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THE RATES OF RETURN EARNED IN THE  
CANADIAN GENERAL INSURANCE INDUSTRY

by

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## Abstract

Since the introduction of the Little Report which looked at the relationship between prices and profits in the property and liability insurance industry, there has been extensive discussion in the Journal of Risk and Insurance and elsewhere on the important issue of calculating the profitability of property and liability insurance companies. Much of this discussion has centered on defining the appropriate measures of risk and return in order to determine the insurance industry's profitability relative to that of other industrial groups.

It is generally agreed that such inter-industry comparisons must be set within a risk-return framework. However, the emphasis placed on the conceptual problems of defining and measuring risk has resulted in a good deal of arbitrariness in calculating rates of return. To be specific, none of the studies published in the Journal of Risk and Insurance employ the same rate of return measure. These variations arise in part from the differing approaches adopted in arriving at a comparative measure, but they also reflect an attempt to develop a more precise method of measurement.

This study investigates the underlying difficulties that are associated with these previous studies. It is felt that many of these difficulties can be circumvented by analyzing the rate of return that is earned within the insurance industry, ignoring a comparison of returns with other industries. This allows the risk dimension to be dropped from the analysis.

In arriving at a accurate measurement procedure, it is explained that profit should be related to net worth rather than total assets, investable funds, or some other measure. The reason is that the return on net worth considers only those funds which management has under its control for alternative uses. It is then explained that net worth is best measured

indirectly as the difference between total assets and liabilities at one point in time. However, there are several adjustments that must be made to the statutory asset and liability figures before they can be used. Assets, which consist primarily of financial assets, should be valued at market prices, because market values are a more realistic valuation of assets at a point in time than book values. Non-admitted assets should also be included in the total asset figure. Liabilities require subtracting a realistic value of the "equity" from the unearned premium reserve. Care must also be taken not to classify such items as unauthorized reinsurance reserves, investment and contingency reserves, etc. as liabilities because they are really a part of the net worth of the company.

It is then explained how an accurate calculation of the return on net worth can actually be made. In this area, special consideration must be given to the quarterly payment of dividends, the payment of income taxes, any additional capital that is raised during the time period, and to tax or tax credits relating to any unrealized profits or losses that are to be included in the return measure.

A brief explanation of how the population and sample were chosen is presented along with other various empirical procedures that were followed.

This study then presents the results of the empirical work. Several rates of return were calculated including the rate of return before and after tax for the industry as well as for three generally defined size classes of the industry. The latter was done to determine if there are any economies of scale in operation. The rate of return was then defined to originate from three sources. These sources are investment income, mainly consisting of rents, interest and dividends received, underwriting profit, and other or residual income mainly comprised of unrealized capital gains or losses.

The 'tax shield effect' relating to the difference between underwriting profits calculated on a statutory basis and on an incurred basis was also determined. On the other hand, the tax shield effect associated with unrealized capital gains and losses was not calculated because no capital gains tax were evident in Canada during the time period studied.

Finally some conclusions are presented along with mention of further study and research that could be undertaken in light of the results of this study. The general conclusions are that the insurance industry return during this period was not excessive. It was also concluded that after a certain volume of insurance business is reached, some economies of scale seem to exist. Finally, investment income (rents, interest, and dividends received) accounted for most of the industry rate of return before taxes because underwriting and residual income (unrealized capital gains and losses) were generally within the - 1 percent to + 1 percent range on net worth during the time period of the study.

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## Chapter 1

### Introduction

#### The Purpose of the Study

The purpose of this study is to examine the rates of return earned by a random sample of general insurance companies operating in Canada. The companies included in the sample are Canadian companies or Canadian subsidiaries of British or American companies. Rates of return are calculated for the years 1961-70, the latter year being at the time of writing the latest year figures were available.

#### The Justification for the Study

##### The United States Situation

Over the last five years in the United States there has been over a dozen articles written on the rate of return earned by the property and liability insurance industry. The starting point for these series of articles can be traced back to November 1967, when a report by Arthur D. Little Inc. was presented to the American Insurance Association.<sup>(1)</sup> The author, Dr. Irving Plotkin concluded "that the risk related rate of return in the insurance industry is significantly below that which other industries earn."<sup>(2)</sup> Plotkin found the rate of return for his sample to average 4.4 percent over the period 1955-65. A second study done by the same author in June 1969 resulted in a 3.6 percent rate of return for the insurance industry while the other industries averaged a 10.7 percent rate of return.<sup>(3)</sup> Many of the other articles written during this five year period concur with these results. However, there are also other articles that do not agree with these results.

### The Canadian Situation

Two chartered accountant firms working jointly have produced the only study in Canada on the rate of return earned by general insurance companies operating in Canada.<sup>(4)</sup> This study presented a large number of accounting rates of return but did not reach any conclusions on the level or adequacy of the rate of return.

In light of the number of articles that have been written in the United States it is rather surprising that only one attempt has been made in Canada. Furthermore, when it is noted that in many instances conflicting results were reached, this fact becomes even more surprising. In the opinion of the author of this study, this is in itself enough justification for the time spent on this study. However, there are further underlying implications that are just as important. In the first place, the insurance industry has used the results of many of these studies to convey to the public and regulatory authorities the unprofitable position they are in when compared to other industries. The insurance industry claims they are in a very vulnerable position because the low rate of return will result in the industry's inability to attract capital from the investing public who are seeking the highest rate of return for a given level of risk. Similarly, investors will feel that the capital already invested in the insurance industry is inefficiently employed and therefore will flow out to other industries that offer a higher rate of return. The outcome is that the insurance companies feel if they are to maintain the service they provide, there must be approval of rate increases in the price of insurance or even removal of price regulation by the statutory authorities. Of course, any price increases have implications for most of the population because of the large number of insurance policies held. As a result of continuing price increases, some provincial governments in Canada have or are in the process of taking over and running certain segments of the insurance industry. One only has to look at the heated debate over

automobile insurance premium increases and the pending government takeover in British Columbia to gain a feeling of the importance that this topic has in our society today.

### The Outline of the Study

The next logical question is are the claims of the insurance industry valid? Is the insurance industry underearning as determined by the various studies that have been done? Chapter 2 will present a summary and critique on some of the literature that has been written on the rate of return earned by the property and liability insurance industry. The emphasis will be on the Little Reports of November 1967<sup>(5)</sup> and June 1969,<sup>(6)</sup> because these two reports have managed to stir up more controversy than the other studies. However, emphasis will also be placed on the Canadian study done jointly by Peat, Marwick, Mitchell, and Co. and Price Waterhouse and Co.<sup>(7)</sup> both because it is the only study in Canada and because of the similar purpose of this study. A brief analysis will also be presented of articles written by Richard Norgaard and George Schick<sup>(8)</sup> and James S. Trieschmann.<sup>(9)</sup>

Dr. Plotkin concluded that it is the inherent structure of present insurance operations and not actuarial or accounting phenomenon which produce the current unsatisfactory rate of return in the industry.<sup>(10)</sup> Similarly, in the only Canadian study to date it was stated that "adjustments have not been made in the calculation of equity for possible excesses in the reserves for unearned premiums and unsettled claims."<sup>(11)</sup> On the other hand, Long and Gregg stated that "because statutory regulations require insurance companies to present financial data on a statutory or solvency basis it is necessary to look beyond the statutory results to determine the true financial position and earnings record of an insurance company."<sup>(12)</sup>

This study concurs with Long and Gregg. Chapter 3 will explain that assets will have to be restated to include non-admitted assets and unrealized investment gains among other asset adjustments. Liabilities will also be restated to eliminate various reserves that are merely appropriations of surplus, overstatements in the unearned premium reserve, etc. It will be explained that the overstatement in the unearned premium reserve is created by an accounting mismatching of revenues and expenses. The purpose of Chapter 3 will be to arrive at the increase or decrease in the shareholders net worth through the period by attempting to adjust the statutory shareholders net worth to reflect the various adjustments made to the statutory assets and liabilities. Recognition must also be given to such things as the difficulties that are encountered when the adjusted shareholders net worth for the individual companies are aggregated into one return for the industry as a whole. Specifically, the determination of a weight for each company must be determined.

