ESOP will have a different financial impact on a corporation. A stock bonus plan is equal financially to selling stock to the public and making cash contributions to a qualified retirement plan unless it motivates employees to become more productive. A leveraged ESOP produces financial results identical to conventional borrowing combined with contributions of stock directly to an ESOT. However, a leveraged ESOP may be useful as a transfer-of-ownership financing vehicle. Finally, an

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\(^{27}\)Hearings, 1978, p. 536.
investment credit ESOP, in effect, results in a government purchase of employer stock for the employees. The financial effects of an investment credit ESOP, then, are the same as selling stock to the public unless it motivates the employees.

ESOPs may affect organizational behavior by motivating the workforce. The motivation potential of an ESOP can be explained by the expectancy theory model of motivation:

\[ \text{Motivation} = \text{Expectancy} \times \text{Valence} \]

where expectancy generally refers to an employee's expectations that his job performance leads to an anticipated outcome and valence is the value associated with that outcome by the employee. An ESOP may cause the employee to associate increased job effort with increased profits and, consequently, with increased personal reward. However, the motivation potential of an ESOP may, in practice, depend on effective communication of the plan details to the participants.

Before an ESOP decision is made based on the above analyses, ESOPs should be compared to other alternative plans. As a compensation plan, an ESOP should be compared to some type of nonqualified bonus plan. As a retirement plan, an ESOP should be compared to a profit sharing plan and to a defined benefit plan. ESOPs have advantages and
disadvantages when compared to each of these alternative plans. An optimal result may involve some combination of these plans.
CHAPTER IV

RESEARCH DESIGN AND DATA COLLECTION

Introduction
This study was carried out in two phases. First, an economic model was formulated to test the general hypotheses of the study. Second, a survey of ESOP companies was conducted in order to provide the empirical data for the model. This chapter describes these two phases of the study. The first part of the chapter discusses the formulation of a general economic model, the general hypotheses, and the variables of the specified model. The second part of the chapter discusses the survey which provided the empirical data for the study.

Statement of the Problem
Chapter I reviewed the development of ESOPs with emphasis on their popularity since 1974. ESOP popularity raised the issue of tax incentives designed to encourage ESOP formation. ESOP advocates contend that ESOPs increase business productivity through increased employee motivation. Chapter I also discussed the important policy implications related to ESOP motivation theory.
Clearly, more evidence is needed to support this theory. Chapter I discussed the tax benefits of ESOP formation to corporations and to the employees of these corporations. The social cost of the tax benefits was also discussed in Chapter I. Is the social cost of decreased tax revenues justified by increased business efficiency? The purpose of this study, as mentioned, is to provide evidence which can be useful to government and corporate policy makers with respect to ESOP formation. Specifically, this study attempts to determine (A) whether any relationship exists between company operating performance and ESOPs and (B) the nature of any relationship which might be found to exist.

**Formulation of the Model**

The stated objective of this study suggests the following general economic model:

\[ Y = f(E; \varepsilon) \]

where \( Y \) = company operating performance, \( E \) = ESOP, and \( \varepsilon \) = the general disturbance or error term in the equation. Models such as the foregoing are known as error-in-the-equation models and are explained by Huang as follows:

Models that admit errors or disturbances in their behavioral equations, in general, are amenable to statistical test. Now, error in an equation arises either because the knowledge concerning the behavior to be modeled is imperfect (as to the functional form and the variables to be used), or because practical considerations make it
necessary to limit attention to a number of crucial variables.¹

An explanatory model in the above form can be specified with company operating performance acting as the criterion variable and certain quantifiable characteristics of an ESOP acting as explanatory variables.

The General Hypotheses

The general hypotheses of the study are as follows:

(1) There is no statistically significant relationship between company operating performance and the ESOP-related variables.

(2) There is no statistically significant relationship between company operating performance and the percentage of a company's stock owned by the ESOP.

(3) There is no statistically significant relationship between company operating performance and the size of the contribution that has been made to the ESOP.

(4) There is no statistically significant relationship between company operating performance and the period of time the ESOP has been in existence.

(5) There is no statistically significant relationship between company operating performance and the percentage of ESOP-covered employees who have vested interests in the ESOP.

In general, hypothesis (1) pertains to the overall explanatory power of the model. Each of the other four

hypotheses pertains to the significance of an explanatory variable in the model.

The Multiple Linear Regression Model

Considering the above hypotheses, the following theoretical model can be specified:

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon \]

where:

- \( Y \) = company operating performance
- \( \beta_i \) = the true coefficients of the model
- \( \epsilon \) = the error term in the model
- \( X_1 \) = percentage of company stock owned by the ESOP
- \( X_2 \) = size (as a percentage of payroll) of the prior year contribution to the ESOP
- \( X_3 \) = period of time the ESOP has been in existence
- \( X_4 \) = percentage of ESOP-covered employees who have vested interests in the plan

These specifications represent a linear explanatory model designed to estimate the relationships among the variables of interest in the study.

The above model was estimated by the statistical method of least squares using the survey data collected by the questionnaires. The least squares method was executed by a computer using the matrix inversion technique which is part of the SPSS system of programs.²

The basic behavior unit for the model is the firm that has an ESOP. The survey data were collected from a sample of firms and the data represent activity in the year of 1977. Klein describes this approach to econometrics as follows:

A group of business accounting statements, covering a given period of operations, would also form a cross-section sample from which to estimate business patterns of behavior on the basis of inter-firm variations.³

The first hypothesis was tested by a test of significance on $R^2$. In this test the null hypothesis is $H_0: R^2 = 0$ against the alternate $H_a: R^2 \neq 0$. The other four hypotheses were tested by performing one-tailed t tests on the values and the signs of the coefficients $B_i$ which were estimated by the regression method. The null hypothesis for a one-tailed t test on a coefficient in a regression equation is $H_0: B_k = 0$. The alternate hypothesis is either $H_a: B_k > 0$ or $H_a: B_k < 0$ depending on the theory underlying the explanatory variable $X_k$.⁴

The Criterion Variables

As discussed above, company operating performance is the criterion variable in the model which has been formulated. For the purpose of this study, operating


performance is defined as profitability. Further, two measures of company profit were used in the study both of which were normalized for interfirm and interindustry comparisons. As discussed in Chapter I, Conte and Tannenbaum used a regression model similar to the one which is formulated above. The criterion variable in that model was the ratio of pretax net income to sales divided by the like ratio for the industry to which the firm belongs. The present study employed a similar criterion variable except that it is composed of operating income with depreciation added back. The advantage of this variable is that it does not contain the effects of depreciation, interest, other nonoperating income items, extraordinary items, or taxes which are all extraneous variables in this study. This method of measuring profitability also controls many extraneous variables of a macroeconomic and microeconomic nature. For example, if a company is benefiting from a general expansion in the U.S. economy, then most other firms in that industry are likewise

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benefiting. Alternatively, if a company is suffering from cost increases brought on by a shortage of a key raw material, then, again, most other firms in that industry are likewise suffering.

A second criterion variable (after-tax net income divided by sales) was also used in this study. After-tax income was used in this criterion variable to evaluate the relationship between company profitability and the ESOP on an after-tax basis. This analysis focuses on the tax benefit which is received by the ESOP company.

These two criterion variables were used to form two separate models. That is, two separate models were formed when each criterion variable was regressed against the common set of explanatory variables developed above. Comparing the coefficients of these two models may add insight to the analysis. The relationships contained in the operating income model should reflect the indirect benefits of increased employee productivity and increased working capital provided by the ESOP. These relationships were likewise present in the net income model. However, the direct tax benefit is also contained in the net income model. Therefore, if the statistical tests indicate stronger relationships in the net income model, the analysis would suggest that companies tend to benefit more from the ESOP tax deduction than from the other indirect effects.
The Explanatory Variables

The explanatory variables in the model relate to hypotheses (2) through (5). These variables represent certain quantifiable characteristics of an ESOP and are explained in the following paragraphs.

Percentage of company stock owned by the ESOP ($X_1$). This variable measures the proportion of company ownership held by the employees through the ESOP. Increased employee ownership of a company should result in increased employee awareness of company profit. The employees' ownership interest in the company becomes more valuable as company profit increases. Therefore, the coefficient of this variable should be positive indicating a positive relationship between company profit and employee ownership. The null hypothesis with respect to $X_1$ is $H_0: B_1 = 0$ against the alternate $H_a: B_1 > 0$.

Size (as a percentage of payroll) of the prior year contribution to the ESOP ($X_2$). This variable measures the size of the most recent benefit received by the employees as a result of the ESOP. $X_2$ focuses on the magnitude of the benefit that is received by an individual employee. Consider, for example, two ESOP companies M and N. Company M makes a contribution equal to 15% of its covered payroll. Company N, on the other hand, makes a contribution equal to 5% of its covered payroll. Clearly, the employees of M have received the larger
benefit. Now assume further that immediately after these two contributions are made, M is 10% ESOP-owned and N is 50% ESOP-owned. The employees of N clearly have a larger ownership interest \((X_1)\) in their company. This example illustrates that \(X_1\) and \(X_2\) measure very different characteristics of an ESOP.

The reason for using the prior year contribution is that ESOP contributions are generally made at the end of a fiscal year. Thus during 1977 the employees of an ESOP company are aware of the 1976 contribution. They will not be aware of the 1977 contribution until it is made probably early in 1978. As mentioned, the income statement data collected in the survey reflect 1977 activity. Therefore, \(X_2\) reflects 1976 ESOP contributions.

