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Financial performance of insurance companies following initial public offerings

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FINANCIAL PERFORMANCE OF INSURANCE COMPANIES FOLLOWING INITIAL PUBLIC OFFERINGS

by

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ABSTRACT

The quality of insurance companies is a very significant societal issue. Policyholders pay premiums assuming indemnity of their potential losses. It is essential that an insurer be able to meet its contractual obligations when a loss occurs. An initial public offering provides an infusion of capital and an expansion of resources available to a firm. Thus, the objective of this study is to examine the financial and operating impacts of initial public offerings during 1980-2000 on insurance companies.

Chapter 2 examines changes in operating performance of property/casualty insurance companies following initial public offerings. I find that following initial public offerings, the underwriting performance, the solvency performance, and the overall performance of property/casualty insurers improve while the investment performance deteriorates.

Chapter 3 examines whether abnormal returns exist at the time of an IPO for insurers. I find that abnormal returns exist at the time of an IPO for property/casualty insurers and combined insurers, but not for life insurers. There is a significant difference in the abnormal returns between property/casualty companies and other randomly selected non-insurers as well as between overall insurers sampled and other randomly selected non-insurers. The results indicate that abnormal returns of insurance companies are less than abnormal returns of other non-regulated firms.

Chapter 4 examines whether there is evidence of agency problems at the time of an initial public offering. I find that the salaries, bonuses, and total values of annual pay packages for formerly privately held stock insurers significantly increases following initial public offerings. Therefore, reduced ownership by management increases agency costs. I also find that salaries and bonuses of former mutual insurers do not significantly increase in the IPO year. This result is evidence that top executives of mutual insurers may have already abused their position before demutualization.

DEDICATION

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Finally, I would like to dedicate this dissertation to the two persons I love most, my parents, Phoonsak and Krongkan. My parents have always provided me with unconditional love, support, and encouragement. Without them, I would never have been able to complete this task.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

In general, insurance companies are categorized as property, casualty, life, and health. Property insurance is to protect against financial losses resulting from fire and related disasters to property and land. Property insurance also includes disasters to ships and cargo. The purpose of casualty insurance is to protect the insured against the loss caused by the failure of the insured to act or negligence to a third party (Rosman (1997)). Liability insurance is included in the casualty insurance category. The insurers make indemnity to a third party for the insured. Life and health insurance is to compensate the insured or the beneficiary for the occurrence of death, disability, or some other event (Huebner and Black (1982)).

Insurance is provided by basically four types of organizations: stock companies, mutual companies, Lloyds, and reciprocal exchanges. Best's Insurance Reports states that a stock insurance company is owned and ultimately controlled by its stockholders. Policyholders are customers of the company. They have no interest in the company at all. A mutual company is a corporation without capital stock. Policyholders are the owners of the company. In mutual organizations, the owner and customer functions are merged. A Lloyd's association is a voluntary

unincorporated association of individual underwriters. Under each policy issued, each individual is responsible for a portion of the liability. Reciprocal exchanges are groups of subscribers which can be persons or firms who exchange contracts of insurance.

Insurance companies are different from industrial firms. Insurance is a regulated industry. The ex ante uncertainty about the firm's value should be less severe for insurers than non-regulated firms resulting from regulatory disclosure. Regulators require the management to file easily accessible financial reports. Regulators or the National Association of Insurance Commissioners (NAIC) specify minimum capital and surplus balance. Regulators control rates. Moreover, NAIC annually calculates the Insurance Regulatory Information System (IRIS) ratios for each insurer. A suitable range is set for these ratios. Therefore, regulations restrict management choice and help reduce the problems of exceedingly risky and selfish behavior of the management (Rahman and Yung (1999)).

The quality of insurance companies is a very significant societal issue. Policyholders pay premiums assuming indemnity of their potential losses. It is essential that an insurer be able to meet its contractual obligations when a loss occurs. An initial public offering provides an infusion of capital and an expansion of resources available to a firm. Thus the objective of this dissertation is to examine the financial and operating impacts of initial public offerings during 1980-2000 on insurance companies.

Chapter 2 addresses the following question: What happens to the operating performance of insurance companies following an initial public offering (IPO)? This

issue uses property/casualty insurers as samples. Unlike previous studies of operating performance of insurance companies (Ambrose and Seward (1988), BarNiv and Hershbarger (1990), Doherty and Garven (1993), and Pottier (1998)) that study only operating performance in the solvency perspective, the examined performances in this study are divided into five categories: underwriting performance, investment performance, solvency performance, overall operating performance, and overall performance.

Chapter 3 addresses two main questions. (1) Do abnormal returns exist at the time of an IPO for insurers? (2) Is there a significant difference between the abnormal returns of insurers and companies in other industries? Unlike previous studies, in addition to utilizing the S&P 500 index, NASDAQ index, NYSE/AMEX/NASDAQ value weighted index, NYSE/AMEX/NASDAQ equally weighted index, I also calculate an insurance industry index to determine whether abnormal returns exist at the time of an IPO.

Seventeen insurance companies have demutualized since 1986, with the largest by far occurring in 2000 (Levinsohn (2000)). Although various reasons have been provided to explain why insurers go public, agency theory research argues that top executives usually try to pursue strategies to gain personal rewards; however, I question that top executives make the transition from private or mutual to public ownership in order to increase their personal rewards. Therefore, Chapter 4 addresses the question whether there is evidence of agency problems at the time of an IPO by examining whether top executives' rewards increase materially following initial public offerings. This study also sheds light on how CEO compensation changes vary across

two kinds of firms that differ in agency characteristics: mutual and privately held stock insurance companies.

The organizational plan for the dissertation is as follows. Chapter 2 examines the operational performance of property/casualty insurance companies following IPOs. Chapter 3 investigates the abnormal returns of life and property/casualty insurers at the time of an initial public offering. Chapter 4 examines the benefits of top executives following initial public offerings. Chapter 5 provides conclusions.

CHAPTER 2

FINANCIAL PERFORMANCE OF PROPERTY/ CASUALTY INSURANCE COMPANIES FOLLOWING INITIAL PUBLIC OFFERINGS

Introduction

Although researchers have long recognized the underperformance of initial public offerings, they have focused primarily on the stock return and not operating performance impacts. Aggarwal and Rivoli (1990) document an abnormal return of - 13.73% for a sample of 1,598 IPOs issued during 1977-1987. Ritter' s (1991) analysis of the average holding-period return on common stock for 1,526 initial public offerings over the period of 1975 to 1984 indicates that over the 3 years after going public, issuing firms substantially underperformed a control sample of similar stocks. Loughran and Ritter (1995) find that both initial and seasoned equity offerings significantly underperform nonissuing firms for five years after the offering date.

The poor long-run performance of stock returns following an IPO is almost universal; it has been substantiated in many countries. Dawson (1987), for example, finds market-adjusted performance after one year for Hong Kong, Singapore, and Malaysia of -9.3%, -2.7%, and 18.2%, respectively. Aggarwal, Leal, and Hernandez

(1993) find three-year market-adjusted returns of -47.0%, -19.6%, and –23.7% for Brazil, Mexico, and Chile, respectively. Levis (1993), for a sample of 712 IPOs listed on the London Stock Exchange during 1980-1988 find a 14.3% first day return. Loughran, Ritter, and Rydqvist (1994) analyze evidence on the short-run and long-run performance of companies going public in 25 countries, and conclude that IPOs tend to offer relatively low returns in the long run in all 9 countries for which data are available.

Several authors do analyze the operating performance of IPO firms. Jain and Kini (1994) attribute the significantly poorer post IPO operating performance to high net sales and capital expenditure growth, and therefore cannot be attributed to a lack of growth opportunities. Cai and Wei (1997) investigate the operating performance of 180 IPOs listed on the Tokyo Stock Exchange over the period 1971-1992, and find that Japanese IPO firms exhibit a significant post-issue decline in operating performance measures after adjustment for industry and mean-reversion. Mikkelson, Partch, and Shah (1997) find that among 283 American initial public offerings in the years 1980-1983 that operating return on assets declines from the year before the IPO through the first year of public trading, and financial performance remains steady for several years.

Shelor and Anderson (1998) measure the financial performance of real estate investment Trusts (REITs) following an IPO. Unlike other researchers, they find that there is an increase in return on assets and return on sales, but a decline in total assets turnover, in the years following the IPO. The decline in total assets turnover is significant when compared to only the IPO year.

The insurance industry provides a unique environment for studying the effects of initial public offerings. Receipts patterns are different from other industries; the insurance customers must pay in advance for the insurance service they want to receive in the future. It is essential that an insurer be able to meet its contractual obligations when a loss occurs. Regulators such as state insurance regulatory agencies or the National Association of Insurance Commissioners (NAIC) provide guidelines to assure the solvency of insurers. Browne and Hoyt (1995) note that minimum capital and surplus balances, rate regulation, and the filing of annual statements are regulated in an effort to maintain insurer solvency. Moreover, NAIC annually calculates the Insurance Regulatory Information System (IRIS) ratios for each insurer. A suitable range is set for these ratios. As these regulations constrain exceedingly risky business management, they reduce uncertainty and mitigate information asymmetry problems of insurers (Rahman and Yung (1999)).

Insurance companies are regulated in a different way by each state in which they operate. Regulations also differ by type of underwriter. Property/casualty insurance rates are state-regulated, while life/health rates are not. Since regulation in the insurance industry provides more certainty about true business value and reduces information asymmetry, it is interesting to examine whether there is a change in operating performance of the more regulated property/casualty insurers following initial public offerings. I would expect greater changes in the operating performance of property/casualty insurers following initial public offerings.

The insurance industry includes both stock and mutual companies. Stockholders receive the profits and incurred losses of underwriting operations.

Policyholders are customers of the stock companies. In a mutual company, the policyholders own and organize the company and are also the customers. A mutual company may change to a stock company through demutualization, which transfers ownership from policyholders to stockholders.

Panko (2001) notes that an examination of the 2000 life/health edition of A. M. Best's Aggregates and Averages indicates that stock-based life/health insurers have better operating performance than mutual companies. Between 1990 and 1999, stock companies had higher annual return on revenue than mutuals, 3.34% compared to 2.03%; return on assets of 0.87% compared to 0.5%; and return on equity of 14.13% compared to 9.77%.

Fenske (1985) suggests that demutualization provides several advantages to mutual insurers. These are the ability to increase capital, and to offer improved executive compensation structures such as stock options and stock bonuses. In addition, there is an opportunity for greater diversification, the ability to sell other financial products, and the potential of tax savings associated with the Tax Reform Act of 1984.

This study examines operating performances among property/casualty insurance companies following an initial public offering (IPO) in an effort to determine whether there is a change in operating performance following an initial public offering. I first discuss costs of going public, and then the reasons why companies go public. I present a potential explanation for the poorer post-issue operating performance of IPO firms. After I describe the sample, I specify measures

of operating performance and describe the hypotheses. I then report the results of the study and finally, I present my conclusions.

Costs of Going Public

A variety of costs are associated with going public. These include agency costs, adverse selection cost, administrative expenses, and costs associated with disclosure, increased responsibility, and loss of control.

Agency Costs

The reduced management ownership experienced when a firm goes public is likely to cause agency problems as described in Jensen and Meckling (1976). An agency problem develops at the time an entrepreneur decides to sell part or all of a firm to external investors. The resulting ownership separation from operational control gives the entrepreneur an opportunity to consume additional perquisites. Increased conflicts of interest between entrepreneur and shareholders can cause a firm to perform more poorly in terms of both operating performance and stock price than a similar firm that management owns and operates.

Adverse Selection Cost

Pagano, Panetta, and Zingales (1998) argue that adverse selection is one cost of going public. Corporate insiders are likely to have more information about the future prospects of the firms going public than outside investors. This information asymmetry makes it hard for outside investors to distinguish between good and bad firms.

Asymmetric information causes investors to misvalue firms going public, and thus misprice their stock (Leland and Pyle (1977) and Pagano, Panetta, and Zingales (1998)). Rock (1986) argues that, because of asymmetric information, uninformed investors purchase greater amounts of overpriced stock. To encourage uninformed investors to participate, the offering firm must discount the share price.

Administrative Expenses

Going public entails substantial direct costs such as underwriter commissions, legal and registration fees, stock exchange fees, and auditing expenses (Sutton and Benedetto (1990) and Pagano, Panetta, and Zingales (1998)). A publicly owned company must file costly quarterly and annual reports with the Securities and Exchange Commission (SEC). Pagano, Panetta, and Zingales (1998) suggest IPO-related administrative expenses are highest for small firms.

Disclosure

Pagano, Panetta, and Zingales (1998) see loss of confidentiality as another cost of going public. The SEC requires companies to disclose information about the company and its officers, directors, and major shareholders. Public disclosure of data such as details about a company's future projects or future marketing strategies might adversely affect the company's competitive advantage. There is a variety of personal information such as salaries, net worth, stock ownership, and past bankruptcies or lawsuits can be easily accessed from SEC filings. The sensitive nature of this disclosure is often unpleasant for top executives (Sutton and Benedetto (1990)).

Increased Responsibility

Sutton and Benedetto (1990) argue that going public results in more responsibility for management and may call for new management techniques. The officers and directors of publicly owned companies have a responsibility to comply with SEC regulations and with shareholders' expectations. The managers must try to raise the company's stock price. Investors will be happy as long as they see the stock price increase.

Brigham and Gapenski (1997) argue that security analysts and brokers will not follow low-priced or inactively traded stock because trading volumes do not provide sufficient commissions. Thus, there is pressure on management to seek earnings growth. Managers may choose to reject some projects that could increase the firm's value but may reduce short-term profits. Dilemmas like this cause some public companies to go private. Kaplan (1989), Muscarella and Vetsuypens (1990), and Smith (1990) report that firms that go private generally have better performance. Moreover, Sutton and Benedetto (1990) argue that keeping investors and the public apprised of current information about the company also requires public relations, including providing traditional reports, brochures, and newsletters, which is time consuming and expensive.

Loss of Control

Sutton and Benedetto (1990) suggest that companies that receive a lower than anticipated IPO stock price are often required to increase the number of shares issued to raise the same amount of funds. The result of this increase is a loss of managerial control. Brigham and Gapenski (1997) note that the increased tender offers and proxy

fights in the 1990s caused manager anxiety about how to retain control of their publicly traded company.

Reasons for Going Public

Despite these significant costs, there are several benefits of going public. They include access to new financing, liquidity and diversification, availability of stock for acquisitions, enhanced image and investor recognition, motivating management and employees, and exploiting mispricing.

Access to New Financing

Private companies are normally financed by bank loans. Gaining access to alternative sources of capital is likely the best reason for going public. Pagano, Panetta, and Zingales (1998) analyze the determinants of initial public offerings of private Italian firms and find that, upon listing, firms are able both to increase their bank loan sources and to negotiate better debt terms.

Liquidity and Diversification

Pagano, Panetta, and Zingales (1998) argue that liquidity and diversification are major benefits of going public. Shares of private companies have no ready market. Stockholders who want to sell have to find buyers. This consumes time and money. Even if a buyer is found, the buyer and seller have to negotiate the price. Trading on an organized exchange is less expensive for a holder. Listing on a major exchange provides liquidity for an initial owner who wants to raise cash from widely dispersed investors.

Empirical work by Amihud and Mendelson (1986) and Chordia, Roll, and Subrahmanyam (2001) shows that the liquidity of a company's shares is an increasing function of trading volume. Roell (1996) documents that the main reason to attract a dispersed shareholder base is diversification.

Availability of Stock for Acquisitions

Sutton and Benedetto (1990) suggest that mergers and acquisitions are easier among public firms. These common means of corporate expansion, are usually financed by the exchange of stock. It is difficult to determine a fair stock value for closely held (private) firms. The value of a public company is market determined, which makes mergers and acquisitions easier for publicly owned companies than for private companies.

Enhanced Image and Investor Recognition

Sutton and Benedetto (1990) and Pagano, Panetta, and Zingales (1998) argue that going public adds more prestige to the companies. A public listing on an organized exchange is widely regarded as publicity for the firm. Kadlec and McConnell (1994) show that, when OTC traded companies announce their move to the New York Stock Exchange, their stock price rises by an average of 5 %. A strong equity price in the after market makes suppliers willing to give trade credit. It increases job security for workers, and assures customers that the firm will be able to provide ongoing product service (Roell (1996)).

Motivating Management
and Employees

Roell (1996) alleges that some firms go public in order to provide a mechanism designed to retain and motivate their top management team with share participation schemes. He asserts that employees may feel less comfortable working in private companies; when they want to quit the companies and need their cash, they have to depend on the consideration of the management group.

An efficiently determined stock price is useful for structuring managerial incentives. Managers'salaries might be indexed to the stock price (Holmstrom and Tirole (1993)) or managers may be given stock options (Schipper and Smith (1986), Kroll, Wright, and Theerathorn (1993)).

Exploiting Mispricing

Pagano, Panetta, and Zingales (1998) hypothesize that when stocks are mispriced, firms knowing that other firms in their industry are overvalued have a motive to go public (Ritter (1991)). They measure the buoyancy of a market by the median market-to-book ratio of Italian public companies in the same industry. They find that the likelihood of an IPO is directly related to both the stock market valuation and the owners'desire to benefit from sector mispricing.

Potential Explanations for Poorer Post-Issue Operating Performance

Jain and Kini (1994) posit three possible explanations for any change in operating performance that may be caused by an initial public offering: the agency cost theory, the windows of opportunity theory, and the window-dressing theory.

Agency Theory

Originally developed by Jensen and Meckling (1976), the concept of agency theory is well established in the literature. Increased conflict of interests between owners and shareholders is assumed to harm performance of a firm, as managers have incentives to consume more perquisites. That is, managers may make short-run operating decisions that increase their personal benefits but harm shareholders (Crutchley and Hansen (1989)).

According to agency theory (Jensen and Meckling (1976)) higher ownership retention by managers reduces agency costs. Empirical studies routinely validate agency theory. Walkling and Long (1984) find that takeover targets will be more likely to resist, lucrative offers if the target firm managers' personal wealth declines. Agrawal and Mandelker (1987) find a direct relationship between manager's common stock holdings and changes in both the total asset return variance and the level of financial leverage. Morck, Shleifer, and Vishny (1988) find that corporate value as measured by the Q ratio, suffers among firms where stock ownership is low.

Oswald and Jahera (1991) find that firms with higher inside ownership, generally have higher returns. DeGeorge and Zeckhauser (1993) and Holthausen and Larcker (1996) find that ownership stake changes result in lower operating performance when there is a reverse leverage buy-out. Kroll, Wright, Toombs, and Leavell (1997) argue that " for manager-controlled firms, acquisition announcements result in negative excess returns to shareholders. For owner-manager controlled firms, such announcements results in positive excess returns." Brush, Bromiley, and

Hendrickx (2000) find that when managers hold more stock, the free cash flow effects on a firm's performance is reduced.

With respect to agency theory in initial public offerings, Jain and Kini (1994) find a direct relationship between post-IPO operating performance and managers' equity holdings. However, the studies of Mikkelson et al. (1997) and Cai and Wei (1997) contradict agency theory. Mikkelson et al. (1997) find that neither levels nor changes in ownership of officers and directors affect the performance of firms that go public. Cai and Wei (1997) find the post-issue deterioration in operating performance of 180 IPOs listed on the Tokyo Stock Exchange over the period 1971-1992 cannot be attributed to reduced managerial ownership.