Chapter 4 will explain the empirical procedures that were used. This includes such procedures as how the sample was chosen, what were the data sources, how the actual adjustments from the published data were made, etc.

Chapter 5 will then present the results. The rate of return for the industry will be analysed on a before and after income tax basis. Companies were then broken down into three size classes to determine if there were any differences in the rate of return earned by companies of differing size. The total rate of return was also broken down into the components that make up this rate of return. These components, three in number, were defined as underwriting results, investment income (interest, dividends, and rent), and other income that mainly consisted of unrealized capital gains or losses. Also included in the results will be an analysis of the tax shield effect associated with the conservative statutory accounting

procedures used to determine underwriting profit.

Finally, Chapter 6 will restate the purpose of this study, present a summary of the more important findings, and suggest what further studies could be undertaken that might arise from this study.

#### FOOTNOTES

1. Arthur D. Little Inc., "Prices and Profits in the Property and Liability Insurance Industry", Report to the American Insurance Association, November 1967.
2. *ibid.*, p. 129.
3. Arthur D. Little Inc., "Rates of Return in the Property and Liability Insurance Industry 1955 - 1967", Report to the National Association of Independent Insurers, June 1969.
4. Peat, Marwick, Mitchell, & Co. and Price, Waterhouse & Co., "Calculation of Rates of Return on Invested Capital of Canadian General Insurance Companies", Report to the Superintendent of Insurance, January 1967.
5. Arthur D. Little Inc., *op. cit.*, November 1967.
6. Arthur D. Little Inc., *op. cit.*, June 1969.
7. Peat, Marwick, Mitchell, & Co. and Price, Waterhouse & Co., *op. cit.*, January 1967.
8. Richard Norgaard and George Schick, "Profitability in the Property and Liability Insurance Industry", The Journal of Risk and Insurance, Vol. XXXVII, No. 4, December 1970, pp. 579 - 587.
9. James S. Trieschmann, "Property Liability Profits", The Journal of Risk and Insurance, Vol. XXXVIII, No. 3, September 1971, pp. 437-453.
10. Irving H. Plotkin, "Rates of Return in the Property and Liability Insurance Industry", The Journal of Risk and Insurance, Vol. XXXVI, No. 3, June 1969, pp. 173 - 200.
11. Peat, Marwick, Mitchell, & Co. and Price, Waterhouse & Co., *op. cit.*, p.2.
12. John D. Long and Davis W. Gregg, Property and Liability Insurance Handbook, Richard D. Irvin, Inc., Homewood Illinois, 1965, pp. 937.

## Chapter 2

### A Summary and Critique of the Literature Written on the Profitability of the General Insurance Industry

The purpose of this chapter is to present a summary and critique of some of the more significant articles written about the rate of return earned in the property and liability insurance industry. The emphasis will be placed on the rate of return measure that was used in each study, though a brief explanation will also be given to the risk measure where applicable.

This chapter will begin with a summary and critique about certain articles written in the United States by Arthur D. Little Inc., Richard Norgaard and George Schick, and James S. Trieschmann. Separate emphasis will then be placed on the only Canadian study to date, that is the study prepared jointly by the two chartered accountant firms of Peat, Marwick, Mitchell, and Co. and Price, Waterhouse and Co.

#### Studies on the Profitability of American General Insurance Companies

#### The Little Report on Prices and Profits in the Property and Liability Insurance Industry by Arthur D. Little Inc.

As stated in Chapter 1 of this study, this Little Report reached the following principal conclusion:

that the risk related rate of return in  
the insurance industry is significantly below  
that which other industries earn.(1)

The report stated that the rate of return for the insurance industry sample averaged 4.4 percent from 1955 to 1965.

The Rate of Return Measure - The return measure used in the Little Report is referred to as the return on investible funds. For insurance companies, the return is calculated as follows:

$$R_{PL} = \frac{I + D + UP + (RC - T) + UC}{S + UR + LR} \quad (1)$$

where  $R_{PL}$  = rate of return earned in the property and liability insurance industry

I = interest

D = dividends

UP = underwriting profit

RC = realized capital gains

T = taxes associated with the realized capital gains

UC = unrealized capital gains

S = surplus consisting of capital stock paid plus surplus

UR = unearned premium reserve

LR = loss reserve

For non-insurance companies, the return on investible funds measure is calculated by the following:

$$R_{NPL} = \frac{NI + FC}{S + LD} \quad (2)$$

where  $R_{NPL}$  = rate of return earned in the non-insurance industry or industries

NI = net income

FC = fixed charges

LD = long term debt

There are many criticisms that can be levelled at the return on investible funds measure. In the first place, the numerator in the rate of return for insurance companies contains underwriting profit. The actual

figure used in the Little Report is the statutory underwriting profit. This is not correct. Chapter 3 will show that when the rate of growth of insurance business written by a particular company is increasing, the statutory underwriting profit is an understatement of the actual underwriting profit. The reason for this is that under statutory regulations a company cannot take credit for prepaid expenses and thus the premiums that are received and entered into a liability account called the unearned premium reserve contains an equity in it that should be allowed for the statutory underwriting result. To emphasize, the expenses associated with writing insurance contracts, and a large proportion of such expenses do occur at the time of the writing of the contracts, are written off to the income statement on a cash basis while the revenues associated with these same insurance contracts are set up as a liability and earned only on a time accrued basis. The result is that there is a mismatching of revenues and expenses in the insurance industry. This is a violation of a basic accounting principle that must be corrected in order to arrive at the true or actual underwriting profit.

A second criticism of the return on investible funds measure is that it does not allow for the tax consequences of unrealized capital gains or losses included in the numerator of the formula. This omission introduces a volatility into the risk adjusted rate of return for insurance companies that increases the apparent risk of insurance companies relative to other companies. This is likely to occur because such unrealized capital gains or losses represent a larger proportion of the rate of return in an insurance company than is true of non-insurance companies. This in turn is due to the nature of the insurance business, where investments comprise a large proportion of total assets while inventories, fixed assets and accounts

receivable are smaller in relation to total assets. In other words, if a tax on unrealized capital gains with credit for unrealized capital losses was accounted for, the tax would have a more stabilizing effect on the level of return among insurance companies, relative to non-insurance companies, thus reducing the risk and possibly increasing the risk adjusted rate of return for insurance companies.

