

## INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

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

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

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

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

**UMI<sup>®</sup>**

Bell & Howell Information and Learning  
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA  
800-521-0600



MANAGING EMPLOYEE COMPENSATION TO SHIFT INCOME BETWEEN  
CORPORATE AND SHAREHOLDER TAX BASES: EVIDENCE FROM  
PRIVATELY-HELD PROPERTY-LIABILITY INSURANCE COMPANIES

By

Bin Ke

A DISSERTATION

Submitted to  
Michigan State University  
in partial fulfillment of the requirements  
for the degree of

DOCTOR OF PHILOSOPHY

Department Of Accounting

1999

**UMI Number: 9936565**

---

**UMI Microform 9936565  
Copyright 1999, by UMI Company. All rights reserved.**

**This microform edition is protected against unauthorized  
copying under Title 17, United States Code.**

---

**UMI**  
300 North Zeeb Road  
Ann Arbor, MI 48103

## ABSTRACT

### MANAGING EMPLOYEE COMPENSATION TO SHIFT INCOME BETWEEN CORPORATE AND SHAREHOLDER TAX BASES: EVIDENCE FROM PRIVATELY-HELD PROPERTY-LIABILITY INSURANCE COMPANIES

By

Bin Ke

This study investigates whether privately-held property and liability insurance companies manage employee compensation to shift income between the firm and shareholder-employees to minimize taxes. It predicts that, when shareholder-employees' marginal tax rates are lower than the corporate marginal tax rate, privately-held insurers shift corporate earnings to shareholder-employees using tax-deductible compensation; when shareholder-employees' marginal tax rates exceed the corporate marginal tax rate, privately-held insurers reduce the amount of corporate earnings shifted to shareholder-employees. The multivariate regression results on a sample of employee-owned and nonemployee-owned privately-held insurers during 1989-96 are consistent with the predictions. The results have important implications for assessing the efficiency of income tax changes and the economic performance of privately-held firms.

## ACKNOWLEDGMENTS

I would like to thank my dissertation committee members - Dr. Naveen Khanna, Dr. Ed Outslay, Dr. Kathy Petroni (chair), and Dr. Peter Schmidt - for their clear guidance and strong support. I am also grateful to the Andersen Foundation for its strong financial support.

I owe what I have achieved to Kathy. She demonstrated to me the excitement of scientific research. She trained me how to think and write. Her enormous patience, understanding and encouragement inspired me to excel. I would like to thank Ed for introducing me the complex tax code in an interesting and painless way. He boosted my confidence to shift my research interest to tax.

I would like to thank my wife, Jingyan Zhu, for her firm belief in my ability. Without her consistent support I might have lost confidence in research. Finally, I would like to thank my parents, brother, and parents-in-law for enlightening me on the real meaning of life.

## TABLE OF CONTENTS

|   |     |
|---|-----|
| LIST OF TABLES .....  | vi  |
| LIST OF FIGURES .....   | vii |
| CHAPTER 1   |     |
| INTRODUCTION AND OVERVIEW .....   | 1   |
| 1.1 Motivation .....  | 1   |
| 1.2 Overview of Research Design and Summary of Results .....            | 3   |
| 1.3 Organization of Remaining Chapters .....                            | 5   |
| CHAPTER 2   |     |
| RECENT HISTORY OF U.S. FEDERAL INCOME TAXATION .....                    | 6   |
| 2.1 The Statutory Tax Rates on Individual and Corporate Taxpayers ..... | 6   |
| 2.2 Other Tax Law Changes .....   | 7   |
| CHAPTER 3   |     |
| RESEARCH HYPOTHESES .....   | 8   |
| 3.1 A Simple Model of Income Shifting .....                             | 8   |
| 3.2 Hypotheses .....  | 11  |
| CHAPTER 4   |     |
| SAMPLE SELECTION AND DESCRIPTIVE STATISTICS .....                       | 13  |
| 4.1 Sample Selection .....  | 13  |
| 4.2 Descriptive Statistics .....  | 15  |
| CHAPTER 5   |     |
| TESTS ON EMPLOYEE COMPENSATION .....                                    | 17  |
| 5.1 Research Design .....   | 17  |
| 5.2 Control Variables .....   | 18  |
| 5.3 Employee Ownership and Tax-Deductible Compensation .....            | 20  |
| 5.4 Regression Results .....  | 21  |
| 5.5 Sensitivity Checks .....  | 23  |
| CHAPTER 6   |     |
| TESTS ON DIVIDEND POLICY .....  | 26  |
| 6.1 Descriptive Statistics .....  | 26  |
| 6.2 Research Design .....   | 27  |
| 6.3 Regression Results .....  | 28  |
| CHAPTER 7   |     |
| CONCLUSIONS .....   | 30  |

7.1 Summary of Results .....30  
7.2 Directions for Future Research .....31  
7.3 Implications .....31  
LIST OF REFERENCES .....33



## LIST OF TABLES

### TABLE

|    |   |    |
|----|---|----|
| 1  | The history of the top statutory tax rates for individuals and taxable corporations .....   | 38 |
| 2  | Progressive tax rate schedules for married taxpayers filing jointly and corporate taxpayers: 1989 and 1994 .....                    | 38 |
| 3  | Sample selection criteria .....   | 39 |
| 4  | Ownership characteristics of employee-owned insurers .....  | 39 |
| 5  | Descriptive statistics by ownership structure .....   | 40 |
| 6  | Percentage changes of selected variables from 1989-92 to 1993-96 by ownership type .....  | 41 |
| 7  | The pearson correlation matrix for selected variables in model (1) .....  | 42 |
| 8  | Pooled multivariate regression results on tax-deductible compensation: 1989-96 .....  | 43 |
| 9  | Pooled multivariate regression results on tax-deductible compensation (1989-96): sensitivity analysis .....                         | 44 |
| 10 | Annual multivariate regression results on tax-deductible compensation: 1989-96 .....  | 45 |
| 11 | Regression of tax-deductible compensation using a continuous measure of corporate and individual marginal tax rate difference ..... | 46 |
| 12 | Tobit regression results on dividend policy: 1989-96 .....  | 47 |

## LIST OF FIGURES

### FIGURE

- 1 The effect of taxes on the tax-deductible compensation for employee-owned insurers relative to nonemployee-owned insurers .....37

## Chapter 1

### INTRODUCTION AND OVERVIEW

#### 1.1 Motivation

A distinctive feature of the U.S. corporate income tax system is double taxation. Corporate earnings are taxed first at the corporate level, and then at the individual shareholder level when shareholders receive dividends or sell their shares. Double taxation encourages corporations, privately-held corporations in particular, to shift income between the firm and individual shareholders to minimize taxes. Income shifting can be achieved through several different channels, such as organizational form, debt financing, and employee compensation. Although previous research focuses on the effect of taxes on organizational form selection and corporate debt financing (e.g., Mackie-Mason and Gordon 1997; Goolsbee 1997a; Cloyd, Limberg and Robinson 1997; Ayers, Cloyd and Robinson 1996,1999), no study has directly investigated whether privately-held firms manage employee compensation to shift income between the firm and individual shareholders.<sup>1</sup> Using a sample of privately-held property and liability (PL) stock insurers over the period 1989-1996, this study provides direct evidence on the magnitude of income shifting through tax-deductible compensation between privately-

---

<sup>1</sup> Using tax return information, Wilkie, Young and Nutter (1996) find total tax-deductible payments (rent, interest and compensation) increased in small corporations after the passage of the 1986 Tax Act, but they did not examine each component of tax-deductible payments separately. Using individual tax return data, Gordon and Slemrod (1997) find taxable labor compensation received by high-income taxpayers increases in the difference between corporate and individual marginal tax rates. Due to data limitations, Gordon and Slemrod were unable to control for the non-tax determinants of labor compensation. Neither paper examines privately-held firms specifically.

held firms and individual shareholders.<sup>2</sup>

This paper contributes to the existing literature in several important ways. First, this paper contributes to a large and growing literature on tax-motivated income shifting. Numerous studies have examined income shifting over time at the corporate level (e.g., Scholes, Wilson, and Wolfson 1992; Guenther 1994; Maydew 1997) or individual taxpayer level (e.g., Goolsbee 1997a and the cited references), while others investigate corporate income shifting across different tax jurisdictions (e.g., Harris 1993; Klassen, Lang, and Wolfson 1993; Collins, Kemsley, and Lang 1997; Collins and Shackelford 1997; Klassen and Shackelford 1997; Petroni and Shackelford 1999). This study's contribution is to provide evidence on how privately-held corporations use tax-deductible compensation to shift income between the corporate and personal tax bases to avoid double taxation.

Second, evidence of income shifting between corporate and personal tax bases suggests that the previously documented deadweight loss of tax increases assuming no income shifting is likely to be overstated (see also Gordon and Slemrod 1997; Slemrod 1998).<sup>3</sup> Using simulations, Carrol (1998) finds a large difference in the estimated tax revenue gains of tax increases with and without income shifting. This suggests that, to derive a better estimate of the deadweight loss of our tax system, it is critical to understand whether and how taxpayers shift income in response to tax changes (see also

---

<sup>2</sup> Corporations are expected to choose the least costly channel(s) to shift income. Because property liability insurers cannot use pass-through entities (e.g., S-corporation) nor issue significant amounts of debt, employee compensation is one of the few vehicles they can use to shift income between the firm and shareholders.

<sup>3</sup> See Goolsbee (1997b) for a review of this literature and Feldstein (1995a, 1995b, and 1996) for a calculation of the efficiency loss of tax rate increases on high-income taxpayers.

Slemrod 1995).

Third, income shifting also alters our interpretation of the distributional statistics on individual taxable income. The existing literature documents an increasing share of adjusted gross income reported by high-income taxpayers in the eighties (Feenberg and Poterba 1993; Slemrod 1996). Because the eighties saw a sharp decline in individual tax rates, to the extent that part of the increased income inequality is simply due to income shifting from corporate tax bases to personal tax bases by high-income taxpayers, the so-called 'income inequality' should be interpreted differently.<sup>4</sup>

Finally, the presence of income shifting implies that corporate *accounting* rates of return for many privately-held firms are distorted and thus should be interpreted with caution. Notwithstanding the risks of IRS audit and litigation, due to high ownership concentration, many privately-held firms should be able to shift a larger amount of income between the firm and individual shareholders than most publicly-traded firms.<sup>5</sup> As a result the true corporate rate of return for privately-held firms is more likely to be distorted than that of publicly-traded firms, *ceteris paribus*.

## 1.2 Overview of Research Design and Summary of Results

To test whether privately-held firms use tax-deductible compensation to shift

---

<sup>4</sup> See also Levy and Mumane (1992) and Karoly (1994) for a discussion of the non-tax reasons for the increase in income inequality.