Windows of Opportunity Theory

The windows of opportunity theory suggests that businesses contemplating an IPO attempt to time the issues to take best advantage of investors' demand for new stock (Jain and Kini (1994), Roell (1996), Pagano et al. (1998)). If IPO firms successfully time their offerings, one would expect to find both poorer subsequent operating performance and lower post-issue stock returns for issuing firms. It is likely that the high profitability is unsustainable.

There is substantial empirical evidence supporting the windows of opportunity theory. For example, Ritter (1991), using a sample of 1,526 IPOs in the 1975-1984 period, finds that in the three post-IPO years, these firms significantly under performed a size and industry-matched control group. Ritter finds that the initial concentrations in volume are most likely related to windows of opportunity. Lerner's

(1994) finds that 350 privately held venture backed biotechnology firms went public when equity valuations reached relatively high levels.

Loughran and Ritter (1995) document that companies issuing stock during 1979 to 1990, whether initial or seasoned equity offerings, significantly under perform non-issuing firms during the five years after the issue. They argue that the poor subsequent performance of issuing firms is consistent with the idea that firms take advantage of temporary windows of opportunity by issuing equity when, on the whole, they are substantially overvalued. Pagano et al. (1998) find that the likelihood of an IPO increases with the industry's market-to-book ratio. The window of opportunity hypothesis is also supported by Rajan and Servaes (1997), and is consistent with international evidence on the long-run underperformance of IPOs (Loughran, Ritter, and Rydqvist (1994)).

Window-Dressing Theory

The window-dressing theory is based on the idea that managers attempt to make their accounting earnings look as good as possible prior to any reporting date, leading to an overstatement of pre-issue performance and an understatement of post-issue performance (Beaver, McNichols, Nelson (2000)). Teoh, Welch, and Wong (1998a) suggest efforts among seasoned equity issuers to adjust discretionary current accruals and mitigate net income actually result in lower post-issue long-run abnormal stock returns and net income. Teoh, Wong, and Rao (1998) investigate accruals magnitude in the years surrounding an IPO. IPO firms are found to initially have higher abnormal earnings and accruals, but long-run earnings and negative abnormal accruals are much lower. Rangan (1998) finds results similar to these. Teoh, Welch,

and Wong (1998b) find that IPOs with the highest IPO year accruals invariably realize below-normal stock returns in later years.

Aharony, Lin, and Loeb (1993), however, find little support of earnings management by IPO firms. Earnings management is more likely among small firms and firms with more debt. Beaver, McNichols, and Nelson (2000) examine whether property/casualty insurance companies understate loss reserves to opportunistically increase reported income. They find no evidence that firms manipulate their loss reserves to increase earnings prior to offerings.

Data and Sample

The insurance industry provides a unique environment to study the effects of initial public offerings. Unlike industrial customers, clients must pay premiums in advance of any losses they may or may not incur in the future. The insurer must be able to fulfill its obligation when a client suffers a loss. Regulation limits exceedingly risky business management, reduces uncertainty, and mitigates information asymmetry problems in insurance companies (Rahman and Yung (1999)). Conditions are different from those in other industries.

I compare operating performances of property/casualty insurance companies during the years immediately before and after an initial public offering (IPO) to determine whether there is an operating performance change following the IPO.

The study group consists of insurers that made IPOs between 1980 and 1997 that can be verified with announcements in the Wall Street Journal Index. The source of financial data is Best's Insurance Reports: Property/Casualty Edition from 1984 to 2000. The initial sample includes 40 insurers. Firms without data in Best's Insurance

Reports for the fiscal year prior to the IPO are eliminated. Details of the final sample of 32 insurers are provided in Tables 1 and 2.

The property/casualty insurance industry experienced sizable negative shocks in 1984 and 1992. In these years, insurers did not have enough capital and surplus to absorb catastrophic losses. Beaver, McNichols, and Nelson (2000) and Cummins, Harrington, and Klein (1991) report that the property/casualty insurance business cycle is reflected in the capital shock of 1984. Beaver, et al (2000) and Christensen (1998) find that natural distress such as Hurricane Andrew, contributes to the negative capital shock of 1992.

The earnings performance of insurance companies issuing stock in1984 and 1992 may be weaker than in other years; if so, these comparison years may skew the results so that companies' post-IPO operating performance would appear to have improved. Thus, I eliminate insurers that had IPOs in years 1985 and 1993. I compare the operating performance of two groups. The first group, the entire study group, has 32 property/ casualty insurers. The control group consists of 24 insurers that enacted IPOs in 1980-1983, 1986-1991, and 1994-1997.

Measures of Operating Performance

For each operating performance measure, the value for the year preceding the IPO is compared with the value of the IPO year and the three following years.

Underwriting Performance Measures

The *loss ratio* is the sum of incurred losses and loss adjustment expenses expressed as a percent of premium earned. The loss ratio measures the basic cost of

TABLE 1

Number of Issues Per Year

Year	Number of Issues
1980	1
1984	1
1985	1
1986	9
1987	1
1990	1
1991	3
1992	1
1993	6
1995	2
1996	5
1997	1
Total	32

TABLE 2

List of Insurers IPO 1980-1997

Property/Casualty Insurers			
	Name	Date	Exchange
1.	General Re Corporation	1980	Nasdaq
2.	New York Marine & General	1984	Nasdaq
3.	Nac Re Corporation	1985	Nasdaq
4.	Frontier Insurance Group, Inc.	1986	Nasdaq
5.	Reliance Group Holdings, Inc.	1986	NYSE
6.	Merchants Group, Inc.	1986	Nasdaq
7.	Donegal Group, Inc.	1986	Nasdaq
8.	Harleysville Group, Inc.	1986	Nasdaq
9.	Argonaut Group Inc.	1986	Nasdaq
10.	Acceptance Insurance Cos., Inc.	1986	Nasdaq
11.	Trenwick Group, Inc.	1986	Nasdaq
12.	Navigators Group, Inc.	1986	Nasdaq
13.	Meridian Insurance Group, Inc.	1987	Nasdaq
14.	Translantic Holdings, Inc.	1990	NYSE
15.	Horace Mann Educators Corporation	1991	NYSE
16.	State Auto Financial Corporation	1991	Nasdaq
17.	Citation Insurance Group	1991	Nasdaq
18.	HCC Insurance Holdings, Inc.	1992	Nasdaq
19.	Allstate Corporation	1993	NYSE
20.	Philadelphia Consolidated Holdings Corporation	1993	Nasdaq
21.	TIG Holdings, Inc.	1993	NYSE
22.	American Re Corporation	1993	NYSE
23.	Old Lyme Holdings Corp	1993	Nasdaq
24.	Gryphon Holdings, Inc.	1993	Nasdaq
25.	Meadowbrook Insurance Group, Inc.	1995	NYSE
26.	Erie Indemnity Corporation	1995	Nasdaq
27.	Farm Family Holdings, Inc.	1996	NYSE
28.	Highlands Insurance Group, Inc.	1996	NYSE
29.	Scor	1996	NYSE
30.	Symons International Group, Inc.	1996	Nasdaq
31.	Riscorp Corporation	1996	Nasdaq
32.	Old Guard Group, Inc.	1997	Nasdaq

underwriting operations. This is a reflection of underwriting quality. The loss ratio can serve as a means to select insurance lines and adequate set premiums (Troxel, Bouchie, and Scoles (1995)).

The *expense ratio* is the underwriting expenses expressed as a percent of net premiums written. The expense ratio mirrors the efficiency of an insurer's operation. McNamara and Rhee (1992) argue that an expense ratio decline indicates improvement in operational efficiency.

The *combined ratio* is calculated from three measures: the loss ratio, the expense ratio, and the dividend ratio. This ratio gauges an insurer's underwriting performance. Underwriting profit margin equals 100 percent minus the combined ratio. Thus the lower the combined ratio, the higher the underwriting profit margin. The dividend ratio is the dividends paid to policyholders expressed as a percent of net premium earned.

Pinches and Trieschmann (1974) argue that the loss ratio, the expense ratio, and the combined ratio are important insolvency predictors. Born and Viscusi (1994) see the loss ratio as the principal measure of insurance profitability. They examine the insurance market effects on loss ratio following the tort liability reforms on general liability insurance in the 1980s. McNamara and Rhee (1992) compare expense ratios before and after demutualization to determine how efficiently the organization is functioning. Ambrose and Carroll (1994) use the expense ratio as a life insurer insolvency prediction variable. Chamberlain and Tennyson (1998) examine the predominance of financial synergies as a motive for merger and acquisition activity in the property/liability insurance industry. They use loss and expense ratios as overall

measures of operating synergies. When consolidation improves economies of scale or management, there is a natural reduction in loss or underwriting costs. Doherty and Garven (1993) provide evidence supporting a positive relationship between the combined ratio and the rate of insolvency.

Investment Performance Measure

The *investment yield* is the ratio of net investment income expressed as a percent of invested assets. Net investment income includes interest, dividends, and rent earned net of expenses, but not realized or unrealized capital gains. This ratio does not mirror capital gains/losses and income taxes, but it measures the investment performance of a company. The National Association of Insurance Commissioners includes this ratio in its Insurance Regulation Information System (IRIS). BarNiv and Hershbarger (1990) as well as Pottier (1998) use investment yield as one of the predictor variables of financial distress in the life insurance industry.

Overall Operating Performance Measures

The *operating ratio* is equal to the combined ratio minus investment income ratio. The operating ratio includes underwriting and investment operating results. It represents underwriting losses and expenses, less investment returns. The operating ratio does not express realized and unrealized capital gains or income taxes. An operating ratio of less than 100 percent means that a company has profits from operating. The lower the combined ratio, the more profit from underwriting and investment operating. The investment income ratio is the net investment income which includes interest, dividends and real estate income net of investment expenses

expressed as a percent of net premium earned. NAIC includes this ratio in IRIS. Ambrose and Seward (1988) use this ratio as a predictor of insolvency.

Return on revenue is operating income after tax expressed as a percent of net premium earned. This ratio gauges operating profitability or the profit margin of an insurer. Lamm-Tennant and Rollins (1994) use return on revenue as a proxy for the level of earnings in examining whether the level of earnings provides incentive for management to exercise income-increasing or decreasing accounting choices. Mooney, Cohen, and Shuster (1995) argue that this ratio has become more important since NAIC has begun publishing profit margin data by line and by state.

Chamberlain and Tennyson (1998) examine the predominance of financial synergies as a motive for merger and acquisition activity in the property/liability insurance industry. They use return on revenue as an overall measure of operating synergy.

Return on policyholders' surplus is the ratio of all operating income after taxes and realized and unrealized investment gains expressed as a percent of ending policyholders' surplus. This ratio reflects the returns on an insurer's surplus from all sources of income. This is return on equity for an insurer. The higher the return on policyholders' surplus, the more efficiently the insurer is utilizing its own capital. Pottier (1998) uses return on policyholders' surplus as a profitability measure for predicting financial distress.

Solvency Performance Measure

Net premiums written to policyholders' surplus is the ratio of premiums written to ending policyholders' surplus. Policyholders' surplus represents the assets

used to cover losses (Troxel, Bouchie, and Scoles (1995)). The net premium written to policyholders' surplus reflects the sufficiency of this buffer, which is a measure of solvency. Policyholders' surplus fluctuates more as the insurance written increases. The lower the ratio of net premiums written to policyholders' surplus, the more the surplus can compensate for unexpected underwriting losses. This means the probability of insolvency is lower. This ratio is a basic insolvency measure in the property/casualty industry (Trieschmann and Pinches (1974), Harrington and Nelson (1986), BarNiv and Hershbarger (1990), and Chamberlain and Tennyson (1998)). This ratio is included in IRIS ratios.

Changes in Selected Measures

Change in Admitted Assets is the difference between admitted assets at the end of the considered year and admitted assets at the end of the year preceding the IPO calculated as a percentage of admitted assets at the end of the year preceding the IPO McNamara and Rhee (1992) use an increase in admitted assets as an indicator for efficiency in their examination of demutualization performance of life insurers. If policyholders are not satisfied with company performance after demutualization, they might drop their coverage. If relinquished coverage is high enough, insurers may have to sell assets to absorb the relinquishment. Therefore, a decline in admitted assets implies that operating performance declines after demutualization. Pottier (1998) uses the log of admitted assets as one predictor of financial distress.

Change in Policyholders' Surplus is the difference between policyholders' surplus at the end of the considered year and policyholders' surplus at the end of the

year preceding the IPO calculated as a percentage of policyholders' surplus at the end of the year preceding the IPO. Policyholders' surplus is the excess of admitted assets over liabilities. Troxel, Bouchie, and Scoles (1995) show that underwriting results, investment performance, loss reserve developments, and growth rate impact policyholders' surplus. Policyholders' surplus is a financial buffer protecting insurers from severe variations in investment values and results of operation. Thus an increase in policyholders' surplus is indicative of enhanced operating performance following initial public offerings. This ratio is included in IRIS ratios.

McNamara and Rhee (1992) examine capital and surplus to provide evidence of the efficiency and expropriation hypothesis. New capital permits product and geographic expansion and surplus replenishment. An increase in surplus after demutualization would support the efficiency hypothesis. A decrease in surplus may result from increasing operating expenses or an increase in voluntary terminations. Thus a surplus reduction following demutualization would support the expropriation hypothesis.

Chamberlain and Tennyson (1998) examine the predominance of financial synergies as a motive for merger and acquisition activity in the property/liability insurance industry. They use increases in policyholders' surplus as an overall measure of operating synergies. Change in surplus is used as a measure for predicting insolvency in several studies (BarNiv and Hershbarger (1990), Ambrose and Carroll (1994), and Pottier (1998)).

Change in net premium written is the difference between net premium written at the end of the considered year and net premium written at the end of the year

preceding the IPO calculated as a percentage of net premium written at the end of the year preceding the IPO. This ratio gauges the growth of underwriting exposure of an insurer. A decline in net premiums written indicates that an insurer may cease to offer certain lines of insurance and has financial problems. Thus an increase in net premiums written is an indicator that a company has improved operating performance following an initial public offering.

Cagle, Lippert, and Moore (1996) show that net premiums written is an expression of insurance policy premiums. Policyholders may view an organizational change as a sign of efficiency, when fewer cancelled policies and/or greater sales are expected. This ratio is included in IRIS ratios. Ambrose and Carroll (1994), Ambrose and Seward (1988), Chamberlain and Tennyson (1998), and Pottier (1998) use change in net premiums written as a predictor of solvency.

Methodology

The sample is divided into two groups. One group consists of insurers that had IPOs between 1980-1997. The other group omits companies enacting IPOs in 1984, 1985, 1992, and 1993. The measures of operating performance are divided into five categories:

- Measures of underwriting performance: the loss ratio, expense ratio, and the combined ratio.
- Measure of investment performance: the investment yield ratio.
- Measures of overall operating performance: the operating ratio, return on revenue, and return on policyholders' surplus.

- Measure of solvency performance: the net premiums written to policyholders' surplus.
- Measures of overall performance using selected measures: changes in admitted assets, changes in policyholders'surplus, and changes in net premiums written.

For each performance measure, the value in the year preceding the IPO is compared with the value in the IPO year and the values in the following three years for both study groups. The results for the entire group and the control group are compared to see whether the capital shock years can be the reasons for the difference.

The research methodology follows Kaplan (1989), Smith (1990), Muscarella and Vestsuypens (1990), Degeorge and Zeckhauser (1993), and Jain and Kini (1994). All use the median change in levels because the mean is particularly sensitive to outliers, and operating performance measures may be skewed. Significance tests are based on the two-tailed Wilcoxon signed rank tests as recommended by Flores (1989).

Hypotheses

Hypothesis 1

> Ho: There is a significant improvement in underwriting performance of property/casualty insurers as measured by the expense ratio, loss ratio, and combined ratio between the year's performance immediately preceding the IPOs and the performance in each of the 3 years immediately following the IPOs.
>
> Ha: There is no significant improvement in underwriting performance of property/casualty insurers as measured by the expense ratio, loss ratio, and combined ratio between the year's performance immediately preceding the IPOs and the performance in each of the 3 years immediately following the IPOs.

If initial public offerings result in underwriting performance improvements, one would expect a reduction in both the costs of loss and underwriting. A reduction

in the loss ratio would reflect the higher quality of business an insurer underwrites. A reduction in the expense ratio would reflect operating efficiency. A reduction in the combined ratio, which incorporates the results from both the loss ratio and the expense ratio, would indicate that insurers enhance underwriting performance.

Hypothesis 2

> Ho: There is a significant improvement in investment performance of property/casualty insurers as measured by the investment yield ratio between the year's performance immediately preceding the IPOs and the performance in each of the 3 years immediately following the IPOs.
>
> Ha: There is no significant improvement in investment performance of property/casualty insurers as measured by investment yield ratio between the year's performance immediately preceding the IPOs and the performance in each of the 3 years immediately following the IPOs.

If initial public offerings result in an enhancement in investment performance, one would expect an increase in the investment yield ratio. An increase in the investment yield would indicate that an insurer earns more profits on the invested assets.

Hypothesis 3

> Ho: There is a significant improvement in overall operating performance of property/casualty insurers as measured by the operating ratio, return on revenue, and return on policyholders' surplus between the year's performance immediately preceding the IPOs and the performance in each of the 3 years immediately following the IPOs.
>
> Ha: There is a significant improvement in overall operating performance of property/casualty insurers as measured by the operating ratio, return on revenue, and return on policyholders' surplus between the year's performance immediately preceding the IPOs and the performance in each of the 3 years immediately following the IPOs.

If initial public offerings result in operating performance enhancement, one would expect a lower operating ratio, an increase in return on revenue, and an increase in return on policyholders' surplus. A lower operating ratio would indicate that an insurer improves the combined operation results of underwriting and investment performance. An increase in return on revenue indicates that an insurer can get more profit from sales made. An increase in return on policyholders' surplus indicates that an insurer can more efficiently use its own funds.

Hypothesis 4

> Ho: There is significantly improved solvency as measured by net premiums written to policyholders' surplus between the year's performance immediately preceding the IPOs and the performance in each of the 3 years immediately following the IPOs.
>
> Ha: There is no significantly improved solvency as measured by net premium written to policyholders' surplus between the year's performance immediately preceding the IPOs and the performance in each of the 3 years immediately following the IPOs.

If initial public offerings improve solvency, one would expect a decline in net premiums written to policyholders' surplus. A reduction in this measure indicates that an insurer has less risk in connection with the surplus available to cover losses.

Hypothesis 5

> Ho: There is a significant improvement in operating performance as measured by changes in admitted assets, policyholders' surplus, and net premium written between the year's performance immediately preceding the IPOs and the performance in each of the 3 years immediately following the IPOs.
>
> Ha: There is no significant improvement in operating performance as measured by changes in admitted assets, policyholders' surplus, and net premium written between the year's performance immediately preceding the IPOs and the performance in each of the 3 years immediately following the IPOs.