The third criticism of the return on investible funds measure centres on the denominator. The Little Report equates the two reserve items of insurance companies with the long term debt of other industries. The two reserve items are short term liabilities, but the Little Report treats them as a source of funds just as long term liabilities are for a manufacturing company. They are not the same. The weakness is that whereas long term debt produces a return to its suppliers in the form of debt interest, there is no such return to policyholders from the two reserve items. Debt is the result of a decision to borrow and the company has no choice but to pay the interest costs associated with the outstanding debt. These interest costs are added back onto the fixed charges item in the numerator of the return measure for non-insurance companies. On the other hand, the two reserves created are implicit, they are a necessary bi-product of the insurance process. There is essential no cost; in fact, they bear interest because they are usually invested in very secure and liquid investments by the insurance companies. Though these reserves are included in the denominator and wrongly so because they are current liabilities, there is no imputed return included in the numerator. In other words, the "fixed charges" is zero for insurance companies, but positive or plus for other industries. Hence, the return on investible funds measure for insurance companies has an inherent downward bias built into it.

The return on investible funds measure is also biased against the

insurer that maintains a larger proportion of reserves for unearned premiums and unpaid losses in relation to net worth. The larger the proportion of reserves, the lower the rate of return. The formula does not even allow for comparisons within the insurance industry simply because nothing is added to the numerator as an imputed interest on these reserves, while varying reserve amounts are added to the denominator.

In conclusion, the reserve items should not be included in the denominator. The return on investible funds is a meaningless concept which neither considers the totality of assets (the return on assets)' nor the return to the owners of the enterprise (the return on net worth).

Technical Difficulties - Brief mention should be made of some of the empirical or procedural difficulties associated with the Little Report.

For non-insurance industries, the report uses the Compustat Industrial Tape.<sup>(2)</sup> This manual defines the fixed charges item as follows:

fixed charges represent all interest expense, the amortization of debt discount or premium and the amortization of expense (ie; underwriting, brokerage fees, advertising costs, etc.) Fixed charges also include subsidiary preferred dividends and other interest.<sup>(3)</sup>

As a result, the fixed charges item in the numerator of the return on investible funds measure for non-insurance industries is overstated because it includes more than just the interest paid on the long term debt amount given in the denominator.

The Little Report does not state how the various industries were selected or how the companies within the industry were selected. However, the time period chosen for insurance companies (1955 - 65) was listed as one of the worst for the insurance industry's overall earnings. Furthermore, this period also differs from the time period chosen for non-insurance industries (1950 - 1965). The period 1950 - 54 for insurance companies was a good period, one in which the combined loss and expense ratio was below 100 percent.<sup>(4)</sup>

In other words, the time periods chosen may have helped to widen the spread between the rate of return for the insurance versus the non-insurance industry.

There is also a problem involved with applying the Standard Industrial Classification that is used in the Little Report. The Standard Industrial Classification defines industries by the use of digits. For example, a one digit industry may be the entertainment industry. A two digit industry is a narrower definition of what constitutes an industry. The entertainment industry may be subdivided into sports, music or drama etc. A three digit industry is a further narrowing of the definition of an industry. Sports may be subdivided into hockey, baseball, football, etc. In short, the greater the number of digits used the more precisely a particular industry is defined. Some of the industry definitions used in the Little Report are four digit, three digit, and two digit industries. It is felt that the spatial dispersion of returns will be exaggerated by this heterogeneity among industry groupings because any outside influence could have a more catastrophic effect on a narrowly defined industry than on a broadly defined industry.

The Risk Measure - The definition of industry risk used in the Little Report is the average over all years of the variance of company rates of return about their mean value, these latter calculations being made for each year. Thus, this measure requires the following two steps to be performed:

1. the annual variance for each industry

$$\text{Var}(C_{it}) = \frac{1}{N} \sum_{i=1}^N (C_{it} - C_t)^2 \quad (3)$$

where  $C_{it}$  = rate of return for company  $i$  in year  $t$

where  $C_t$  = average rate of return for all companies  
in the industry in year t

N = number of companies in the industry  
in year t

2. the risk for an industry over T time periods

$$\frac{1}{T} \sum_{t=1}^T \text{Var}(C_{it}) \quad (4)$$

where T = the number of years

The Little Report concluded that by regressing the average rate of return for an industry upon the average risk of that industry the following result was obtained:

that the insurance industry is not earning a rate of return commensurate with those earned in other economic activities on assets placed in similar risks. In only one case in a hundred could an industry with a risk of 10.89 units have earned the 4.4 percent or less by chance factors alone. (5)

The Little Report also states:

that the measure of risk is based on a cross sectional concept. As such it eliminates many of the statistical difficulties encountered by previous researchers who used measures of risk based on a time - series concept. (6)

The risk measure used in the Little Report can be termed the spatial measure of risk.

As a measure of risk, the spatial measure has certain deficiencies, which like the return measure, reduce the validity of the results presented in the Little Report. In the first place, the reader should carefully consider the following example. Suppose the companies comprising an industry are earning a different return in any one year but over time each company continues to earn exactly the same rate of return. In this instance, prediction for a single company is relatively easy because there is no risk

in the variance of return for that single company. That is, the returns for each company are predictable and little uncertainty exists. However, the spatial measure of risk would not assign a zero value to this situation.

On the other hand, if all the companies in an industry in a given year earn exactly the same rate of return, but this industry rate varies from year to year the spatial measure of risk would assign a zero risk to this situation. Of course, the most probable situation is for companies in an industry to have rates of return which vary both spatially and over time. However, it is entirely possible using the spatial measure of risk for the risk to be judged the same in this situation just described as in the first instance (where the companies earn a different return in any one year but over time each company continues to earn exactly the same rate of return.) Obviously, the two situations do not represent the same amount of risk. The reason for this result, which may seem rather unusual at first glance, is that the spatial measure of risk considers only one dimension of risk. This measure used in the Little Report measures risk across the industry at a point in time but fails to adequately consider risk over time. In short, the spatial measure considers the peculiar and specific characteristics of the individual companies in an industry such as the quality of management expertise and the size of the company, etc. These are important considerations, however, an investor is also concerned with future external factors such as fiscal and monetary policy, business cycle fluctuations, price level changes, and shifts in demand, etc. In other words, the spatial measure concentrates on factors that make companies different at one point in time but additional consideration must also be given to future factors that are going to affect the entire industry as one unit.

A second criticism of the risk analysis presented in the Little Report

revolves around regressing the average rate of return upon the average risk for that industry. Frequently, conclusions are reached that the further the industry is above the regression line the more the industry is overearning. Likewise, the further below the regression line an industry is located, the more the industry is underearning. As stated earlier, the insurance industry was found to fall well below the fitted regression line and therefore the Little Report concluded that the insurance industry was underearning. However, the regression line was not a close fit and hence the tradeoff is not too accurate. Specifically, if repeated samples were taken, it is highly likely an entirely different regression line would result from each sample. To conclude that the insurance industry is underearning based on the regression analysis presented in the Little Report is incorrect.

Profitability in the Property and Liability Insurance Industry by  
Richard Norgaard and George Schick

This November 1969 study concluded that insurance company earnings are generally on a par or exceed those of non-insurance companies. The study also concluded that there was a suggestion of economies of scale both in terms of the size of the company and the degree of specialization within the insurance industry.