Theoretically, larger ESOP contributions should result in increased employee morale. Since increased employee morale could logically be expected to result in better employee performance and increased company profits, the coefficient of \(X_2\) should be positive. The null hypothesis with respect to \(X_2\) is \(H_0: B_2 = 0\) against the alternate \(H_a: B_2 > 0\).

Period of time the ESOP has been in existence. \((X_3)\). This variable measures the period of time from inception of the ESOP to the date of the company's 1977 financial statements. There are two theories in the ESOP field regarding this variable.
The first theory states that employee motivation is increased when an ESOP is formed and then diminishes over time. The logic that supports this theory is that the formation of an ESOP is accompanied by a good deal of publicity. However, after the ESOP is in place, the publicity disappears. Therefore, the employees are aware of the ESOP when it is formed but the awareness gradually diminishes with the passage of time from that point. Based on this theory, the null hypothesis with respect to $X_3$ is $H_0: B_3 = 0$ against the alternate $H_a: B_3 < 0$. That is, an inverse relation relationship is expected between company profit and the period of time the ESOP has been in existence.

The second theory states that employee motivation is affected very little at the inception of an ESOP but is gradually increased with the passage of time from that point. The employees do not at first perceive the ESOP as a significant benefit; however, as time passes, two things happen which tend to change this perception. First, an employee becomes increasingly aware that company shares are being credited to his ESOP account. Second, he observes the actual distribution of shares to retiring and other terminating employees. The result of this changing perception is that the motivational impact of an ESOP increases over time from its inception. Therefore, the expectation is for a positive relationship between company profit and the period of time the
ESOP has been in existence. Based on this theory, then, the null hypothesis with respect to $X_3$ is $H_0: B_3 = 0$ and the alternate $H_a: B_3 > 0$.

Percentage of ESOP-covered employees who have vested interests in the plan ($X_4$). This variable measures the proportion of ESOP participants who have earned the irrevocable right to receive some or all of the company shares that have been credited to their ESOP accounts. Theoretically, an ESOP participant does not perceive the ESOP as a significant benefit, unless he actually has a vested interest in the plan. Without a vested interest in the plan a participant cannot be certain that he will ever receive any benefits from the plan. Thus, the expectation is for a positive relationship between company profit and the percentage of ESOP-covered employees who have vested interests in the plan. The null hypothesis with respect to $X_4$ is $H_0: B_4 = 0$ and the alternate $H_a: B_4 > 0$.

Subset Analysis

The sample companies were grouped into somewhat homogeneous subsets to make the analysis more meaningful. The 1972 edition of the Standard Industrial Classification Manual organizes U.S. business firms into eleven categories, (A) through (K). By eliminating and combining categories the sample companies were grouped into the subsets appearing in Table 2.
TABLE 2
SAMPLE SUBSETS

<table>
<thead>
<tr>
<th>Subset Designation</th>
<th>SIC Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Group</td>
<td>(C), (D)</td>
</tr>
<tr>
<td>Trading Group</td>
<td>(F), (G)</td>
</tr>
<tr>
<td>Service Group</td>
<td>(E), (H), (I)</td>
</tr>
</tbody>
</table>

As noted in the following chapter, eight regression equations were computed. An equation was computed for each subset and for the whole sample (pooled data) in each of the two regression models described above.

Survey of ESOP Companies

The data for the study were collected by sending a questionnaire to companies that have been identified as potential ESOP companies by the ESOP Council of America. This mailing list was also used as the data source for the UCLA study discussed in Chapter I.

The Questionnaire Mailing

The questionnaire which appears in the Appendix was mailed to 1136 companies on June 16, 1978. A follow-up mailing occurred on July 28, 1978. Further, forty-four companies selected randomly from the mailing list were contacted by telephone during the month of October 1978.

The results of the survey are presented in Table 3. Since some of the companies on the ESOP Council mailing
list are not ESOP companies, the response rate on the mailing must be estimated. As indicated in the table, the UCLA study contained an estimate of 850 ESOP companies on the mailing list. However, fifteen of the forty-four companies contacted by telephone, indicated that they do not have ESOPs. This proportion (15/44) is used to arrive at the estimate of 750 ESOP companies. The difference between the two estimates may be at least partially accounted for by companies that have discontinued their ESOPs. In the telephone survey, six companies (of the fifteen without ESOPs) indicated that they had discontinued their ESOPs. The UCLA study preceded the present study by approximately one year.

As shown in Table 3, 165 of the 207 questionnaires returned were usable. Based on the above estimates, the usable questionnaires represent a response rate in the area of 20%. Most of the questionnaires that were not usable failed to provide profit information. Since most of the companies surveyed are closely-held corporations, the refusal to provide profit information is not surprising. Further, the 165 usable responses were distributed among the subsets as follows:

---

### Table 3

**Questionnaire Survey Response**

<table>
<thead>
<tr>
<th>Questionnaires</th>
<th>Estimated Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total mailed</td>
<td>1136</td>
</tr>
<tr>
<td>Estimated number of ESOP companies on mailing list</td>
<td>750* 850**</td>
</tr>
<tr>
<td>Total returned</td>
<td>207 27.6% 24.3%</td>
</tr>
<tr>
<td>Total usable</td>
<td>165 22.0% 19.4%</td>
</tr>
<tr>
<td>Returned too late</td>
<td>2</td>
</tr>
</tbody>
</table>

*Based on telephone survey  
**Based on UCLA estimate

**Test for Nonresponse Bias**

Although a 20% response rate is not abnormal for a survey like the one described above, the problem of nonresponse bias in the sample must be considered. That is, the sample may be biased if there are differences between those companies that responded to the survey and those that did not. Oppenheim found that late respondents to a mail survey are similar to nonrespondents and suggested that nonresponse bias may be detected by comparing...
early returns to late returns. This approach to the problem of nonresponse bias is referred to in the survey literature as extrapolation. Armstrong and Overton tested for the effectiveness of extrapolation in estimating nonresponse bias and found it to be 80% accurate.

To test for nonresponse bias in this survey the first thirty questionnaires received were compared to the last thirty questionnaires received. The t test of significant difference between sample means was used to determine whether these two groups of questionnaires were from different populations. The null hypothesis for the t test is $H_0: \mu_1 = \mu_2$ against the alternate $H_a: \mu_1 \neq \mu_2$. A two-tailed test is used with $\alpha = .10$. The significance level is set at .10 because the risk of a type II error is critical in this test. A type II error is the acceptance of $H_0$ when it is false.

Table 4 presents the results of the t tests for all of the variables used in the models. The calculated t values indicate that the null hypothesis could not be rejected for any variable. By referring to Appendix C of Murphy the critical t value for $\alpha = .10$ and 58 $(30 + 30 - 2)$ degrees of freedom can be stated as

---


The test, therefore, gives no evidence of nonresponse bias.

TABLE 4
TEST FOR NONRESPONSE BIAS

<table>
<thead>
<tr>
<th>Variables</th>
<th>Early Responses</th>
<th>Late Responses</th>
<th>t Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating income ratio</td>
<td>1.155</td>
<td>.949</td>
<td>1.020</td>
</tr>
<tr>
<td>Net income ratio</td>
<td>1.545</td>
<td>1.582</td>
<td>1.131</td>
</tr>
<tr>
<td>Percentage of company stock owned by the ESOP</td>
<td>18.787</td>
<td>21.027</td>
<td>1.131</td>
</tr>
<tr>
<td>Size (as a percentage of payroll) of the prior year contribution to the ESOP</td>
<td>8.860</td>
<td>11.397</td>
<td>1.204</td>
</tr>
<tr>
<td>Period of time the ESOP has been in existence</td>
<td>33.533</td>
<td>34.567</td>
<td>1.104</td>
</tr>
<tr>
<td>Percentage of ESOP-covered employees who have vested interests in the plan</td>
<td>55.567</td>
<td>66.600</td>
<td>1.054</td>
</tr>
</tbody>
</table>

Questionnaire Validity and Reliability

A questionnaire such as the one used in this study is a measuring instrument. As such, the problems of validity and reliability must be considered. These problems are concisely described by Ary et al as follows:

10Murphy, Introductory Econometrics, p. 501.
Validity refers to the extent to which an instrument measures what it is supposed to measure. Reliability, on the other hand, is the extent to which a measuring device is consistent in measuring whatever it measures.\textsuperscript{11}

In evaluating the seriousness of these two problems to a research project one must consider the nature of the data being collected. The data collected in the survey discussed above are enumerative. That is, the subjects were asked to provide numerical information from their records. This type of survey is analogous to a survey requesting individuals to give their ages.

Validity is not a serious problem where enumerative data are involved. For example, consider again a questionnaire that requests an individual to give his age. Most reasonable people would accept the number of years from date of birth to present as being a valid measure of age. On the other hand, a questionnaire that seeks to measure the native intelligence of an individual has serious problems of validity. The measures generated by such an instrument would be seriously challenged as being valid measures of native intelligence. Kerlinger concurs with this view that validity is not a serious problem in certain kinds of research projects:

When measuring certain physical properties and relatively simple attributes of persons,

validity is no great problem. There is often rather direct and close congruence between the nature of the object measured and the measuring instrument.¹²

The data collected in this study appear to be in the category of "relatively simple attributes." The questionnaire, which is reproduced in the Appendix, requested the subject firms to provide the information needed for the five variables discussed above. This information was taken directly from business records and required no processing by the respondent. Therefore, the data collected by the questionnaire were accepted as valid measures of the variables involved in the study and none of the generally accepted tests for validity were considered necessary or appropriate.