If initial public offerings result in improved operating performance, one would expect an increase in admitted assets, policyholders' surplus, and net premiums written. An increase in admitted assets would indicate that initial public offerings are associated with expansion (McNamara and Rhee (1992)). An increase in policyholders' surplus would indicate that an insurer has more funds to absorb unexpected losses, thus protecting against insolvency (Troxel, Bouchie, and Scoles (1995)). An increase in net premiums written would indicate that an insurer has higher sales, and fewer cancelled policies (Cagle, Lippert, and Moore (1996)).

Results

Measures of Underwriting Performance

Table 3 in Panel A, shows that the loss ratios for the entire property/casualty insurers group decline in the year of an IPO and in the following three years. Only the decrease in year 1 is significant (0.10 level).

Panel B indicates that the loss ratio, for the control group also declines in the IPO year and the following three years. The declines are significant at the 0.05 level in year 0 and at the 0.10 level in year 1; the declines in year 2 and 3 are not significant. The loss ratio reflects the quality of business the insurer writes. The lower the loss ratio, the higher the underwriting profit margin. Declines in loss ratios mean that an insurer improves its underwriting performance in year 1.

Table 3, Panel C indicates that expense ratios for the entire property/casualty group decline in years 0, 1, 2, and 3, but all the decreases are insignificant. In Panel D

TABLE 3

Underwriting Performance Measures

Panel A: Loss Ratio For the Entire Property/Casualty Insurers					
	t= -1	t=0	t=1	t=2	t=3
Median	75.65	73	65.25	58	62.55
Median change Relative to Year -1		-3.50%	-3.78%	-1.72%	-1.54%
Two-tailed Wilcoxon Signed Ranks Test		0.104	0.087*	0.166	0.292
Observations	26	26	26	26	23
Panel B: Loss Ratio For the Control Group					
	t= -1	t=0	t=1	t=2	t=3
Median	76.4	73.48	73.55	74.93	75
Median change Relative to Year -1		-3.82%	-3.73%	-1.93%	-1.83%
Two-tailed Wilcoxon Signed Ranks Test		0.05**	0.084*	0.267	0.396
Observations	18	18	18	18	18
Panel C: Expense Ratio For the Entire Property/Casualty Insurers					
	t= -1	t=0	t=1	t=2	t=3
Median	30.3	29.42	29.7	30.13	30.2
Median change Relative to Year -1		-1.44%	-0.37%	-2.01%	-1.77%
Two-tailed Wilcoxon Signed Ranks Test		0.388	0.166	0.585	0.134
Observations	26	26	26	26	26
Panel D: Expense Ratio For the control Group					
	t= -1	t=0	t=1	t=2	t=3
Median	29.12	28.7	29.7	30.55	29.88
Median change Relative to Year -1		-1.44%	1.99%	4.91%	2.62%
Two-tailed Wilcoxon Signed Ranks Test		0.571	0.486	0.616	0.372
Observations	18	18	18	18	18
Panel E: Combined Ratio For the entire property/casualty insurers					
	t= -1	t=0	t=1	t=2	t=3
Median	105.85	103.2	104.1	101.6	103.55
Median change Relative to Year -1		-2.50%	-1.65%	-4.02%	-2.17%
Two-tailed Wilcoxon Signed Ranks Test		0.002***	0.00***	0.028**	0.031**
Observations	29	29	29	29	27
Panel F: Combined Ratio For the control group					
	t= -1	t=0	t=1	t=2	t=3
Median	107.42	102.6	101.87	102.45	103.68
Median change Relative to Year -1		-2.82%	-3.51%	-2.96%	-1.80%
Two-tailed Wilcoxon Signed Ranks Test		0.002***	0.002***	0.115	0.145
Observations	22	22	22	22	20

*** Significant at 0.01 level

** Significant at 0.05 level

* Significant at 0.10 level

the expense ratio for the control group declines in year 0, and then increases in years 1, 2, and 3. All the changes are insignificant. Expense ratios are not significantly different after an initial public offering, which indicates that the efficiency of underwriting performance is not significantly affected by initial public offerings.

Table 3, Panel E, shows that the combined ratio for the entire property/casualty group declines in the year of the IPO and the following three years. The declines in year 0 and year 1 are significant at the 0.01 level. The declines in year 2 and year 3 are significant at the 0.05 level.

In Panel F, the combined ratio for the control group also declines in years 0, 1, 2, and 3. The declines are significant at the 0.01 level in year 0 and year 1. The declines in years 2 and 3 are not significant. The evidence on the combined ratio declines following initial public offerings indicates that the insurers improve underwriting performance following an IPO.

Measures of Investment Performance

The results in Table 4, Panel A, show that the investment yield for the entire group declines in the IPO year and in each year of the post-issue period. The declines are significant at the 0.05 level in year 0; at the 0.01 level in year 1 and year 3; and at the 0.10 level in year 2. The results in Panel B show that the investment yield for the control group also declines in years 0, 1, 2, and 3. Only the reduction in year 3 is significant (at the 0.05 level).

Investment yield measures the profitability of the company's invested assets. The higher the investment yield, the better the investment performance. The decline

in investment yield following IPOs indicates that insurers' investment performance deteriorates after an IPO.

TABLE 4

Investment Performance Measures

Panel A: Investment yield for the entire property/casualty insurers					
	t=-1	t=0	t=1	t=2	t=3
Median	6.96	6.13	6.2	6.07	5.8
Median change Relative to Year -1		-11.88%	-10.92%	-12.84%	-16.67%
Two-tailed Wilcoxon Signed Ranks Test		0.018**	0.010**	0.072*	0.004***
Observations	17	17	17	17	16

Panel B: Investment yield for the control Group					
	t=-1	t=0	t=1	t=2	t=3
Median	6.98	6.44	6.5	6.08	5.8
Median change Relative to Year -1		-7.71%	-6.88%	-12.85%	-16.91%
Two-tailed Wilcoxon Signed Ranks Test		0.610	0.153	0.241	0.015**
Observations	10	10	10	10	9

*** Significant at 0.01 level
** Significant at 0.05 level
* Significant at 0.10 level

Measures of Overall Performance

Results of the analysis of the operating ratio are presented in Table 5, Panels A and B. In Panel A, the operating ratio for the entire group declines in the IPO year and the following three years. Only the decline in the IPO year is significant (at the 0.05 level). In Panel B, the operating ratio for the control group increases in the IPO year and the following three years, but again only the increase in the IPO year is significant (at the 0.10 level).

TABLE 5

Overall Performance Measures

Panel A: Operating Ratio For the entire property/casualty insurers					
	t= -1	t=0	t=1	t=2	t=3
Median	94.87	88.6	92.2	90.4	88.8
Median change Relative to Year -1		-4.11%	-0.22%	-2.16%	-3.90%
Two-tailed Wilcoxon Signed Ranks Test		0.028**	0.130	0.124	0.393
Observations	17	17	17	17	16
Panel B: Operating Ratio For the Control Group					
	t= -1	t=0	t=1	t=2	t=3
Median	90.27	92.4	92.87	91.2	90.8
Median change Relative to Year -1		2.36%	2.88%	1.03%	0.59%
Two-tailed Wilcoxon Signed Ranks Test		0.091*	0.689	0.79	0.760
Observations	11	11	11	11	10
Panel C: Return on Revenue For the entire Property/Casualty insurers					
	t= -1	t=0	t=1	t=2	t=3
Median	5.28	6.6	8.56	8.3	8.25
Median change Relative to Year -1		25.19%	62.45%	57.44%	56.51%
Two-tailed Wilcoxon Signed Ranks Test		0.761	0.162	0.078*	0.162
Observations	23	23	23	22	23
Panel D: Return on Revenue For the Control Group					
	t= -1	t=0	t=1	t=2	t=3
Median	4.2	6.27	6.8	7.32	7.58
Median change Relative to Year -1		49.21%	61.90%	74.23%	80.57%
Two-tailed Wilcoxon Signed Ranks Test		0.904	0.126	0.171	0.198
Observations	19	19	19	19	19
Panel E: Return on Policyholders' Surplus For the entire Property/Casualty insurers					
	t= -1	t=0	t=1	t=2	t=3
Median	8.4	9.51	9.28	12.04	11.88
Median change Relative to Year -1		13.25%	10.47%	43.28%	41.49%
Two-tailed Wilcoxon Signed Ranks Test		0.779	0.050**	0.090*	0.184
Observations	29	29	29	29	29
Panel F: Return on Policyholders' Surplus For the Control Group					
	t= -1	t=0	t=1	t=2	t=3
Median	8.52	8	11.47	9.57	11.5
Median change Relative to Year -1		-6.12%	34.59%	12.32%	34.96%
Two-tailed Wilcoxon Signed Ranks Test		0.651	0.092*	0.274	0.520
Observations	21	21	21	21	19

*** Significant at 0.01 level

** Significant at 0.05 level

* Significant at 0.10 level

If I exclude companies that make an IPO in the years 1984, 1985, 1992, and 1993, the combined result of the underwriting performance and investment performance changes from improving performance to deteriorating performance. The operating ratio incorporates results of underwriting and investment operating. The lower the operating ratio, the more profit from underwriting and investment operation. The decline in the operating ratio in the IPO year provides evidence that the insurers' operating performance improves in the IPO year.

Return on revenue is reported in Panel C of Table 5. There is an increase in return on revenue for each year relative to year -1 for the entire group. The increase in year 2 is significant at the 0.10 level. The increases in year 0, year 1, and year 3 are insignificant. Panel D reports the return on revenue for the control group. The return on revenue also increases in each year relative to year –1, but none of the increases is significant.

The return on policyholders' surplus for the entire group, presented in Panel E, increases in each year relative to the pre-IPO year. The increase in year 1 is significant at the 0.05 level; the increase in year 2 is significant at the 0.10 level; and the increases in years 0, and 3 are insignificant.

The return on policyholders' surplus for the control group is reported in Panel F. It declines in year 0, and increases in years 1, 2, and 3. The increase in year 1 is significant at the 0.10 level. The decrease in the IPO year and the increases in year 2 and 3 are insignificant. In general, there is an increase in policyholders' surplus, which means that insurers improve operating performance following initial public offerings.

Measure of Solvency Performance

Table 6, Panel A shows that the net premium written to policyholders' surplus for the entire group declines in the IPO year and in years 1, 2, and 3. The decline in

TABLE 6

Solvency Measures

Panel A:	Net Premium Written to Policyholders' Surplus For the entire Property/Casualty insurers				
	t= -1	t=0	t=1	t=2	t=3
Median	1.52	1.36	1.35	1.35	1.29
Median change Relative to Year -1		-10.21%	-10.91%	-11.31%	-14.72%
Two-tailed Wilcoxon Signed Ranks Test		0.030**	0.009***	0.147	0.161
Observations	30	30	30	30	28

Panel B:	Net Premium Written to Policyholders' Surplus For the Control Group				
	t= -1	t=0	t=1	t=2	t=3
Median	1.58	1.5	1.49	1.7	1.5
Median change Relative to Year -1		-5.06%	-5.80%	7.60%	-5.06%
Two-tailed Wilcoxon Signed Ranks Test		0.079*	0.014**	0.366	0.227
Observations	21	21	21	21	19

*** Significant at 0.01 level

** Significant at 0.05 level

* Significant at 0.10 level

the IPO year is significant at the 0.05 level. The decline in year 1 is significant at the 0.01 level, however, the declines in years 2 and 3 are insignificant.

The results in Panel B indicate that net premium written to policyholders' surplus for the control group also declines in year 0, year 1, and year 3, but increases in year 2. The declines in years 0 and 1 are all significant at least at the 0.10 level. The increase in year 2 and the decline in year 3 are insignificant.

Policyholders' surplus fluctuates more as the amount of insurance written increases. The lower the ratio of net premium written to policyholders' surplus, the

greater chance the surplus can compensate for unexpected underwriting losses, and thus the less risk to solvency of the company. There is a decline in net premium written to policyholders' surplus following an IPO, indicating that insurers improve solvency performance following an initial public offering.

Measures of Overall Performance
by Selected Measures

Table 7, Panel A, shows that the median change in admitted assets for the entire group increases significantly in the IPO year and the next three years. All the increases are significant at the 0.01 level. Results of the analysis of the change in admitted assets for the control group (reported in Panel B) support this conclusion. An increase in admitted assets provides evidence of improving performance of property/casualty insurers.

Table 7, Panel C, shows that there is a significant increase in policyholders' surplus in the IPO year, and in years 1, 2, and 3 for the entire group. All the increases are significant at the 0.01 level. The analysis of the control group reported in Panel D provides the same conclusion. There is an increase in policyholders' surplus following an IPO, which means that IPOs result in operating performance enhancement.

Results of the analysis of net premiums written for the entire group are presented in Panel E of Table 7. There is a significant increase in net premiums written in the IPO year and in years 1, 2, and 3 for the entire group. All the increases are significant at the 0.01 level. The analysis of the control group reported in Panel F supports this finding.

TABLE 7

Selected Performance Measures

Panel A:	**Total Admitted Assets For the entire Property/Casualty insurers**				
	t= -1	t=0	t=1	t=2	t=3
Median	211989	249205	326815	324229	3457893
Median change Relative to Year -1		17.56%	54.17%	52.95%	64.11%
Two-tailed Wilcoxon Signed Ranks Test		0.00***	0.00***	0.00***	0.00***
Observations	31	31	31	31	30
Panel B:	**Total Admitted Assets For the Control Group**				
	t= -1	t=0	t=1	t=2	t=3
Median	211989	281196	328393	364898	383111
Median change Relative to Year -1		32.65%	54.91%	72.13%	80.72%
Two-tailed Wilcoxon Signed Ranks Test		0.00***	0.00***	0.00***	0.00***
Observations	23	23	23	23	22
Panel C:	**Policyholders' Surplus For Property/Casualty insurers**				
	t= -1	t=0	t=1	t=2	t=3
Median	54636	93702	108016	114237	125157
Median change Relative to Year -1		71.51%	97.70%	109.09%	129.07%
Two-tailed Wilcoxon Signed Ranks Test		0.00***	0.00***	0.00***	0.00***
Observations	32	32	32	32	31
Panel D:	**Policyholders' Surplus For the Control Group**				
	t= -1	t=0	t=1	t=2	t=3
Median	55151	100705	108016	114237	125157
Median change Relative to Year -1		82.60%	95.86%	107.14%	126.93%
Two-tailed Wilcoxon Signed Ranks Test		0.00***	0.00***	0.00***	0.00***
Observations	24	24	24	24	23
Panel E:	**Net Premiums Written For the entire Property/Casualty insurers**				
	t= -1	t=0	t=1	t=2	t=3
Median	128986	150234	154772	179548	181726
Median change Relative to Year -1		16.47%	19.99%	39.20%	40.89%
Two-tailed Wilcoxon Signed Ranks Test		0.00***	0.00***	0.00***	0.00***
Observations	32	32	32	32	30
Panel F:	**Net Premiums Written Written For the Control Group**				
	t= -1	t=0	t=1	t=2	t=3
Median	134914	188765	170834	256934	223204
Median change Relative to Year -1		39.91%	26.62%	90.44%	65.44%
Two-tailed Wilcoxon Signed Ranks Test		0.00***	0.00***	0.001***	0.00***
Observations	24	24	24	24	22

*** Significant at 0.01 level

** Significant at 0.05 level

* Significant at 0.10 level

Conclusions

Hypothesis 1 proposes that there is an improvement in underwriting performance of property/casualty insurers as measured by the expense ratio, loss ratio, and combined ratio following initial public offerings. The results indicate that insurers do improve underwriting performance following IPOs.

Although the expense ratio does not significantly decline, which indicates that insurers do not improve expense control, the loss ratio declines significantly, which means insurers significantly improve loss control. The combined ratio declines significantly, which means that the overall underwriting performance of the insurers improves. Analysis of the control group supports similar conclusions.

Hypothesis 2 is that there is a significant improvement in investment performance of property/casualty insurers as measured by the investment yield ratio following initial public offerings. The results disprove this hypothesis. There is poorer performance of insurers following initial public offerings.

Hypothesis 3 posits a significant improvement in overall operating performance of property/casualty insurers as measured by the operating ratio, return on revenue, and return on policyholders' surplus following initial public offerings. The results indicate that insurers improve overall operating performance following initial public offerings. The operating ratio, which incorporates the results of underwriting and investment operation, rises; the return on revenue or profit margin of the insurers increases; and the return on policyholders' surplus, which reflects how efficiently insurers use their own funds, also increases.

Hypothesis 4 is that there is a significant improvement in operating performance as measured by admitted assets, policyholders' surplus, and net premiums written following initial public offerings. The results confirm this hypothesis. There is a significant increase in admitted assets, which means that IPO encourages growth. If there is dissatisfaction with the change in organization form, policyholders may terminate their coverage, and insurers may have to liquidate some assets to pay nonforfeiture values to the policyholders who are canceling. Therefore, a rise in admitted assets is consistent with efficiency (McNamara and Rhee (1992)).

An increase in policyholders' surplus indicates that an insurer has more funds to absorb unexpected losses, thus guarding the company from insolvency (Troxel, Bouchie, and Scoles (1995)). An increase in net premiums written indicates that going public improves operating efficiency, through higher sales, and fewer cancelled policies (Cagle, Lippert, and Moore (1996)).

Hypothesis 5 proposes a significant improvement in solvency as measured by net premiums written to policyholders' surplus following initial public offerings. The result indicates improvement in solvency. There is a significant decline in the ratio of net premiums written to policyholders' surplus, which indicates that an insurer has less risk in connection with the surplus accessible to assimilate losses.

This paper examines changes in operating performance of property/casualty insurance companies following an initial public offering . The results are different from other empirical studies that find significantly poorer operating performance for industrial firms subsequent to an IPO. Insurance companies are unlike other industries. Their customers pay premiums assuming indemnity of potential losses.

The insurer must be able to meet its contractual obligations when a loss occurs, and state insurance regulatory agencies thus provide guidelines to assure the solvency of insurers. Regulations serve to mitigate exceedingly risky business management and asymmetric information. I hypothesize that there is improved operating performance following an insurance company IPO. The results of an empirical examination provide evidence that supports the hypothesis. In general, property/casualty insurers improve underwriting, overall operating performance, and solvency performance.

CHAPTER 3

EVENT STUDY OF INITIAL PUBLIC OFFERINGS OF INSURANCE COMPANIES

Several studies have found that unseasoned common stock issues generate high abnormal returns.[1] IPO underpricing is a phenomenon of both industrial firms and regulated industries such as financial institutions (Alli, Yau, and Yung (1994)) and the insurance industry (Rahman and Yung (1999)). Based on the first-day return, Rahman and Yung (1999) find that insurers' IPOs are underpriced by an average of 5.1 %, and Smith (1986) concludes that, on average, underpricing of diverse industries exceeds 15%. Ibbotson, Sindelar, and Ritter (1988) report an average initial return across industries of 16.37%.

Insurance companies are uniquely regulated. Some states have more stringent regulations. Moreover, regulations differ by insurer types. Property/ casualty insurance rates are state regulated while life/health rates are not. Since regulation in the insurance industry provides more certainty about the true business value and reduces asymmetric information (Rahman and Yung (1999)), it is interesting to study the effects of regulatory difference by examining the insurance industry. The purpose

[1] e.g. Logue (1973), Ibbotson and Jafee (1975), Ritter (1984), Chalk and Peavy (1987), Muscarella and Vetsuypens (1989), and Ritter (1991).

of this paper is to examine life and property/casualty stock prices at the time of an IPO and determine whether there is a significant difference in abnormal returns.