The Rate of Return Measure - For non-insurance companies Norgaard and Schick used the following rate of return measure:

$$ROM_{NPL}(t) = \frac{I(t) + D(t) + TMV(t) - TMV(t-1) + TS(t) + A(t)}{TMV(t-1)} \quad (5)$$

where ROM = the return on market value for non-insurance companies at time (t)

$$TMV = \frac{I(t) + MP(t)}{C(t)} MC(t)$$

MP = market value of preferred stock at time (t)

MC = market value of common stock at time (t)

I = interest on long term debt at time (t)

D = cash dividends paid - preferred and common at time (t)

C = the yield on long term debt

TS = treasury stock purchases

A = net debt amortized

In arriving at a rate of return measure for insurance companies Norgaard and Schick made a very important assumption. The assumption is that since the market value of a firms outstanding securities must equal the market value of its package of assets and since insurance company assets are carried at market, there should be a substantial similiarity between the market value of assets and the market value of their own shares. Therefore, for insurance companies Norgaard and Schick substitute the market value of assets for the market value of their own shares outstanding. Hence, for insurance companies the rate of return measure is the following:

$$\text{ROM}_{\text{PL}}(t) = \frac{D(t) + \text{TS}(t) + \text{TMV}(t) - \text{TMV}(t-1)}{\text{TMV}(t-1)} \quad (6)$$

where D = dividends to policyholders in case of mutual companies at time (t)

TMV = terminal market value of assets

In short, Norgaard and Schick compare the return on assets for the insurance industry against the return on the market value of outstanding securities for non-insurance companies.

There is one large weakness associated with the Norgaard and Schick study. As stated, they used the total market value of assets  $[\text{TMV}(t-1)]$  as the denominator or base for the return calculation for insurance companies. The numerator consisted of dividends, treasury stock purchases, plus the change in the value of total assets  $[\text{D}(t) + \text{TS}(t) + \Delta \text{TMV}(t).]$  Therefore, the rate of return can be rewritten as follows:

$$ROM_{INS}(t) = \frac{D(t) + TS(t) + \Delta TMV(t)}{TMV(t-1)} \quad (7)$$

The key to seeing the weakness in the Norgaard and Schick study stems from recognizing a basic accounting identity. This basic accounting identity is the following:

$$TMV(t) = L(t) + S(t) \quad (8)$$

where TMV = value of total assets at time t

L = value of total liabilities at time t

S = value of total net worth at time t

Furthermore:

$$\Delta TMV(t) = \Delta L(t) + \Delta S(t) \quad (9)$$

Now, by substituting the above  $[(9)]$  into the rate of return measure  $[(7)]$  the following is obtained:

$$ROM_{PL}(t) = \frac{D(t) + TS(t) + \Delta L(t) + \Delta S(t)}{TMV(t-1)} \quad (10)$$

Therefore, by using the Norgaard and Schick measure the rate of return can be increased by increasing the value of the liabilities  $[\Delta L(t)]$  over the period. Obviously, this is not correct and results in an overstatement in the rate of return for insurance companies relative to non-insurance companies because the measure used to calculate the return to the latter uses the change in the market value of securities outstanding, not the change in the value of total assets. The two are not the same for the market value of securities outstanding reflects many more factors in addition to the change in the value of total assets. For instance, perhaps a more important consideration is the composition of the change in the value of total assets, rather than the dollar value of the change itself.

To conclude, the Norgaard and Schick return measure for insurance companies is unsatisfactory and has an inherent upward bias built into the

numerator of the measure.

Property - Liability Profits: A Comparative Study by James S. Trieschmann

The study by Trieschmann reached the conclusion that the results of the Little Report do hold. Trieschmann also noted that there was some differences in the rates of return earned among insurance companies according to their size. The study stated that large companies are able to produce a more stable return but not a higher return. The small companies had the lowest risk adjusted rate of return but the study concluded that economies of scale do not necessarily exist in the general insurance industry.

The Rate of Return Measure - For the insurance industry, Trieschmann used the following rate of return measure:

$$r_{it} = \frac{UI + (.75)(UII) + RII + .50(.75)(E)(UP_t - UP_{t-1}) - T}{(PS_t + PS_{t-1}) / 2} \quad (11)$$

where  $r_{it}$  = rate of return for the  $i$ th firm in year  $t$

UI = statutory underwriting income

UII = unrealized investment income (capital gain tax rate = 25%)

RII = realized investment income

UP = unearned premium reserve at time  $t$

E = expense ratio (Trieschmann assumed that 25% of the expense associated with the unearned premium reserve was not yet incurred at the end of a given year.)

T = federal income taxes

PS = surplus at time  $t$

For the non-insurance industry, Trieschmann used the following return measure:

$$r_{it} = \frac{NI + NRI}{(E_{t-1} + E_t) / 2} \quad (12)$$

where NI = net income

NRI = non recurring income

E = shareholders equity at time t

The major criticism of the Trieschmann study centres on the denominator in the return measure. In particular, Trieschmann adds together the beginning and ending surplus amount for each year and divides this by two to arrive at what is termed the average surplus for the year. In most instances, this is not correct. It is argued here that the denominator should be simply the surplus amount at the beginning of the year. The reason for this is that income, represented by the numerator in the return measure, normally starts to accrue from the first day of the year and then continues throughout the year. By using an average, Trieschmann implies that this is not the case. For example, in periods of a growing surplus figure, and this has been the normal situation in the past, the use of an average will result in a larger denominator and hence a lower rate of return than by simply using the beginning surplus figure.

Of course, there are exceptions. Not all income will begin to arrive evenly from the beginning of the year and therefore these sources of income should legitimately be given separate treatment. Some examples include funds derived from a merger or consolidation, a transfer of funds from a parent to a subsidiary or vice versa, and funds derived from new financing. On the negative side, there is the periodic payment of dividends which usually occurs quarterly. The separate treatment referred to would require determining how long the particular funds were or were not available to the managers of the company during the year or the period under study. This would then form the foundation for developing a new base or denominator for each of these separate or nonrecurring items.

A second criticism of the Trieschmann study revolves around his imputed

tax (tax credit) to unrealized capital gains (losses) on financial asset holdings and also on imputing taxation to capitalized underwriting profit. Trieschmann taxed these unrealized capital gains (gave tax credit to unrealized capital losses) at the long term capital gains tax rate in the United States of 25%. Capitalized underwriting profit was taxed at the full marginal corporate rate of 50%.

Chapter 3 will show that some adjustment should in fact be made for tax in this area and that the rates given above are reasonable in the circumstances. However, the method used to incorporate this imputed taxation into the rate of return calculation results in some bias. Trieschmann, arguing the need for accounting consistency, subtracts the imputed tax from both the numerator and denominator of the rate of return ratio. The danger of making this arbitrary adjustment without considering the compound interest implications can be seen as follows:

Assuming any additional capital or dividends are equal to zero for ease of exposition, the above adjustment implies:

$$r_t = \frac{\Delta W_t - X_t}{W_{t-1} - X_t}$$

where  $r_t$  = rate of return earned over a basic unit of time (one year)

$W_t$  = net worth at the end of year  $t$  - or surplus at the end of year

$$\Delta W_t = W_t - W_{t-1}$$

$X_t$  = the imputed taxation in year  $t$

This can be rewritten as  $W_{t-1}(1 + r_t) = W_t - X_t + r_t X_t$ ; the term  $r_t X_t$ , which arises from subtracting  $X_t$  from the denominator is clearly redundant, and therefore results in an overstatement of the rate of return.