<sup>5</sup> See Scholes and Wolfson (1992) for a discussion of the tax and non-tax impediments to income shifting using employee compensation and Matsunaga, Shevlin and Shores (1992) for empirical evidence on the non-tax costs of restructuring executives' stock options to minimize taxes in publicly-traded corporations. More recently Goolsbee (1997c) examines the effect of the 1993 individual tax increase on the compensation of executive officers in publicly-traded corporations. He finds a large short-term increase (decrease) in executives' taxable income (mainly through the exercise of stock options) in the year before (after) the tax increase, but detects little long-term changes in the level and mix of executives' compensation. This suggests publicly-traded corporations have significant tax and non-tax impediments to negotiating executives' compensation contracts to minimize taxes.

income between the firm and shareholder-employees, this study compares the amount of tax-deductible employee compensation for two types of privately-held PL insurers across two different tax periods. The two-types of insurers are employee-owned insurers and nonemployee-owned insurers. Employee-owned insurers include those whose employees are the controlling shareholders of the firm. These firms should have the most discretion to use employee compensation to shift income. Nonemployee-owned insurers are firms whose employees are not controlling shareholders of the firm. Because nonemployee-owned insurers have little ability to use tax-deductible compensation to shift income between the firm and individual *shareholders*, their tax-deductible employee compensation is used to proxy for employee-owned insurers' tax-deductible compensation absent income shifting.

To increase the power of detecting income shifting, this study examines two tax periods over which the difference in the maximum individual and corporate tax rates is reversed. From 1989 to 1992 the top individual statutory tax rate is lower than the top corporate tax rate, but from 1993 to 1996 the opposite is true. As a result, employee-owned insurers' income shifting incentives are different between 1989-92 and 1993-96. Specifically, I predict that employee-owned insurers use tax-deductible compensation to shift corporate earnings to shareholder-employees during 1989-92 but reduce the amount of income shifted to shareholder-employees during 1993-96. The multivariate regression results on a sample of 64 employee-owned insurers and 76 nonemployee-owned insurers are consistent with the predictions.

To explore further the implications of the compensation results, I compare the

dividend policy of the two types of insurers. Because employee-owned insurers have the flexibility of distributing corporate earnings in the form of tax deductible compensation, they should have less incentive than nonemployee-owned insurers to pay dividends that are penalized by double taxation. The multivariate regression results support the prediction.

### **1.3 Organization of Remaining Chapters**

The remaining chapters are organized as follows. Chapter 2 describes the recent history of federal income taxation on individuals and corporations. Chapter 3 develops the hypotheses on employee-owned insurers' income shifting incentives using tax-deductible compensation. Chapter 4 describes the sample selection procedure and descriptive statistics. Chapter 5 presents the regression results on the compensation hypotheses. Chapter 6 analyzes the implication of income shifting on employee-owned insurers' dividend policy. Chapter 7 concludes.

## Chapter 2

### RECENT HISTORY OF U.S. FEDERAL INCOME TAXATION

This chapter provides a brief overview of the tax law changes relevant to this study. Section 2.1 describes the statutory tax rate changes for individual and corporate taxpayers from 1981 to 1996. Other tax law changes are discussed in section 2.2.

#### 2.1 Statutory Tax Rates On Individual And Corporate Taxpayers

Taxable corporations and individual taxpayers face different statutory tax rates in the United States. Table 1 shows a chronological history of the top individual and corporate statutory tax rates since 1981. The top individual statutory tax rate was significantly higher than the top corporate statutory tax rate before 1987. For example, in 1985 the top individual statutory tax rate was 50 percent, while the top corporate statutory tax rate was 46 percent. The Tax Reform Act of 1986 lowered the top statutory tax rates for both individuals and corporate taxpayers and made the top statutory tax rate lower for individuals (28 percent) than for corporations (34 percent) for the first time in U.S. history. In 1991 the top individual tax rate was increased to 31 percent but was still lower than the top corporate tax rate. The 1993 Budgetary Deficit Reconciliation Act significantly increased individual tax rates and restored the historical order of the relative tax rates between individuals and corporations. The top individual rate was increased to 39.6 percent, while the top corporate rate was slightly increased to 35 percent. One important distinction of the 1993 Tax Act from all of the previous tax acts in the eighties is that it only increased the tax rates on high-income taxpayers.



Table 2 shows the detailed progressive tax rate schedules for taxable corporations and married individuals filing joint returns for 1989 and 1994. The higher individual statutory tax rates of 36 percent and 39.6 percent start at relatively high thresholds and thus apply only to a small set of high-income taxpayers. In contrast, the higher corporate tax rates (e.g., 34 percent) start at relatively lower thresholds, and the lower tax rates of 15 percent and 25 percent are completely phased out for corporate taxable income over \$335,000. Therefore most corporations do not enjoy the benefits of lower tax rates.<sup>6</sup>

## 2.2 Other Tax Law Changes

Other than the change in statutory income tax rates over the period 1989-96, another important change was the increase in the Hospital Insurance (HI) payroll tax. The 1990 Tax Act increased the cap on wages subject to the 1.45 percent HI tax (2.9 percent including both employee and employer share) from \$53,400 to \$125,000 in 1991. The 1993 Tax Act repealed the cap on wages subject to the 1.45 percent HI tax (again 2.9 percent including both employee and employer share). These changes effectively shrank the difference between the top individual and corporate tax rates before 1993 (for those with wage income between \$53,400 and \$125,000) and increased the difference between the top individual and corporate tax rates after 1992.<sup>7</sup>

---

<sup>6</sup> During 1989-96, the lower tax rates of 15 percent and 25 percent for corporations were phased out by imposing a surtax of 5 percent for taxable income between \$100,000 and \$335,000. During 1993-96, the tax rate of 34 percent was also phased out by imposing a surtax of 3 percent for taxable income between \$15,000,000 and \$18,333,333. For simplicity I ignore the surtax in the following discussion.

<sup>7</sup> Another important change was the alternative minimum tax (AMT). The 1990 Tax Act increased the AMT rate from 21 percent to 24 percent. The 1993 Act changed the single-rate AMT to a two-tier rate schedule of 26 percent and 28 percent. Due to the complexity of the AMT, this study does not directly consider the impact of AMT on privately-held corporations incentives to shift income. I am not aware of any potential biases the AMT change may cause in interpreting my empirical results.

## Chapter 3

### RESEARCH HYPOTHESES

This chapter analyzes employee-owned insurers' incentives for using tax-deductible compensation to shift income between the firm and shareholder-employees across two different tax periods. In the first tax period shareholder-employees' marginal tax rates ( $\tau_i$ ) are less than the corporate marginal tax rate ( $\tau_c$ ); in the second tax period  $\tau_i$  is increased such that  $\tau_i$  exceeds  $\tau_c$ .<sup>8</sup> Section 3.1 presents a simple model to analyze the benefit/cost tradeoff of using employee compensation to shift income. Section 3.2 derives employee-owned insurers' optimal income-shifting strategy in response to the difference in corporate and personal tax rates.

#### 3.1 A Simple Model of Income Shifting

Because employee compensation may change over time even without income shifting (e.g., due to unobservable economic shocks), this study uses nonemployee-owned privately-held insurers' tax-deductible compensation as a proxy for employee-owned insurers' expected compensation absent income shifting.<sup>9</sup> After controlling for the nontax determinants of employee compensation for employee-owned and nonemployee-owned insurers, any residual difference in employee compensation between the two types of insurers is assumed to be the unobservable income shifting by employee-owned

---

<sup>8</sup> See section VI for the operationalization of the two marginal tax rates in empirical tests.

<sup>9</sup> Theoretically both employee-owned and nonemployee-owned insurers can shift income by changing the mix of tax-deductible and non-tax-deductible compensations (e.g., fringe benefits) to all employees. Using nonemployee-owned insurers as a control, I essentially ignore this portion of income shifting in employee-owned insurers.

insurers. The following discussion focuses on the income shifting incentives for employee-owned insurers.

Let  $S$  be the amount of income shifted from the corporate tax base to shareholder-employees' tax bases. Negative  $S$  represents the amount of income shifted from the shareholder-employees to the corporate tax base by paying the shareholder-employees less than the normal compensation. If corporate earnings are shifted to shareholder-employees, they will be taxed at  $\tau_i$ , the shareholder's marginal tax rate. Without income shifting, corporate earnings will be subject to double taxation. The total taxes (denoted as  $\tau$ ) an individual shareholder has to pay (directly or indirectly) on each dollar of corporate earnings before taxes are the sum of the corporate tax ( $\tau_c$ ) and any shareholder-level tax that occurs only when the shareholder sells her shares.<sup>10</sup> Assume the shareholder tax will be paid at year  $n$  at a rate  $\tau_{ni}$  (including explicit and implicit taxes), the present value of the shareholder-level tax on one dollar of corporate earnings before taxes can be expressed as  $\delta(1-\tau_c)\tau_{ni}$ , where  $\delta = (1+r)^{-n}$  and  $r$  is the discount rate. Thus the total taxes on one dollar of retained corporate earnings before taxes are  $\tau = \tau_c + \delta(1-\tau_c)\tau_{ni}$ . The tax benefit of shifting  $S$  dollars of corporate earnings to individual shareholders is  $(\tau-\tau_i)S$ .

Employee-owned insurers need to trade off the tax benefits of income shifting with the potential costs. For simplicity I assume the cost of income shifting to be a quadratic function,  $C(S) = aS^2$ , where  $a > 0$ . There are several impediments to income shifting in even privately-held firms. One important cost of income shifting is the tax

---

<sup>10</sup> For simplicity, I assume that employee-owned insurers do not distribute after-tax corporate earnings as dividends because dividends are tax-disfavored relative to capital gains for individuals. The evidence in section VI is consistent with the assumption.

penalties on unreasonable compensation or excessive accumulation of corporate earnings. The IRS can recharacterize unreasonable compensation as dividends and disallow the deduction on the corporate tax return.<sup>11</sup> If the income tax is substantially understated, the firm has to pay a substantial understatement penalty (see section 6662 of the Internal Revenue Code). For corporations accumulating excessive earnings inside the firm, the IRS can impose an accumulated earnings tax equal to the top individual statutory tax rate on the excessive accumulation. In general corporate earnings accumulation above \$250,000 or beyond reasonable business needs is deemed excessive (see sections 541-547 of the Internal Revenue Code).<sup>12</sup> Furthermore, if a firm is caught by the IRS for tax avoidance, it is widely believed that the firm's future tax returns will be more frequently audited.

Another important cost of income shifting is the coordination costs among individual shareholders to execute the income shifting strategy. If shareholder-employees face different marginal tax rates, they may disagree on the direction and amount of income shifting. If some shareholders are not employees, their interests should also be considered. If the coordination costs exceed the tax benefit, shareholder-employees may not use tax-deductible compensation to shift income. Finally, for insurance companies, state insurance regulation imposes an additional cost on income shifting. To the extent that income shifting causes an insurer to violate the insurance regulatory capital

---

<sup>11</sup> See Wilkie, Young and Nutter (1996) endnote three for the common factors courts consider in determining the reasonableness of employee compensation.

<sup>12</sup> For insurance firms, retaining corporate earnings to satisfy regulatory capital requirements meets the 'reasonable business need' criterion. However, financial institutions (including insurance firms) are not immune from the attack of the accumulated earnings tax.

requirements, the optimal amount of income shifting is reduced.<sup>13</sup>

### 3.2 Hypotheses

An employee-owned insurer's objective function is to choose  $S$  to maximize  $\{(\tau - \tau_i) S - aS^2\}$ . The first-order condition is  $(\tau - \tau_i) - 2aS = 0$ . Thus the optimal amount of income shifting  $S^* = (\tau - \tau_i)/2a$ . When  $\tau_i < \tau_c$ ,  $(\tau - \tau_i)$  is positive, and therefore  $S^* > 0$ . Using nonemployee-owned insurers as a benchmark, this leads to the first hypothesis.