The remainder of this chapter is organized as follows: the next section describes a potential explanation for the under pricing; the third section presents the data and methodology; the fourth section reports the results of an event study; and the final section presents the conclusions.

Theories of Underpricing

There are several possible explanations for IPO underpricing. Tinic (1988) reviews alternative explanations for underpricing phenomena as Risk-Averse Underwriter or Underwriter Price Stabilization Hypothesis, Monopsony-Power Hypothesis, Speculative Bubble Hypothesis, Asymmetric Information Hypothesis, and underpricing as insurance. Masulis (1987) and Affleck-Graves and Miller (1989) argue that regulatory and procedural factors contribute to IPO underpricing. Allen and Fauhaber (1989) and Grinblatt and Hwang (1989) suggest that IPO underpricing serves as a signal of quality. Fishe (1999) and Boehmer and Fishe (2000) place the blame for poor abnormal returns on Flippers.[2]

Underwriter Price Stabilization Hypothesis

The underwriter price stabilization hypothesis is an accepted explanation for initial public offerings (IPOs) underpricing. Investment bankers might intentionally underprice new common stocks to reduce their underwriting risk as a means of decreasing the probability of a failed issue. Mandelker and Raviv (1977) state that

[2] Flippers are investors who purchase initial public offering shares and intend to immediately resell these shares.

underpricing is related to an underwriter's risk aversion. Tinic (1988) argues that this hypothesis fails to explain why issuers do not require investment bankers to adjust their underwriting spreads to compensate for offering risks. Tinic also states that if the main reason for underpricing is the underwriters' desire to reduce their risk exposure, one would anticipate that only IPOs underwritten on a firm commitment basis would be underpriced. Ritter (1984) and Chalk and Peavy (1987) indicate that IPOs issued with best-efforts contracts are more likely to be underpriced by a greater amount than the IPOs underwritten with firm commitment agreements. Rudd (1993) challenges the presumption underlying previous findings that positive initial IPO returns result basically from deliberate underpricing. He states that positive returns may reflect the partially unobserved left (negative) tail in the returns distribution that arises from underwriter IPO price support. Rudd also argues that IPOs with zero one-day returns subsequently fall in price, suggesting that underwriter price support may account for the skewed distribution and hence the phenomenon of positive average initial IPO returns, even if offering prices are set at the expected market value. Aggarwal (2000) gives considerable support to overselling and selective price support of new offerings. He argues that underwriters do not post stabilizing bids to give price support; instead, they over-sell shares at the offer price and then cover this short position in the after-market. Ellis, Michaely, and O'Hara (2000) argue that when the issue is a weak IPO, the underwriter basically covers the short position by buying shares in the after-market; when the issue is a hot IPO, then the underwriter usually exercises the over-allotment option or "Green Shoe" to cover the short position. Hanley (1993) explains that the offer price is partly adapted to the information about investor demand received

during the underwriter's pre-issue information gathering activity. Thus, underpricing may serve as a reward for investors who truthfully reveal good information about the firms through demand. Accordingly, the more useful the information the underwriters receive during the pre-selling activity, the more likely it is that new issues are underpriced. Schultz and Zaman (1994) demonstrate that underwriter support is not a significant cost, if managed through an overallotment of shares. They find that underwriters repurchase large quantities of stock in the aftermarket by overselling the issue. If the IPO is successful, the overallotment option is exercised. Otherwise, the short position is covered with aftermarket selling. Hanley and Wilhelm (1995) argue that institutional investors are regularly favored in the distribution of underpriced new issues. However, institutional investors may have to support weaker offerings.

Monopsony-Power Hypothesis

Generally, large, highly regarded investment banking firms do not underwrite common stocks of small, speculative, start-up firms. Ritter (1984) attributes this to reputation reasons. Chalk and Peavy (1987) argue that underpricing would be available only to the preferred customers who normally do business with the investment bank and who pay fees higher than the competitive rates. Ritter (1984) argues that the investment banker monopsony power in underwriting common stocks of speculative firms may be a reason for underpricing. In summary, the monopsony hypothesis holds that the underwriters of unseasoned equities intentionally discount the securities. They receive profits by distributing the shares to only favored customers because they can share in the price gains.

Speculative Bubble Hypothesis

The speculative bubble hypothesis suggests that the offering prices of new common stocks are priced appropriately. However, after-trading speculation drives their short-term prices well above their intrinsic value. Aggarwal and Rivoli (1990) show that IPOs are not initially priced below their intrinsic value, but they are exposed to overvaluation or fads in the early aftermarket stage. Tinic (1988) and Ritter (1991) also address the possibility of bubbles in the IPO market.

In a related line of research, Delong, Shleifer, Summer, and Waldman (1990) study noise traders. Investors normally trade based on rational expectations, but noise traders base trades on emotions. Sometimes noise traders are overly optimistic and bid prices well above intrinsic values. Sometimes noise traders are overly pessimistic and thus reduce prices below intrinsic values. The market transaction price reflects the combination of rational trading and noise trading. Lee, Shleifer and Thaler (1991) allege that new offerings are associated with investors' optimistic emotions. They find that when investors are optimistic, they reduce the discount of closed-end funds relative to net asset value, while pessimistic sentiments raise the discount. Teoh, Wong and Rao (1998) indicate that "cooking" accounting data can cause investors' misassessment.

Stock Flipping Hypothesis

Fohlin (2000) describes Flippers-investors who purchase initial public offering shares and intend to immediately resell these shares. This flipping activity can flood the aftermarket trading, so underwriters must account for their artificial demand in both orders and in determining the offer price. The combination of overselling and

flipping can cause high initial returns and lower long-run returns. Such behavior results from rational optimization, rather than irrational enthusiasm. Krigman, Shaw, and Womack (1999), for example, show that flipping is predictable, and there is deliberate underpricing. Large traders 'flip' IPOs that perform the best in the first day but the worst in subsequent months. Fishe (1999) argues that, for IPOs to be successful, the underwriter must find sufficient buyers to sell the issue at the offer price and determine whether there is additional demand for shares supplied by flippers. If there is not enough demand, the after-market price is likely to fall as flippers sell. This harms both investors and the issue itself.

Boehmer and Fishe (2000) present the reasons why too much flipping causes problems for underwriters. On the other hand, too little flipping restricts after-market trading, price movement, and the role of market makers. The stock will be in the hands of the public, but will be illiquid. Boehmer and Fishe (2000) find that underpricing attracts low-valuation investors who flip shares to higher-valuation investors whose access to the new shares might have been rationed. Underwriters receive profits from their role as the IPO market makers. Fishe developed the model that continues the work of Aggarwal (2000) and Ellis, Michaely and O'Hara (2000) to examine how flippers impact underwriter's choice of an optimal IPO price. Fishe argues that the IPO offer price depends on the nature of the issue. A cold IPO is when the issue is under-subscribed, while a weak IPO arises if the issue is sold out or oversubscribed. For these, flippers cause the after-market price to decrease. A hot IPO is over-subscribed but after-market price increases. Fishe shows that flippers

have the greatest effect on weak IPOs and provides an explanation for underwriter price support activities.

Asymmetric Information Hypothesis

Baron (1982) develops an assumption about the asymmetric information between issuers and underwriters. Baron assumes that the investment bankers have more information than issuers about demand in the capital market. The underwriters suggest an appropriate IPO price to the issuers, and then the issuers reward the investment bankers by allowing them to sell the securities at a discount. Thus, compensation from issuers to the underwriters is a function of the IPO.

In contrast to Baron, Muscarella and Vetsuypens (1989a) find no difference between the underpricing of self-underwritten initial public offerings and those in which the issuing banker does not serve as the lead manager. Muscarella and Vetsuypens (1989b) support the asymmetric information hypothesis in an examination of the underpricing of second initial public offerings. They find that the second initial public offerings are significantly less underpriced than the initial public offerings, since investors already have some knowledge about the issues. Schipper and Smith (1986) find that the initial returns of equity carved-out is only 1.7 %. This supports the information asymmetry hypothesis in that underpricing is smaller when there is less uncertainty about the IPO value.

The Winner's curse model by Rock (1986) is also based on asymmetric information. This model attributes IPO underpricing to differences between the informed and uninformed investors. Informed investors generally do not subscribe to an overpriced new issue, thus the uninformed investors will receive a greater

proportion of the overpriced issues. When the issues are underpriced, the uninformed investors receive full allotment of the less desirable ones. To encourage uninformed investors to enter the market, the offering firm must price the issues at a discount, which is compensation for this adverse selection. Beatty and Ritter's (1986) analysis supports Rock's finding that there is a positive relationship between underpricing and ex-ante uncertainty. Friedlan (1993) finds that underpricing is inversely related to prospectus information and that older firms have higher asset values and revenue. Benveniste and Spindt (1989) argue that new issues underpricing is a method to persuade informed investors to disclose private information about the demand for shares in the pre-selling period, therefore helping them understand the offering. Moreover, Chemmanur (1993), Jegadeesh et al., (1993) and Spiess and Pettway (1997) argue that underpricing provides information to plan future seasoned issues.

In related literature, Carter and Manaster (1990) argue that instead of reducing the stock value, low-risk issuers engage more prestigious underwriters. Carter, Dark, and Singh (1998) rate underwriters on a ten-point scale based on their Wall Street Journal IPO announcement billing. They examine the relationship between the rating and the share price and find a negative relationship between underpricing and underwriter prestige. Carter and Manaster (1990) and Michaely and Shaw (1994), find that issuers with high-reputation underwriters are associated with lower underpricing. Jain and Kini (1999) argue that higher investment-banker prestige raises the firm's survival possibility as well. Underwriter reputation can, therefore, take the place of underpricing as a means to assure investors.

Signaling Hypothesis

The signaling hypothesis describes asymmetric information between issuer and investors. In general, corporate insiders are likely to have more information about the prospects of the firm going public than investors. Because of this, it is harder for outsiders to distinguish between high-value and low-value firms. Therefore, high value firms have a need to persuade investors that their firms have better value.

Allen and Fauhaber (1989) and Grinblatt and Hwang (1989) argue that IPO underpricing is a signal to express the high-value information of the issuing firms to investors. After the market discovers the true value, high-quality firms can recover the signal cost from a subsequent sale.

Underpricing as Insurance

Tinic (1988) argues that investors lack sufficient information to evaluate unseasoned equity issues. Although some operating and financial data are available, this is insufficient for investors to judge management quality or to measure the effect of the agency cost on the transition from private to public ownership. Issuers cannot effectively communicate this information to investors. Investment bankers can provide information at lower cost to the investors for the valuation of the shares. Thus, the investment bankers' reputation is at shake by recommending certain issue. The SEC requires that managers of an IPO firm do a proper disclosure of every material fact that may affect potential investors. The Securities Act of 1933 requires investment bankers to manage "due-diligence" investigations to avoid liability not only for false or deluding information about the issuer's prospects but also for registration statement omissions. Tinic (1988) tests the hypothesis that IPOs issued

after 1993 should exhibit considerably larger excess returns than the issues brought to the market before the enactment of the Securities Act. The results indicate that underpricing serves as a form of insurance premium against legal liability and the associated damages to the reputation of investment bankers.

Regulation Hypothesis

Alli, Yau, and Yung (1994) argue that regulations reduce the asymmetric information between the management and investors. Therefore, a regulated company provides more information to the public. Regulation is important in determining the offering price and the stock's distribution. Masulis (1987) and Affleck-Graves and Miller (1989) suggest that regulatory and procedural factors contribute to the IPO underpricing.

Research Hypothesis

Hypothesis 1

Abnormal return exists for life, property/casualty, and other random companies at the time of IPOs.

Hypothesis 2

There is a significant difference among the abnormal returns of property/casualty insurers, life insurers, and other randomly selected companies which have IPOs.

Data and Methodology

Data

The study group consists of 44 property/casualty insurance companies and 17 life insurers that enacted IPOs between 1980 and 1999. These are verified with announcements in the *Wall Street Journal Index* and have return data for 250 post IPO trading days in the CRSP daily NYSE/AMEX and NASDAQ database. Also included are 100 randomly selected non-insurers. The list of issuers is presented in Table 8.

Methodology

An event study is used to determine whether there is an abnormal return at the time of an IPO for 17 life and 44 property/casualty insurers that enacted IPOs between 1980-1999. In addition, this study tests the difference between abnormal returns of life and property/casualty insurers and compares these to the randomly selected companies at the time of the IPOs. This study examines insurance companies that trade on the New York Stock Exchange and NASDAQ. In this study, 251 individual daily returns for each company are used to calculate abnormal returns. The date of the initial public offering is set to day 0 of the test period.

Measuring Abnormal Returns

Most of the previous IPO research (Ritter (1984), Tinic (1988), Chalk and Peavy (1987), Muscarella and Vetsuypens (1989), and Aggarwal and Rivoli (1990)) uses the market-adjusted return to measure stock price reaction. Underpricing is the difference between the first aftermarket price and the offering price, divided by the offering price.

TABLE 8

List of Insurers

			IPO year
1	Harleysville group Inc	NASDAQ	1986 P/C
2	Trenwick group Inc	NASDAQ	1986 P/C
3	Navigators group Inc	NASDAQ	1986 P/C
4	Gainsco Inc	NASDAQ	1986 P/C
5	Meridian Insurance group Inc	NASDAQ	1987 P/C
6	Donegal Inc	NASDAQ	1986 P/C
7	Symons International Corp	NASDAQ	1996 P/C
8	Merchants Group Inc	NASDAQ	1986 P/C
9	Ace ltd	NYSE	1993 P/C
10	Fai insurances ltd	NYSE	1988 P/C
11	Bancinsurance Corp	NASDAQ	1990 P/C
12	State Auto Financial Corp	NASDAQ	1991 P/C
13	Mutual Risk Management ltd	NYSE	1991 P/C
14	HCC insurance Holdings Inc	NASDAQ	1992 P/C
15	American Re Corp	NYSE	1993 P/C
16	Allstate Corp	NYSE	1993 P/C
17	Penn America Group Inc	NASDAQ	1993 P/C
18	Vesta Insurance Group Inc	NYSE	1993 P/C
19	American Country Holdings	NASDAQ	1993 P/C
20	R T W Inc	NASDAQ	1995 P/C
21	American Financial Corp	NYSE	1995 P/C
22	Chartwell Re Corp	NASDAQ	1995 P/C
23	Farm Family Holdings Inc	NYSE	1996 P/C
24	Scor	NYSE	1996 P/C
25	Old Guard Group Inc	NASDAQ	1997 P/C
26	Meadowbrook Insurance Group Inc	NYSE	1995 P/C
27	Erie Indemnity Corp	NASDAQ	1995 P/C
28	Argonaut Group Inc	NASDAQ	1986 P/C
29	Horace Mann Educators Corp New	NYSE	1991 P/C P/C
30	Gryphon Holdings Inc	NASDAQ	1993 P/C
31	Terra Nova Bermuda Holdings ltd	NYSE	1996 P/C
32	20th Century Industries CA	NASDAQ	1986 P/C
33	Phoenix Re Corp	NASDAQ	1987 P/C
34	Acceptance Insurance Holdings ltd	NASDAQ	1986 P/C
35	Paula Financial	NASDAQ	1997 P/C
36	Risk Capital Holdings Inc	NASDAQ	1995 P/C
37	ITT Hardford Group Inc	NYSE	1995 P/C
38	Highlands Insurance Group Inc	NYSE	1996 P/C
39	Philadelphia Consolidated Hlg	NASDAQ	1993 P/C
40	Citation Insurance Inc	NASDAQ	1991 P/C
41	Translantic Holdings Inc	NYSE	1990 P/C
42	Prudential Reinsurance	NYSE	1995 P/C
43	Reliance Group Holdings Inc Hold Inc	NYSE	1986 P/C
44	Meemic Holdings Inc	NASDAQ	1999 P/C

TABLE 8 (Continued)

45	S N L Financial Corp	NASDAQ	1997 life
46	Southern Security Life Insurance	NASDAQ	1992 life life
47	Equitable Cos Inc	NYSE	1992 life
48	Standard Management Corp	NASDAQ	1993 life
49	Reinsurance Group Inc	NYSE	1993 life
50	Instituto Nazionale Delle Assic	NYSE	1994 life
51	Liberty Financial Cos In	NYSE	1995 life
52	Guarantee Life Cos Inc	NASDAQ	1995 life
53	F B L Financial Group Inc	NYSE	1996 life
54	Delphi Financial Group Inc	NASDAQ	1990 life
55	Life Re Corp	NYSE	1992 life
56	First Alliance Corp	NASDAQ	1996 life
57	Amerus Life Holdings Inc	NASDAQ	1997 life
58	Nationwide Financial Services	NYSE	1997 life
59	Mony Group Inc	NYSE	1998 life
60	Manulife Financial Corp	NYSE	1999 life
61	Hardford Life Inc	NYSE	1997 life

The process to calculate abnormal return:

$$R_{it} = (P_t - P_o)/P_o \qquad (1)$$

P_t = the closing price of the security t trading days after the initial offering.

P_o = the offering price for day 0, or the closing price for the day to the previous closing price.

This underpricing measure computes share price appreciation and is not adjusted for market returns. To adjust for market returns, the market portfolio return is defined as:

$$R_{mt} = (I_t - I_o)/I_o \qquad (2)$$

I_o = the market index value on the offering date.

I_t = the value of the market index t days after the offering.

The insurer IPOs of this study are traded on the New York Stock Exchange (NYSE) or NASDAQ. Therefore, the appropriate market indices are the S&P 500 composite index, the NASDAQ Composite Index, the NYSE/AMEX/NASDAQ Value

Weighted Index, and the NYSE/AMEX/NASDAQ Equally Weighted Index. The market-adjusted returns or abnormal returns, therefore, are expressed as follows:

$$AR_{it} = (R_{it} - R_{mt})*100$$

where

AR_i = abnormal return on security i,

R_i = the raw return on security i

R_m = the return on the market portfolio (the S&P 500 composite index, the NASDAQ Composite Index, the NYSE/AMEX/NASDAQ Value Weighted Index, and NYSE/AMEX/NASDAQ Equally Weighted Index, or the industry index).

t = 0 is the initial trading day and days 0 to 250 are consecutive aftermarket trading days.

Abnormal returns are not explicitly adjusted for systematic risk. This assumes that all securities are equally sensitive to market movements and that the distributions of new common stocks returns and the index are approximately equal. This implies a beta of 1.00. Previous researchers (Ibbotson and Jaffe (1975), Balvers, McDonald, and Miller (1988), Chan and Lakonishok (1990), and Clarkson and Thomson (1990)) however, argue that the average beta is greater than 1.00. Moreover, Ritter (1991) finds that average betas decline following the IPO. Assuming a positive market risk premium, IPO betas of 1.00 will provide conservative estimates of IPO underperformance (Levis (1990)). Given that this study examines abnormal IPO returns among insurers, an insurance industry index is used as a benchmark to calculate abnormal returns. All insurers except the 44 property/casualty and 17 life

insurance companies are included in the index. The mean industry index daily returns for day t are:

$$R_t = \sum_{t=0}^{n} R_{it}/n$$

R_{it}, (on the first day of trading) is the relative price change from the offer price to the closing price. Otherwise, the daily return is measured from one day's closing price to the next. The abnormal return for security i is the difference between the return on the security i and the simultaneous return of the industry index. In this study, abnormal returns for each of the insurers are calculated, and an average for each day is computed from the offering through the next 250 aftermarket trading days.