Finally, it should be mentioned that this study did attempt to measure the return to the owners of the company, the return on net worth, something

the other studies mentioned in this chapter did not do. Chapter 3 will explain that the return to the owners of the company is the only meaningful measure for insurance companies. However, the approach will be different from that used by Trieschmann.

The Risk Measure - Like the Little Report, Trieschmann used the spatial measure of risk. However, the temporal measure was also used in order to compare the two risk measures. The temporal measure is a measure of the variability in the rate of return over time within a single firm. Trieschmann concluded that the spatial method of adjusting for risk gives a lower risk adjusted rate of return than does the temporal measure. This study also stated that the temporal measure is more logical both because it allows one to look at individual companies and also that by using the study's sample this measure demonstrated a stronger risk-return relationship.

The same criticisms of the risk measures discussed earlier under the Little Report apply here to the Trieschmann study. Each risk measure considers only one dimension of risk. The temporal risk measure does not take account of the risk across the industry at one point in time. On the other hand, the spatial risk measure fails to adequately consider risk over time.

#### Studies on the Profitability of Canadian General Insurance Companies

#### Calculation of Rates of Return on Invested Capital of Canadian General Insurance Companies by Peat, Marwick, Mitchell and Co. and Price, Waterhouse and Co.

In contrast to the large number of studies written in the United States, this study is the only one that has been done in Canada. The period studied was from 1958 to 1965 and the data source for each year was the "Report of the

Superintendent of Insurance, Volume 1." In this report to the Insurance Bureau of Canada, the authors did not present any conclusions about the profitability of Canadian property and liability insurance companies. The report merely presents a large number of statutory accounting rates of return, all using different sources of income or a different base or denominator on which to calculate the percentage rate of return. Table 1 summarizes twenty-four rates of return, rates of return based on total equity and total assets employed. These two basis were further subdivided into year-end capital, annual average capital, year-end capital but not including gains from sale or maturity of investments, and finally annual average capital but not including gains from sale or maturity of investments. The income or numerator used for arriving at the percentage rates of return was similiarly severally based on net underwriting profit excluding investment income, total income including investment income before income taxes, and total income including investment income but after income taxes.

The results of this study (Table 1) generally show that the average return has not been high and that the average investment income accounts for a n appreciable return to the insurance industry as a whole. The average underwriting income is negative in all instances for the time period 1958 - 1965.

However, there are some criticisms that can be advanced about these calculated rates of return. One criticism is underlined in the following statement taken from the report itself:

adjustments have not been made in the  
calculations of equity for possible excesses  
in the reserves for unearned premiums and  
unsettled claims (7)

This study did recognize that the accounting information was presented on

Table 1

A Summary of the Results of the Peat,  
Marwick, Mitchell & Co. and Price, Waterhouse & Co Study

(eight year average rates of return)  
(1958 - 1965)

<u>INCOME BASIS</u>	<u>CAPITAL BASIS</u>	
	<u>TOTAL ASSETS EMPLOYED %</u>	<u>EQUITY ONLY %</u>
<u>BASED ON YEAR-END CAPITAL</u>		
net underwriting (loss), - excluding investment income	(0.92)	(2.62)
total income, including investment income - before income taxes	2.98	8.47
total income, including investment income - after income taxes	2.24	6.37
<u>BASED ON AVERAGE ANNUAL CAPITAL</u>		
net underwriting (loss), - excluding investment income	(0.97)	(2.72)
total income, including investment income - before income taxes	3.12	8.78
total income, including investment income - after income taxes	2.35	6.60
<u>BASED ON YEAR-END CAPITAL AND EXCLUDING GAINS FROM SALE OR MATURITY OF INVESTMENTS</u>		
net underwriting (loss), - excluding investment income	(0.92)	(2.62)
total income, including investment income - before income taxes	2.53	7.21
total income, including investment income - after income taxes	1.80	5.11
<u>BASED ON AVERAGE ANNUAL CAPITAL AND EXCLUDING GAINS FROM SALES OR MATURITY OF INVESTMENTS</u>		
net underwriting (loss), - excluding investment income	(0.97)	(2.72)

Table 1 (Continued)

A Summary of the Results of the Peat,  
Marwick, Mitchell & Co. and Price, Waterhouse & Co. Study

(eight year average rates of return)  
(1958 - 1965)

<u>INCOME BASIS</u>	<u>CAPITAL BASIS</u>	
	<u>TOTAL ASSETS</u> <u>EMPLOYED %</u>	<u>EQUITY</u> <u>ONLY %</u>
<u>BASED ON AVERAGE ANNUAL CAPITAL AND EXCLUDING</u>		
<u>GAINS FROM SALES OR MATURITY OF INVESTMENTS</u>		
total income, including investment income - before income taxes	2.66	7.48
total income, including investment income - after income taxes	1.88	5.30

statutory basis which stresses solvency and some adjustments were made on the liability side of the balance sheet for investment, general and contingency reserves and on the asset side for non-admitted assets. However, this was not carried far enough. Chapter 3 will explain that further adjustments are required in order to arrive at a meaningful rate of return.

It has already been shown that there are difficulties when using an average figure in the denominator of a percentage rate of return. The discussion in regard to the Trieschmann study on this area equally applies to this Canadian study.

To emphasize, and in conclusion, it is important to realize that to arrive at the real rate of return for general insurance companies requires a study to consider all sources of income and loss over a given time period, to adjust the statutory or reported accounting data where needed to reflect this, and to calculate a rate of return based on the return to the owners of the company. The purpose of Chapter 3 will be to present an accurate measurement procedure which will be used to arrive at the real rate of return earned by Canadian property and liability insurance companies from 1961 to 1970.

#### FOOTNOTES

1. Arthur D. Little Inc., "Prices and Profits in the Property and Liability Insurance Industry", Report to the American Insurance Association, November 1967, pp. 129
2. *ibid.*, p. D - 7.
3. Standard and Poors Corporation, The Compustat Information Manual, August 1966, pp. 5 - 12.

FOOTNOTES - (Continued)

4. J.D. Hammond and N. Shilling, "The Little Report on Prices and Profits in the Property and Liability Insurance Industry", *The Journal of Risk and Insurance*, Vol. XXXVII, No. 4, March 1969, pp 129 - 145.
5. Arthur D. Little Inc., *op. cit.*, p. 35.
6. *ibid.*, p. 35.
7. Peat, Marwick, Mitchell, & Co., and Price, Waterhouse & Co. "Calculation of Rates of Return on Invested Capital of Canadian General Insurance Companies", Report to the Insurance Bureau of Canada, January 1967, p. 2.

## Chapter 3

### An Approach to Calculating the Rate of Return in the General Insurance Industry

The objective of this chapter is to present a method or an approach that will arrive at the real rate of return earned in the property and liability insurance industry in Canada.