Reliability, on the other hand, is a serious consideration in any data gathering effort. Kerlinger explains that reliability is simply a question of accuracy: "Are the measures obtained from a measuring instrument the true measures of the property measured?"¹³ Checking the reliability of a questionnaire can be a difficult if not impossible task. Again, the best approach depends on the nature of the data that are collected. A method referred to in the survey literature as the "record check"


¹³Ibid., p. 443.
seems to be the most appropriate way of testing the reliability of the questionnaire used in this study.\textsuperscript{14} This method simply involves the checking of information on a completed questionnaire against a published record. Although most of the corporations in the present survey are closely held and many did not identify themselves, seven questionnaires were identified as coming from publicly-held companies. The financial data from these questionnaires were checked against the information in Standard and Poor's Corporate Records and only rounding differences were detected. This test is admittedly quite limited in scope and the results must be taken cautiously, nonetheless, some evidence of reliability is provided.

\textbf{Limitations of the Study}

This study falls into the category of ex post facto research. That is, the analysis is based on non-experimental observations. Kerlinger acknowledges that ex post facto research suffers generally from a lack of experimental control but he defends it as follows:

It can even be said that ex post facto research is more important than experimental research. This is, of course, not a methodological observation. It means, rather, that the most important social scientific and educational

research problems do not lend themselves to experimentation, although many of them do lend themselves to controlled inquiry of the ex post facto kind.\textsuperscript{15}

He also offers a piece of advice that would apply to the reader of this report:

\textit{... always treat the results and interpretations of the data of ex post facto investigations with great care and caution. Where one must be careful with experimental results and interpretations, one must be doubly careful with ex post facto results and interpretations.}\textsuperscript{16}

Along with these general thoughts expressed by Kerlinger, the reader should also consider the following specific limitations of this study.

The Sample

The sample data were gathered from the questionnaires returned in the survey. This sampling method limits the study in two respects. First, the population from which the sample was selected must be limited to those firms known to have ESOPs. Firms which have ESOPs but have not been identified by the ESOP Council of America are thus not included in the population. Likewise, firms which have not formed ESOPs are not included in the population. The second limitation resulting from the sampling method is caused by the non-respondents to

\textsuperscript{15}Kerlinger, \textit{Foundations of Behavioral Research}, p. 392.

\textsuperscript{16}Ibid.
to the survey. The response rate, as noted, was low. The possibility of nonresponse bias must be considered even though the results of the nonresponse bias test yield no evidence of such a problem.

Because of these limitations the representativeness of the sample data may be questioned. Certainly one cannot assert that the sample is representative of all business firms in the U. S. However, the sample should be representative of those firms that have formed ESOPs. The ESOP Council of America mailing list is thought to be a fairly complete list of all companies that had formed ESOPs in time to provide the kind of information needed for this study. Assuming that the sample contains no significant nonresponse bias, then, it should be representative of those firms that have actually formed ESOPs.

Causality

The study was associative in nature. That is, the regression method associates variation in profit with variation in the ESOP-related variables. If these relationships are found to have statistical significance, the reader should note that correlation -- not causation -- has been shown.

The presence of statistically significant relationships in the analysis could, of course, be indicative of causality. That is, the relationships may result because ESOPs cause companies to be more profitable. However,
one must recognize other possible explanations. For example, there is the possibility that companies which are more profitable are more likely to form ESOPs.

This study, then, cannot prove causality. This limitation, however, should not detract from the significance of the study. This assertion finds support throughout the research literature. The following quote from Kerlinger is representative of this view of causality in scientific research:

The position taken in this book is that the study of cause and causation is an endless maze. One of the difficulties is that the word "cause" has surplus meaning and metaphysical overtones. Perhaps more important, it is not really needed. Scientific research can be done without invoking cause and causal explanations, even though the words that imply cause are almost impossible to avoid and will occasionally be used.  

Summary

Because of the recent popularity of ESOPs and because this popularity is tied to tax incentives, the basic macroeconomic cost-benefit issue has been raised. In order to provide economic and corporate policy makers with evidence relative to this issue the study attempts to determine (A) whether any relationship exists between company operating performance and ESOPs and (B) the nature of any relationship which might be found to exist.

17Ibid., p. 393.
Using the method of multiple linear regression the following model was estimated:

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \]

where \( Y \) is a measure of company operating performance and the \( X_i \) are ESOP-related variables. The general hypotheses of the study were tested by statistically testing the following null hypotheses relative to this model:

- \( H_0: R^2 = 0 \)
- \( H_0: \beta_1 = 0. \)

Eight estimating equations were developed by using two different measures of company operating performance and by dividing the sample data into three separate subsets. Normalized versions of operating income and net income were used as different measures of company operating performance. The sample data were divided into manufacturing, trading, and service company subsets.

A questionnaire was mailed to 1136 potential ESOP companies. A total of 207 questionnaires were returned, 165 of which were usable. The usable responses constitute a response rate of approximately 20% since the number of actual ESOP companies on the mailing list is estimated to be between 750 and 850.

The overall soundness of the data was tested in two ways. First, in a test for nonresponse bias, thirty early responses were statistically compared to thirty late responses. The test gave no evidence of nonresponse
bias. Second, in a test for reliability, financial data from seven questionnaires returned by publicly-held corporations were checked against information contained in Standard and Poor's Corporation Records and only rounding differences were detected.
CHAPTER V

DATA ANALYSIS AND TESTS OF THE HYPOTHESES

Introduction

The purpose of this chapter is to present the results of the statistical analysis of the data. As discussed in the preceding chapter, the linear regression model which is employed in this study is

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \]

where \( Y \) can be either the operating income ratio or the net income ratio. The two criterion variables, then, form two separate models when each is regressed against the common set of explanators \( X_i \).

These two models were tested in three phases. First, a test was performed to determine whether the sample data should be pooled or disaggregated in the models. Second, the general hypotheses of the study were tested in conformity with the results of the first test. Finally, appropriate tests were performed relative to the underlying assumptions of the general multiple linear regression model.
Subset Analysis

The data were statistically analyzed to determine whether the hypothesized relationships are significantly different among the subsets which were described in the previous chapter. The Chow test was employed for this purpose. This test is described by Murphy as "... a test of equality between coefficients in two identical models based on two different data sets."¹

To perform the Chow test separate regression equations were calculated for the subsets and the pooled data. The test indicates whether there are significant differences among the coefficients \( b_i \) of the subsets. If there are no significant differences the data should be pooled and no separate analysis should be made of the subsets. That is, no differences would exist in the hypothesized relationships among the subsets.

In this test the null hypothesis is \( H_0: \Gamma_M = \Gamma_T = \Gamma_S \) where \( \Gamma \) refers to the matrix of coefficients \( b_i \) of the explanatory variables \( X_i \) in a multiple regression model and the subscripts \( M, T, S \) refer to the manufacturing, trading and service company subsets. The alternative hypothesis is: \( H_a: \Gamma_M \neq \Gamma_T \neq \Gamma_S \).

The results of the Chow test are presented in Table 5. In general, the test compares the residual sum

<table>
<thead>
<tr>
<th></th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Income Model</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pooled Residual</td>
<td>160</td>
<td>186.457</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum of Individual Difference</td>
<td>150</td>
<td>157.167</td>
<td>1.0478</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>10</td>
<td>29.290</td>
<td>2.9290</td>
<td>2.795</td>
</tr>
<tr>
<td><strong>Net Income Model</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pooled Residual</td>
<td>160</td>
<td>489.342</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum of Individual Difference</td>
<td>150</td>
<td>489.453</td>
<td>3.1297</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>10</td>
<td>19.889</td>
<td>1.9889</td>
<td>.635</td>
</tr>
</tbody>
</table>

\[ F(.01, 10/150) = 2.44 \]
of squares from the pooled least squares regression to the total of the residual sums of squares from the separate subset least squares regressions. Mean squares are calculated for the individual subset residuals and for the difference between the two sum of squares amounts. An F ratio is then formed from these two mean squares. Table 5 reflects the F ratios for both sets of regression equations. As discussed in the preceding chapter, the first model employs the operating income ratio as the criterion variable whereas the second model employs the net income ratio as the criterion variable. From Appendix D of Murphy the critical value of F for 10 and 150 degrees of freedom at the .01 level of significance is 2.44.²

The null hypothesis of the test was rejected for the operating income model but not for the net income model. The Chow test results indicate that the data should be disaggregated in the analysis of the operating income model while pooling of the data would be appropriate for analysis of the net income model.

Tests of the General Hypotheses

Overall Significance of the Models

The first general hypothesis tested was:

(1) There is no statistically significant relationship between company operating

²Ibid, p. 205.
performance and the ESOP-related variables. H₀: \( R^2 = 0 \).

This hypothesis focuses on the overall explanatory power of the multiple regression models that have been developed.

The overall significance of a multiple regression model can be measured by the multiple coefficient of determination \( R^2 \). From Murphy,

\[
R^2_{Y.23} = \frac{\text{Variation of } Y \text{ explained by } X_2 \text{ and } X_3}{\text{Total variation of } Y}
\]

in the case of a model with two explanators \( X_2 \) and \( X_3 \).³ Of course, a high \( R^2 \) is indicative of a highly significant model.

As explained by Murphy, \( R^2 \) can be tested for statistical significance.⁴ The null hypothesis for the test is \( H_0: R^2 = 0 \). The test statistic is given by Murphy as:

\[
F = \frac{\text{mean square explained}}{(K-1, T-K)} \frac{\text{mean square residual}}{\text{mean square residual}}
\]

where \( K \) is the number of parameters in the regression equation and \( T \) is the number of observations.⁵

Table 6 presents the results of the \( R^2 \) significance tests for all equations in both models. The null hypothesis was rejected in the operating income model for the

³Ibid., p. 146.