This study, like Chalk and Peavy (1987), Jog and Riding (1987), Aggarwal and Rivoli (1990), Ritter (1991), and Barth, Page, and Jahera (1999), uses a t-test for the null hypothesis that the abnormal return is equal to zero and assumes that these returns are normally distributed. Brown and Warner (1985) note that the simple t-statistic may not be the best in all situations, but it performs reasonably well.

The Wilcoxon statistic is used to measure the difference between the abnormal returns of life and property/casualty insurers at the time of the IPOs and the control group. Higgins and Peterson (1998) argue that the Wilcoxon test of the null hypothesis of no difference in abnormal returns across two groups of independent securities is an appropriate statistical measure.

Results

Table 9 reports the average daily returns for the first twenty trading days. The average initial return (underpricing) is 1.07% for the full sample of life insurance

companies with an associated t-statistic of 2.07, which is significant at the 0.05 level. The average initial return for the full sample of property/casualty companies is 0.86% with a t-statistic of 1.90, which is significant at 0.10 level. The mean initial return for the full sample of all insurance companies is 0.91% with a t-statistic of 2.59, significant at 0.01 level. The mean initial return for the control group is 1.50% with an associated t-statistic of 3.12, which is significant at the 0.01 level.

TABLE 9

Initial Return of Life, Property/Casualty, Combined Insurers, and Random Companies

	Life			P/C			Combined			Random		
	mean	t	sig	mean	t	sig	mean	t	sig	mean	t	sig
day 0	1.07	2.07	0.05	0.86	1.90	0.06	0.91	2.59	0.01	1.50	3.12	0.00
day 1	0.08	0.20	0.84	-0.44	-1.40	0.17	-0.30	-1.18	0.24	-0.55	-1.47	0.14
day 2	0.15	0.43	0.67	0.28	0.84	0.40	0.24	0.95	0.35	-0.03	-0.12	0.91
day 3	0.07	0.14	0.89	-0.13	-0.42	0.68	-0.08	-0.30	0.77	0.32	0.91	0.37
day 4	0.00	0.00	1.00	-0.26	-0.63	0.53	-0.19	-0.59	0.56	-0.29	-0.69	0.49
day 5	0.09	0.35	0.73	0.45	1.23	0.23	0.35	1.28	0.21	-0.02	-0.04	0.96
day 6	-0.58	-2.29	0.04	-0.41	-1.29	0.20	-0.46	-1.92	0.06	0.04	0.11	0.91
day 7	-0.23	-0.54	0.60	-0.29	-0.73	0.47	-0.27	-0.88	0.38	-0.06	-0.18	0.86
day 8	0.01	0.02	0.98	0.47	0.93	0.36	0.34	0.90	0.37	-0.25	-0.88	0.38
day 9	-0.31	-0.30	0.77	-0.25	-0.64	0.53	-0.26	-0.67	0.51	-0.08	-0.19	0.85
day 10	0.77	0.71	0.49	0.03	0.09	0.93	0.24	0.62	0.54	-0.31	-0.88	0.38
day 11	0.31	0.56	0.59	0.10	0.38	0.70	0.16	0.66	0.51	0.64	1.96	0.05
day 12	0.22	0.87	0.40	-0.31	-0.92	0.36	-0.17	-0.65	0.52	0.17	0.38	0.70
day 13	0.20	0.37	0.72	-0.11	-0.36	0.72	-0.02	-0.09	0.93	0.36	1.28	0.20
day 14	0.25	0.49	0.63	-0.09	-0.22	0.83	0.01	0.02	0.98	-0.31	-1.38	0.17
day 15	0.31	0.43	0.67	-0.05	-0.24	0.81	0.05	0.18	0.85	0.00	0.01	0.99
day 16	-0.60	-0.93	0.36	-0.06	-0.25	0.80	-0.21	-0.84	0.40	0.11	0.28	0.78
day 17	0.06	0.13	0.90	-0.28	-0.76	0.45	-0.18	-0.63	0.53	-0.22	-0.63	0.53
day 18	-0.20	-0.37	0.72	0.45	1.59	0.12	0.27	1.05	0.30	0.21	0.51	0.61
day 19	-0.40	-0.83	0.42	0.53	1.69	0.10	0.27	1.01	0.32	0.00	-0.01	0.99
day 20	-0.01	-0.01	0.99	0.18	0.57	0.57	0.13	0.46	0.65	0.46	1.12	0.27

The daily abnormal return is computed for each of the 44 property/casualty insurance companies, 17 life insurance companies, and 100 random companies. An average abnormal return for each day from the offering through the first 250 days of aftermarket trading is also computed. If the IPO market is efficient, daily abnormal returns would not be different from zero. In Table 10, the summary statistics on the control group are presented. Consistent with earlier findings, the control group mean abnormal returns are not different from zero for the 251 days, except the first trading day. The test results indicate that on day 0, the mean abnormal returns for random

TABLE 10

Abnormal Return of Random Companies (Control Group)

	S&P 500, NASDAQ, NYSE/AMEX/NASDAQ Value Weighted Index						NYSE/AMEX/NASDAQ Equally Weighted Index					
	S&P500 Index	t-value	sig	Nasdaq Index	t-value	sig	NYSE/ AMEX/ NASDAQ Value Weighted Index	t-value	sig	NYSE AMEX NASDAQ Equally Weighted Index	t-value	sig
day 0	1.26	2.81	0.01	1.33	3.02	0.00	1.36	3.10	0.00	1.22	2.79	0.01
day 1	-0.55	-1.47	0.14	-0.44	-1.19	0.24	-0.49	-1.32	0.19	-0.53	-1.44	0.15
day 2	-0.14	-0.54	0.59	-0.12	-0.46	0.65	-0.29	-1.21	0.23	-0.08	-0.33	0.74
day 3	0.19	0.54	0.59	0.26	0.74	0.46	0.06	0.17	0.87	0.20	0.58	0.56
day 4	-0.34	-0.84	0.40	-0.18	-0.45	0.65	-0.27	-0.66	0.51	-0.39	-0.96	0.34
day 5	-0.19	-0.53	0.60	-0.10	-0.28	0.78	-0.03	-0.08	0.94	-0.11	-0.30	0.76
day 6	-0.14	-0.37	0.71	-0.13	-0.36	0.72	-0.13	-0.36	0.72	-0.10	-0.27	0.79
day 7	-0.15	-0.42	0.68	-0.24	-0.69	0.49	-0.21	-0.59	0.56	-0.23	-0.67	0.50
day 8	-0.38	-1.30	0.20	-0.46	-1.64	0.10	-0.36	-1.24	0.22	-0.50	-1.76	0.08
day 9	-0.04	-0.11	0.91	-0.12	-0.31	0.75	0.00	-0.01	0.99	-0.14	-0.38	0.71
day 10	-0.51	-1.51	0.13	-0.52	-1.52	0.13	-0.50	-1.49	0.14	-0.52	-1.55	0.12
day 11	0.59	1.82	0.07	0.58	1.77	0.08	0.60	1.92	0.06	0.53	1.62	0.11
day 12	0.13	0.29	0.77	0.10	0.22	0.82	0.21	0.47	0.64	0.02	0.05	0.96
day 13	0.40	1.28	0.20	0.33	1.05	0.29	0.33	1.10	0.27	0.32	1.01	0.32
day 14	-0.23	-1.02	0.31	-0.30	-1.30	0.20	-0.28	-1.23	0.22	-0.35	-1.53	0.13
day 15	-0.06	-0.23	0.82	0.01	0.05	0.96	0.03	0.12	0.91	-0.04	-0.14	0.89
day 16	0.13	0.34	0.74	0.11	0.30	0.77	0.12	0.31	0.75	0.05	0.14	0.89
day 17	-0.26	-0.68	0.50	-0.23	-0.62	0.53	-0.21	-0.57	0.57	-0.22	-0.60	0.55
day 18	0.27	0.64	0.53	0.22	0.52	0.61	0.37	0.92	0.36	0.19	0.43	0.67
day 19	-0.06	-0.14	0.89	-0.10	-0.25	0.80	0.02	0.04	0.97	-0.10	-0.24	0.81
day 20	0.47	1.17	0.24	0.53	1.36	0.18	0.28	0.72	0.47	0.47	1.19	0.24

companies using the S&P 500, NASDAQ index, NYSE/AMEX/NASDAQ Value Weighted Index, and NYSE/AMEX/NASDAQ Equally Weighted Index equals 1.26%, 1.33%, 1.36%, and 1.22%, respectively. All the mean abnormal returns using the S&P 500, NASDAQ index, NYSE/AMEX/NASDAQ Value Weighted Index, and NYSE/AMEX/NASDAQ Equally Weighted Index are significant at the 1 % level.

In Table 11, the summary statistics of the life insurers are presented. Contrary to previous empirical evidence, the mean abnormal returns of day 0 are not different

TABLE 11

Abnormal Return of Life Insurers

	S&P 500, NASDAQ, NYSE/AMEX/NASDAQ Value Weighted Index								
	S&P500 Index	t-value	sig	Nasdaq Index	t-value	sig	NYSE/ AMEX/ NASDAQ Value Weighted Index	t-value	sig
day 0	0.68	1.30	0.21	0.82	1.48	0.16	0.74	1.39	0.18
day 1	0.02	0.04	0.97	0.16	0.38	0.71	0.04	0.09	0.93
day 2	0.03	0.07	0.94	0.12	0.32	0.76	0.07	0.17	0.87
day 3	0.17	0.36	0.73	0.07	0.16	0.88	0.13	0.29	0.77
day 4	-0.14	-0.30	0.77	-0.30	-0.62	0.54	-0.18	-0.40	0.70
day 5	-0.18	-0.55	0.59	-0.17	-0.54	0.60	-0.20	-0.64	0.53
day 6	-0.86	-3.26	0.00	-0.76	-2.82	0.01	-0.81	-3.15	0.01
day 7	-0.30	-0.87	0.40	-0.36	-1.00	0.33	-0.31	-0.91	0.38
day 8	-0.09	-0.24	0.82	0.11	0.25	0.80	-0.02	-0.06	0.95
day 9	-0.61	-0.61	0.55	-0.86	-0.92	0.37	-0.58	-0.59	0.56
day 10	0.73	0.65	0.52	0.65	0.59	0.56	0.73	0.65	0.52
day 11	0.76	1.28	0.22	0.84	1.45	0.17	0.62	1.09	0.29
day 12	-0.02	-0.09	0.93	0.03	0.09	0.93	0.12	0.50	0.63
day 13	0.38	0.66	0.52	0.29	0.51	0.61	0.33	0.58	0.57
day 14	0.31	0.67	0.51	0.49	0.98	0.34	0.35	0.75	0.46
day 15	0.26	0.38	0.71	0.37	0.51	0.62	0.27	0.41	0.69
day 16	-0.86	-1.46	0.16	-1.02	-1.56	0.14	-0.82	-1.38	0.19
day 17	0.26	0.48	0.64	0.27	0.47	0.64	0.20	0.37	0.71
day 18	-0.64	-1.18	0.26	-0.78	-1.45	0.17	-0.61	-1.14	0.27
day 19	-0.44	-0.93	0.37	-0.58	-1.14	0.27	-0.48	-1.01	0.33
day 20	0.12	0.23	0.82	-0.19	-0.33	0.75	0.05	0.09	0.93

TABLE 11 (Continued)

	NYSE/AMEX/NASDAQ Equally Weighted Index, Industry Index					
	NYSE/ AMEX/ NASDAQ Equally Weighted Index	t-value	sig	Industry Index	t-value	sig
day 0	0.82	1.58	0.13	0.77	1.43	0.17
day 1	-0.03	-0.07	0.94	0.02	0.05	0.96
day 2	0.10	0.25	0.81	0.07	0.17	0.87
day 3	0.01	0.02	0.99	0.24	0.57	0.58
day 4	-0.21	-0.51	0.62	-0.18	-0.50	0.62
day 5	-0.25	-0.88	0.39	-0.28	-1.10	0.29
day 6	-0.83	-3.37	0.00	-0.66	-2.53	0.02
day 7	-0.42	-1.15	0.27	-0.25	-0.64	0.53
day 8	0.03	0.09	0.93	0.34	0.86	0.40
day 9	-0.62	-0.66	0.52	-0.58	-0.58	0.57
day 10	0.59	0.54	0.60	0.48	0.42	0.68
day 11	0.35	0.65	0.52	0.39	0.74	0.47
day 12	0.13	0.59	0.56	0.12	0.44	0.67
day 13	0.17	0.32	0.76	0.29	0.49	0.63
day 14	0.26	0.54	0.60	0.16	0.33	0.75
day 15	0.26	0.37	0.72	6.44	1.01	0.33
day 16	-0.76	-1.22	0.24	-0.78	-1.28	0.22
day 17	0.14	0.25	0.81	0.03	0.05	0.96
day 18	-0.48	-0.91	0.38	-0.42	-0.74	0.47
day 19	-0.68	-1.43	0.17	-0.71	-1.65	0.12
day 20	-0.20	-0.37	0.71	-0.05	-0.09	0.93

from zero when using the S&P 500, Nasdaq index, NYSE/AMEX/NASDAQ Value Weighted Index, NYSE/AMEX/NASDAQ Equally Weighted Index, and the industry index.

In Table 12, the summary statistics on the property/casualty insurers are reported. Consistent with preceding empirical evidence for all the property/casualty companies examined, the mean abnormal returns are not significantly different from zero for the first 250 days, except day 0. The mean abnormal returns for property/

TABLE 12

Abnormal Return of Property/Casualty Insurers

	S&P 500, NASDAQ, NYSE/AMEX/NASDAQ Value Weighted Index								
	S&P500 Index	t-value	sig	Nasdaq Index	t-value	sig	NYSE/ AMEX/ NASDAQ Value Weighted Index	t-value	sig
day 0	0.79	1.78	0.08	0.85	1.97	0.06	0.79	1.84	0.07
day 1	-0.85	-2.74	0.01	-0.82	-2.94	0.01	-0.80	-2.79	0.01
day 2	0.05	0.17	0.87	-0.15	-0.48	0.63	0.03	0.08	0.93
day 3	-0.46	-1.74	0.09	-0.39	-1.39	0.17	-0.44	-1.65	0.11
day 4	-0.36	-0.96	0.34	-0.39	-1.02	0.31	-0.37	-0.98	0.33
day 5	0.38	0.99	0.33	0.35	0.96	0.34	0.39	1.05	0.30
day 6	-0.64	-2.25	0.03	-0.65	-2.29	0.03	-0.61	-2.17	0.04
day 7	-0.08	-0.20	0.84	0.01	0.01	0.99	-0.06	-0.16	0.87
day 8	0.30	0.59	0.56	0.24	0.48	0.64	0.30	0.59	0.56
day 9	-0.28	-0.67	0.51	-0.41	-0.93	0.36	-0.28	-0.67	0.50
day 10	0.17	0.48	0.63	0.21	0.60	0.55	0.15	0.45	0.65
day 11	0.11	0.38	0.71	0.32	1.04	0.30	0.15	0.56	0.58
day 12	-0.20	-0.63	0.53	-0.14	-0.45	0.66	-0.17	-0.57	0.57
day 13	-0.24	-0.86	0.40	-0.18	-0.62	0.54	-0.21	-0.77	0.45
day 14	-0.12	-0.30	0.76	-0.03	-0.08	0.94	-0.09	-0.22	0.83
day 15	-0.12	-0.48	0.63	-0.09	-0.39	0.70	-0.11	-0.49	0.63
day 16	-0.08	-0.36	0.72	0.01	0.02	0.98	-0.07	-0.30	0.76
day 17	-0.52	-1.51	0.14	-0.38	-1.04	0.30	-0.47	-1.37	0.18
day 18	0.38	1.36	0.18	0.20	0.76	0.45	0.37	1.37	0.18
day 19	0.45	1.44	0.16	0.45	1.47	0.15	0.42	1.39	0.17
day 20	0.36	1.07	0.29	0.38	1.09	0.28	0.35	1.06	0.30

TABLE 12 (Continued)

	NYSE/AMEX/NASDAQ Equally Weighted Index, Industry Index					
	NYSE/ AMEX/ NASDAQ Equally Weighted Index	t-value	sig	Industry Index	t-value	sig
day 0	0.79	1.87	0.07	0.84	1.94	0.06
day 1	-0.77	-2.78	0.01	-0.58	-2.01	0.05
day 2	-0.04	-0.14	0.89	0.26	0.88	0.38
day 3	-0.43	-1.64	0.11	2.38	0.92	0.36
day 4	-0.46	-1.28	0.21	-0.32	-0.78	0.44
day 5	0.30	0.84	0.41	0.38	1.06	0.29
day 6	-0.58	-2.06	0.05	-0.49	-1.65	0.11
day 7	-0.09	-0.23	0.82	-0.35	-0.90	0.37
day 8	0.27	0.53	0.60	0.44	0.88	0.38
day 9	-0.34	-0.85	0.40	2.27	0.89	0.38
day 10	0.04	0.14	0.89	0.15	0.50	0.62
day 11	0.12	0.49	0.63	0.18	0.73	0.47
day 12	-0.19	-0.60	0.55	-0.23	-0.79	0.43
day 13	-0.18	-0.65	0.52	5.02	1.40	0.17
day 14	-0.06	-0.16	0.88	-0.11	-0.28	0.78
day 15	-0.09	-0.41	0.68	-0.23	-0.97	0.34
day 16	-0.07	-0.30	0.77	-0.03	-0.14	0.89
day 17	-0.36	-1.03	0.31	-0.28	-0.80	0.43
day 18	0.33	1.26	0.21	0.30	1.05	0.30
day 19	0.32	1.05	0.30	3.01	1.14	0.26
day 20	0.29	0.91	0.37	0.30	0.92	0.36

casualty insurance companies using the S&P 500 index, NASDAQ index, NYSE/AMEX/NASDAQ Value Weighted Index, NYSE/AMEX/NASDAQ Equally Weighted Index, and the industry index are equal to 0.79%, 0.85%, 0.79%, 0.79%, and 0.84% respectively. The test results indicate that in day 0, the mean abnormal returns for property/casualty insurers using S&P 500 index, NASDAQ index, NYSE/AMEX/NASDAQ Value Weighted Index, NYSE/AMEX/NASDAQ Equally Weighted Index, and the industry index are significantly different from zero at the 10% level.

In Table 13, the summary statistics on the combination of property/casualty and life insurers are reported. Consistent with preceding empirical evidence for all companies, the mean abnormal returns are not different from zero for the first 250 days, except day 0. The mean abnormal returns using the S&P 500, NASDAQ index, NYSE/AMEX/NASDAQ Value Weighted Index, NYSE/AMEX/NASDAQ Equally Weighted Index, and the industry index are 0.76 %, 0.84%, 0.78%, 0.80% and 0.82% respectively. The test results indicate that the mean abnormal returns for the combined samples using the S&P 500 index, NASDAQ index, NYSE/AMEX/NASDAQ Value Weighted Index, NYSE/AMEX/NASDAQ Equally Weighted Index, and the industry index are different from zero at the 5 % level.