**H1: When  $\tau_i < \tau_c$ , employee-owned insurers should pay more tax-deductible compensation than nonemployee-owned insurers.**

Although H1 is consistent with tax-motivated income shifting, it could be due to some unobservable non-tax differences between the two types of insurers that I cannot control for directly. To provide direct evidence on the effect of taxes on income shifting of employee-owned insurers, H2 below examines how employee-owned insurers' income shifting incentives change when shareholders' marginal tax rates are increased such that the tax rates change from  $\tau_i < \tau_c$  to  $\tau_i > \tau_c$ . Assuming the future shareholder tax rate  $\tau_{ni}$  remains the same for the two periods, using comparative statistics,  $\partial S^*/\partial(\tau - \tau_i) = 1/2a > 0$ . Thus if  $(\tau - \tau_i)$  is reduced over the two periods, the optimal amount of income shifting ( $S^*$ ) should be reduced. Thus,

**H2: When  $\tau_i$  is increased such that the tax rates change from  $\tau_i < \tau_c$  to  $\tau_i > \tau_c$ , employee-owned insurers should reduce the amount of tax-deductible compensation relative to nonemployee-owned insurers.**

Given  $\tau_i > \tau_c$ , an important question is whether employee-owned insurers have the

---

<sup>13</sup> Petroni (1992) discusses the eleven regulatory capital ratios PL insurers were required to comply with prior to 1994. Starting from 1994, PL insurers adopted the risk-based capital standard. See Cummins,

incentive to pay shareholder-employees less than the normal tax-deductible compensation (i.e., whether  $S^*$  will be negative). It has been alleged that the increase in individual tax rates post 1992 encourages privately-held firms to retain excessive corporate earnings by paying the shareholder-employees less than normal compensation. The theoretical answer to this question, however, is ambiguous. From the first-order condition above, the optimal amount of income shifting  $S^*$  will be negative only if  $(\tau - \tau_i)$  is negative. Since  $(\tau - \tau_i)$  is equal to  $(\tau_c - \tau_i) + \delta (1-\tau_c) \tau_{ni}$ , for  $\tau_c < \tau_i$ , the sign of  $(\tau - \tau_i)$  depends on the relative magnitude of  $\tau_c - \tau_i$  (negative) and  $\delta (1-\tau_c) \tau_{ni}$  (positive). Intuitively, in deciding whether to retain excessive corporate earnings inside the firm, employee-owned insurers have to trade off the immediate lower corporate tax rate ( $\tau_c$ ) with the additional future shareholder-level tax  $((1-\tau_c) \tau_{ni})$ . Holding  $\tau_c$  and  $\delta$  constant, for instance, employee-owned insurers' incentive to retain corporate earnings declines with the future shareholder tax rate  $\tau_{ni}$ . I provide no formal hypothesis on the income shifting direction when  $\tau_i > \tau_c$ . Figure one summarizes the two hypotheses.

---

Harrington and Niehaus (1995) for a conceptual analysis of the role and measurement of risk-based capital.

## Chapter 4

### SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

This chapter details the sample selection procedure. Section 4.1 discusses the sample selection criteria for the sample of privately-held insurers. Section 4.2 reports the descriptive statistics for the samples of employee-owned insurers and nonemployee-owned insurers.

#### 4.1 Sample Selection

The research hypotheses are tested using data from the NAIC property and liability (PL) insurer database during 1989-1996.<sup>14,15</sup> The database contains PL insurers' annual statutory accounting statements filed with state insurance regulators. The sample selection criteria are detailed in Table 3.

PL insurers operate either independently or as a group whose members are owned by a common parent and usually share the same management team. Because the majority of stock insurance groups is owned by publicly-traded corporations, this study draws its sample from independent PL stock insurers. Out of the initial sample of 408 independent insurers incorporated before 1990, 138 insurers were deleted due to a lack of ownership information. An additional 69 insurers were excluded due to either ownership change or financial distress.<sup>16</sup> Because stock insurers owned by mutual insurers behave differently

---

<sup>14</sup> Data Source: National Association of Insurance Commissioners (NAIC), used by permission. The NAIC does not endorse any analysis or conclusions based on the use of these data.

<sup>15</sup> A more powerful test of the research question is to examine the entire period 1981-96. Unfortunately data prior to 1988 is unavailable to the author.

<sup>16</sup> Distressed insurers refer to those, which are in receivership, conservatorship, or being liquidated.

from other stock insurers (Mayers and Smith 1992), eight additional mutual-owned stock insurers were excluded as well. Twenty-one additional insurers were deleted because they are owned by publicly-traded companies. Thirty-two additional insurers were deleted because they do not have the required data for at least one year in each of the two time periods (1989-92 and 1993-96). The final sample includes 64 employee-owned insurers and 76 nonemployee-owned insurers.

Employee-owned insurers are defined as those whose employees collectively own (directly or indirectly) more than 25 percent of the outstanding stock over my entire sample period.<sup>17</sup> Nonemployee-owned insurers include those whose employees own no company stock.<sup>18</sup> The ownership information was hand collected from the A. M. Best's Insurance Report: Property and Casualty (1989-97 editions). All employee-shareholders held top management positions, such as President, CEO, Chairman of the Board, and Vice President. Table 4 provides more detailed ownership information on the sample of employee-owned insurers. As shown in Panel A, shareholder-employees own at least 50 percent of the stock in 59 out of the 64 employee-owned insurers. Panel B classifies the sample of employee-owned firms by either direct ownership or indirect ownership. A firm is defined to be directly owned if employees own the shares directly. A firm is indirectly owned if the insurer is owned by another entity of which the employees own shares. Thirty-four percent of employee-owned insurers are owned directly by the employees.

---

<sup>17</sup> None of the following regression results is altered if the employee-owned insurer sample includes only those whose employees own at least 50% of the stock.

<sup>18</sup> As reported by A.M. Best's Insurance Report, there are no insurers whose employees own between zero percent and 25 percent of the stock in the sample.



## 4.2 Descriptive Statistics

Due to potential outliers, in the following discussion I focus on the median of each variable and use the nonparametric ranksum test for significance tests. Table 5 reports the descriptive statistics using 1989 constant dollars by ownership type.<sup>19</sup> Employee-owned insurers are significantly smaller than nonemployee-owned insurers, measured by either total assets or net premiums written ( $p < .001$ ). Employee-owned insurers are younger and operate in fewer states than nonemployee-owned insurers ( $p < .001$ ). Total tax-deductible employee compensation as a percentage of net premiums written is larger in employee-owned insurers than in nonemployee-owned insurers ( $p < .001$ ).<sup>20</sup> Return on assets before employee compensation (ROAb) is significantly higher for employee-owned insurers than nonemployee-owned insurers ( $p < .01$ ), but the return on assets after employee compensation (ROAa) is similar for employee-owned and nonemployee-owned insurers ( $p = .34$ ). Thus employee-owned insurers paid more total compensation (as a percentage of net premiums written) than nonemployee-owned insurers.

Table 6 reports the percentage changes from 1989-92 to 1993-96 of selected variables (based on each insurer's mean in each period). Both the mean total admitted assets and the mean net premiums written increased more for nonemployee-owned insurers than employee-owned insurers, but the difference is only marginally significant for total admitted assets ( $p = .12$ ) and insignificant for net premiums written ( $p = .255$ ). The

---

<sup>19</sup> The following regression results using raw data are qualitatively the same.

<sup>20</sup> Total employee compensation is from schedule 'Part 4 - expenses' (line 8a) in PL insurers' annual statements. To test the two hypotheses, the ideal dependent variable is the tax-deductible compensation paid to shareholder-employees. Unfortunately this is not separately disclosed. See Chapter 5 for a

mean employee compensation increased more for nonemployee-owned insurers than employee-owned insurers ( $p=.10$ ). The difference in the change of mean employee compensation between the two types of insurers is consistent with H2, but it could also be due to their different changes in mean total admitted assets. Given that income shifting is not directly observable, the next chapter performs formal multivariate regression tests of the two hypotheses using nonemployee-owned insurers as a control group.

---

discussion on how this data limitation is controlled for in research design.

## Chapter 5

### TESTS ON EMPLOYEE COMPENSATION

This chapter presents the results of the tests of the two hypotheses. Section 5.1 describes the regression model used to test the two hypotheses. Section 5.2 describes the control variables. Section 5.3 discusses the regression variables used to test the two hypotheses. The regression results are discussed in section 5.4, followed by the sensitivity checks in section 5.5.

#### 5.1 Research Design

To test whether employee-owned insurers manage employee compensation to shift income between the firm and shareholder-employees in response to the difference between individual and corporate tax rates, the following multivariate regression model is used.

$$\begin{aligned} \text{LGCOMP}_{it} = & a + b_1 \text{OWNERSHIP}_i + b_2 \text{YR93-96} + b_3 \text{YR93-96} * \text{OWNERSHIP}_i \\ & + b_4 \text{LGNPW}_{it} + b_5 \text{LGAGE}_{it} + b_6 \text{LGLICENSE}_{it} + b_7 \text{ROAb}_{it} + b_8 \text{ROAb}_{it-1} \\ & + \sum b_{9-14} \text{LINE}_{it} + b_{15} \% \text{CHASST}_{it} + b_{16} \text{YEAR} + e_{it} \end{aligned} \quad (1)$$

where,

$i$  = firm index;

$t$  = year index for 1989-96;

LGCOMP = natural log of an insurer's total tax-deductible employee compensation (in millions);<sup>21</sup>

---

<sup>21</sup> The results are qualitatively the same if the dependent and independent variables are not transformed

|           |  |
|-----------|--|
| OWNERSHIP | = a zero-one dummy variable, with one being employee-owned insurers;   |
| YR93-96   | = a zero-one dummy variable, with one being 1993-1996;   |
| LGNPW     | = natural log of net premiums written (in millions):   |
| LGAGE     | = natural log of company age since incorporation:  |
| LGLICENSE | = natural log of the number of states an insurer is licensed to do business:   |
| ROAb      | = return on assets, measured by earnings before taxes and total tax-deductible employee compensation, scaled by the average of beginning and ending total admitted assets; |
| LINE      | = six variables, representing the net premiums written in six of the seven lines of insurance business as a percentage of total net premiums written; <sup>22</sup>        |
| %CHASST   | = the percentage change of total admitted assets from t-1 to t; and  |
| YEAR      | = a time trend.  |

## 5.2 Control Variables

The ideal dependent variable for testing the two hypotheses is the amount of tax-deductible compensation paid to shareholder-employees. Unfortunately, this information is not disclosed separately. The only compensation data available are total tax-deductible

---

using natural logarithm.