⁴Ibid., p. 205.

⁵Ibid., p. 208.
pooled data and for the manufacturing group both at the .019 level of significance. The Chow test, however, indicated that pooling the data in this model was not appropriate. On the other hand, the null hypothesis cannot be rejected at any reasonable significance level in the net income model.

TABLE 6
OVERALL SIGNIFICANCE OF REGRESSION EQUATIONS

<table>
<thead>
<tr>
<th></th>
<th>$R^2$</th>
<th>F Value</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Income Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pooled Data ($N = 165$)</td>
<td>.0708</td>
<td>3.048</td>
<td>.019</td>
</tr>
<tr>
<td>Manufacturing Group ($N = 80$)</td>
<td>.1441</td>
<td>3.156</td>
<td>.019</td>
</tr>
<tr>
<td>Trading Group ($N = 40$)</td>
<td>.1486</td>
<td>1.527</td>
<td>.216</td>
</tr>
<tr>
<td>Service Group ($N = 45$)</td>
<td>.0490</td>
<td>.516</td>
<td>.725</td>
</tr>
<tr>
<td><strong>Net Income Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pooled Data ($N = 165$)</td>
<td>.0363</td>
<td>1.509</td>
<td>.202</td>
</tr>
<tr>
<td>Manufacturing Group ($N = 80$)</td>
<td>.0675</td>
<td>1.357</td>
<td>.257</td>
</tr>
<tr>
<td>Trading Group ($N = 40$)</td>
<td>.0756</td>
<td>.535</td>
<td>.711</td>
</tr>
<tr>
<td>Service Group ($N = 45$)</td>
<td>.0554</td>
<td>.587</td>
<td>.674</td>
</tr>
</tbody>
</table>
The $R^2$ significance tests were consistent with the Chow test. In the operating income model the manufacturing group $R^2$ was statistically significant while the $R^2$ statistics of the other two groups were not statistically different from zero. In the net income model none of the $R^2$ statistics were significant.

**Significance of the Individual Coefficients**

The hypotheses tested in this section were:

1. There is no statistically significant relationship between company operating performance and the percentage of a company's stock owned by the ESOP. 
   \[ H_0 : B_1 = 0. \]

2. There is no statistically significant relationship between company operating performance and the size of the contribution that has been made to the ESOP. 
   \[ H_0 : B_2 = 0. \]

3. There is no statistically significant relationship between company operating performance and the period of time the ESOP has been in existence. 
   \[ H_0 : B_3 = 0. \]

4. There is no statistically significant relationship between company operating performance and the percentage of ESOP-covered employees who have vested interests in the ESOP. 
   \[ H_0 : B_4 = 0. \]

The hypotheses were tested by performing $t$ tests on the coefficients $B_i$ of the explanators. The results of the $t$ tests are given in Table 7 for the operating income model and in Table 8 for the net income model.

In Table 7, the results for the manufacturing group are of special interest. Recall that the Chow test
### TABLE 7

**REGRESSION COEFFICIENTS**

(Criterion Variable: Operating Income Ratio)

<table>
<thead>
<tr>
<th>Explanatory Variable</th>
<th>Pooled Data (N = 165)</th>
<th>Manufacturing Companies (N = 80)</th>
<th>Trading Companies (N = 40)</th>
<th>Service Companies (N = 48)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regression Coefficient</td>
<td>Standardized Regression Coefficient</td>
<td>t Value</td>
<td>Regression Coefficient</td>
</tr>
<tr>
<td>$X_1$</td>
<td>.004</td>
<td>.095</td>
<td>1.073</td>
<td>-.006</td>
</tr>
<tr>
<td>$X_2$</td>
<td>.025</td>
<td>.179</td>
<td>1.991**</td>
<td>.050</td>
</tr>
<tr>
<td>$X_3$</td>
<td>-.005</td>
<td>-.077</td>
<td>.973</td>
<td>.002</td>
</tr>
<tr>
<td>$X_4$</td>
<td>.004</td>
<td>.140</td>
<td>1.828*</td>
<td>.011</td>
</tr>
<tr>
<td>Constant</td>
<td>.797</td>
<td>-</td>
<td>3.387**</td>
<td>.729</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at .05 level; **Significant at .025 level
### TABLE 6
REGRESSION COEFFICIENTS
(Criterion Variable: Net Income Ratio)

<table>
<thead>
<tr>
<th>Explanatory Variable</th>
<th>Regression Coefficient</th>
<th>Standardized Regression Coefficient</th>
<th>t Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pooled Data (N = 165)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_i$</td>
<td>-.003</td>
<td>-.040</td>
<td>.446</td>
</tr>
<tr>
<td>$X_2$</td>
<td>.030</td>
<td>.140</td>
<td>1.525</td>
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<tr>
<td>$X_3$</td>
<td>.009</td>
<td>.094</td>
<td>1.156</td>
</tr>
<tr>
<td>$X_4$</td>
<td>-.004</td>
<td>-.090</td>
<td>1.153</td>
</tr>
<tr>
<td>Constant</td>
<td>1.517</td>
<td></td>
<td>3.978**</td>
</tr>
<tr>
<td><strong>Manufacturing Companies (N = 80)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_i$</td>
<td>.005</td>
<td>.084</td>
<td>.657</td>
</tr>
<tr>
<td>$X_2$</td>
<td>.011</td>
<td>.058</td>
<td>.453</td>
</tr>
<tr>
<td>$X_3$</td>
<td>.020</td>
<td>.205</td>
<td>1.796*</td>
</tr>
<tr>
<td>$X_4$</td>
<td>-.001</td>
<td>-.025</td>
<td>.221</td>
</tr>
<tr>
<td>Constant</td>
<td>.972</td>
<td></td>
<td>1.731*</td>
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<tr>
<td><strong>Trading Companies (N = 40)</strong></td>
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<tr>
<td>$X_i$</td>
<td>-.006</td>
<td>-.064</td>
<td>.319</td>
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<td>$X_2$</td>
<td>.052</td>
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<td>$X_3$</td>
<td>-.005</td>
<td>-.040</td>
<td>.901</td>
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<td>$X_4$</td>
<td>-.013</td>
<td>-.192</td>
<td>1.071</td>
</tr>
<tr>
<td>Constant</td>
<td>2.511</td>
<td></td>
<td>2.320**</td>
</tr>
<tr>
<td><strong>Service Companies (N = 45)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_i$</td>
<td>-.009</td>
<td>-.205</td>
<td>1.029</td>
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<td>$X_2$</td>
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<tr>
<td>$X_3$</td>
<td>-.001</td>
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<tr>
<td>$X_4$</td>
<td>-.003</td>
<td>-.098</td>
<td>.599</td>
</tr>
<tr>
<td>Constant</td>
<td>1.556</td>
<td></td>
<td>3.293**</td>
</tr>
</tbody>
</table>

*Significant at .05 level; ** Significant at .025 level
indicated that pooling the data in this model is not appropriate. In the manufacturing group the null hypothesis was rejected at the .05 level of significance with respect to $X_1$ and $B_1 > 0$. This result suggests that there was a statistically significant positive relationship between operating income and percentage of company stock owned by the ESOP with respect to manufacturing companies. The null hypothesis was also rejected at the .025 level of significance with respect to $X_4$ and $B_4 > 0$. This result suggests that there was a statistically significant positive relationship between operating income and the percentage of ESOP-covered employees who have vested interests in the plan with respect to manufacturing companies. Further, the standardized regression coefficients (beta weights) indicate that $X_1$ and $X_4$ were of equal importance as explanators in the model for manufacturing companies.

The null hypothesis $H_0$: $B_1 = 0$ cannot be rejected in any of the other equations in Tables 7 and 8. In the manufacturing group of the net income model (Table 8), $X_3$ was significant at the .05 level. However, the Chow test indicated that the data should be pooled in this model. Consequently, the three tests that have been performed on the two models indicate that statistically significant relationships exist only for the manufacturing group in the operating income model.
Tests on the Assumptions of the Multiple Regression Model

Since certain of the hypothesized relationships of the study appear to exist in the operating income manufacturing company model, this model was further tested for validity. That is, tests were performed which would have indicated whether certain assumptions of the multiple regression model had been violated. If an assumption was violated the specified model could not be accepted as a valid model.

The Assumptions

Murphy lists seven underlying assumptions for the general multiple linear regression model containing k exogenous variables and T observations:

(1) The exogenous variables are fixed rather than random so that $(X'X)$ is a matrix of real numbers, and the vector of values for any $x_k$, $k = 2, 3 \ldots, K$ is independent of the disturbance term.

(2) For $t = 1, 2, \ldots, T$, $\varepsilon_t$ is a normally distributed random variable.

(3) For $t = 1, 2, \ldots, T$, the expectation of $\varepsilon_t$ is zero.

(4) For $t = 1, 2, \ldots, T$, $\varepsilon_t$ has a finite variance $\sigma_t^2$.

(5) Noncontemporaneous disturbances are independently distributed. For any $t \neq s$, both $t, s, = 1, 2, \ldots, T$, $E(\varepsilon_t \varepsilon_s) = 0$.

(6) The number of observations exceeds the number of coefficients to be estimated: $T > K$.  

(7) The set of predetermined variables, $X_1$, $X_2$, . . . , $X_k$ are linearly independent so that $(X'X)^{-1}$ exists.\textsuperscript{6}

Murphy also notes generally that it is impractical to check for all the assumptions because all possible samples of the variables cannot be taken and the true parameters of the model cannot be known.\textsuperscript{7} Nonetheless, certain tests can be performed on the sample data which are useful in indicating that an assumption has been violated. However, emphasis must be given to the fact that these tests cannot be conclusive in verifying the assumptions.