#### The Rate of Return on Net Worth

##### The Explanation for Using the Rate of Return on Net Worth

Chapter 2 has explained that previous studies have used different return measures and yet all of these studies have referred to the particular measure that was used the rate of return to the insurance industry. The Little Report used the return on investible funds measure. As explained, this was a meaningless measure because it measured neither the return on the total assets invested in the industry nor the return to the owners or shareholders of the various companies. Norgaard and Schick used the return on total assets. However, in the case of the insurance industry, the return on assets is also a rather meaningless measure because this industry does not represent the normal situation where all the assets are financed from equity or through normal debt sources such as bondholders, etc. A large percentage of the funds are provided by policyholders, not bondholders, who are purchasing a service and transferring risk to the insurance company. The main concern of the policyholder is the cost of the service to him and as a result he is not investing in the insurance company in the normal sense of the word.

The rate of return on net worth is the only meaningful measure for general insurance companies. The measure could be defined to include returns to long term suppliers of capital, but general insurance companies do not raise

funds via long term debt, therefore, leaving only shareholders as suppliers of long term capital. It is felt that only shareholders or owners of the various insurance companies are interested in the rate of return earned on their investment. Trieschmann recognized this and did attempt to calculate the rate of return on the investment by the owners. The approach that he used was through the income statement. This approach basically consisted of taking the final net income figure and adding back certain specified deductions that had been made in the statutory figures in order to arrive at an accurate numerator for the rate of return measure. This approach is not entirely valid for the general insurance industry because the published statements are stressing solvency at the expense of presenting a true and accurate profit picture. The income statement simply does not include all the information that is needed to arrive at the actual or true rate of return on net worth.

In order to take account of the various statutory requirements in the insurance industry, the balance sheet statement also becomes a source of information. The balance sheet must be analyzed in conjunction with the income statement and the statement of underwriting profit. This approach through the balance sheet makes use of the following fundamental accounting identity.

$$A_t = L_t + W_t \quad (1)$$

where  $A_t$  = assets at the end of year  $t$

$L_t$  = liabilities at the end of year  $t$

$W_t$  = net worth at the end of year  $t$

Rearranging terms:

$$A_t - L_t = W_t \quad (2)$$

Furthermore:

$$\Delta A_t - \Delta L_t = \Delta W_t \quad (3)$$

In words, equation (3) states that by examining the changes in the asset and liability accounts, the change in net worth can be determined.

However, because of legal statutory reporting requirements certain adjustments must be made to the asset and liability accounts before this change in net worth can be determined.

The remainder of this chapter will present a step by step approach to calculating the rate of return on net worth for Canadian property and liability insurance companies.

### The Steps Performed to Calculate the Return on Net Worth

Step 1 - Making the Required Adjustments to the Statutory Asset and Liability Accounts - The adjustments made to reported assets will be discussed first, followed by the adjustments made to the reported liabilities.

Assets - the statutory or legal reporting requirements in general, require companies to value assets conservatively. As mentioned earlier, the stress is on solvency and the accounting formats are designed to answer the question what would these assets realize in the market place if they had to be sold at short notice. To be specific, there are three areas where assets require readjustment. Two of these are explained below, the third will be discussed later in conjunction with the required liability adjustments.

#### 1. Investments

In most insurance companies, investments represent a large percentage of the total asset value of the company. The regulatory powers require these investments to be shown at book value. However, if the total market

value of such investments is less than the total book value, the lower market value amount must be used as the valuation for the investments. On the other hand, if the total market value of the investments is higher than the total book value, the lower book value not the market value must still be used. This principle, known as the lower of cost or market basis of valuation, has an inherent downward bias built into the statutory valuation of investments. In particular, all possible losses must be provided for, but any possible gains are not permitted until they are realized through sale.

In order to arrive at a fair valuation of investments, an adjustment must be made. This adjustment consists of adding to the statutory investment or total asset figure, an amount that represents the difference between the total market value and the total book value of investments when the market value is higher than the book value. This eliminates the inherent bias built into the statutory reporting requirements by treating gains and losses in the same manner.

## 2. Non-Admitted Assets

Legislation states that only assets which are readily realizable in cash may be included in the assets of an insurance company for statutory reporting requirements. These are known as admitted assets. Other assets are termed non-admitted assets. For example, any premium which is over ninety days due is considered a bad debt and therefore a non-admitted asset, irregardless of the net worth of the person or corporation who owes the premium. Office furniture is also considered a non-admitted asset. These two items are not excluded from the total asset figure of companies in other industries. At the most, a small percentage is set aside each year as an allowance for bad debts or as a provision for depreciation.

In a vast majority of cases these are sound assets and should be recognized

as such and included as admitted assets. As a result, an adjustment must be made to add the non-admitted assets to the statutory total admitted asset figure.

As explained, a third asset adjustment, cash and securities deposited by reinsurers will be discussed in conjunction with the liability adjustments which follow.

Liabilities - The adjustments that are required for liabilities are greater in number, and in the case of one adjustment more complex. The basic difficulty is that some of the statutory liabilities are in whole, or in part, not liabilities in the true sense of the word. That is, they do not represent a future obligation that must be paid out of company funds. Therefore, since the statutory reporting requirements stress solvency this means there is an overstatement of the actual liabilities. Four liability adjustments will now be discussed.

#### 1. Unearned Premium Reserve

There is a legal requirement that premiums received from policyholders are earned only as a function of time. For example, for a pre-paid three year policy, the company must evenly spread the revenue earned from that policy over the three years. That is, over each month  $1/36$  of the premium received is earned or  $1/3$  is earned each year. The premiums are usually paid in advance and the portion of the premium that is unearned must be set up in a liability account called the unearned premium reserve.

However, for the most part, the expenses associated with the premium received arise in the first month or so of the contract period. This is due to such factors as the prepayment of commissions to a broker or salesman, premium taxes that must be paid at the time of the writing of the insurance

contract, and general office expenses in typing up the insurance policy, etc. The legal requirement in regard to these expenses is that they must be written off against income in the time period that they occur. Unlike revenues, there can be no deferral of expenses. That is, the companies are not allowed to match expenses against the revenue earned over the life of the contract period. In short, revenue is being earned on a time accrued basis while expenses are incurred on a cash basis; there is no matching of revenues and expenses.

The necessity of showing a liability equal to the pro-rata unearned gross premium is not realistic. Granted, for a company with a stable volume of business and a stable expense ratio, this particular requirement makes little difference. However, the normal situation is for the volume of premiums received or written to be changing from year to year. Furthermore, during recent years, it would be expected that the trend would be towards a larger volume. Then the result of the statutory requirement will be to understate underwriting profit currently and to overstate it in those years when premium volume declines. However, it is likely for premium volume to continually grow from year to year because of inflationary increases and general expansion of business and hence there is a continual underestimation of underwriting profit. The extent of the understatement in underwriting profit depends upon the rate of expansion of business written. The faster the expansion rate the larger the amount of underestimation in underwriting profit.