<sup>22</sup> Net premiums written by line of business are disclosed in schedule 'Underwriting and Investment Exhibit - Part 2' of PL insurers' annual statements. An insurer's total net premiums written is classified into about thirty categories. I grouped them into seven major lines of business including auto, multiple perils, workers compensation, fidelity and surety, product and other liability, medical malpractice, and the residual group. The detailed grouping information is available from the author upon request.

compensation paid to all company employees. As a result several independent variables are selected to control for the differences in employee compensation not due to tax-induced income shifting. Log of net premiums written (LGNPW) controls for the amount of employee compensation related to firm size.<sup>23</sup> It is expected that larger firms should hire more employees and thus pay more compensation. Also, managers of larger firms should be paid more because they control more resources or have more talents (Rosen 1992). The number of states licensed (LGLICENSE) controls for the difference in employee compensation due to the scale of operation (Mayers and Smith 1992). Company age (LGAGE) controls for the difference in employee compensation related to an insurer's operating history. The percentage of insurance premiums written in different lines of business (LINE) controls for the possibility that different lines of insurance may require different levels of expertise and labor intensity and thus different amounts of compensation (Mayers and Smith 1988). %CHASST explicitly controls for changes in employee compensation due to firm growth. The dummy variable YR93-96 controls for any other unspecified exogenous changes in employee compensation across the two time periods (e.g., the unobservable changes in the relative demand and supply of the insurance labor market). The time trend YEAR controls for any secular trend of employee compensation over time. The regression results are not affected if YEAR is omitted.

Finally, any difference in employee compensation could be due to the difference

---

<sup>23</sup> A better control for size is the number of employees, unfortunately this is not available. An alternative size proxy is total admitted assets, but net premiums written explains substantially more variation in total compensation than total admitted assets. However, the regression results are qualitatively the same if total admitted assets are used instead. As a sensitivity check, I also used log of gross premiums written and obtained similar results.

in firm performance. Although previous studies report a significantly positive relation between managerial pay and firm performance for publicly-traded firms (Jensen and Murphy 1990; Ke, Petroni and Safieddine 1998), Ke et.al. (1998) do not find such a relation for a small sample of privately-held PL insurers during 1994-96. Nevertheless, this study includes one performance measure (ROAb at t and t-1) in the regression.<sup>24</sup>

### **5.3 Employee Ownership And Tax-Deductible Compensation**

Assuming that the unobservable marginal tax rates for individual shareholders and corporations are equal to their respective top statutory tax rates, H1 predicts the coefficient on OWNERSHIP to be positive, while H2 predicts the coefficient on YR93-96\*OWNERSHIP to be negative. Due to the lower thresholds for the higher corporate statutory rates, the assumption on corporate marginal tax rates should not be a problem.<sup>25</sup> Eighty-nine percent of the insurer years in my sample have estimated taxable income (before tax-deductible employee compensation) over \$75,000, the threshold for the 34 percent corporate tax rate.

Shareholders' marginal tax rates should be close to the top statutory tax rate during 1989-92 due to the low threshold of the top tax rate (see table 2). Although the maximum statutory tax rate 39.6 percent during 1993-1996 applied for taxable income above \$250,000, a high threshold, H2 should not be affected. This is because, if employee-owned insurers continued to pay the same amount of tax-deductible

---

<sup>24</sup> To avoid potential multicollinearity I did not include the interaction between OWNERSHIP and ROAb, because Ke et.al. (1998) find no evidence that the pay-to-performance sensitivity differs between employee-owned and nonemployee-owned private insurers. The interaction term OWNERSHIP\*ROAb, is never significant if added to the regression.

<sup>25</sup> See section VI for a sensitivity check of this assumption.

compensation to shareholder-employees as before 1993, the shareholder-employees' marginal tax rates should be easily pushed to the top tax bracket. To avoid this, the equilibrium tax-deductible compensation paid to shareholder-employees during 1993-96 must be reduced, as predicted in H2.<sup>26</sup>

In testing whether employee-owned insurers have an incentive to shift income from shareholder-employees to the firm using compensation after 1992, the correct measure of shareholders' marginal tax rates should be calculated before employee compensation from the insurer. Unless a shareholder-employee has a significant amount of other income, her marginal tax rate before employee compensation from the insurer would be below 39.6 percent. Because data on shareholder-employees' other sources of income are not available, this study assumes that shareholder-employees' marginal tax rates are at the maximum statutory tax rate. To the extent this assumption is not true, the empirical test for income shifting after 1992 will be less powerful.

#### **5.4 Regression Results**

Table 7 reports the Pearson correlations among the main regression variables used in model (1).<sup>27</sup> The correlations among all the independent variables are below .5 except for the correlation between  $ROA_t$  and  $ROA_{t-1}$ . The following regression results are not affected if  $ROA_{t-1}$  is dropped from the regression, however. Column 2 of table 8 shows the pooled regression result for the full sample. As predicted, the coefficient for

---

<sup>26</sup> To the extent that shareholder-employees can use personal tax planning to reduce their marginal tax rates, hypothesis two will be weakened.

<sup>27</sup> Influential observations are deleted using the Cook's distance criteria (Cook 1977) for the correlations and all the regression results in the paper. Fifty-four firm years were deleted in tables 8 and 9 and twenty firm years were dropped in table 10. The results are similar using studentized residuals cutoff of  $\pm 2.5$  (Belsley et al. 1980).

OWNERSHIP is significantly positive (H1). Thus, after controlling for the non-tax differences between the two types of privately-held insurers, employee-owned insurers paid 40 percent more in tax-deductible compensation than nonemployee-owned insurers during 1989-92.<sup>28</sup> In 1989 dollars, employee-owned insurers on average used tax-deductible compensation to shift \$121,000 of corporate income to personal tax bases.<sup>29</sup> This represents 2.8% of the median net premiums written and 1.4% of the median total assets over 1989-92 for employee-owned insurers. Consistent with H2, the coefficient for YR93-96\*OWNERSHIP is significantly negative. Taken together, the evidence suggests that the corporate and individual tax rate difference exerts a significant influence on employee-owned insurers' incentive to shift income between the firm and individual shareholders.

The sum of the coefficients on OWNERSHIP and YR93-96\*OWNERSHIP is positive but insignificant. Thus it appears that employee-owned insurers did not shift income to the firm by paying the shareholder-employees less than the normal compensation after 1992. However, as acknowledged earlier, the research design may not be powerful enough to detect the excessive accumulation (if there is any) of corporate earnings by employee-owned insurers.

Not surprisingly, the most important determinant of employee compensation is firm size (LGNPW). %CHASST is significantly negative, suggesting that when firm assets grow by one percent, employee compensation declines by about .3 percent, ceteris

---

<sup>28</sup> This is calculated as  $e^{.34}-1$ .

<sup>29</sup> This is calculated as 40% times the exponential of the predicted value of the full-sample regression model in table 8 valued at the medians of the independent variables other than OWNERSHIP and YR93-96\*OWNERSHIP (for employee-owned insurers only) during 1989-92.



paribus. The coefficient for  $ROAb_t$  ( $ROAb_{t-1}$ ) is significant at the conventional 5 percent (10 percent) significance level.

### 5.5 Sensitivity Checks

To control for other firm-specific but time-invariant factors not included in the pooled OLS regression (e.g., difference in state tax rates and regulatory environment for insurers domiciled in different states), I run a fixed-effect regression for model (1). The coefficient for  $YR93\_96*OWNERSHIP$  remains significantly negative (see table 8 column 3). The coefficient for  $OWNERSHIP$  could not be estimated using the fixed-effect regression.

To examine the robustness of the pooled OLS regression result, I perform additional sensitivity checks. First, I check for potential multicollinearity among the independent variables by dropping  $LGAGE$  and  $LGLICENSE$  one at a time because they are also proxies for firm size. The regression results are not affected. Second, I run the regression separately for employee-owned insurers owned directly by the employees and those owned indirectly by the employees (columns A and B of table 9). The coefficients on  $OWNERSHIP$  and  $YR93-96*OWNERSHIP$  are all in the right directions and significant at least at the .10 significance level (one-tailed) for the two subsamples and do not differ from each other at the 5 percent level (two-tailed).

Because nonemployee-owned insurers grew faster (albeit not significantly) than employee-owned insurers over the two periods (see table 6), one might argue that the pooled regression results are simply due to their different growth rates which have not been controlled for effectively. To alleviate this concern, column c in table 9 reports the

pooled regression result after deleting nonemployee-owned insurers with %CHMNASS greater than 24.6%, the median %CHMNASS for nonemployee-owned insurers.<sup>30</sup> The median %CHMNASS for the remaining nonemployee-owned insurers is only 5.5% lower than the median %CHMNASS for all employee-owned insurers (12.3%). The coefficients for OWNERSHIP and YR93-96\*OWNERSHIP remain highly significant. Thus the previous regression results are not due to the different growth rates between employee-owned and nonemployee-owned insurers.

One restrictive assumption of the pooled OLS regression is that the regression parameters are constant over time. To check the sensitivity of my regression results to this assumption, I run regression model (1) by year and the regression coefficients on OWNERSHIP,  $ROA_{it}$  and  $ROA_{i,t-1}$  are shown in table 10. The results are consistent with the pooled regression results above. The coefficient for OWNERSHIP is significantly positive in three of the four years during 1989-92 and insignificant in all four years during 1993-96 (10 percent significance level, two-tailed). The coefficient for  $ROA_{it}$  is significantly positive in three years (10 percent significance level, two-tailed) but in the wrong direction and significant in 1995. The coefficient for  $ROA_{i,t-1}$  is insignificant in general.

To check the sensitivity of my assumption that the corporate marginal tax rate is equal to the top statutory tax rate, I rerun regression model (1) after deleting firm years with an NOL carryforward.<sup>31</sup> The coefficients on OWNERSHIP and YR93-

---

<sup>30</sup> See table 6 for the definition of %CHMNASS.

<sup>31</sup> Since PL insurers do not disclose the amount of NOL carryforward, I defined NOL firms to be those whose previous-year federal income taxes were not positive (Ke, Outslay and Petroni 1998).

96\*OWNERSHIP are highly significant (results not reported).

In regression model (1) the difference between the corporate marginal tax rate and individual shareholder marginal tax rate is proxied using a dichotomous measure YR93\_96. To derive an elasticity of income shifting using tax-deductible compensation, I estimated regression model (1) using a continuous measure by calculating the actual difference between the top corporate statutory tax rate and the top individual statutory tax rate for each year. Consistent with the result using YR93\_96, the coefficient on the interaction term  $(\tau_c - \tau_i) * \text{OWNERSHIP}$  is significantly positive (see table 11). This suggests that, if the difference between the corporate and individual tax rates were increased by one percentage point, employee-owned insurers would use tax-deductible compensation to shift 2.4% of corporate earnings to shareholder-employees. Interestingly, this estimate is remarkably close to the 2.9% reported by Gordon and Slemrod (1997), obtained by regressing taxable labor income of the top half of the individual tax returns (based on the taxable labor income) on an estimated difference between the corporate and individual tax rate for years 1964 and 1966-1993. Due to data limitations, they could not control for the changes of labor income over time due to nontax reasons.

## Chapter 6

### TESTS ON DIVIDEND POLICY

A firm can distribute its earnings to shareholders in two ways, tax-deductible payments (e.g., tax-deductible compensation, interest, and rent) or nondeductible dividends.<sup>32</sup> As evidenced above, employee-owned insurers can distribute corporate earnings using tax-deductible compensation, thus they should have less incentive to pay stockholder dividends. This chapter tests this conjecture directly.