The testable assumptions which are crucial in a cross-section model are numbers (4) and (7). Number (4) is known as the assumption of homoscedasticity. Assumption (7) refers to the linear independence of the explanatory variables $X_i$. These two assumptions are further explained and tested in the following two subsections.

Test for Homoscedasticity

The assumption of homoscedasticity refers to the variance of the disturbance term $\varepsilon_t$ in the model. Specifically, the model requires that the variance of $\varepsilon_t$ be constant. Where the variance of $\varepsilon_t$ is not constant, the data are heteroscedastic.

The condition of heteroscedasticity may be detected by examining the residuals $e_t$ of the sample data where

\textsuperscript{6}Ibid., pp. 186-188.

\textsuperscript{7}Ibid., p. 85.
et = Y_t - \hat{Y}_t. Specifically, Murphy suggests plotting the residuals e_t against the estimated values of the endogenous variable \hat{Y}. Murphy asserts that "... V-shaped, egg timer shaped, football shaped distributions, etc., indicate that V(e_t) is not constant."^9

Figure 1 shows a plot of e_t against \hat{Y}_t for the operating income-manufacturing company model. Since the plots do not assume the kind of shape mentioned by Murphy, no evidence of heteroscedasticity is obtained. Further, the plots do not appear to form any particular shape. This lack of shape in the plots also supports assumptions (2) and (3). That is, the residuals appear to be normally distributed with mean zero.

Test for Multicollinearity

Multicollinearity is a common problem in multiple regression models and is related to assumption (7). Generally, multicollinearity refers to the existence of a high degree of correlation among the exogenous variables in a multiple regression model. For example, X_1 and X_2 may be highly correlated. The condition can be illustrated more generally as high correlation between X_k and X_j where j \neq k.

^8Ibid., p. 302.

^9Ibid.
FIGURE 1

PLOT OF STANDARDIZED RESIDUALS (VERTICAL AXIS)
AGAINST STANDARDIZED ESTIMATED VALUES OF THE
CRITERION VARIABLE (HORIZONTAL AXIS)
The precision of the estimated coefficients $B_i$ is adversely affected when severe multicollinearity is present. Murphy describes the problem as follows:

In a multiple regression, the partial regression coefficient is supposed to provide the partial effect on the endogenous variable due to a unit change in the corresponding predetermined variable holding the linear effect of all other included variables constant. However, when multicollinearity occurs, each variable in the collinear set may be sharing in the explanatory role of any and all variables in the set. Consequently, it is very misleading to interpret the partial regression coefficient as the distinct effect of a separate, individual variable.10

Since four of the five general hypotheses of this study relate directly to the coefficients $B_i$ of the specified model, severe multicollinearity would be a particularly serious problem.

A model can be statistically tested for the presence of severe multicollinearity. The test is based on the matrix-vector concept of linear dependence. Assumption (7), as mentioned, relates to this concept. Murphy describes the assumption as follows:

The meaning of this assumption is that no column vector of observations can be written as a multiple of any other column or as a linear combination of any of the other observation vectors. It is assumed that the predetermined variables are independent of each other

---

10Ibid., p. 369.
so that each has a separate, measurable effect on the endogenous variable.\textsuperscript{11}

Actually, as noted by Murphy, perfect dependency between any two column vectors in a model is highly unlikely.\textsuperscript{12} Such a condition of perfect dependency would mean that the two exogenous variables involved would be perfectly correlated.

As mentioned above, multicollinearity involves high (not necessarily perfect) correlation among the exogenous variables. Mathematically, multicollinearity involves near dependency among the column vectors of the matrix of the exogenous variables. Viewed in this way, the condition might also be described as a near violation of assumption (7).

Multicollinearity or near dependency in the matrix of the exogenous variables can be detected by statistically analyzing the simple correlation coefficients of the model:

Dependencies among the predetermined variables are reflected in the matrix of simple correlation coefficients between all pairs of these variables since this matrix is calculated from the simple moment matrix.\textsuperscript{13}

The matrix of simple correlation coefficients is denoted $R^*$ and Murphy notes that "... a dependency among the set

\begin{itemize}
  \item \textsuperscript{11}Ibid., p. 368.
  \item \textsuperscript{12}Ibid.
  \item \textsuperscript{13}Ibid., p. 377.
\end{itemize}
(\(X_k\)) would imply that the determinant of \(R^*\) is zero. \(^{14}\)

Further, as noted by Murphy, the determinant of \(R^*\) is one (\(|R^*| = 1\)) when no correlation is present among the exogenous variables. \(^{15}\)

The matrix of simple correlation coefficients for the operating income-manufacturing company model is presented in Table 9. Murphy gives a chi-square test for this matrix for which the null hypothesis is \(H_0: |R^*| = 0\) where \(|R^*|\) is the determinant of \(R^*\). The test statistic is

\[
\chi^2 = - [T-1-(1/6)(2K+5)] \ln (1- |R^*|)
\]

with \(K(K-1)/2\) degrees of freedom. \(^{16}\)

**TABLE 9**

**OPERATING INCOME-MANUFACTURING COMPANY MODEL**

**SIMPLE CORRELATION COEFFICIENT MATRIX**

<table>
<thead>
<tr>
<th>Variable</th>
<th>(X_1)</th>
<th>(X_2)</th>
<th>(X_3)</th>
<th>(X_4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(X_1)</td>
<td>1.00000</td>
<td>.48256</td>
<td>.14209</td>
<td>-.08591</td>
</tr>
<tr>
<td>(X_2)</td>
<td>.48256</td>
<td>1.00000</td>
<td>.19237</td>
<td>-.11191</td>
</tr>
<tr>
<td>(X_3)</td>
<td>.14209</td>
<td>.19237</td>
<td>1.00000</td>
<td>.04930</td>
</tr>
<tr>
<td>(X_4)</td>
<td>-.08591</td>
<td>-.11191</td>
<td>.04930</td>
<td>1.00000</td>
</tr>
</tbody>
</table>

\(^{14}\)Ibid., p. 379.

\(^{15}\)Ibid.

\(^{16}\)Ibid.
The determinant of the matrix in Table 9 is .722. Based on $|R^k| = .722$ the calculated $\chi^2$ test statistic is 97.93 with $5(5-1)/2 = 10$ degrees of freedom. The critical value of $\chi^2$ for 10 degrees of freedom from Fisher and Yates is 23.209 at the .01 level of significance and 29.588 at the .001 level of significance.\textsuperscript{17} The null hypothesis is thus rejected at the .001 level of significance.

In summary, the assumptions enumerated above were apparently satisfied by the operating income-manufacturing company model. The methodology of the study supports assumption (1). The residual plot given in Figure 1 supports assumptions (2), (3) and (4). Assumption (5) (no autocorrelation) is generally not violated in cross-sectional models. Assumption (6) obviously holds ($80 > 5$). Finally, assumption (7) is supported by the chi-square test for multicollinearity.

Summary

The sample data provided by the questionnaire survey were analyzed in three phases. First, the data were analyzed to determine whether the sample should be pooled into one group or disaggregated into subsets. Second, the five general hypotheses of the study were tested on the two multiple regression models developed in the preceding

\textsuperscript{17}Ronald A. Fisher and Frank Yates, Statistical Tables for Biological, Agricultural and Medical Research, 6th ed. (New York: Hafner Press, 1963), p. 47.
chapter. Finally, the operating income-manufacturing company model was further tested to determine whether certain basic assumptions of the general multiple linear regression model were violated.

The Chow test was used to determine whether the sample should be pooled or disaggregated. This is a test of equality of coefficients among the subsets of observations in a given regression model. The test indicated that the sample should be disaggregated into manufacturing, trading and service company subsets in the operating income model while pooling would be appropriate in the net income model.

With respect to the first general hypothesis, $R^2$ was tested for significance for all eight regression equations that were generated in the study. A regression equation was calculated for the pooled data and each of the three subsets in both models. The $R^2$ was statistically significant for the pooled data and the manufacturing group in the operating income model. Since the Chow test indicated that the data should not be pooled in this model, the null hypothesis was rejected only for the operating income-manufacturing company model.

The four remaining general hypotheses relate to the explanatory variables in the multiple regression model. These hypotheses were tested by examining the coefficients $B_i$ of these variables. Specifically, $t$ tests were performed on the coefficients with the null hypothesis $H_0: B_i = 0.$
Considering the results of the Chow test, the null hypothesis was rejected only for $X_1$ and $X_4$ in the operating income-manufacturing company model. These tests suggest that there is a statistically significant positive relationship between operating income and these two explanatory variables: percentage of company stock owned by the ESOP ($X_1$) and the percentage of ESOP-covered employees who have vested interests in the plan ($X_4$).

The third phase of the data testing process involved a further testing of the operating income-manufacturing company model for validity. That is, further tests were performed to determine whether certain underlying assumptions of the general multiple linear regression model may have been violated. An analysis of the least squares residuals indicated that the assumption of homoscedasticity was not violated. Then the chi-square test for linear dependency indicated that severe multicollinearity was not present in the model. The operating income-manufacturing company model was, therefore, assumed to be a valid model.
CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This final chapter summarizes the study and presents the conclusions that are based on the findings of the investigation. The chapter first summarizes the details of the investigation which are contained in the preceding five chapters. The conclusions of the study are then presented. The third section of the chapter contains a comparison of the results of this study to the results of other relevant studies. Finally, the last section of the chapter gives some recommendations for future research on the subject of ESOPs.