From the event study, abnormal returns exists at the time of IPOs for property/casualty and the combined samples of life and property/casualty insurance companies but not the life insurance firms. Thus, Wilcoxon signed rank test is used to examine whether there is a difference between the abnormal returns of property/ casualty and the combined samples of insurers and the control group at the time of IPOs.

Table 14 shows a significant difference in abnormal returns of property/casualty companies and the random companies at the 5% level using the S&P 500 index, NASDAQ index, and NYSE/AMEX/NASDAQ Value Weighted Index and at the 10% level using the NYSE/AMEX/NASDAQ Equally Weighted Index.

Table 15 shows a significant difference in abnormal return of insurance companies and of random companies at the 5 % level using the S&P 500 index,

NASDAQ index, NYSE/AMEX/NASDAQ Value Weighted Index, and NYSE/AMEX/NASDAQ Equally Weighted Index.

TABLE 13

Abnormal Return of Combined Insurers

	S&P 500, NASDAQ, NYSE/AMEX/NASDAQ Value Weighted Index								
	S&P500 Index	t-value	sig	Nasdaq Index	t-value	sig	NYSE/ AMEX/ NASDAQ Value Weighted Index	t-value	sig
day 0	0.76	2.18	0.03	0.84	2.44	0.02	0.78	2.27	0.03
day 1	-0.61	-2.42	0.02	-0.55	-2.30	0.02	-0.57	-2.40	0.02
day 2	0.05	0.18	0.86	-0.07	-0.30	0.77	0.04	0.15	0.88
day 3	-0.29	-1.24	0.22	-0.26	-1.10	0.28	-0.28	-1.20	0.23
day 4	-0.30	-1.00	0.32	-0.36	-1.20	0.24	-0.32	-1.06	0.29
day 5	0.22	0.76	0.45	0.20	0.74	0.46	0.22	0.79	0.43
day 6	-0.70	-3.22	0.00	-0.68	-3.14	0.00	-0.67	-3.10	0.00
day 7	-0.14	-0.47	0.64	-0.10	-0.30	0.77	-0.13	-0.44	0.66
day 8	0.19	0.50	0.62	0.20	0.53	0.60	0.21	0.55	0.59
day 9	-0.37	-0.91	0.36	-0.53	-1.31	0.20	-0.36	-0.91	0.37
day 10	0.33	0.82	0.42	0.33	0.85	0.40	0.31	0.80	0.43
day 11	0.29	1.10	0.28	0.47	1.70	0.09	0.28	1.12	0.27
day 12	-0.15	-0.64	0.53	-0.09	-0.39	0.70	-0.09	-0.40	0.69
day 13	-0.07	-0.27	0.79	-0.05	-0.18	0.86	-0.06	-0.25	0.80
day 14	0.00	0.00	1.00	0.12	0.38	0.71	0.04	0.12	0.91
day 15	-0.01	-0.05	0.96	0.04	0.13	0.89	0.00	-0.02	0.98
day 16	-0.30	-1.27	0.21	-0.28	-1.07	0.29	-0.28	-1.18	0.24
day 17	-0.30	-1.04	0.30	-0.20	-0.65	0.52	-0.29	-0.98	0.33
day 18	0.10	0.39	0.70	-0.07	-0.30	0.77	0.10	0.39	0.70
day 19	0.20	0.76	0.45	0.16	0.61	0.55	0.17	0.66	0.51
day 20	0.29	1.05	0.30	0.22	0.74	0.46	0.27	0.96	0.34

TABLE 13 (Continued)

	NYSE/AMEX/NASDAQ Value Weighted Index, Industry Index					
	NYSE/ AMEX/ NASDAQ Equally Weighted Index	t-value	sig	Industry Index	t-value	sig
day 0	0.80	2.39	0.02	0.82	2.38	0.02
day 1	-0.56	-2.43	0.02	-0.41	-1.72	0.09
day 2	0.00	-0.01	0.99	0.21	0.87	0.39
day 3	-0.31	-1.34	0.18	1.79	0.95	0.34
day 4	-0.39	-1.38	0.17	-0.28	-0.91	0.37
day 5	0.15	0.54	0.59	0.20	0.73	0.47
day 6	-0.65	-3.04	0.00	-0.54	-2.38	0.02
day 7	-0.18	-0.61	0.54	-0.32	-1.07	0.29
day 8	0.20	0.54	0.59	0.41	1.09	0.28
day 9	-0.42	-1.08	0.28	1.48	0.79	0.43
day 10	0.20	0.52	0.60	0.24	0.63	0.53
day 11	0.19	0.80	0.43	0.24	1.04	0.30
day 12	-0.10	-0.42	0.67	-0.13	-0.59	0.56
day 13	-0.08	-0.33	0.74	3.70	1.42	0.16
day 14	0.03	0.10	0.92	-0.03	-0.11	0.91
day 15	0.01	0.03	0.98	1.63	0.91	0.37
day 16	-0.26	-1.07	0.29	-0.24	-0.99	0.32
day 17	-0.22	-0.75	0.46	-0.19	-0.65	0.52
day 18	0.11	0.43	0.67	0.10	0.37	0.71
day 19	0.04	0.16	0.88	1.98	1.03	0.31
day 20	0.15	0.56	0.58	0.20	0.72	0.47

TABLE 14

Compared the Difference of Abnormal Return

Comparison	Mean P/C	Mean random	index	Wilcoxon Signed Rank Test
property/casualty-random companies	0.79	1.26	S&P	0.027
property/casualty-random companies	0.85	1.33	NASDAQ	0.033
property/casualty-random companies	0.79	1.36	Value Weight	0.033
property/casualty-random companies	0.79	1.22	Equal Weight	0.059

TABLE 15

Compared the Difference of Abnormal Return

Comparison	Mean Combined Insurers	Mean random	index	Wilcoxon Signed Rank test
Combined insurers-random companies	0.76	1.26	S&P	0.03
Combined insurers-random companies	0.84	1.33	NASDAQ	0.016
Combined insurers-random companies	0.78	1.36	Value Weight	0.026
Combined insurers-random companies	0.80	1.22	Equal Weight	0.04

Conclusions

This study investigates whether there is an abnormal return at the time of an IPO for 17 life and 44 property/casualty insurers that enacted IPOs between 1980-1999. This study also tests the difference between the abnormal returns of life and property/casualty insurers, and compares these abnormal returns to the selected companies at the time of the IPOs. There is underpricing of life, property/casualty, and the randomly selected non-insurers. However, abnormal returns exist only for property/casualty and other companies but not for life insurers. There is a significant difference in the abnormal returns between property/casualty companies and other randomly selected non-insurers as well as between overall insurers sampled and other randomly selected non-insurers. The results of abnormal returns using the insurance industry index provides the same conclusion as using other indices including the S&P 500 index, Nasdaq index, NYSE/AMEX/NASDAQ Value Weighted Index, and NYSE/AMEX/NASDAQ Equally Weighted Index. The findings are consistent with empirical studies (Alli, Yau, and Yung (1994), Rahman and Yung (1999)) that find that regulated firms are less underpriced than non-regulated firms.

CHAPTER 4

AN EXAMINATION OF THE BENEFITS FOR PRIVATELY HELD AND MUTUAL INSURERS' CEOS FOLLOWING AN IPO

Introduction

Agency theory focuses on the contract between two parties, which are the principal and the agent. The agent receives authority to govern the firm from the principal. Since these two parties have different utility functions, it is reasonable to believe that an agent will not always act in the best interest of the principal. Thus, contracts between the two parties that unreasonably favor the agent will be costly to owners (Beatty and Zajac (1994), Jensen and Meckling (1976), Tosi, Katz and Gomez-Mejia (1997)).

Much empirical literature supports the idea that senior executives tend to pursue strategies that increase their personal benefits at the expense of principals (Gomez-Mejia, Tosi, and Hinkin (1987), Jensen and Meckling (1976), Kroll, Wright, and Theerathorn (1993), Wright, Ferris, Sarin and Awasthi (1996)). For example, managers may overinvest in non-value maximizing investments such as corporate

acquisitions (Chung and Wright (1998), Chung, Wright, and Charoenwong (1998)). Furthermore, managers may make operating decisions that reduce their personal risk, although shareholders may prefer that riskier projects are pursued (Crutchley and Hansen (1989)). A number of researchers (Hill and Snell (1989), Kroll, et al. (1993)) state that managers prefer to increase firm size because this strategy will enhance their benefits and reduce risk for the top executives, even at the expense of the owners. Taking these facts together, top managers will likely not exercise the same diligence and exert as much effort as the owners would and will try to extract excessive pecuniary and non-pecuniary benefits from the owners.

According to Jensen and Murphy (1990), self-serving strategies of top managers can be pursued because the incentives of top executives are independent of their performance. Their study finds that corporate strategies that increase or decrease a firm's market value by millions of dollars may only minimally affect the financial benefits of top executives.

Previous researchers (Fama and Jensen (1983a, 1983b), Fields and Tirtiroglu (1991)) argue that different organizational governance mechanisms can be effective in controlling agency problems. Effective control of the owner-manager conflict discourages senior managers from using resources to serve their self-interests. Insurance companies include both stock and mutual insurers. In stock companies, top executives are governed by traditional control or governance mechanisms while in mutual insurance companies, chief executives have almost total discretion and are more likely to act abusively (O'Hara (1981)).

Various reasons have been provided to explain why companies go public (Dannen (1984), Fenske (1985) Tillman III (1985), and Pagano, Panetta, and Zingales (1998)), such as greater access to capital, ease of merging and diversification, liquidity, improved image, and enhanced incentives to managers. Jensen and Meckling (1976) argue that making managers part owners of their firms will reduce agency problems. A public corporation can use incentive devices such as share options and share bonuses which are unavailable to the mutual firm. However, Hetherington (1969) suggests that demutualization may be fostered by the self-interests of managers. Through demutualization, managers may be able to convert their de facto ownership, which results from the ineffectiveness of the mutual policyholder owner, into stock. The stock the managers come to control may represent a considerable fraction of the insurer's net worth.

In this study, from a theoretical perspective, it is questioned whether there is evidence of agency problems at the time of insurance company IPOs by examining whether top executives' rewards increase materially following initial public offerings. Moreover, this study sheds light on how insurance company executive compensation changes following initial public offerings vary across two kinds of firms that differ in agency characteristics: mutual and privately held stock insurance companies. These answers are both interesting and important since they are unexplored issues. Insight is gained as to how senior managers make resource allocation choices driven by their self-interests.

I separate the sample into two groups: mutual insurers and privately held stock insurers and then examine the different changes in CEOs' rewards across initial public

offerings between the two groups. Mutual insurers that demutualize represent the group over which the owners (policyholders) have no effective means of corporate control prior to their IPOs, while privately held stock insurers represent the group whose ownership is reduced when the firm goes public and managers may operate in their own-self interest at the expense of new owners.

The remainder of this paper is organized as follows. In the next section, I present the literature on which my hypotheses are based. Then, I describe the sample and research methodology. Subsequently, I report the results of the study. Finally, I present my discussion and conclusions.

Literature Review and the Development of Hypotheses

Insurance companies are predominantly publicly held stock or mutual companies. In addition, Lloyds is a syndicate form, but it is not addressed in this study. Fama and Jensen (1983b), Hansmann (1985), Mayers and Smith (1981, 1986, 1988, 1994), and Smith (1986) study the costs and benefits of each organization form and the implications of agency theory to different kinds of ownership structure. They argue that the unique characteristic of stock insurers is the separation of manager, owner and customer. This separation allows increased efficiency through specialization. Managerial talent can be selected without considerable thought about the wealth of the manager and how much risk the manager is willing to bear (Mayers and Smith (1981), and Fama and Jensen (1983b)).

In publicly held stock insurance companies, top managers are subject to traditional control mechanisms. Three types of mechanisms that reduce agency

problems are the presence of the market for corporate control, the managerial labor market, and the capital market. A mechanism that constrains management discretion which Manne (1965) first calls the "market for corporate control" is in the form of proxy fights, tender offers, and takeover bids (Agrawal and Mandelker (1987), and McNamara and Rhee (1992)).

Fama (1980) argues that the managerial labor market provides an effective control mechanism. Fama states that managerial labor markets truely reflect available information concerning the marginal productivity of managers. How well an executive operates the company will affect his/her reputation, which the market will use to value his/her human capital. This process which Fama called "settling up" provides discipline that makes managers reduce deviations from contracted behavior.

This settling up procedure makes the managerial labor market efficient. Hence, the owners can be confident that the managers will have the motivation to reflect high marginal value to the market and are unlikely to utilize their positions to gain personal rewards. Moreover, Kroll et al. (1993) suggests that junior managers will force senior managers to achieve higher levels of performance because the market will also evaluate their productivity partly on the firm's productivity. In conclusion, Fama and other researchers (Amihud, Kamin, and Romen (1983), and Kroll and Johnson (1986), Jensen and Smith (2000)) argue that managers will not abuse their positions to diverge from the goal of shareholder wealth maximization, as such action will count in the settling up process, thereby reducing the managers' market value.

The presence of capital markets ensures that stock insurers are monitored by institutional investors, other blockholders, and stock analysts. Capital markets can act

as a force to control management. Managers try to satisfy shareholders'expectations. They try to reduce agency costs to receive good performance assessments of themselves and their companies in the capital markets (Fields and Tirtiroglu (1991)).

Incentive compensation devices such as stock options and restricted stock make the interests of top managers and shareholders congruent (Jensen and Meckling (1976), Mayers, Shivdasani, and Smith (1997)). According to Jensen and Smith (2000), because the value of stock options increases with stock price variance, options motivate the manager to invest in riskier projects. Stock options also help manage the under-leverage problem, as managers increase leverage to increase equity volatility and thus the value of their options.

At mutuals, the ownership and customer functions are merged. The policyholders are both the customers and the owners of the companies. Some researchers (Mayers and Smith (1981, 1986, 1988, 1992), Lamm-Tennant and Starks (1993)) indicate that the more decision authority agents have, the more likely they are to consume perquisites at the cost of owners. They argue that mutual managers are inclined to have greater decision authority than do stock managers because there is virtually no effective market for corporate control in mutual organizations.

The market for corporate control in the form of tender offers and takeover bids does not exist in mutual organizations because these have no traded common stock. Through a proxy fight, policyholders can remove the existing managers, but they will not receive an inordinate share of any resulting gains (Mayers and Smith (1994), Wells, Cox, and Gaver (1995)). Proxy fights are much more difficult in a mutual ownership situation, resulting in higher costs for policyholders of mutual companies

versus stockholders of publicly held firms. For example, courts have ruled that a mutual insurance firm can refuse to give a list of policyholders to those initiating a proxy fight, even if the company is reimbursed the cost of producing the roster (Meyers and Smith (1986)). Moreover, courts have held that the names of policyholders are a proprietary asset of the insurer and thus can be witheld from any protestor group (Wells, Cox, and Gaver (1995)). Thus, proxy fights virtually never occur among mutual firms (Wells, Cox, and Gaver (1995)). Since one potential control mechanism (the tender offer) is impossible (Mayers, Shivdasani, and Smith (1997)) and another (the proxy fight) is costly, it is much more difficult to achieve effective governance in mutual companies versus stock firms (Mayers and Smith (1994)).

In addition, mutual insurers are not, from the perspective of capital markets, like publicly traded stock companies. With no stock traded, mutuals are not monitored by the capital markets. Therefore, top managers of mutual insurers can make operating decisions with virtually no threat of outside pressure from either takeovers or stockholders. Because of the diffusion of policyholders and because each policyholder usually does not have a sufficiently large number of shares to motivate active monitoring of management, policyholders appear to be quite disinterested in the management of the mutual insurers (Fama and Jensen (1983b), Fields and Tirtiroglu (1991), Kroll et al. (1993)). If policyholders are not satisfied with the management of the mutual company, they will change companies rather than attempt to remove the managers (Kroll, et al. (1993)). Consequently, in mutual organizations, managers

have nearly total discretion in addition to the opportunity to act abusively (O'Hara (1981)).

Kroll, et al. (1993) find that mutual insurers incur general and administrative expenses as a percentage of coverage in force at a higher rate than stock insurers. They suggest that this is evidence that top managers of mutual insurance companies fail to manage their firms efficiently because of the lack of outside pressure.

In spite of the obvious advantages of the mutual structure for the executives of such firms, many have chosen to pursue IPOs in recent years (Levinsohn (2000) and Panko (2001)). McNamara and Rhee (1992) report that the basic steps in the demutalization process are as follows. A draft of the conversion plan must be proposed to the state insurance commissioner. The commissioner analyzes the conversion plan and then announces a public hearing. If the commissioner accepts the plan, policyholders are informed about the possible change. Policyholders will be notified of what they will receive in exchange for their ownership rights. Then the policyholders vote on whether they will accept the plan. If a sufficient number of policyholders agree to demutualize, the final sanction is accepted, and the company can convert.

IPOs are undertaken by both mutual insurance companies, and privately held stock insurance companies. When mutuals demutualize, they are allowed to include stock options, stock appreciation rights, and restricted stock in the managers' compensation packages. Without an effective control mechanism, it is expected that

top executives of mutual insurers utilize their positions to increase their benefits across the demutualization.[3]

A private stock company has no stock traded on an established exchange and is owned by a limited number of shareholders who usually are the entrepreneurs or the founders, or their families. According to agency theory (Jensen and Meckling (1976), Megginson (1996), Wells, Cox, and Gaver (1995)), when the owner possesses 100 percent of the company, he/she will be responsible for all the results of his/her performance. If the owners consume perquisites such as luxury offices, excessive staff, personal airplanes, big cars, or lengthy vacations, these costs are borne by the owner. However, when the owner sells a part of his/her firm to outside investors, he/she no longer bears the full cost of perquisite consumption. In the case of 100 percent ownership, the equity agency cost is zero. After an IPO, the original owner's stake is reduced; partial ownership results in the manager's greater consumption of perquisites. This occurs because the sole owner bears the entire cost of the decrease in firm value, while the partial owner bears only a portion of the cost of abusive behavior (Wells, Cox, and Gaver (1995)).

According to agency theory (see Jensen and Meckling (1976)), reduced ownership by managers increases agency costs. Empirical studies provide evidence supporting the notion that reduced ownership leads to higher agency costs. For example, Walkling and Long (1984) find that a target firm will be more likely to oppose an offer if the potential wealth of the firm's management is reduced. Mikkelson and Partch (1985) argue that when ownership concentration decreases,

[3] Some researchers (Garber,1986; Dannen,1984, McNamara and Rhee, 1992) argue that regulatory control during the conversion process helps to protect policyholders from wealth transfers to managers.

underlying firm share values fall. Agrawal and Mandelker (1987) report a positive relationship between the common stock holdings of managers and the changes in the variance of returns on the firm's total assets and the changes in financial leverage. Morck, Shleifer, and Vishny (1988) using Tobin's q as a valuation measure, find that low managerial ownership is associated with low measures of corporate value. Oswald and Jahera (1991) examine the relationship between ownership structure and financial performance. They report higher excess returns for firms with greater inside ownership. Yermack (1996) argues that when officers and directors have more ownership, firm market value is significantly higher, although this ownership variable has an ambiguous relationship with measures of accounting performance. Kroll, Wright, Toombs, and Leavell (1997) argue that acquisition announcements result in negative excess returns to shareholders for manager-controlled firms but positive excess returns for owner-manager controlled firms. Brush, Bromiley, and Hendrickx (2000) argue that firms that have large stock ownership by management mitigate the influence of free cash flow on a firm's performance. Jain and Kini (1994) find a significant positive relationship between post-IPO operating performance and equity retention by managers. On the other hand, other researchers argue that the ownership retention of top managers is irrelevant (Fama and Jensen (1983b), Mikkelson, Partch, and Shah (1997)).