Section 6.1 reports the descriptive statistics of dividend payout for employee-owned and nonemployee-owned insurers. Section 6.2 details the research design. Regression results are reported in section 6.3.

#### 6.1 Descriptive Statistics

Table 5 provides descriptive statistics on the dividend payout of the two types of insurers. The median dividend payout as a percentage of net premiums written was zero over 1989-96 for both types of insurers. This suggests that privately-held firms as a whole avoid paying dividends. Further analysis indicates that 50 of the 76 (66%) nonemployee-owned insurers paid at least one dividend during my sample period while only 29 of the 64 (45%) employee-owned insurers paid at least one dividend. The median frequency of dividend payment is 3 for nonemployee-owned insurers while zero for employee-owned

---

<sup>32</sup> Due to high ownership concentration, stock repurchase in privately-held firms usually does not qualify for capital gain treatment unless shareholders cash out the entire holding (section 302(b) of the IRC). As part of the sample selection requirements, I have eliminated those insurers whose owners had changed over 1989-96, thus share repurchase was not a viable channel to distribute corporate cash to shareholders in my sample. For property-liability insurers in general, other tax-efficient means of corporate earnings distributions (e.g., debt financing) are very limited (see footnote 2).

insurers. Using a ranksum test, employee-owned insurers paid significantly less dividends than nonemployee-owned insurers ( $p < .001$ ). Thus the univariate result is consistent with my conjecture.

## 6.2 Research Design

To formally test the dividend conjecture, I use the following regression model.<sup>33</sup>

$$\begin{aligned}
 (\text{DIVIDEND/NPW})_{it} = & a + b_1 \text{OWNERSHIP}_i + b_2 \text{YR93-96} + b_3 \text{ROAa}_{it} + \\
 & b_4 \text{ROAa}_{it-1} + b_5 \text{ROAa}_{it-2} + \sum b_{6-11} \text{LINE}_{it} + b_{12} \text{LGNPW}_{it} + b_{13} \text{YEAR} + e_{it} \quad (2)
 \end{aligned}$$

where,

$i$  = firm index;

$t$  = year index for 1989-96;

$\text{DIVIDEND/NPW}$  = total dividends paid to stockholders divided by the average of beginning and ending net premiums written;<sup>34</sup> and

$\text{ROAa}$  = return on assets, measured by total earnings after taxes divided by the average of beginning and ending total assets.

All the other variables are defined in model (1).

As conjectured, the coefficient for  $\text{OWNERSHIP}$  is predicted to be negative. All the other independent variables control for other determinants of a firm's dividend policy. Based on prior studies on publicly traded firms (Lintner 1956; DeAngelo, DeAngelo and Skinner 1992, 1996), I predict the coefficients on  $\text{ROAa}$  to be positive.  $\text{LGNPW}$  controls for the size difference.  $\text{LINE}$  controls for the differences in dividend policy for insurers operating in different lines of business.  $\text{YEAR}$  controls for any secular trend of dividend

<sup>33</sup> The qualitative results of the regression are unaltered if the lagged dividend is included.

<sup>34</sup> The results are qualitatively the same if dividends are scaled by total admitted assets.

policy. The regression results are unaltered if YEAR is omitted. The coefficient for YR93-96 is predicted to be negative. During the period 1989-92, the maximum long-term capital gain tax rate (28 percent) was almost identical to the top individual statutory tax rate (see table 1). During the period 1993-96, however, the maximum long term capital gain tax rate (still 28 percent) was much lower than the top individual statutory tax rate (39.6 percent). As a result, insurers should be less willing to pay dividends after 1992.

### **6.3 Regression Results**

The dividend model is estimated using the Tobit regression method due to a significant number of firm years paying no dividends. As shown in table 12 (column 2), the Tobit regression result is consistent with the conjecture. After controlling for the differences in profitability and several firm-specific characteristics, employee-owned insurers paid significantly less dividends than nonemployee-owned insurers during 1989-96.<sup>35</sup> The coefficient for YR93-96 is in the right direction but insignificant. Consistent with the prior literature, dividend payouts to shareholders are significantly related to corporate profitability (ROAa) in both current and past two years, but it is most highly associated with the previous year's profitability. The coefficients on four of the six lines of business variables are significant but not reported for simplicity.

The sample of employee-owned insurers includes both insurers owned directly by the employees and those indirectly through another corporation. Taxable corporations can enjoy at least a 70 percent dividend received deduction on dividends received from other domestic corporations while capital gains are taxed at the ordinary corporate tax rate.

---

<sup>35</sup> The coefficient on the interaction between YR93\_96 and OWNERSHIP is never significant and thus not included in regression model (2).

Thus corporations in general prefer dividends to capital gains. To make sure that the previous regression result is not driven by corporations' preference for dividends, I rerun the regression separately for employee-owned insurers directly owned by the employees and those indirectly owned by the employees. The results are reported in columns three and four of table 12.<sup>36</sup> The coefficient for OWNERSHIP is significantly negative in both regressions. Thus the dividend regression result on the full sample is not due to corporations' general preference for dividends.

---

<sup>36</sup> Four (29 firm years) nonemployee-owned insurers directly owned by individual investors were deleted accordingly for the regression result in column four.

## Chapter 7

### CONCLUSIONS

This paper investigates whether privately-held corporations use tax-deductible compensation to shift income between the firm and shareholder-employees in response to the difference in individual and corporate tax rates. The main findings are summarized in section 7.1. Directions for future research are discussed in section 7.2, followed by a discussion of the implications of this study in section 7.3.

#### 7.1 Summary of Results

This study hypothesizes that employee-owned privately-held insurers shift corporate earnings to shareholder-employees using tax-deductible compensation when shareholder-employees' marginal tax rates are lower than the corporate marginal tax rate (H1); when shareholder-employees' marginal tax rates are higher than the corporate marginal tax rate, employee-owned insurers shift less corporate earnings to shareholder-employees using tax-deductible compensation (H2). By analyzing a sample of 64 employee-owned insurers and 76 nonemployee-owned liability insurers over 1989-96, this study finds evidence consistent with both hypotheses. Specifically, after controlling for the nontax determinants of employee compensation, employee-owned insurers paid significantly more tax-deductible compensation than nonemployee-owned insurers during 1989-92, but substantially reduced the amount of tax-deductible compensation after the significant increase of individual tax rates in 1993. Consistent with the compensation results, this study also finds that employee-owned insurers paid less dividends than



nonemployee-owned insurers over the entire period 1989-96. To my knowledge this paper provides the first direct evidence on income shifting privately-held firms are suspected to be doing using tax-deductible compensation.

## **7.2 Directions for Future Research**

Because the evidence in this paper is from the regulated insurance industry, the next question is whether the conclusion from this paper can be generalized to other industries. I argue that insurance companies should have less discretion than other nonregulated privately-held firms to use compensation to shift income to shareholder tax bases due to strict regulation; as a result the magnitude of income shifting documented in this study might represent only the lower bound.<sup>37</sup> On the other hand, insurance companies should have more freedom to accumulate earnings inside the firm because capital buildup is viewed favorably by insurance regulators and less likely to be attacked by the IRS as a way to avoid dividend taxation. An interesting extension of this study is to examine the compensation arrangement of privately-held firms in nonregulated industries. Also, future research should consider combining individual shareholder data and firm data (if possible) in order to have a better estimate of individual shareholders' marginal tax rates. Finally, future research in nonregulated industries should also consider the potential multiple channels privately-held firms can use to shift income.

## **7.3 Implications**

The evidence documented in this study carries two significant implications. First, the deadweight loss of individual tax increases calculated assuming no income shifting is

---

<sup>37</sup> One indicator of such regulatory restriction is that insurers are required to report an employee's annual compensation to state regulators if it exceeds \$100,000.

likely to be overstated and needs reassessment. Given that public policymakers have been showing increasing interest in using tax policy to direct economic engineering, it is important to derive an accurate estimate of the efficiency loss of tax changes. Second, the accounting rate of return for many privately-held firms may be an unreliable measure of firm performance due to significant income shifting between the firm and shareholders. Thus future research assessing the economic performance of privately-held firms should take into consideration the influence of taxes.

## **LIST OF REFERENCES**

## LIST OF REFERENCES

- Ayers, B. C., C. B. Cloyd, and J. R. Robinson. 1996. Organizational form and taxes: an empirical analysis of small businesses. *Journal of the American Taxation Association* 18: 49-67.
- \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. 1999. The influence of income taxes on the use of inside and outside debt by small businesses. Working paper, University of Georgia.
- Best, A. M. *Insurance Reports: Property and Casualty*. 1989-97.
- Belsley, D., E. Kuh, and R. Welsch. 1980. *Regression diagnostics, identifying influential data and sources of collinearity*. Wiley, New York.
- Carrol, R. 1998. Do taxpayers really respond to changes in tax rates? Evidence from the 1993 Tax Act. Working paper, Office of Tax Analysis, U.S. Department of the Treasury.
- Cloyd, C. B., S. T. Limberg, and J.R. Robinson. 1997. The impact of federal taxes on the use of debt by closely held corporations. *National Tax Journal* 50 (2): 261-277.
- Collins, J., D. Kemsley, and M. Lang. 1997. Cross-jurisdictional income shifting and earnings valuation. Working paper, University of North Carolina.
- \_\_\_\_\_, and D. Shackelford. 1997. Transfer pricing and the persistent zero taxable income of foreign-controlled U.S. corporations. *Journal of the American Taxation Association* 19: Supplement.
- Cook, R. D. 1977. Detection of influential observations in linear regression. *Technometrics* 19: 15-18.
- Cummins, J. D., S. Harrington, and G. Niehaus. 1995. Risk-based capital requirements for property-liability insurers: a financial analysis. In E. I. Altman and I. T. Vanderhoof eds., *The Financial Dynamics of the Insurance Industry*. New York: New York University Salomon Center.
- DeAngelo, H., L. DeAngelo, and D. J. Skinner. 1992. Dividends and losses. *Journal of Finance* 47: 1837-1863.
- \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. 1996. Reversal of fortune: dividend signaling and the disappearance of sustained earnings growth. *Journal of*

*Financial Economics* 40: 341-371.