Summary

An employee stock ownership plan (ESOP) is a deferred compensation program that qualifies under the Internal Revenue Code (IRC) to grant tax benefits to corporations and employees of corporations. A corporation receives a tax benefit by transferring shares of its own stock to a trust (ESOT) established for the benefit of its employees. The trust is not taxed on the receipt of the shares nor on dividends paid on the shares. The
employees are not taxed until distributions from the trust are received, and taxation at that time is favorable.

There are three different types of ESOPs. Stock bonus plans (SBPs) have been permitted by the IRC for many years. Pursuant to an SBP, a corporation makes annual, deductible contributions to an ESOT. Since the ESOT can distribute employee benefits only in the form of employer stock, the trust must convert its assets to employer stock at some point prior to distribution unless the contributions were made directly in the form of employer stock. Leveraged ESOPs were added to the IRC in 1974 by the Employee Retirement Income Security Act (ERISA). Under a leveraged ESOP, the ESOT obtains a bank loan which is generally guaranteed by the corporation. The proceeds of the loan are used to purchase stock from the corporation which then makes annual, deductible cash contributions to the ESOT. These cash contributions are used by the ESOT to repay the loan. Investment credit ESOPs were created by the Tax Reduction Act of 1975. An investment credit ESOP permits a corporation to receive an additional 1% to 1 1/2% investment tax credit if it transfers shares of its own stock equal in amount to the ESOT.

ESOPs have gained greatly in popularity since 1974. The ESOP Council of America estimates that less than 400 ESOPs were in operation prior to 1974. By
1978 the number exceeded 2,200. Accordingly, the business literature has given much attention to this topic since 1974. This attention has raised many issues which involve several academic disciplines.

Since ESOPs are related to tax incentives, the issue of tax policy has been raised. Advocates of ESOP tax incentives maintain that ESOPs benefit society by increasing business efficiency. This increased efficiency is a result of increased productivity of workers who are motivated by their participation in ESOPs. However, very little empirical evidence is available to support this position.

ESOPs involve financial accounting problems relative to the balance sheet, income statement and supplemental disclosure. Further, all of the transactions of an ESOP are potentially subject to SEC registration.

The most controversial accounting issue relative to ESOPs is the reporting of the bank loan which is involved in a leveraged ESOP. Both the AICPA and the SEC accounting staff recommend that this debt be reported as a liability of the sponsoring corporation. The theory supporting this approach is based on the doctrine of substance over form. That is, the loan is, in reality, being made to the corporation since there is no economic substance to the ESOT. The opposing view asserts that this debt does not generally conform to the accounting definition of a liability and should be reported by the
corporation according to the provisions of Financial Accounting Standard No. 5, "Accounting for Contingencies."

An ESOP might also cause a tax allocation problem. If the contributions to an ESOP exceed the 15% limit in a given year, the excess can be carried forward and deducted in a future year. If this situation is viewed as a tax-accounting timing difference, a tax benefit would be recognized and the deferred tax account would be reduced in the year of the excess contribution. However, the AICPA recommends that such a carryforward should be reported in conformity with APB Opinion No. 11 which permits the recognition of a tax benefit only "when realization is assured beyond any reasonable doubt."

An ESOP can cause income statement problems relative to the measurement of compensation expense, to the calculation of earnings per share and to the accounting for the additional investment tax credit. Compensation expense is recorded when an ESOP contribution is made. APB Opinion No. 25 requires the compensation expense to be based on the fair market value of the shares transferred. In the case of a publicly-held corporation, FMV is to be based on the quoted market price. If the stock is not publicly traded the FMV must be estimated. This estimate should conform to the value that is determined for tax purposes. The AICPA and SEC accounting staff recommend that all common shares held by an ESOP be included in the EPS calculation. This treatment is inconsistent with
the reporting of the bank loan as a liability on the em-
ployer's balance sheet. However, a similar inconsistency
is contained in APB Opinion No. 15, which requires con-
vertible bonds to be reported as a debt on the balance
sheet and as common stock equivalents on the income state-
ment under certain conditions. Finally, the AICPA recom-
mends that companies use the flow-through method in
accounting for the additional investment tax credit. How-
ever, section 101(c) of the Revenue Act of 1971 permits
the use of either the flow-through method or the deferred
method in accounting for any investment tax credit for
corporations required to file financial reports with
federal agencies.

There are no authoritative disclosure rules per-
taining specifically to ESOPs. However, a review of the
authoritative pronouncements which apply to other types of
employee benefit plans indicates that the minimum sup-
plemental disclosure pertaining to an ESOP would be as
follows:

1. A description of the plan and the employee
groups covered.

2. A statement of accounting policies relevant
to the ESOP.

3. The value of and number of shares contri-
buted to the ESOP for each period for which
an income statement is presented.

The following ESOP transactions are potentially sub-
ject to SEC registration:
1. Creating an interest in the plan for a participant.

2. The transfer of stock from the sponsoring corporation to the ESOT.

3. The distribution of stock to a participant.

4. The subsequent sale of ESOT-distributed stock by a participant.

5. The purchase by the ESOT of employer stock from a shareholder of the sponsoring corporation.

SEC registration will be required for each of the above transactions unless (A) the transaction is not within the scope of the Securities Acts, or (B) the transaction is subject to an exemption contained in the Acts. A transaction will not be within the scope of the Securities Acts if the facts of the case indicate that no sale of a security has taken place. The SEC has generally supported application of the "no sale theory" to ESOPs where (1) the participants make no investment decisions, (2) the trust does not purchase the stock and (3) no participant contributions are used to purchase stock. The two specific exemptions most likely to apply to ESOPs are the private placement exemption and the intrastate offering exemption. The private placement exemption generally requires that the purchaser of securities be in a position to obtain and understand all relevant information about the issuer. The intrastate offering exemption requires that the issuer and the purchaser reside in the same state. The consequence of not
registering stock contributed to an ESOT, however, is that the stock will be restricted in the hands of the distributee. ESOT-distributed stock that is restricted cannot be sold by the distributee to anyone other than the ESOT for a period of two years after the stock has vested.

Before making an ESOP decision, management should evaluate an ESOP in three areas. First, the decision should be analyzed financially. Second, the possible impact of an ESOP on organizational behavior should be considered. Third, an ESOP should be compared with other alternative benefit plans.

Management should consider the financial impact of an ESOP decision from the point of view of the shareholder group in existence prior to the implementation of such a decision. The impact of an ESOP on a firm's cash flow, earnings, net assets and shares outstanding will vary depending on the type of ESOP which is considered. The net effect of adopting a stock bonus plan is the same as selling stock to the public and making cash contributions to a qualified employee trust, unless the SBP motivates the employees to become more productive. The net effect of a leveraged ESOP is the same as obtaining a bank loan directly and making contributions of stock to an ESOT over the term of the loan. However, a leveraged ESOP can be useful in financing certain transfers of ownership such as selling all or part of a corporation to its employees. Finally, the
effect of an investment credit ESOP is that the government purchases employer stock for the employees. Financially, taking the additional tax credit is equivalent to selling stock to the public unless there is no market for the stock or the employees are motivated by their stock ownership.

An ESOP may affect organizational behavior by motivating employees. The motivation potential of an ESOP seems to involve two questions:

1. Are employees motivated by employee ownership?
2. Do employees perceive an ownership interest flowing from an ESOP?

With respect to the first question, the expectancy theory of motivation can be used as the basis for an affirmative answer. This general theory of motivation can be expressed as follows:

\[
\text{Motivation} = (E + P)(P + O)(V)
\]

where \( E + P \) is the expectation an individual has that increased effort will lead to increased performance, \( P + O \) is the expectation that the increased effort will lead to some anticipated outcome and \( V \) (for valence) is the value associated with the anticipated outcome. Employee ownership strengthens the relationship between organizational performance and personal reward because the employee,
as an owner, benefits from corporate profit.\footnote{See Richard J. Long, "The Effects of Employee Ownership on Job Attitudes and Organizational Performance: An Exploratory Study," Ph.D. Dissertation, Cornell University, 1977, p. 13.} Thus, the employee should place a high valence on the anticipated outcome of increased corporate profits. Employee ownership may motivate a workforce, then, where the $E \rightarrow P$ and $P \rightarrow 0$ expectancies are high and where peer pressure can be exerted.

The answer to the second question would seem to depend on how the ESOP is used by management. The holding of nonvoting stock or other assets by the ESOT would probably detract from the motivating effects of an ESOP. The same could be said of restrictive vesting requirements. Further, the motivation potential of an ESOP would also seem to depend heavily on the effective communication of the details and implications of the ESOP to the employees.

The third area of management evaluation is the comparison of an ESOP with the available alternative benefit plans. As an employee benefit plan, an ESOP has both compensation and retirement characteristics. If an ESOP is to be used primarily as a compensation plan, it should be compared to some type of nonqualified bonus plan. A bonus plan pays employees a periodic bonus based on either organizational performance or individual performance.
This alternative has motivation potential but avoids the administrative complexities of a qualified plan. If, on the other hand, an ESOP is to be used as a retirement plan, it should be compared to either a profit sharing plan or a defined benefit plan. These alternatives generally offer employees more retirement security through a diversified trust fund. A thorough analysis, however, will reveal that an ESOP has advantages for both employer and employee when compared to these alternative plans.

The primary objective of this study was to provide ESOP policy makers with empirical evidence which would be useful in the formulation of future ESOP policy. Specifically, the investigation attempted to reveal (A) whether any relationship exists between company operating performance and ESOPs and (B) the nature of any relationship which might be found to exist.