Given these earlier findings, it is expected that when privately held stock insurers go public, their top executives will increase their salaries and bonuses at the expense of the shareholders.

Hypothesis 1

> There will be significant increases found between pre- and post-IPO CEO salaries and bonuses for formerly privately held stock insurance companies but not for former mutual insurance company CEOs.

Before an IPO, top executives of privately held stock companies may not pay themselves as much salary because they are responsible for the full cost of the reduction in the value of the firm. According to Gilles (1999), top executives of privately held stock companies consider compensation as an expense rather than an investment. However, if the top executives increase their compensation after an IPO, they will bear only a portion of the full cost. Therefore, I expect top executives' salaries and bonuses for former privately held stock companies to increase. If the results support this part of my hypothesis, I will have found evidence to support the idea that reduced ownership retention by managers increases agency costs in previously privately held insurers.

Since top managers of former mutual insurers are assumed to have previously abused their positions, I expect top executives of mutual insurers to already be receiving high salaries and bonuses before their IPOs, so after the IPOs they may not substantially increase their salaries and bonuses. Thus their salaries and bonuses should not significantly increase in the IPO year. If the results support this part of Hypothesis 1, then they will suggest agency costs already occur in mutual organizations. In effect, I am arguing that form of organization can explain the changes in chief executives' compensation following an IPO.

Hypothesis 2

> For former mutual insurance company CEOs, the pre- and post-IPO changes in total values of annual pay packages (including salary, bonus, options, stock appreciation rights and restricted stock) will be significant.

Before demutualization, top executives of mutual insurers already likely enjoy high salaries and bonuses, so after the IPO, they cannot increase their benefits by large increments in the form of salaries and bonuses. When mutuals demutualize, however, this allows them access to incentive devices such as stock options, stock appreciation rights, and restricted stock in the compensation package. Hence, top executives can enhance their own rewards by increasing their compensation in the form of stock-based compensation. Given these facts, I predict that the total CEO pre-and post-IPO' annual pay packages of former mutual insurers will significantly increase.

If the results support Hypothesis 2, then I have some evidence supporting agency theory-- that one of the reasons top executives decide to convert their firms is to increase their own benefits. These results will also provide evidence about which strategy top executives of mutual insurers use to increase their own rewards.

Hypothesis 3

> For formerly privately held insurance company CEOs, the pre- and post-IPO changes in total values of annual pay packages (including salary, bonus, options, stock appreciation rights and restricted stock) will be statistically significant.

If the results support Hypothesis 3, I will have found evidence to support the idea that top executives make the transition of firms from private to public ownership to enhance their personal benefits.

Sample and Research Methodology

Sample

My sample consists of both a study group and the control group. The study group contains 49 insurance companies that initiated IPOs during the years 1986-2000 that have verified IPO dates in 10K reports or the *Wall Street Journal Index* and have pre-IPO compensation data available. Nineteen of 49 are mutual insurers while the remainder are privately held stock companies. These sample units consist of five types of insurers as defined by COMPUSTAT; these are property/casualty (SIC 6331), life (SIC 6311), health (SIC 6321), medical (SIC 6324), and surety (SIC 6351). Information related to executive compensation is obtained from prospectuses and proxy statements. Details about my sample firms are provided in Table 16.

The control group contains 41 non-IPO match-paired insurers. Firms are matched on the level of sales in the fiscal year prior to going public, or sales in the following one or two years after going public along with the four-digit SIC classification. When a match cannot be found among publicly traded insurers with the same SIC code, I broaden the search to other SIC code insurers. Details of the matched pair firms are reported in Table 17.

Dependent Variables

Dependent variables consist of changes in CEO salaries and bonuses and changes in total values of annual pay packages. Total value of annual pay packages is the sum of salary, annual bonus, stock appreciation rights, restricted stock, stock options, and other compensation. With regard to options, I use the value of

TABLE 16

Sample Firms

Panel A: Formerly Privately Held Stock Insurers

No.	Company
1	Liberty financial cos
2	FPIC
3	ESG RE LTD
4	Vesta Insurance Group Inc
5	Hartford Financial Services
6	Travelers Aetna Property
7	Allstate Corp
8	ACE limited
9	Renaissancere Holdings Ltd
10	Life Re Corp
11	MMI Cos Inc
12	First Alliance Corp
13	Paula Financial
14	Chartwell Re Corp
15	RTW Inc
16	PMA Capital Corp
17	Rightchoice Managed care inc
18	Everest Reinsurance Holdings
19	Oxford Health Plans Inc
20	Exel Ltd
21	Wellcare Management Group Inc
22	F B L financial Group Inc
23	American Safety Insurance
24	standard Management Corp
25	Terra Nova Bermuda
26	Lasalle Re Holdings ltd
27	United Wisconsin Sevices
28	CNA surety Corp
29	Triad Guaranty Inc
30	PMI group

Table 16 (Continued)

Panel B: Former Mutual Insurers

No.	Company
1	Farm Family Holdings
2	MIIX group
3	Riscorp Inc
4	Scpie Holdings Inc
5	Mony
6	Allmerica Financial Corp
7	Stancorp Financial Corp
8	Guarantee life Companies
9	NCRIC
10	John Hancock Financial Services
11	Metlife Inc
12	Trigon Healthcare Inc
13	Old Guard Group Inc
14	Wellpoint Health Networks Inc
15	Amerus Life Insureance
16	Meemic Holdings Inc
17	American Physicians Capital Inc
18	Mutual Assurance Inc
19	Unum Corporation

TABLE 17

Matched-Paired Firms

IPO Insurers	SIC	IPO	Pre-IPO	Match-Paired Insurers	SIC
1 Liberty Financial Cos Inc	6311	1995	1994	Protective life corp	6311
2 FPIC	6351	1996	1995	capitol transamerica corp	6331
3 ESG RE LTD	6321	Dec-97	1997	Independence holding corp	6321
4 Vesta Insurance Group Inc	6331	Nov-93	1993	Frontier insurance group	6331
5 Hartford Financial Services Group Inc	6331	1997	1996	Berkshire Hataway corp	6321
6 Travelers Aetna Property	6331	1996	1995	Chubb corp	6331
7 ACE limited	6331	1993	1992	Fremont General corp	6331
8 Renaissancere Holdings Ltd	6331	1995	1994	Argonaut Group Inc	6331
9 MMI Cos Inc	6351	1993	1992	Mbia	6351
10 First Alliance Corp	6311	1996	1995	Southern Sec Life Insurance	6311
11 Paula Financial	6331	1997	1996	IPC holdings corp	6331
12 Chartwell Re Corp	6311	1995	1994	Danielson	6331
13 RTW Inc	6331	1995	1994	Gainsco inc	6331
14 PMA Capital Corp	6331	1998	1997	Commerce group inc	6331
15 Rightchoice Managed care inc	6324	1994	1993	Maxicare Health Plans	6324
16 Everest Reinsurance Corp	6331	Oct-95	1995	Berkly (WR) Corp	6331
17 Wellcare Management Group Inc	6324	1993	1992	Amwest Insurance group	6351
18 F B L financial Group Inc	6311	1996	1995	Midland corp	6331
19 American Safety Insurance	6331	1998	1997	Accel international corp	6331
20 standard Management Corp	6311	1993	1992	Citizens Inc	6311
21 Terra Nova Bermuda	6331	1996	1995	Acceptance insurance group	6331
22 Lasalle Re Holdings ltd	6331	1995	1994	Meridian Insurance Group Inc	6331
23 United Wisconsin Sevices	6324	Oct-91	1991	Sierra Health Services	6324
24 CNA surety Corp	6351	Oct-97	1997	EMC insurance Group	6331
25 PMI group	6351	1995	1994	Markel Corp	6351
26 Farm Family Holdings	6331	1996	1995	Mutual risk management	6331
27 MIIX group	6321	1999	1998	American Financial Corp	6331
28 Riscorp	6331	1996	1995	Merchants Group Inc	6331
29 Scpie Holdings Inc	6351	1997	1996	Ngmagic Inc	6351
30 Allmerica Financial Corp	6331	1995	1994	Progressive Corp	6331
31 Stancorp Financial Group Inc	6321	1999	1998	Fidelity national financial inc	6361
32 Guarantee life companies	6311	Dec-95	1995	Alfa corp	6331
33 NCRIC	6351	1999	1998	Cumberland Technologies Inc	6351
34 John hancock financial	6311	2000	1999	Lincoln national corp	6311
35 Metlife Inc	6311	2000	1999	Loews	6331
36 Trigon Healthcare Inc	6324	1997	1996	Mid Atlantic Medical Services Inc	6324
37 Old Guard Group Inc	6331	1997	1996	Ohio Casualty Corp	6331
38 Wellpoint health Networks Inc	6324	1993	1992	Conseco Inc	6321
39 Amerus Life Insurance	6311	1996	1995	HCC insurance holdings	6331
40 Meemic Holdings Inc	6331	1999	1998	Donegal Group Inc	6331
41 American Physicians Capital Inc	6351	2000	1999	Radian Inc	6351

exercisable and unexercisable in-the-money options that each company provides in the proxy statements.

In order to measure the changes in each CEO's salary and bonus, I calculate the percentage change from the year prior to the IPO to the IPO year and one year following, adjusted for inflation. In order to measure the changes in total values of annual pay packages, I calculate the percentage change from the year prior to the IPO to the IPO year and one year following, adjusted for inflation.

Measurement Procedure

Hypothesis 1 involves determining the relationship between changes in CEO salaries and bonuses for formerly mutual versus formerly privately held stock companies.

I use analysis of variance to examine whether the type of organization (mutual versus privately held stock) can explain the percentage change in salaries and bonuses of chief executive officers in the IPO year. The independent variable in this study is the percentage increase in salaries and bonuses. The explanatory variable is the type of organization.

Due to the limited number of former mutual insurers and privately held stock insurers and the skewed underlying distribution of changes in compensation, I employ a nonparametric, Wilcoxon signed rank test as recommended by Flores (1989), after having excluded obvious outliers to detect whether the salaries and bonuses of top executives of formerly privately held stock companies increase and that of top executives of former mutual insurers do not significantly increase. The Wilcoxon signed rank test assumes that the observations are independent. This test is normally

used under conditions where the underlying distribution is not normally distributed. Earlier studies by McNamara and Rhee (1992), Jain and Kini (1994) also use Wilcoxon signed rank test. Hypothesis 2 involves making comparisons between the total value of compensation packages of the top executives of former mutual insurers for the year preceding the conversion with that of the conversion year and the following year. Hypothesis 3 involves making comparisons between the total value of compensation packages of the top executives of formerly privately held stock insurers for the year preceding the IPO with that of the IPO year and one year following. Consequently, the Wilcoxon test is used to test both Hypothesis 2 and 3. I also make comparisons between the total value of compensation packages of top executives of non-IPO insurers for the year that matches the year preceding the IPO with that of the following one and two years. Due to a sufficient number of sample firms, I employ the Wilcoxon test and Paired-Samples T test are used to make the comparison. I also use analysis of variance to examine whether the going public decision (IPO insurers versus non -IPO insurers) can explain the percentage change in the total value of compensation packages of the top executives in the IPO year and the following year. The independent variable in this study is the percentage change in total value of compensation packages. The explanatory variable is the type of insurers (IPO insurers and non-IPO insurers).

The IPO insurers in year 0 include 28 formerly privately held stock insurers and 18 formerly mutual insurers. The non-IPO insurers include 41 stock companies. Due to the unavailability of some data, the IPO insurers in the year subsequent to the IPO year include 27 formerly privately held stock insurers and 14 formerly mutual

insurers. There are 36 non-IPO insurers. The research methodology follows Kaplan (1989), Smith (1990), Muscarella and Vestsuypens (1990), Degeorge and Zeckhauser (1993), and Jain and Kini (1994). All use the median change in levels because the mean is particularly sensitive to outliers.

Results of the Study

This portion of the paper presents the results of the tests of the stated hypotheses.

Hypothesis 1

Hypothesis 1 proposes that there will be significant increases across the IPO event in CEO salaries and bonuses for formerly privately held stock insurance companies but not for former mutual insurance company CEOs. The ANOVA results are reported in Table 18. The results show that forms of organization can explain the changes in chief executive compensation in the IPO year. The change in salaries and bonuses is measured relative to the pre-IPO year (year -1).

TABLE 18

The Effects of Forms of Organization on Changes in Salaries and Bonuses of CEOs

For the IPO year	F score	Sig	Observations
49	4.079	0.049	(Mutual = 19, Stock = 30)

Changes in salaries and bonuses of top executives of formerly privately held stock companies for the IPO year (year 0) and the post IPO year (year1) are reported in Tables 19 and 20 respectively. The median change in salaries and bonuses for the

IPO year and year 1 are 43.39 % and 59.99 % respectively. Both the increases are significant at the 0.01 level. The results appear to support Hypothesis 1 or the notion that the reduction in management ownership increases agency costs as described in Jensen and Meckling (1976).

TABLE 19

Change in Salaries and Bonuses for Formerly Privately Held Stock Insurers CEOs for the IPO Year

Panel A:			
No.	Company	Salary and Bonus	
		Year -1	Year 0
1	Liberty financial cos	979,500	1,114,786
2	FPIC	255,671	332,027
3	ESG RE LTD	283,710	526,575
4	Vesta Insurance Group Inc	366,827	526,386
5	Hartford Financial Services	825,000	1,171,962
6	Travelers Aetna Property/Casualty group	2,760,000	3,192,441
7	Allstate Corp	647,500	1,276,578
8	ACE limited	431,573	658,984
9	Renaissancere Holdings Ltd	393,750	468,750
10	Life Re Corp	180,000	531,752
11	MMI Cos Inc	327,600	342,184
12	First Alliance Corp	54,170	73,433
13	Paula Financial	275,000	474,096
14	Chartwell Re Corp	454,675	664,086
15	RTW Inc	594,431	605,916
16	PMA Capital Corp	1,074,115	1,230,315
17	Rightchoice Managed care inc	384,551	700,138
18	Everest Reinsurance Holdings	1,115,350	1,499,392
19	Oxford Health Plans Inc	191,442	378,731
20	Exel Ltd	575,000	653,791
21	Wellcare Management Group Inc	167,505	255,618
22	F B L financial Group Inc	348,123	369,978
23	American Safety Insurance	367,485	386,304
24	standard Management Corp	276,341	365,611
25	Terra Nova Bermuda	850,000	1,050,831
26	Lasalle Re Holdings ltd	352,921	1,024,332
27	United Wisconsin Sevices	337,570	444,885
28	CNA surety Corp	379,219	491,868
29	Triad Guaranty Inc	223,635	276,512
30	PMI group	215,447	310,065
	Median	367,156	526,480
	Median Increase		43.39%
	Mean	522,937	713,278
	Mean Increase		36.40%

TABLE 19 (Continued)

Panel B

	Year -1	Year 0
Median	367,156	526,480
Median Change Relative to Year -1		43.39 %
Two-tailed Wilcoxon Signed Rank Test		0.000
Observations	30	30

TABLE 20

Change in Salaries and Bonuses for Formerly Privately Held Stock Insurers CEOs for Year 1

Panel A			
No.	Company	Salary and Bonus	
		Year -1	Year 1
1	Liberty financial cos	979,500	1,375,481
2	FPIC	255,671	337,545
3	Vesta Insurance Group Inc	366,827	515,240
4	Hartford Financial Services	825,000	1,713,541
5	travelers Aetna Property/Casualty Group	2,760,000	3,405,638
6	Renaissancere Holdings Ltd	393,750	859,116
7	Life Re Corp	180,000	706,947
8	MMI Cos Inc	327,600	537,247
9	First Alliance Corp	54,170	73,385
10	Paula Financial	275,000	586,895
11	Chartwell Re Corp	454,675	799,946
12	RTW Inc	594,431	599,912
13	PMA Capital Corp	1,074,115	1,203,831
14	Rightchoice Managed care inc	384,551	455,377
15	Everest Reinsurance Holdings	1,115,350	1,524,254
16	Oxford Health Plans Inc	191,442	418,836
17	Exel Ltd	575,000	694,924
18	Wellcare Management Group Inc	167,505	288,389
19	F B L financial Group Inc	348,123	407,185
20	American Safety Insurance	367,485	375,722
21	standard Management Corp	276,341	312,269
22	Terra Nova Bermuda	850,000	1,163,711

TABLE 20 (Continued)

23	Lasalle Re Holdings ltd	352,921	1,093,651
24	United Wisconsin Sevices	337,570	467,193
25	CNA surety Corp	379,219	601,915
26	Triad Guaranty Inc	223,635	239,024
27	PMI group	215,447	566,264
	Median	366,827	586,895
	Median Increase		59.99%
	Mean	530,568	789,757
	Mean Increase		48.85%
Panel B			
		Year -1	Year 1
Median		366,827	586,895
Median Change Relative to Year -1			59.99%
Two-tailed Wilcoxon Signed Rank Test			0.000
Observations		27	27

Changes in salaries and bonuses of top executives of former mutual insurers for the IPO year are reported in Table 21. The median change in salaries and bonuses in the IPO year is 33.30 %. However, as I expected, the increase in the IPO year is not statistically significant. The findings are supportive of the contention that agency costs already exist in mutual organizations. Furthermore, the results tend to support the argument that the form of organization can explain the changes in compensation of chief executives in the IPO year. The median change in salaries and bonuses in year 1, which is reported in Table 22, is 18.37%. The increase is significant at 0.05 level.