- Feenberg, D. R., and J. M. Poterba. 1993. Income inequality and the incomes of very high-income taxpayers: evidence from tax returns. In *Tax Policy and Economy*.
- Feldstein, M. 1995a. Tax avoidance and the deadweight loss of the income tax. NBER working paper 5055.
- \_\_\_\_\_. 1995b. The effect of marginal tax rates on taxable income: a panel study of the 1986 tax reform act. *Journal of Political Economy* 103 (3): 551-572.
- \_\_\_\_\_. 1996. How big should government be?. NBER working paper 5868.
- Goolsbee, A. 1997a. Taxes, organizational form, and the deadweight loss of the corporate income tax. NBER working paper 6173.
- \_\_\_\_\_. 1997b. It's not about the money: why natural experiments don't work on the rich. Working paper. University of Chicago.
- \_\_\_\_\_. 1997c. What happens when you tax the rich? Evidence from executive compensation. NBER working paper.
- Gordon, R. H., and J. Slemrod. 1997. Are 'real' responses to taxes simply income shifting between corporate and personal tax bases? NBER working paper.
- Guenther, D. A. 1994. Earnings management in response to corporate tax rate changes: evidence from the 1986 Tax Reform Act. *The Accounting Review* 69 (January): 230-243.
- Harris, D. 1993. The impact of U.S. tax law revision on multinational corporations' capital location and income-shifting decisions. *Journal of Accounting Research* 31: Supplement, 111-140.
- Jensen, M. C., and K. J. Murphy. 1990. Performance Pay and top-management incentives. *Journal of Political Economy* 98 (2): 225-264.
- Karoly, L. 1993. The trend in income inequality among families, individuals, and workers in the United States: a twenty-five year perspective. In *Uneven Tides: Rising Inequality In America*, ed. S. Danziger and P. Gottschalk. New York: Russell Sage Foundation.
- Ke, B., E. Outslay, and K. R. Petroni. 1998. Taxes as a determinant of foreign-owned property-liability insurers' investment strategies in the United States. *Journal of the American Taxation Association* (Supplement): 25-36.

- \_\_\_\_\_, K. Petroni, and A. Safieddine. 1998. Executive pay and accounting performance measures: evidence from publicly and privately-held insurance companies. Working paper, Michigan State University.
- Klassen, K., M. Lang, and M. Wolfson. 1993. Geographic income shifting by multinational corporations in response to tax rate changes. *Journal of Accounting Research* 31: Supplement. 141-173.
- \_\_\_\_\_, and D. Shackelford. 1997. Ownership structure across lines of property-casualty insurance. *Journal of Law and Economics* 31: 351-378.
- Levy, F., and R. J. Murnane. 1992. U.S. earnings levels and earnings inequality: a review of recent trends and proposed explanations. *Journal of Economic Literature* 30: 1333-81.
- Lintner, J. V. 1956. Distribution of incomes of corporations among dividends, retained earnings, and taxes. *American Economic Review* 46: 97-113.
- Mackie-Mason, J. K., and R. H. Gordon. 1997. How much do taxes discourage incorporation? *Journal of Finance* LII (2): 477-505.
- Matsunaga, s., T. Shevlin, and D. Shores. 1992. Disqualifying dispositions of incentive stock options: tax benefits versus financial reporting costs. *Journal of Accounting Research* (supplement): 37-68.
- Maydew, E. L. 1997. Tax-induced earnings management by firms with net operating losses. *Journal of Accounting Research* 35 (Spring): 83-96.
- Mayers, D., and C. W. Smith, Jr. 1988. Ownership structure across lines of property-casualty insurance. *Journal of Law and Economics* XXXI (October): 351-378.
- \_\_\_\_\_, and \_\_\_\_\_. 1992. Executive compensation in the life insurance industry. *Journal of Business* 65 (1): 51-74.
- Petroni, K. R. 1992. Optimal reporting in the property-casualty insurance industry. *Journal of Accounting and Economics* 15: 485-508.
- \_\_\_\_\_, and D. A. Shackelford. 1999. Managing annual accounting reports to avoid state taxes: an analysis of property-casualty insurers. *Accounting Review* (July), forthcoming.
- Rogers, W.H. 1993. sg17: Regression standard errors in clustered samples. *Stata Technical Bulletin* 13: 19-23.
- Rosen, S. 1992. Contracts and the market for executives. In L. Werin and H.

Wijkander, eds., *Contract Economics*. Oxford: Basil Blackwell.

Scholes, M., and M. A. Wolfson. 1992. *Taxes and business strategy: a planning approach*. Prentice-Hall Inc. Englewood Cliffs, New Jersey.

\_\_\_\_\_, and G. P. Wilson, and M. A. Wolfson. 1992. Firms' responses to anticipated reductions in tax rates: The Tax Reform Act of 1986. *Journal of Accounting Research* (supplement): 161-85.

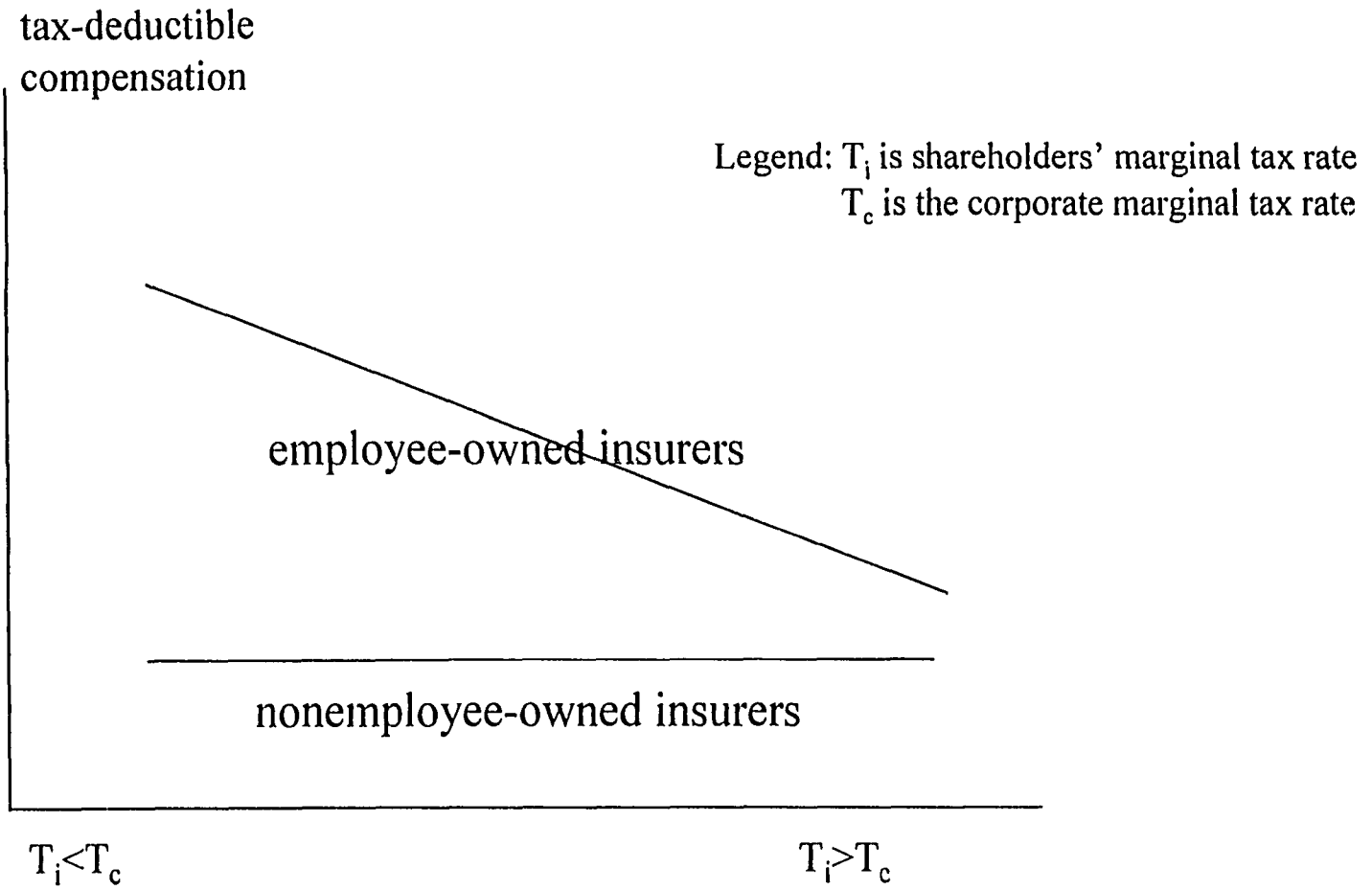
Slemrod, Joel. 1995. Income creation or income shifting? Behavioral responses to the Tax Reform Act of 1986. *American Economic Review* (May):175-180.

\_\_\_\_\_. 1996. High-income families and the tax changes of the 1980s: the anatomy of behavioral response. In M. Feldstein and J. Porterba eds., *Empirical Foundations of household taxation*. Chicago: University of Chicago Press for NBER.

\_\_\_\_\_. 1998. Methodological issues in measuring and interpreting taxable income elasticities. *National Tax Journal* 1998 Vol. LI No.4: 773-788.

White, H. 1980. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48: 817-838.

Wilkie, T. J., J. C. Young, and S. E. Nutter. 1996. Corporate business activity before and after the tax reform act of 1986. *Statistics of Income Bulletin* 16: 32-45.



**Figure 1. The Effect of Taxes On The Tax-deductible Compensation Of Employee-Owned Insurers Relative To Nonemployee-Owned Insurers**



**Table 1. The History of the Top Statutory Tax Rates  
for Individuals and Taxable Corporations**

| year    | Top individual statutory rate | Top corporate statutory rate | Difference |
|---------|-------------------------------|------------------------------|------------|
| 1981-86 | 50                            | 46                           | 4          |
| 1987    | 38.5                          | 40                           | -1.5       |
| 1988-90 | 28                            | 34                           | -6         |
| 1991-92 | 31                            | 34                           | -3         |
| 1993-96 | 39.6                          | 35                           | 4.6        |

Source: Gordon and Slemrod (1997), table 1.

**Table 2. Progressive Tax Rate Schedules for Married Taxpayers Filing Jointly and  
Corporate Taxpayers: 1989 and 1994**

**Panel A: Married taxpayers filing jointly**

| Taxable Income | 1989 | 1994 |
|----------------|------|------|
| ≤ 29,750       | 15   | 15   |
| > 29,750       | 28   | 15   |
| ≤ 36,900       | 28   | 15   |
| ≤ 89,150       | 28   | 28   |
| ≤ 140,000      | 28   | 31   |
| ≤ 250,000      | 28   | 36   |
| > 250,000      | 28   | 39.6 |

**Panel B: Corporate taxpayers**

| Taxable Income | 1989 | 1994 |
|----------------|------|------|
| ≤ 25,000       | 15   | 15   |
| ≤ 50,000       | 15   | 15   |
| ≤ 75,000       | 25   | 25   |
| >75,000        | 34   | 34   |
| >15,000,000    | 34   | 35   |

Source: Internal Revenue Code 1986, as amended.

**Table 3. Sample Selection Criteria**

|  |            |
|--|------------|
| U.S.-owned stock insurers in the 1992 NAIC property and liability insurer database with group code zero, nonmissing data, and incorporation date before 1990 . | 408        |
| Less:  |            |
| With no ownership information from A.M. Best's Insurance Reports: Property and Casualty (1989-97)  | 138        |
| ownership change during 1989-96  | 17         |
| distressed insurers*   | 52         |
| owned by a mutual insurer  | 8          |
| owned by a publicly-traded corporation   | 21         |
| do not have data in both 1989-92 and 1992-96   | 32         |
| <b>Final sample</b>  | <b>140</b> |
| employee-owned insurers  | 64         |
| nonemployee-owned insurers   | 76         |

\* Distressed insurers refer to those who were placed in receivership, in conservatorship, or being liquidated (as disclosed in Best's Insurance Reports) during the period 1989-96.