Therefore, the unearned premium reserve is usually overstated and the underwriting profit understated; thus an adjustment is required. The best approach to this complex adjustment is to look at the United States situation first because the adjustment is simple and will lend understanding to the adjustment required in Canada. In the United States, the entire premium

received must be set up as a liability at the effective date of the insurance contract. Let the unearned premium reserve be designated by the symbol  $U_t$ . As more business is written,  $U_t$  decreases and the earned revenue is released over time. However, a major proportion of the expenses, designated by  $e_t$ , are incurred at the time the policy is written. It is reasonable to use the ratio of expenses, excluding subsequent adjustment expenses, to the net premiums written,  $p_t$  (both on a yearly basis) as an accurate approximation of the percentage of the premiums absorbed in expenses. To arrive at a proper matching of expenses and revenues, credit should be allowed in the unearned premium reserve for the expenses incurred in respect of these outstanding or unearned premiums. This can be done by subtracting a value  $U_t \left( \frac{e_t}{p_t} \right)$  from the statutory unearned premium reserve  $U_t$ ; this gives us a more accurate measure of the unearned premium reserve  $U_t \left( 1 - \frac{e_t}{p_t} \right)$ . The adjustment  $U_t \left( \frac{e_t}{p_t} \right)$  represents the amount of the overstatement in the unearned premium reserve. Furthermore, the amount of understatement in the actual underwriting profit in a typical year will be  $\Delta U_t \left( \frac{e_t}{p_t} \right)$ .

In Canada, the adjustment is more complicated because the insurance companies are allowed to take expense credit for 20 percent of the premiums received. Therefore, the unearned premium reserve at the end of the year is not 100 percent of the premiums outstanding, but 80 percent. In other words, the statutory authorities in Canada do recognize that a proportion of the expenses, are incurred at the time the insurance contract is written, but the maximum credit allowed is only 20 percent. An adjustment must still be made because it is highly unlikely that the actual expense ratio  $\frac{e_t}{p_t}$  is 20 percent. The first step in arriving at a correct figure for the unearned premium reserve is to gross up the Canadian statutory reserve

$U_t^c$  to represent an unearned premium reserve without any credit for expenses.

This first step is done as follows:

$U_t^c \left( \frac{100}{80} \right)$  ; that is, we now have a reported unearned premium reserve that is identical to the one in the United States. Taking this further, it can now easily be seen that the true unearned premium reserve can be represented by  $U_t^c \left( \frac{100}{80} \right) \left( 1 - \frac{e_t}{P_t} \right)$ . In other words, the adjustment is the difference between the statutory liability and the actual liability, i.e.  $U_t^c - U_t^c \left( \frac{100}{80} \right) \left( 1 - \frac{e_t}{P_t} \right)$ ; rearranging terms, the adjustment can be expressed as  $U_t^c \left( 1 - \frac{100}{80} \left( 1 - \frac{e_t}{P_t} \right) \right)$

The above formulation says that if the actual expenses associated with writing the premiums is greater than 20 percent, the adjustment  $U_t^c \left( 1 - \frac{100}{80} \left( 1 - \frac{e_t}{P_t} \right) \right)$  will be positive. This in turn, means that the actual unearned premium reserve  $U_t^c \left( \frac{100}{80} \right) \left( 1 - \frac{e_t}{P_t} \right)$  will be smaller than the statutory unearned premium reserve  $U_t^c$ .

On the other hand, if the actual expenses associated with writing the premiums is less than 20 percent, the adjustment will be negative. Therefore, the actual unearned premium reserve will be larger than the statutory unearned premium reserve. In this case, it is necessary to add the adjustment to the statutory reserve.

The third situation that could occur is if the actual expenses associated with writing the premiums is exactly equal to 20 percent. The adjustment  $U_t^c \left( 1 - \frac{100}{80} \left( 1 - \frac{e_t}{P_t} \right) \right)$  is now zero and so the actual unearned premium reserve is equal to the statutory unearned premium reserve. It can be appreciated that this third situation would only occur in exceptional circumstances and that an adjustment of some amount would normally be required.

However, the above adjustment is biased to some extent. In particular,

it shows that the companies with the highest expense ratios will get the most favourable treatment through the greatest downward adjustment of the unearned premium reserve. Obviously, it is inaccurate to reward these companies with the highest expense ratio, because a high expense ratio normally reflects inefficiency in their operations.

To bypass this undesirable bias that is built into the above adjustment, the following adjustment will be used for all companies in this study:

$$U \left( 1 - \frac{100}{80} \left( 1 - \frac{\bar{e}}{\bar{p}} \right) \right) \quad (4)$$

where  $\frac{\bar{e}}{\bar{p}}$  = the average expense ratio for the ten largest companies in each year as determined by their net premiums written.

The reason for making this modification in the required adjustment is two-fold. In the first place, since expenses vary with the composition of business, an average of the largest companies would provide a good representation of the aggregate expense ratio. Secondly, by taking the average expense ratio of large companies, given there are expense economies in the industry, one is more likely to obtain a better estimate of the "expense credit" that a reinsurer would offer if an insurance business was sold.

## 2. General, Investment, and Contingent Reserves

All three of these reserves are classified as liabilities under the statutory reporting requirements in Canada. However, they are not liabilities in the true sense of the word because in the majority of cases they do not represent a future payment obligation. They are merely an appropriation of surplus or of net worth made through the following illustrative journal entry:

Debit	Surplus	XXXX	
Credit		Investment or other reserve	XXXX

The adjustment that is required is to transfer the reserve amount from the liabilities to net worth or surplus. In particular, this requires subtracting the amount of the three reserves from the statutory total liability figure and then adding this same amount to the surplus or net worth.

### 3. Reserve for Reinsurance Ceded to Unregistered Companies

Reinsurance is the assumption by one insurance company of all or part of a risk undertaken by another insurance company. The company buying the reinsurance is called the ceding company or the reinsured and the company selling it is called the reinsurer. The important thing is that in performing this function the reinsurer assumes a part of the reinsureds responsibility to maintain the reserves that are required.

In particular, under laws in Canada, a Canadian insurance company must maintain reserves for business ceded to companies not registered under the Canadian and British Insurance Companies Act. That is, an account called a "reserve for reinsurance ceded to unregistered companies" must be set up as a liability. Once again, the liability is not a true liability. In nearly all cases, these unregistered companies are very secure companies operating overseas in countries like Germany or Switzerland or secondly in the United States. These unregistered companies are basically impossible to distinguish from those foreign companies that are registered to transact business in Canada. In short, the probability that a Canadian primary insurer would have to back up business reinsured or ceded to these unregistered companies is extremely low.

Therefore, an adjustment is required that consists of subtracting the "reserve for reinsurance ceded to unregistered companies" from the statutory total liability figure and then to add this same amount to the surplus or net worth.

Because of this legal requirement to maintain this reserve, Canadian

primary insurers will usually request that these unregistered companies deposit, in trust, some cash and liquid securities with the reinsurer (the Canadian primary insurer) in order that the Canadian company can earn a return on this cash and liquid securities. This return represents a return for forfeiting the use of their own funds that are tied up in the reinsurance reserves. An account called "cash and securities deposited by reinsurers" is entered on the Canadian company's balance sheet both as an asset and a liability for the same amount. In a strict sense, this is neither a true asset or liability. It is merely a book entry that is required because the Canadian company does have possession of the cash and securities, though of course, it does not own them. Though this asset-liability account has no effect on net worth, an adjustment will be made to subtract the amount of the cash and securities deposited by reinsurers from both the statutory total asset and total liability figure in order to arrive at a realistic value for assets and liabilities.