This empirical investigation was carried out in three phases. First, an econometric model was formulated which could be used to test the general hypotheses of the study. Second, the data for the model were collected through a questionnaire survey of 1136 potential ESOP companies. Third, the data were analyzed and the hypotheses were tested by statistically validating the model.

Considering the objectives of the study, the following linear explanatory model was formulated:

\[ Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \varepsilon \]
where:

\[ Y = \text{company operating performance} \]

\[ \beta_i = \text{the true coefficients of the model} \]

\[ \varepsilon = \text{the error term in the model} \]

\[ X_1 = \text{percentage of company stock owned by the ESOP} \]

\[ X_2 = \text{size (as a percentage of payroll) of the prior year contribution to the ESOP} \]

\[ X_3 = \text{period of time the ESOP has been in existence} \]

\[ X_4 = \text{percentage of ESOP-covered employees who have vested interests in the plan.} \]

Two measures of company operating performance were used as separate criterion variables to form two separate models when each was regressed against the common set of explainators. The first criterion variable consisted of the ratio of operating profit with depreciation added back to sales divided by the like ratio for the industry to which the company belongs. The second criterion variable used after-tax net income instead of operating income with depreciation added back. The second criterion variable permits the analysis to be made on an after-tax basis, and a comparison of the two models might indicate that ESOP tax benefits are more important than the indirect effects of increased working capital and employee motivation.

The general hypotheses of the study were as follows:
(1) There is no statistically significant relationship between company operating performance and the ESOP-related variables.

(2) There is no statistically significant relationship between company operating performance and the percentage of a company's stock owned by the ESOP.

(3) There is no statistically significant relationship between company operating performance and the size of the contribution that has been made to the ESOP.

(4) There is no statistically significant relationship between company operating performance and the period of time the ESOP has been in existence.

(5) There is no statistically significant relationship between company operating performance and the percentage of ESOP-covered employees who have vested interests in the ESOP.

In general, hypothesis (1) pertains to the overall explanatory power of the model. Each of the other four hypotheses pertains to the significance of an explanatory variable in the model. These hypotheses were tested by statistically testing the following null hypotheses relative to the models:

\[ H_0: \ R^2 = 0 \]
\[ H_0: \ B_i = 0 \]

Since the sample data represented company activity for the year of 1977, the analysis was cross-sectional in nature.

A questionnaire was sent to 1136 potential ESOP companies on June 16, 1978 with a follow-up mailing on July 28, 1978. Of the 1136 companies surveyed, 750 to
850 are estimated to actually be ESOP companies. A total of 165 usable replies were received resulting in a response rate of approximately 20%. The replies were distributed as follows:

<table>
<thead>
<tr>
<th>Company Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing companies</td>
<td>80</td>
</tr>
<tr>
<td>Trading companies</td>
<td>40</td>
</tr>
<tr>
<td>Service companies</td>
<td>45</td>
</tr>
<tr>
<td>Total usable responses</td>
<td>165</td>
</tr>
</tbody>
</table>

The sample was partitioned into these subsets to make the analysis more useful.

The overall soundness of the data was tested in two ways. First, in a test for nonresponse bias, thirty early responses were statistically compared to thirty late responses. The test gave no evidence of nonresponse bias. Second, in a test for reliability, financial data from seven questionnaires returned by publicly-held corporations were checked against information contained in Standard and Poors Corporation Records and only rounding differences were detected.

The data were analyzed in four phases. First, the least squares method was used to estimate the parameters of the models. Second, a test was performed to determine whether the data should be pooled or disaggregated in the models. Third, the general hypotheses of the model were tested in conformity with the results of the second test.
Fourth, appropriate tests were performed relative to the underlying assumptions of the general multiple linear regression model.

Eight estimating equations were calculated using the least squares method. Equations were estimated for the pooled data and each of the three subsets in both models developed above.

The Chow test was used to determine whether the data should be pooled or disaggregated in the models. This test is a statistical test of equality of coefficients in identical regression models using different data sets. The results of the test indicated that the sample data should be disaggregated in the operating income model and pooled in the net income model.

The general hypotheses of the study were tested by statistically testing $H_0: R^2 = 0$ and $H_0: B_i = 0$ on the appropriate estimated equations. In accordance with the results of the Chow test, these hypotheses were tested on the three subset equations in the operating income model and on the pooled data equation in the net income model.

Statistically significant relationships were found only in the operating income model for the manufacturing company subset. For this equation, $R^2$ was $0.1441$ which was statistically significant at the $0.019$ level. Two of the coefficients $B_i$ were also statistically significant in
this equation. $B_1$ was a positive .006 which was significant at the .05 level and $B_4$ was a positive .004 which was significant at the .025 level. These results indicate a positive statistically significant relationship between pretax operating income and the ESOP for manufacturing companies. Further, the significant variables in this overall relationship are percentage of company stock owned by the ESOP ($X_1$) and percentage of ESOP-covered employees who have vested interests in the plan ($X_4$), which were both positively correlated to the criterion variable.

In the final phase of the data analysis, the operating income-manufacturing company model was further tested for validity. Two tests were performed to determine whether certain underlying assumptions of the general multiple linear regression model were violated. An analysis of the least squares residuals indicated that the assumption of homoscedasticity was not violated. Then the chi-square test for linear dependency indicated that severe multicollinearity was not present in the model. The operating income-manufacturing company model was therefore assumed to be statistically valid.

Conclusions

The ESOP literature relevant to the study has been reviewed. This review has examined certain important ESOP principles and issues. Accordingly, certain conclusions seem evident in this review.
In the tax area, this investigation has revealed that the proper choice of ESOP form is important. Both leveraged ESOPs and investment credit ESOPs must be qualified under other IRC sections in addition to section 401. An ESOP that does not comply with these additional IRC provisions will not qualify for either leveraging or the additional investment tax credit. Perhaps even more important is the conclusion that certain ESOPs should not be qualified under IRC sections other than section 401. That is, the basic SBP form should generally be used where leveraging or the additional tax credit is not desired. SBPs are subject to fewer restrictions than the other two forms and are, therefore, a less complicated and more flexible ESOP mode.

In the area of accounting and financial reporting, several observations are apparent. First, the accounting practice of reporting the ESOP loan on the balance sheet of the sponsoring corporation has eliminated the possibility of using a leveraged ESOP as a method of off-balance sheet financing. This practice, then, has possibly discouraged the use of ESOPs by both large and small corporations. Further, the practice of including the ESOT-held shares in the calculation of earnings per share has possibly discouraged the use of ESOPs by large publicly-owned corporations. The review of the securities law applications to ESOPs revealed that employee contributions will probably subject an ESOP to SEC registration.
This problem may discourage non-SEC companies from taking the extra 1/2% investment credit that is available in an investment credit ESOP if employees make matching contributions. Finally, the fact that unregistered stock is restricted in the hands of an ESOT distributee leads to the conclusion that either the stock should be registered with the SEC, or the distributee should be granted a put option giving him the right to sell the stock back to the company.

As to the management aspects of ESOPs, conclusions are evident in all three areas of management analysis. First, the general financial analysis of the three ESOP forms revealed that the desirability of the leveraged ESOP appears to be limited to specific transfer-of-ownership situations. This conclusion is ironic, because the current popularity of ESOPs is largely the result of the 1974 legislation which made the leveraged ESOP possible. Indeed, the term "employee stock ownership plan" was not generally used until 1974. Nonetheless, the SBP, which has been available in the tax law for many years prior to ERISA appears to be generally more attractive from a financial standpoint than the leveraged ESOP. Second, the potential of an ESOP as a motivator depends on how it is used. In order to realize the full motivation potential of an ESOP, management must be willing to convey employee ownership through the ESOP. This investigation has revealed the several ways that employee
ownership can be limited in an ESOP. Stock bonus plan ESOTs are permitted to invest in assets other than employer stock. All ESOPs are permitted to use nonvoting stock. SBPs and leveraged ESOPs can limit employee ownership through vesting requirements. These limitations on employee ownership could be expected to impair the motivating effects of an ESOP. Third, as an alternative to other possible employee benefit plans, ESOPs have considerable merit. An ESOP should probably be used by a large corporation only as a supplement to its conventional pension plan. However, for a small company, an ESOP may represent an affordable alternative to having no employee retirement benefits beyond social security.

Any conclusions to be formed from the results of the empirical investigation are subject to the methodology and data employed. The method was non-experimental. The method did not involve pre-test/post-test procedures nor did it employ a control group. Since the sample included only ESOP companies, it was, in a sense, self selected. These limitations preclude any inference of causality and also limit the external validity of the study.

The conclusions must also be tempered by the nature of the findings. Statistically significant relationships were indicated by the operating income-manufacturing company model. The statistics, however,
were far from overwhelming. The $R^2$ was low and the coefficients were small. With statistical results such as these the possibility of spurious relationships must be recognized.

Subject to these limitations, then, the findings of this investigation can be contemplated. The results of the statistical analysis indicate that ESOPs are positively associated with operating profit for manufacturing-type companies. This category includes processors, fabricators, construction contractors as well as conventional manufacturing companies. The significant variables in this overall relationship are $X_1$, percentage of company stock owned by the ESOP, and $X_2$, percentage of ESOP-covered employees with vested interests in the plan.