**Table 4. Ownership Characteristics of Employee-Owned Insurers**

**Panel A: Ownership concentration**

| Ownership percentage by the employees | Frequency |
|---------------------------------------|-----------|
| 100%                                  | 47        |
| 50%-99%                               | 12        |
| 25%-49%                               | 5         |
| Total                                 | 64        |

**Panel B: Type of ownership**

|  |    |
|--|----|
| owned directly by the employees              | 22 |
| owned indirectly through another corporation | 42 |
| Total  | 64 |

**Table 5. Descriptive Statistics by Ownership Structure  
(means, medians, and standard deviations)**

| <b>Variables</b>         | <b>Employee-owned insurer years (n=444)</b> | <b>Nonemployee-owned insurer years (n=551)</b> | <b>Rank-sum test of difference z-value (p value)</b> |
|--------------------------|---|--|--|
| <b>TOTAL ASSETS</b>      | 30.81<br>(9.17)<br>[106.08]                 | 113.02<br>(36.33)<br>[233.70]                  | -14.08<br>(.001)                                     |
| <b>NPW</b>               | 12.30<br>(4.17)<br>[40.86]                  | 30.85<br>(13.13)<br>[47.39]                    | -12.46<br>(.001)                                     |
| <b>COMPENSATION /NPW</b> | 2.33<br>(.12)<br>[34.19]                    | .15<br>(.09)<br>[.99]                          | 6.98<br>(.001)                                       |
| <b>ROAb</b>              | .10<br>(.10)<br>[.08]                       | .09<br>(.08)<br>[.08]                          | 2.55<br>(.01)  |
| <b>ROAa</b>              | .04<br>(.05)<br>[.08]                       | .05<br>(.05)<br>[.08]                          | -.95<br>(.34)  |
| <b>COMPANY AGE</b>       | 15.02<br>(9)<br>[17.45]                     | 24.40<br>(17)<br>[21.22]                       | -10.63<br>(.001)                                     |
| <b>LICENSE</b>           | 6.55<br>(2)<br>[10.46]                      | 14.14<br>(4)<br>[17.32]                        | -5.58<br>(.001)                                      |
| <b>%CHASST</b>           | .18<br>(.08)<br>[1.60]                      | .13<br>(.08)<br>[.22]                          | -1.21<br>(.22)                                       |
| <b>DIVIDEND/NPW</b>      | .02<br>(0)<br>[.10]                         | .05<br>(0)<br>[.22]                            | -6.01<br>(.001)                                      |

TOTAL ASSETS is total admitted assets at year end. NPW is net insurance premiums written. COMPENSATION is the total employee compensation, including salaries, bonuses and other immaterial emoluments. COMPENSATION/NPW is the ratio of COMPENSATION AND NPW. ROAb is return on assets, measured by total earnings before taxes and total tax-deductible compensation as a percentage of the average of beginning and ending total admitted assets. ROAa is defined similarly, but after tax-deductible compensation and taxes. COMPANY AGE is the number of years since incorporation. LICENSE is the number of states an insurer is licensed to do business. %CHASST is the percentage change of total admitted assets from t-1 to t. DIVIDEND is shareholder dividends. DIVIDEND/NPW is the ratio of DIVIDEND and the average of beginning and ending NPW. All values are in constant 1989 dollars (millions).

**Table 6. Percentage Changes of Selected Variables  
From 1989-92 to 1993-96 by Ownership Type  
(means, medians, and standard deviations)**

|           | EMPLOYEE-<br>OWNED<br>INSURERS<br>(n=64) | NONEMPLOYEE-<br>OWNED<br>INSURERS<br>(n=76) | RANK SUM TEST<br>OF DIFFERENCE<br>Z VALUE<br>(P VALUE) |
|-----------|--|---|--|
| %CHMNASS  | .39<br>(.12)<br>[1.0]                    | .36<br>(.25)<br>[.51]                       | 1.56<br>(.12)  |
| %CHMNNPW  | .41<br>(.02)<br>[1.62]                   | .36<br>(.10)<br>[.84]                       | 1.14<br>(.255)   |
| %CHMNCOMP | .81<br>(.23)<br>[3.47]                   | 1.43<br>(.35)<br>[4.37]                     | 1.64<br>(.10)  |

%CHMNASS is the percentage change in an insurer's mean total admitted assets from 1989-92 to 1993-96. %CHMNNPW and %CHMNCOMP are defined similarly but for net premiums written and employee compensation. All values are in 1989 constant dollars.

**Table 7. The Pearson Correlation Matrix for Selected Variables in Model (1)  
(n=939)**

|                            | (1)    | (2)    | (3)   | (4)    | (5)    | (6)   | (7)  | (8)  |
|----------------------------|--------|--------|-------|--------|--------|-------|------|------|
| LGCOMP<br>(1)              | 1.00   |        |       |        |        |       |      |      |
| OWNERSHIP<br>(2)           | -.27** | 1.00   |       |        |        |       |      |      |
| LGNPW<br>(3)               | .86**  | -.36** | 1.00  |        |        |       |      |      |
| LGAGE<br>(4)               | .36**  | -.32** | .33** | 1.00   |        |       |      |      |
| LGLICENSE<br>(5)           | .35**  | -.21** | .35** | .43**  | 1.00   |       |      |      |
| ROAb <sub>t</sub><br>(6)   | -.02   | .08*   | -.06* | -.14** | -.07*  | 1.00  |      |      |
| ROAb <sub>t-1</sub><br>(7) | -.01   | .05    | -.05  | -.12** | -.08*  | .52** | 1.00 |      |
| %CHASST<br>(8)             | .01    | -.05   | .09** | -.16** | -.09** | .06   | .06* | 1.00 |

The correlations are calculated based on the final sample used in regression model (1) after deleting the outliers using Cook (1977)'s criteria. LGCOMP is the natural log of COMPENSATION. OWNERSHIP is a zero-one dummy, with one being employee-owned insurers. LGAGE is the natural log of COMPANY AGE. LGLICENSE is the natural log of LICENSE. LGNPW is the natural log of NPW. All the other variables are defined in table 5. \* and \*\* denote .05 and .01 significance levels respectively (two-tailed).

**Table 8. Pooled Multivariate Regression Results  
on Tax-Deductible Compensation: 1989-96  
(t-values in parentheses)**

$$LGCOMP_{it} = a + b_1 OWNERSHIP_i + b_2 YR93-96 + b_3 YR93-96*OWNERSHIP_i + b_4 LGNPW_{it} + b_5 LGAGE_{it} + b_6 LGLICENSE_{it} + b_7 ROAb_{it} + b_8 ROAb_{it-1} + \sum b_{9-14} LINE_{it} + b_{15} \%CHASST_{it} + b_{16} YEAR + e_{it} \quad (1)$$

| Variable            | Prediction | Pooled OLS Model    | Fixed Effect Model  |
|---------------------|------------|---------------------|---------------------|
| OWNERSHIP           | +          | .34<br>(2.76)***    | -                   |
| YR93-96             |            | .19<br>(2.24)***    | .13<br>(2.52)**     |
| YR93-96*OWNERSHIP   | -          | -.23<br>(-2.41)***  | -.13<br>(-2.52)***  |
| LGNPW               | +          | .78<br>(18.86)***   | .44<br>(14.96)***   |
| LGAGE               |            | .13<br>(1.87)*      | -.20<br>(-2.32)**   |
| LGLICENSE           |            | .03<br>(.68)        | .01<br>(.27)        |
| ROAb <sub>t</sub>   |            | .96<br>(2.14)**     | .48<br>(2.04)**     |
| ROAb <sub>t-1</sub> |            | .58<br>(1.67)*      | .75<br>(3.44)***    |
| %CHASST             |            | -.30<br>(-2.47)**   | -.23<br>(-3.56)***  |
| YEAR                |            | .02<br>(1.19)       | .07<br>(5.44)***    |
| INTERCEPT           |            | -4.55<br>(-3.04)*** | -7.95<br>(-7.19)*** |
| Sample size         |            | 939                 | 939                 |
| R squared           |            | .78                 | .51                 |

YEAR is a time trend. YR93-96 is a zero-one dummy, with one being period 1993-96. YR93-96\*OWNERSHIP is the interaction of YR93-96 and OWNERSHIP. All the other variables are defined in tables 5 and 7. The regression coefficients for LINE are not shown for simplicity. The t-statistics are corrected for heteroskedasticity and time serial correlation using STATA's cluster command (see Rogers 1993). \*, \*\*, and \*\*\* denote significance levels of .10, .05, and .01 respectively. The significance tests are one-tailed if there is a prediction and two-tailed otherwise. All values are in 1989 constant dollars.

**Table 9. Pooled Multivariate Regression Results  
on Tax-Deductible Compensation (1989-96): Sensitivity Analysis  
(t-values in parentheses)**

| Variable            | Prediction | A <sup>1</sup>     | B                   | C                 |
|---------------------|------------|--------------------|---------------------|-------------------|
| OWNERSHIP           | +          | .44<br>(3.09)***   | .26<br>(1.81)**     | .40<br>(2.56)***  |
| YR93-96             |            | .21<br>(2.40)**    | .13<br>(1.49)       | .33<br>(2.45)***  |
| YR93_96*OWNERSHIP   | -          | -.37<br>(-3.11)*** | -.18<br>(-1.63)*    | -.30<br>(-2.31)** |
| LGNPW               | +          | .79<br>(16.28)***  | .76<br>(15.96)***   | .77<br>(16.71)*** |
| LGAGE               |            | .05<br>(.69)       | .16<br>(2.01)**     | .18<br>(2.20)**   |
| LGLICENSE           |            | .03<br>(.67)       | .04<br>(.86)        | .07<br>(1.38)     |
| ROAb <sub>t</sub>   |            | .40<br>(.82)       | 1.38<br>(2.65)***   | .80<br>(1.50)     |
| ROAb <sub>t-1</sub> |            | .36<br>(.87)       | .72<br>(1.76)**     | .61<br>(1.42)     |
| %CHASST             |            | -.38<br>(-2.62)**  | -.32<br>(-2.52)**   | -.30<br>(-1.74)*  |
| YEAR                |            | .02<br>(.80)       | .04<br>(2.10)**     | -.01<br>(-.30)    |
| INTERCEPT           |            | -3.79<br>(-2.20)** | -6.19<br>(-3.89)*** | -2.98<br>(-1.68)* |
| sample size         |            | 651                | 807                 | 678               |
| R squared           |            | .80                | .75                 | .77               |

<sup>1</sup> Column A: includes only employee-owned insurers directly owned by the employees and all nonemployee-owned insurers;  
Column B: includes only employee-owned insurers indirectly owned by the employees and all nonemployee-owned insurers;  
Column C: includes nonemployee-owned insurers with %CHMNASS less than or equal to 24.6% (median for nonemployee-owned insurers) and all employee-owned insurers.

See tables 5, 7 and 8 for variable definitions. The regression coefficients for LINE are not shown for simplicity. The t-statistics are corrected for heteroskedasticity and time serial correlation using STATA's cluster command (see Rogers 1993). \*, \*\*, and \*\*\* denote significance levels of .10, .05, and .01 respectively. The significance tests are one-tailed if there is a prediction and two-tailed otherwise. All values are in 1989 constant dollars.