TABLE 21

Change in Salaries and Bonuses for Former Mutual Insurers CEOs for the IPO Year

Panel A:

No.	Company	Salary and Bonus	
		Year -1	Year 0
1	Farm Family Holdinigs	240,000	388,132
2	MIIX group	578,606	408,023
3	Riscorp	6,329,583	1,611,912
4	Scpie Holdings Inc	516,262	891,080
5	Mony	1,535,000	1,612,903
6	Allmerica Financial Corp	1,125,000	1,510,721
7	Stancorp Financial Group Inc	615,560	849,804
8	Guarantee life companies	615,700	631,106
9	NCRIC	315,000	322,896
10	John hancock financial	3,000,000	2,862,669
11	Metlife Inc	3,714,200	4,255,319
12	Trigon Healthcare Inc	650,000	1,207,234
13	Old Guard Group Inc	207,274	216,924
14	Wellpoint health Networks Inc	907,650	820,541
15	Amerus Life Insurance	740,000	845,481
16	Meemic Holdings Inc	425,000	495,667
17	Mutual Assurance	157,890	158,724
18	American Physicians	288,739	725,338
19	Unum	546,346	462,578
	Median	615,560	820,541
	Median Increase		33.30%
	Mean	1,184,622	1,067,213
	Mean Increase		-9.91%

Panel B:

		Year -1	Year 0
	Median	615,560	820,541
	Median Change Relative to Year -1		33.30%
	Two-tailed Wilcoxon Signed Rank Test		0.117
	Observations	19	19

TABLE 22

Change in Salaries and Bonuses for
Former Mutual Insurers CEOs for Year 1

Panel A:			
No.	Company	Salary and Bonus	
		Year -1	Year 1
1	Farm Family Holdings	240,000	453,767
2	MIIX group	578,606	342,655
3	Scpie Holdings Inc	516,262	920,309
4	Mony	1,535,000	1,683,715
5	Allmerica Financial Corp	1,125,000	2,527,666
6	Stancorp Financial Group Inc	615,560	988,883
7	Guarantee life companies	615,700	550,473
8	NCRIC	315,000	283,890
9	Trigon Healthcare Inc	650,000	1,444,628
10	Old Guard Group Inc	207,274	258,261
11	Wellpoint health Networks Inc	907,650	863,095
12	Amerus Life Insurance	740,000	949,968
13	Meemic Holdings Inc	425,000	481,193
14	Mutual Assurance	157,890	168,077
	Median	597,083	706,784
	Median Increase		18.37%
	Mean	616,353	851,184
	Mean Increase		38.10%
Panel B:			
		Year -1	Year 1
	Median	597,083	706,784
	Median Change Relative to Year -1		18.37%
	Two-tailed Wilcoxon Signed Rank Test		0.048
	Observations	14	14

Hypothesis 2

Hypothesis 2 proposes that for former mutual insurance company CEOs, the changes in total values of annual pay packages (i.e., salary and bonus, stock appreciation rights, stock options, etc) across demutualization will be statistically significant. Changes in the total value of annual compensation packages of top

executives of former mutual insurers are reported in Tables 23 and 24. The median change in total value of annual compensation packages for the IPO year and year 1 are 105.77 % and 138.61% respectively.

TABLE 23

Change in Total Values of Annual Pay Packages
for Former Mutual Insurers CEOs for the IPO Year

Panel A:			
No.	Company	Total Values of Annual Pay Packages	
		Year -1	Year 0
1	Farm Family Holdinigs	265,449	430,924
2	MIIX group	599,146	1,375,064
3	Riscorp	6,389,839	2,753,197
4	Scpie Holdings Inc	552,051	929,246
5	Mony	2,905,852	2,918,170
6	Allmerica Financial Corp	1,419,324	1,978,215
7	Stancorp Financial Group Inc	791,325	1,987,468
8	Guarantee life companies	628,304	667,236
9	NCRIC	332,432	367,534
10	John hancock financial	3,984,202	4,419,907
11	Metlife Inc	7,391,543	8,946,269
12	Trigon Healthcare Inc	692,196	1,400,086
13	Old Guard Group Inc	223,596	520,936
14	Wellpoint health Networks Inc	1,378,799	1,342,183
15	Amerus Life Insurance	1,092,000	1,215,613
16	Meemic Holdings Inc	613,374	835,659
17	Mutual Assurance	178,692	179,661
18	American Physicians	309,361	1,464,552
	Median	660,250	1,358,624
	Median Increase		105.77%
	Mean	1,652,638	1,873,996
	Mean Increase		13.39%

Panel B			
		Year -1	Year 0
	Median	660,250	1,358,624
	Median Change Relative to Year -1		105.77%
	Two-tailed Wilcoxon Signed Rank Test		0.006
	Observations		18

TABLE 24

Change in Total Values of Annual Pay Packages for Former Mutual Insurers CEOs for Year 1

Panel A:

No.	Company	Total Values of Annual Pay Packages	
		Year -1	Year 1
1	Farm Family Holdings	265,449	1,245,061
2	MIIX group	599,146	715,380
3	Scpie Holdings Inc	552,051	960,332
4	Mony	2,905,852	5,668,176
5	Allmerica Financial Corp	1,419,324	3,219,455
6	Stancorp Financial Group Inc	791,325	6,673,879
7	Guarantee life companies	628,304	3,439,689
8	NCRIC	332,432	417,075
9	Trigon Healthcare Inc	692,196	9,274,768
10	Old Guard Group Inc	223,596	520,936
11	Wellpoint health Networks Inc	1,378,799	1,717,695
12	Amerus Life Insurance	1,092,000	2,755,243
13	Meemic Holdings Inc	613,374	1,170,718
14	Mutual Assurance	178,692	190,382
	Median	620,839	1,481,378
	Median Increase		138.61%
	Mean	833,753	2,712,056
	Mean Increase		225.28%

Panel B:

		Year -1	Year 1
	Median	620,839	1,481,378
	Median Change Relative to Year -1		138.61%
	Two-tailed Wilcoxon Signed Rank Test		0.001
	Observations	14	14

The increases in the IPO year and year 1 are both significant at the 0.01 level. However the median change in the total value of annual compensation pay packages of top executives of the control group for the IPO year and year 1 portrayed in Table 25 are 16.94 % and 30.96 % respectively. Both increases are insignificant. The

TABLE 25

Change in Total Values of Annual Pay Packages for the Control Group (Non-IPO Insurers)

	year-1	year 0	year1
1 Protective life corp	1,450,717	1,657,661	2,591,221
2 Meridian insurance group	803,401	974,404	654,604
3 Fremont general corp	4,337,512	4,456,309	
4 Argonaut Group	5,354,188	7,100,296	5,808,562
5 Southern security life insurance	257,550	249,077	243,642
6 Commerce Group Inc	8,068,913	6,879,385	2,246,128
7 Chubb corp	5,012,820	5,265,563	8,018,909
8 Maxicare Health plans Inc	1,604,755	3,785,588	9,803,126
9 WR Berkley corp	5,379,904	5,766,700	13,464,228
10 Citizens Inc	250,200	249,409	299,458
11 Markel corp	1,672,411	1,959,001	1,864,266
12 American Financial corp	2,937,273	1,666,341	2,716,474
13 Nymagic	826,219	518,928	339,250
14 Progressive corp	8,614,258	15,751,445	27,587,656
15 Cumberland Technologies inc	362,500	322,896	228,531
16 Mid Atlantic Medical Services Inc	6,533,579	2,755,964	1,308,187
17 Mbia inc	6,869,020	6,660,367	5,454,343
18 Radian Group Inc	8,561,979	11,460,750	
19 Capitol transamerica corp	751,469	1,996,658	1,886,921
20 Independence holding co	964,029	1,181,030	862,217
21 Berkshire hathaway inc new	267,300	291,300	266,123
22 Amwest Insurance Group	510,390	413,908	
23 Accel International corp	449,875	297,712	611,563
24 EMC Insurance Group	684,939	662,672	396,900
25 Loews corp	2,104,458	2,127,558	
26 Donegal Group Inc	889,930	485,517	614,048
27 Gainsco Inc	1,057,572	1,066,321	928,860
28 Conseco Inc	128,032,154	133,376,619	24,054,458
29 Alfa corp	1,417,516	957,279	1,848,624
30 Mutual Risk Management	3,688,161	2,883,775	5,054,093
31 Danielson Holdings corp	1,046,250	960,603	507,337
32 Ohio Casualty Corp	650,150	1,060,775	774,804
33 Midland co	2,412,405	981,311	2,394,573
34 Fidelity national financial inc	31,274,620	8,558,222	52,066,580
35 Lincoln National corp	6,635,102	21,444,613	
36 HCC insurance holdings inc	2,317,691	5,820,560	3,267,412
37 IPC holdings ltd	665,686	1,059,319	891,290
38 Merchants group inc	116,422	193,785	215,896
39 Acceptanc insurance cos	1,361,722	1,596,452	2,392,684
40 Sierra health services inc	556,744	1,747,523	2,101,651
41 Frontier insurance group	726,600	516,472	776,883

TABLE 25 (Continued)

	Median	1,417,516	1,657,661	1,856,445
	Median Increase Relative to Year-1		16.94%	30.96%
	Mean	6,279,961	6,516,099	5,126,153
	Mean Increase Relative to Year-1		3.76%	-18.37%
Panel B:				
		Year -1	Year 0	Year 1
Median		1,417,516	1,657,661	1,856,445
Median Change Relative to Year -1			16.94%	30.96%
Two-tailed Wilcoxon Signed Rank Test			0.257	0.220
Paired-Samples T test			0.747	0.647
Observations		41	41	36

results support Hypothesis 2. Thus CEOs of former mutual insurers receive greater rewards across demutualization.

Hypothesis 3

Hypothesis 3 proposes that for formerly privately held insurance company CEOs, the changes in total value of annual pay packages across initial public offerings will be significant. Changes in the total value of annual compensation packages of top executives of formerly privately held stock insurers are reported in Tables 26 and 27. The median change in total value of compensation packages for the IPO year and year 1 are 128.96 % and 352.73 %, respectively. Both increases are significant at the 0.01 level. The results show that CEOs' rewards of formerly privately held stock insurers increase very significantly following IPOs.

TABLE 26

Change in Total Values of Annual Pay Packages for Formerly Privately Held Stock Insurers for the IPO Year

Panel A:			
No.	Company	Total Values of Annual Pay Packages	
		Year -1	Year 0
1	Liberty financial cost	1,023,868	6,551,050
2	FPIC	279,796	873,007
3	ESG RE LTD	318,205	561,024
4	Vesta Insurance Group Inc	394,163	1,346,157
5	Hartford Financial Services	846,956	18,582,173
6	Travelers Aetna Property	3,887,292	15,541,509
7	Allstate Corp	829,723	3,976,656
8	ACE limited	951,771	3,323,342
9	Renaissancere Holdings Ltd	558,033	2,782,822
10	Life Re Corp	180,000	1,203,465
11	MMI Cos Inc	615,002	520,213
12	First Alliance Corp	115,911	113,134
13	Paula Financial	275,347	6,790,245
14	Chartwell Re Corp	579,176	903,505
15	RTW Inc	666,214	695,209
16	PMA Capital Corp	1,145,961	3,400,377
17	Rightchoice Managed care inc	536,339	836,972
18	Everest Reinsurance Holdings	14,458,668	1,728,641
19	Oxford Health Plans Inc	191,442	378,731
20	Wellcare Management Group Inc	167,505	374,555
21	F B L financial Group Inc	372,785	877,347
22	American Safety Insurance	372,285	574,215
23	standard Management Corp	284,833	817,315
24	Terra Nova Bermuda	950,000	1,484,168
25	Lasalle Re Holdings ltd	499,913	5,823,773
26	CNA surety Corp	420,323	508,843
27	Triad Guaranty Inc	225,883	478,937
28	PMI group	264,699	1,343,029
	Median	460,118	1,053,485
	Median Increase		128.96%
	Mean	1,163,411	3,051,497
	Mean Increase		162.29%

TABLE 26 (Continued)

Panel B:

		Year -1	Year 0
	Median	460,118	1,053,485
	Median Change Relative to Year -1		128.96%
	Two-tailed Wilcoxon Signed Rank Test		0.000
	Observations	28	28

TABLE 27

Change in Total Values of Annual Pay Packages
for Formerly Privately Held Stock Insurers for Year 1

Panel A:			
No.	Company	Total Values of Annual Pay Packages	
		Year -1	Year 1
1	Liberty financial cost	1,023,868	9,750,350
2	FPIC	279,796	2,961,669
3	Vesta Insurance Group Inc	394,163	13,671,528
4	Hartford Financial Services	846,956	21,464,963
5	Travelers Aetna Property	3,887,292	18,908,478
6	Renaissancere Holdings Ltd	558,033	9,721,252
7	Life Re Corp	180,000	1,284,972
8	MMI Cos Inc	615,002	1,170,356
9	First Alliance Corp	115,911	111,081
10	Paula Financial	275,347	608,829
11	Chartwell Re Corp	579,176	1,905,947
12	RTW Inc	666,214	645,509
13	PMA Capital Corp	1,145,961	3,625,561
14	Rightchoice Managed care inc	536,339	561,584
15	Everest Reinsurance Holdings	14,458,668	2,511,758
16	Oxford Health Plans Inc	191,442	11,202,853
17	Exel Ltd	915,389	3,000,379
18	Wellcare Management Group Inc	167,505	303,536
19	F B L financial Group Inc	372,785	1,933,653
20	American Safety Insurance	372,285	408,663
21	standard Management Corp	284,833	665,282
22	Terra Nova Bermuda	950,000	4,091,416
23	Lasalle Re Holdings ltd	499,913	12,391,086
24	United Wisconsin Sevices	420983	1134757.282
25	CNA surety Corp	420,323	793,349
26	Triad Guaranty Inc	225,883	241,811
27	PMI group	264,699	1,874,566
	Median	420,983	1,905,947
	Median Increase		352.73%
	Mean	1,135,139	4,701,674
	Mean Increase		314.19%

TABLE 27 (Continued)

Panel B:

		Year -1	Year 0
	Median	420,983	1,905,947
	Median Change Relative to Year -1		352.73%
	Two-tailed Wilcoxon Signed Rank Test		0.000
	Observations	27	27

The ANOVA results are reported in Table 28. The results suggest that the decision to go public can help explain the changes in chief executive compensation. Results are significant at the 0.01 level both in the IPO year and the post IPO year. The results reported in TABLE 25 show that the total value of the control group top executives' compensation packages insignificantly increase. The findings are supportive of Hypotheses 2 and 3 or the contention that CEOs make the transition of firms from private or mutual to public ownership to increase their own rewards.

TABLE 28

The Effects of the Going Public Decision on Changes
in Total Values of Annual Pay Packages
for Years 0 and Year 1

	F Score	Sig	Observations
Year 0	8.422	0.005	87 (41Non-IPOInsurers, 46 IPO Insurers)
Year 1	9.048	0.004	77 (36 Non IPO Insurers, 41IPO Insurers)

Discussion and Conclusions

The managers of formerly privately held stock insurers represent the group whose ownership is reduced when their firms go public. The results show that the total values of annual pay packages for this group significantly increase following

IPOs and their salaries and bonuses significantly increase in the IPO year. This study supports the findings of other researchers (Jensen and Meckling (1976), Walkling and Long (1984), Mikkelson and Partch (1985), Morck, Shleifer, and Vishny (1988)) that reduced ownership retention by managers increases agency costs. As mentioned earlier, before IPOs, top executives consider their compensation as expenses (Gilles (1999)). They have to select the level of both firm value and rewards that maximize their utility (Wells, Cox, and Gaver (1995)). When outside equity is issued, they increase their rewards at the expense of the new owners.

Top executives' salaries and bonuses for former mutual insurers do not significantly increase, but the total values of their annual pay packages significantly increase following IPOs. The results support previous empirical studies that agency costs already occur in mutual organizations (O'Hara (1981), Mayers and Smith (1981, 1986, 1988, 1992), Lamm-Tennant and Starks (1993), Fama and Jensen (1983b), Fields and Tirtiroglu (1991), and Kroll et al. (1993)). Before IPOs, the managers of mutual insurers use their positions to boost their compensation in the form of salaries and bonuses at the expense of the policyholder-owners. Then they foster their personal benefits in the form of stock- based compensation across demutualization.

In conclusion, the results indicate that agency problems occur at the time of an IPO. I can conclude that one of the reasons senior managers decide to convert their companies is to boost their personal benefits. The results are consistent with the previous empirical studies that find that top executives tend to pursue strategies that increase their personal rewards (Gomez-Mejia, Tosi, and Hinkin (1987), Hetherington (1969), Jensen and Meckling (1976), Kroll, Wright, and Theerathorn (1993), and

Wright et al. (1996)). The results also support empirical studies that find that without a market for corporate control, managers of mutual organizations have a most opportunity to use their positions to ultimately increase their personal rewards.

Limitations and Contributions

The small sample size for each form of organization limits the extent to which the results may be generalized. Given this limitation of the study, I still believe that this study makes contributions to agency issues related to executive compensation and form of organization. There have been no empirical studies examining the relationship between initial public offerings and executive rewards. Some researchers have investigated whether corporate acquisitions are driven by the interests of senior executives (Kroll, Wright, Toombs, and Leavell (1997), Chung and Wright (1998), and Chung, Wright, and Charoenwong (1998)). Some studies (Jain and Kini (1994), Mikkelson, Partch, and Shah (1997), Shelor and Anderson (1998), McNamara and Rhee (1992)) examine the change in operating performance of companies as they make the transition from private or mutual to public ownership. This study provides substantial support for the importance of the role of ownership structure in controlling agency costs. This paper is the first to shed light on how compensation changes following initial public offerings vary across two kinds of firms that differ in agency characteristics: mutual and privately held stock insurance companies.

CHAPTER 5

CONCLUSION

This dissertation is a collection of three research essays examining (1) operating performance of property/casualty insurance companies following initial public offerings, (2) an event study of initial public offerings of insurance companies, and (3) an examination of the benefits for privately held and mutual insurers' CEOs following initial public offerings. This dissertation increases the body of knowledge about the impact of initial public offerings on insurance companies.

Chapter 2 shows that following initial public offerings, the underwriting performance, the solvency performance, and the overall performance of property/casualty insures do improve while the investment performance deteriorates.

Chapter 3 shows that abnormal returns exist at the time of an initial public offerings for property/casualty insurers and for combined insurers, but not for life insurers. There is a significant difference among the abnormal returns of property/casualty insurers and other non-regulated companies. Also, there is a significant difference in the abnormal returns of combined insurers and other non-regulated companies. The results indicate that abnormal returns of insurance companies are less than abnormal returns of other non-regulated firms following initial public offerings.

Chapter 4 provides that there is evidence of agency problems at the time of an initial public offering. The salaries, bonuses, and total value of annual pay packages for formerly privately held stock insurers significantly increase following initial public offerings. Therefore, reduced ownership by management increases agency costs. That salaries and bonuses of former mutual insurers do not significantly increase in the IPO year is evidence that top executives of mutual insurers may have already abused their position before demutualization. The result shows that after demutualizaton, top executives of former mutual insurers foster their personal benefits in the form of stock-based compensation.

Implications of the Study

Understanding the impacts of initial public offerings on insurance companies which operate in a regulated industry is important for both insurance regulators and customers. The analysis in chapter 2 suggests that investment performance of property/casualty insurance companies declines following initial public offerings, so property/casualty insurers should be careful about their investment policy.

The results in chapter 3 suggest that abnormal returns exist at the time of an initial public offering, even in a regulatory environment which has less asymmetric information than other industries. The results in chapter 4 suggest that there is evidence of agency problems at the time of an initial public offerings. The results suggest that top executives of mutual insurers have the most opportunity to act abusively. Therefore, policyholders of mutual companies should pay more attention to the management of the company. Currently, more than 50% of policyholders do not vote in company elections. An appropriate demutualization process prevents

management from channeling wealth from policyholders. The regulatory authorities must give approval to the demutualization plan. Policyholders will be provided detailed information about the demutualization and what they will receive in exchange for their ownership rights. For the company to be able to convert, the policyholders must approve the change. Regulators and policyholders should not approve a plan that channels wealth from policyholders to management. Often, policyholders are convinced that demutualization will reap rewards in the form of a lump sum of money and rising stock prices. Policyholder diligence will prevent the shifting of costs from top management of mutual insurers to themselves and to society.

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