The findings in favor of manufacturing companies are not surprising considering the expectancy theory of motivation reviewed in Chapter III. In a manufacturing-type company the nature of employee job tasks may facilitate the motivating effects of an ESOP. First, in a manufacturing-type operation an employee has more opportunity to increase his own productivity. For example, he can speed up a production process, or he can reduce the waste of a raw material. Second, there is generally more teamwork involved in a manufacturing-type operation. Such an operation normally involves assembly lines, work groups and processes that are interdependent.
In expectancy theory terms, a manufacturing-type employee would probably have greater $E P$ and $P O$ expectancies. These observations are supported by the president of Juice Bowl Products, Inc., a juice canning company, who made the following statement relative to the effects of an ESOP on his company:

The opportunity to develop team effort through ESOP appears to me to be endless. There is no employee who is not in a position to make the company better if he is really motivated to do so. There is no one, from the bottom up, who cannot improve his contribution if he is constantly on the lookout for opportunities . . . Downtime on a high speed production line is no longer a chance for an extra break. Instead, it is lost earnings which affects everyone's investment.  

The two explanatory variables that were statistically significant in the operating income-manufacturing company model can also be related to the ESOP motivation theory developed in Chapter III. The reader should note that the percentage of company stock owned by the ESOP ($X_1$) included only common stock. Accordingly, the theoretical discussion in Chapter III indicated that the use of securities other than common stock might seriously impair the motivating effect of an ESOP. This theory may explain why $X_1$ was statistically significant and $X_2$ was

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not. The size of the prior year ESOP contribution \((X_2)\) most likely included contributions other than common stock. Similarly, the theory in Chapter III indicated that the use of restrictive vesting requirements might also impair the motivating effect of an ESOP. Therefore, the statistical significance of \(X_t^*\) (percentage of ESOP-covered employees who have vested interests in the plan) is not surprising.

These findings have several policy making implications. First, the results would support the general encouragement of ESOPs through tax policy. Any increase in the productivity of the manufacturing sector of the economy would be socially desirable. Second, the use of common stock in an ESOP is supported. Third, more liberal vesting policies for ESOPs are supported. Any corporate management wishing to benefit from increased employee motivation by forming an ESOP should consider using only common stock which is subject to a liberal vesting schedule. Tax policy makers should consider statutory provisions which would encourage the use of common stock and liberal vesting schedules in ESOPs.

**Comparison to Other Studies**

There are only two other studies with which to compare the results of this study. First, Conte and Tannenbaum used a similar approach with a much smaller
They tested an econometric model using data from twenty companies and the results were similar to the results of the operating income-manufacturing company model in this study. Their analysis indicated a statistically significant $R^2$ and statistical significance for percentage of company stock owned by workers. Aside from sample size, there are four methodological differences in the two studies. First, the Conte and Tannenbaum sample was not partitioned into subsets. Second, their criterion variable consisted of the ratio of pretax net income to sales divided by the like ratio for the industry to which the company belongs. Third, their model did not include a variable for vesting. Finally, their statistically significant explanator involved only nonmanagerial personnel. Considering these methodological differences, then, the results of the two studies seem to be fairly consistent.

The study of employee attitudes by Long is only remotely comparable to the present study. The study involved only one company which was directly owned by the employees. The results indicated an improvement of both employee attitudes and organizational performance as a

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result of the change to employee ownership. The two studies are consistent in a very general sense in that they both produced some positive findings relative to the effects of employee ownership. However, they are inconsistent in that the Long study involved a service-type company, and this study produced no positive findings with respect to service-type companies.

**Recommendations for Future Research**

This study as well as the two studies mentioned above all provided limited support in favor of ESOP formation. However, they were all exploratory in nature. Taken together as a whole, they are far from conclusive in their findings. These studies all suffered generally from a paucity of available data on this subject. The ESOP phenomenon is new, and the total number of ESOP companies is small. Further, most of the companies presently operating ESOPs have very limited experience with these plans.

If the current trend of increased ESOP formation continues, more data will be available for future research. The increased availability of data will enable future researchers to design more sophisticated projects which will overcome the weaknesses of these exploratory efforts. Before-after approaches can be employed. Longitudinal studies can be made. Control group designs will be possible. These more sophisticated methods will possess
greater internal and external validity and will make causal inference possible. In short, the problem of determining the fundamental effects of ESOPs is open to a great deal more research.
SELECTED BIBLIOGRAPHY

Books


**Periodicals**


Miscellaneous


CCH SEC Accounting Rules (loose-leaf service).


APPENDIX

REPRODUCTION OF COVER LETTER
AND QUESTIONNAIRE
June 15, 1978

Dear Sir:

We are conducting a research study of the practical effects of employee stock ownership plans (ESOPs). We are attempting to determine what direct and indirect effects operating ESOPs have had on those companies that have adopted them as part of their employee benefit programs. Specifically, our research is an attempt to answer questions such as the following:

1. Does an ESOP have a motivational impact on employees?
2. What direct and indirect effects does an ESOP have on a company's profit performance?
3. Does the impact of an ESOP increase or diminish with the passage of time?
4. Are the effects of an ESOP different for different types of businesses?

We feel that our findings will be quite useful to corporate policymakers with respect to their employee compensation decisions. Accordingly, we will send you a summary of our findings if you will complete the enclosed questionnaire.

Please note that individual company identities and related information will be kept confidential, and that our findings will be reported only in aggregate form.

This research is being sponsored by the ESOP Council of America and California State University, Fullerton. Your cooperation in completing and returning the enclosed questionnaire will be greatly appreciated.

Respectfully yours,

Randy G. Swad
Lecturer in Accounting

CSUF, as an Equal Opportunity Employer, is committed to an Affirmative Action Policy which involves positive action in the hiring of ethnic minorities and women.

The California State University and Colleges
CONFIDENTIAL SURVEY OF EMPLOYEE STOCK OWNERSHIP PLANS

INSTRUCTIONS: Please provide the information requested to the best of your ability. If you are unable (for any reason) to provide certain information, simply leave those items blank and fill-in as much of the questionnaire as possible. Where appropriate, you may provide reasonably accurate estimates.

___ Check here if you wish to receive a summary of our findings and include your name and address.

COMPANY INFORMATION:

1. Amount of total assets reported on most recent fiscal year end balance sheet:
   ___ 0 - $250,000
   ___ $250,000 - $1,000,000
   ___ $1,000,000 - $10,000,000
   ___ $10,000,000 - $50,000,000
   ___ over $50,000,000

2. Type of business:
   ___ Manufacturer
   ___ Processor
   ___ Construction
   ___ Service
   ___ Professional
   ___ Wholesaler
   ___ Retailer
   ___ Other

3. What is your main product or service?

4. What is the date of your most recent annual financial statements?

5. Data from most recent annual income statement. You may give percentages or dollar amounts.
   Sales or Service Revenue 100% $ __________
   Net Income  $ __________
   Operating Income  $ __________
   Depreciation  $ __________
   ESOP Contribution  $ __________

6. Did you use LIFO inventory accounting in your most recent annual financial statements?
   ___ Yes    ___ No
7. Was the operating income on your most recent annual income statement abnormally high or low?

___ Yes ___ High ___ No

___ Low

If yes, what caused the abnormality? ____________________________________________

If yes, what was the approximate size of the abnormality as a percentage of sales?

___

8. Has there been a significant increase or decrease in the level of your operating income since you initiated your ESOP?

___ Yes ___ Increase ___ No

___ Decrease

If yes, what was the approximate size of the increase or decrease (for example, 5% increase):

___% Increase ___% Decrease

If yes, do you feel that this was related to the ESOP?

___ Yes ___ No

PLAN INFORMATION

1. What percentage of your company's common stock is held by the ESOP trust?

___

2. What percentage of your company's common stock is held in trust for nonmanagerial employees?

___

3. What was the size of your ESOP contribution as a percentage of your ESOP-covered payroll:

A) For the most recent year? ___%

B) For the previous year? ___%

4. How long had your ESOP been in existence as of the date of your most recent financial statements?


5. What percentage of the ESOP-owned stock had been vested as of the date of your most recent financial statements?

___%
6. What percentage of your ESOP-covered employees had vested interests in the plan as of the date of your most recent financial statements?

____%  

7. In your opinion, have the details of the ESOP been adequately communicated to your employees?

____ Yes ______ No  

8. Do the ESOP-covered employees vote the shares credited to their accounts in the trust?

____ Yes ______ No  

9. Has the market value of your ESOP-owned stock changed since the inception of the ESOP?

____ Increase ______ Decrease ______ No change  

Percentage increase or decrease ______%  

EMPLOYEE INFORMATION

1. What is the approximate average age of your ESOP-covered employees? _______

2. Have you been able to detect any change in the following since the inception of your ESOP?

A) Annual employee turnover:

____ Increase ______ Decrease ______ No change  

Percentage increase or decrease ______%  

B) Annual employee absenteeism:

____ Increase ______ Decrease ______ No change  

Percentage increase or decrease ______%  

C) Annual dollar loss from employee theft or waste:

____ Increase ______ Decrease ______ No change  

Percentage increase or decrease ______%  

D) Employee productivity (output):

____ Increase ______ Decrease ______ No change  

Percentage increase or decrease ______%  

3. Were any changes indicated above related, in your opinion, to the ESOP?

____(A) ______(B) ______(C) ______(D)
VITA

The author was born in Dennison, Ohio on August 25, 1945. He graduated from Uhrichsville High School in Uhrichsville, Ohio in June, 1963. He received a Bachelor of Business Administration degree from Ohio University in June, 1967 and a Master of Business Administration degree from Florida Atlantic University in June of 1971.

The author has worked as a professional accountant for over four years and has taught at California State University, Los Angeles and at Louisiana State University while working on the doctorate. He is presently on the faculty of California State University, Fullerton.