**Table 10. Annual Multivariate Regression Results  
on Tax-Deductible Compensation: 1989-96  
(t values in parentheses)**

|  | <b>OWNERSHIP</b> | <b>ROAb<sub>t</sub></b> | <b>ROAb<sub>t-1</sub></b> | <b>sample size</b> |
|--|------------------|-------------------------|---------------------------|--------------------|
| <b>Before the 1993 tax law change:</b> |                  |                         |                           |                    |
| 89                                     | .36<br>(1.88)*   | 1.06<br>(.79)           | -.35<br>(-.28)            | 89                 |
| 90                                     | .21<br>(1.38)    | 1.77<br>(1.67)*         | .33<br>(.28)              | 105                |
| 91                                     | .37<br>(2.15)**  | 3.33<br>(2.42)**        | -.33<br>(-.28)            | 116                |
| 92                                     | .27<br>(2.09)**  | 1.69<br>(1.23)          | 1.35<br>(1.46)            | 125                |
| <b>After the 1993 tax law change:</b>  |                  |                         |                           |                    |
| 93                                     | .22<br>(1.64)    | .45<br>(.32)            | 1.91<br>(1.36)            | 127                |
| 94                                     | .10<br>(.94)     | 2.51<br>(2.45)**        | .10<br>(.10)              | 127                |
| 95                                     | .15<br>(1.23)    | -1.62<br>(-2.59)**      | 2.48<br>(1.93)*           | 125                |
| 96                                     | .16<br>(1.15)    | -.23<br>(-.27)          | -.72<br>(-.97)            | 125                |

The coefficients for all the other independent variables are not reported. See tables 5, 7 and 8 for variable definitions. The t-statistics are adjusted for heteroskedasticity (White 1980). \* and \*\* denote significance levels of .10 and .05 respectively (two-tailed).



**Table 11. Regression of Tax-Deductible Compensation Using a Continuous Measure of Corporate and Individual Marginal Tax Rate Difference (t-values in parentheses)**

| Variable                               | Prediction | Regression Coefficient<br>(t statistics) |
|--|------------|--|
| OWNERSHIP                              |            | .23<br>(2.26)**                          |
| $(\tau_c - \tau_i)$                    |            | -2.37<br>(-2.37)**                       |
| $(\tau_c - \tau_i) * \text{OWNERSHIP}$ | +          | 2.40<br>(2.06)**                         |
| LGNPW                                  | +          | .78<br>(18.83)***                        |
| LGAGE                                  |            | .14<br>(1.93)*                           |
| LGLICENSE                              |            | .03<br>(.71)                             |
| ROAb <sub>t</sub>                      |            | .99<br>(2.18)**                          |
| ROAb <sub>t-1</sub>                    |            | .55<br>(1.51)                            |
| %CHASST                                |            | -.29<br>(-2.30)**                        |
| YEAR                                   |            | .01<br>(.78)                             |
| INTERCEPT                              |            | -3.87<br>(-2.50)**                       |
| sample size                            |            | 940                                      |
| R squared                              |            | .77                                      |

$(\tau_c - \tau_i)$  is the top statutory tax rate difference between corporate and individual taxpayers.  $(\tau_c - \tau_i) * \text{OWNERSHIP}$  is the interaction of  $(\tau_c - \tau_i)$  and OWNERSHIP. See tables 5, 7 and 8 for the definitions of other variables. The regression coefficients for LINE are not shown for simplicity. \*, \*\*, and \*\*\* denote significance levels of .10, .05, and .01 respectively. The significance tests are one-tailed if there is a prediction and two-tailed otherwise. All values are in 1989 constant dollars.

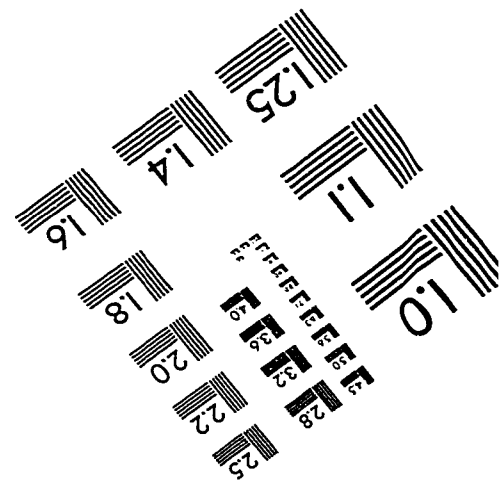
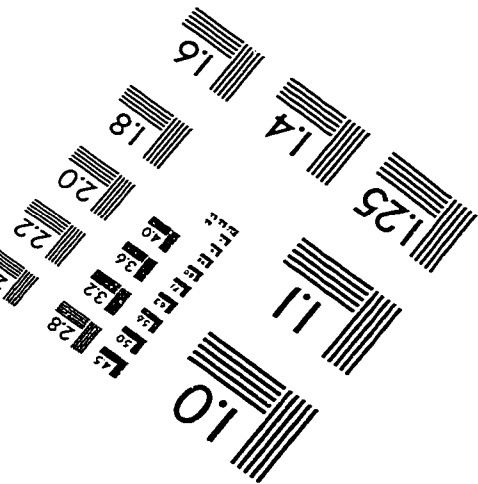
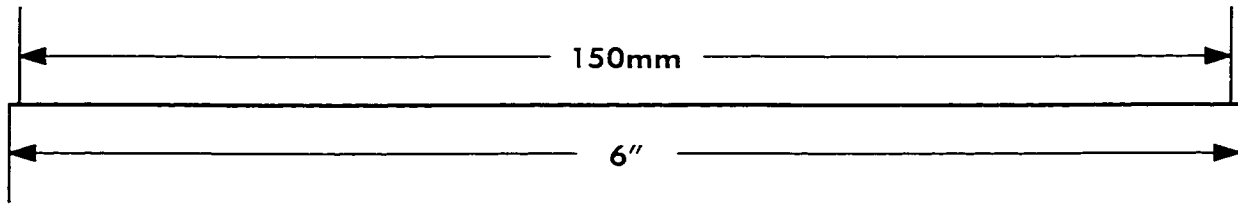
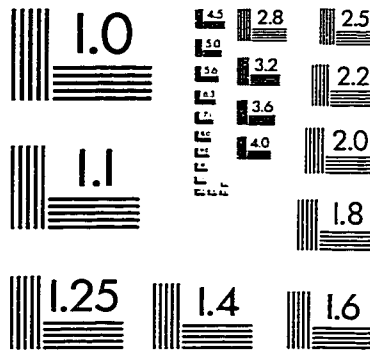
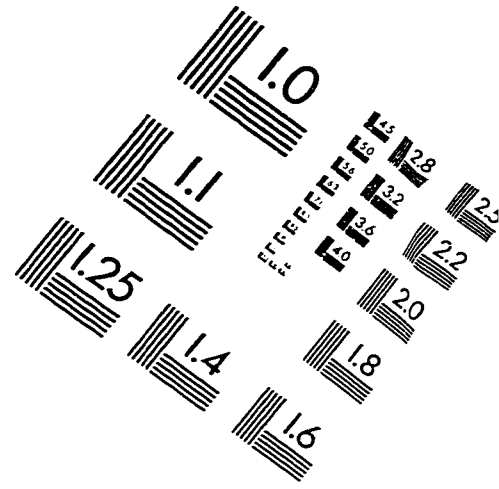
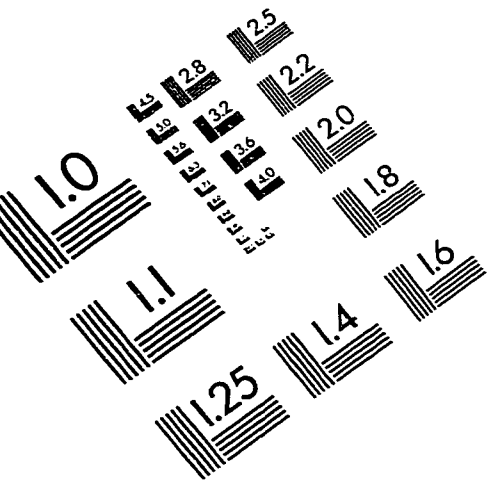
**Table 12. Tobit Regression Results on Dividend Policy: 1989-96**  
(t values in parentheses)

$$\begin{aligned}
 (\text{DIVIDEND/NPW})_{it} = & a + b_1 \text{ OWNERSHIP}_i + b_2 \text{ YR93-96} + b_3 \text{ ROAa}_{it} + b_4 \text{ ROAa}_{it-1} \\
 & + b_5 \text{ ROAa}_{it-2} + \sum b_{6-11} \text{ LINE}_{it} + b_{12} \text{ LGNPW}_{it} + b_{13} \text{ YEAR} + e_{it}
 \end{aligned}
 \tag{2}$$

| VARIABLE            | Prediction | full sample        | directly owned     | indirectly owned  |
|---------------------|------------|--------------------|--------------------|-------------------|
| OWNERSHIP           | -          | -.033<br>(-3.35)** | -.067<br>(-4.54)** | -.021<br>(-1.92)* |
| YR93-96             | -          | -.015<br>(-.92)    | -.012<br>(-.68)    | -.021<br>(-1.13)  |
| ROAa <sub>t</sub>   | +          | .182<br>(2.47)**   | .093<br>(1.13)     | .194<br>(2.41)**  |
| ROAa <sub>t-1</sub> | +          | .254<br>(3.27)**   | .199<br>(2.42)**   | .232<br>(2.68)**  |
| ROAa <sub>t-2</sub> | +          | .190<br>(2.69)**   | .204<br>(2.65)**   | .161<br>(2.01)*   |
| LGNPW               |            | .010<br>(3.08)**   | .008<br>(2.51)*    | .010<br>(2.53)*   |
| YEAR                |            | .008<br>(2.02)*    | .005<br>(1.28)     | .008<br>(1.91)    |
| INTERCEPT           |            | -.871<br>(-2.50)*  | -.641<br>(-1.70)   | -.899<br>(-2.34)* |
| sample size         |            | 975                | 677                | 804               |
| Chi square          |            | 127                | 116                | 79                |

The regression result in column 2 is based on the full sample of employee-owned and nonemployee-owned insurers. The result in column 3 uses employee-owned insurers directly owned by employees and all nonemployee-owned insurers. The result in column 4 includes employee-owned insurers indirectly owned by employees, and nonemployee-owned insurers not directly owned by individual investors. DIVIDEND/NPW is total dividends paid to stockholders divided by the average of beginning and ending total net premiums written. See tables 5, 7 and 8 for the definitions of other variables. The t-statistics are corrected for heteroskedasticity and time serial correlation using STATA's cluster command (see Rogers 1993). The coefficients for LINE are not reported for simplicity. \* and \*\* denote significance levels of .05 and .01. The significance tests are one-tailed if there is a prediction and two-tailed otherwise.

# IMAGE EVALUATION TEST TARGET (QA-3)



**APPLIED IMAGE, Inc**  
 1653 East Main Street  
 Rochester, NY 14609 USA  
 Phone: 716/482-0300  
 Fax: 716/288-5989

© 1993, Applied Image, Inc.. All Rights Reserved