#### 4. Loss Reserve

A loss reserve is an appropriation of surplus or net worth set up to meet outstanding claims. These outstanding claims are defined to include anticipated claims as well as claims that have been incurred but not yet paid. The anticipated claims are subjective estimates usually based on the company's previous claim experience. The estimates are done by the managers of the respective companies.

In this area, the principal difficulty is that a precise method for determining how accurate the company's estimate of loss reserve requirements is has not yet been determined. The required reserve is defined as "one that will be adequate to cover for a reasonable period of time any losses and expenses larger than those predicted and any declines in asset values"<sup>(1)</sup>

When the loss reserves for a given calendar year are underestimated, there is a direct effect, incurred losses for that calendar year are reduced and the rate of return is increased. However, when the claims associated with these loss reserves are settled in later years, the effect of the past practice of underestimating loss reserves will be noticeable in terms of increases in incurred losses and a reduced rate of return. Of course, the opposite situation, an initial overvaluation of loss reserves required could occur with opposite subsequent effects taking place.

Could these errors in estimating loss reserve requirements cancel themselves out? John L. Anderson concluded :

"that the effects of setting up loss reserves in excess of true reserves for the liability appears to be relatively minor. Furthermore, this can be expected because considerable penalties or benefits to calendar year results and the rate of return can only arise if a company changes its reserve policy from conservative to less conservative or vice versa"<sup>(2)</sup>

It is the rate and the amount or extent of changes in the reserve policy that is the important element. Rafal J. Balcarek also concluded:

"that reserve margins have an insignificant effect on calendar year results is basically correct if one takes a significantly long period of time. However, if one confines himself to the more usual period of time like one calendar year the impact of reserve margins becomes more pronounced."<sup>(3)</sup>

With the previous discussion in mind, no adjustment will be made to the loss reserve estimate since this study covers a period of eleven consecutive years. This is based on the assumption that the period studied is long enough to cancel out any particular changes made in the overvaluation or undervaluation of loss reserves that would effect the rate of return calculation.

A Summary of Required Asset and Liability Adjustments - At this point of the

study, a table summary of the preceding discussion would be helpful to the reader before turning attention towards the actual rate of return calculation. Table II lists the adjustments made in this study.

## Table II

A Summary of the Asset and Liability  
Adjustments Required to Arrive at the Actual or Adjusted Net WorthAdjusted Assets

- = statutory assets as reported
- + the difference between the market value and book value of investments if the market value of these investments is greater than the book value
- + non-admitted assets
- cash and securities deposited by reinsurers

MINUSAdjusted Liabilities

- = statutory liabilities as reported
- unearned premium adjustment
- reserve for reinsurance ceded to unregistered companies
- cash and securities deposited by reinsurers
- investment, general, and contingent reserves

EQUALSAdjusted Net Worth

As the table shows, the purpose of these extensive adjustments to statutory assets and liabilities is to arrive at an adjusted net worth figure for each company and for each year of the study. These adjusted net worth figures will be used as the basis for the rate of return calculations to be discussed below in step 2.

Step 2 - Making the Actual Rate of Return Calculations <sup>(4)</sup> - Ignoring taxes and transfers or additions of capital for the present, the net profit earned over a period of a year can be written as:

$$W_t - W_{t-1} + d_t \quad (5)$$

$W_t$  = adjusted net worth at the end of year t (after taxes paid)

$d_t$  = dividends paid during year t

This dollar rate of return can be rewritten as:

$$\Delta W_t + d_t \quad (6)$$

where  $\Delta W_t = W_t - W_{t-1}$

This net profit can then be expressed in percentage terms by putting the equation (6) over the adjusted net worth at the beginning of the year.

That is:

$$\frac{\Delta W_t + d_t}{W_{t-1}} \quad (7)$$

Formula (7) represents the rate of return that is earned over a typical year t by one typical company. However, it may be more informative to rewrite (7) as  $W_{t-1} (1 + r_t) = W_t + d_t$  in order that one can see the compound interest assumption that underlies the use of a profit ratio;  $r_t$  is the rate of return earned over the year.

Allowing for Transfers or Additions of Capital - Equation (7) does not allow for an increase in net worth over the year from such things as new funds raised from shareholders. If new funds are in fact raised during the year, an allowance must be made for this because applying (7) would clearly overstate the return earned in the year. Specifically, it is highly unlikely that new capital would always be raised at the beginning of the year.

Therefore, if new capital,  $C_t$ , is raised  $(1 - \mathcal{B})^{\text{th}}$  way through year  $t$ , then formula (7) can be extended as follows:

$$\bar{w}_{t-1}(1 + r_t) + c_t(1 + r_t)^{\mathcal{B}t} = w_t + d_t \quad t = 1, 2, \dots, n$$

$$0 \leq \mathcal{B}_t \leq 1 \quad (8)$$

or

$$w_{t-1}(1 + r_t) + c_t(1 + \mathcal{B}_t r_t) = w_t + d_t \quad t = 1, 2, \dots, n$$

since  $(1 + r_t)^{\mathcal{B}t} = 1 + \mathcal{B}_t r_t$  if  $r_t^2$  and higher  
powers of  $r_t$  are ignored (9)

Therefore, the return ratio can be rewritten as:

$$\therefore r_t = \frac{\Delta w_t + d_t - c_t}{w_{t-1} + \mathcal{B}_t c_t} \quad t = 1, 2, \dots, n \quad (10)$$

In this study it is assumed that new capital was raised half-way through the year ( $\mathcal{B}_t = 1/2$ ). This assumption seems appropriate because information on the exact date of new capital raised by particular companies is not readily available. It is worth noting here that in none of the published studies discussed in Chapter 2 do their authors make an allowance for new additions of capital. This means that these authors are assuming that any new capital raised, is done so entirely at the end of the year, which is unlikely.

Allowing for Periodic Payments of Dividends - To this point in the analysis it has been assumed that dividends are paid at the end of the year or period of measure. Of course, this is the exception rather than the rule.

Normally, companies pay some dividends through the year. An allowance for this can be done in much the same manner as was done for situations where there were new additions of capital. The formula can be extended thus:

$$w_{t-1}(1 + r_t) + c_t(1 + \beta_t r_t) = w_t + d_t(1 + \alpha_t r_t) \quad t = 1, 2, \dots, n$$

$$0 \leq \alpha_t \leq 1 \quad (11)$$

Therefore, the return can be rewritten in ratio form as:

$$r_t = \frac{\Delta w_t + d_t - c_t}{w_{t-1} + \beta_t c_t - \alpha_t d_t} \quad t = 1, 2, \dots, n \quad (12)$$

In this study it was assumed that dividends were paid quarterly and in even amounts throughout the year. Therefore, it was possible to set  $\alpha_t = 5/8$  for all  $t$ . This represents the average time the funds, as represented by the dividends, were not available to the company during the year for earning additional profits.

Allowing for Taxation of Unrealized Gains - It was argued earlier that unrealized capital gains and losses should be included in the rate of return ratio. Therefore, it follows that some tax adjustment should be made to these unrealized capital gains and losses that are included in the ratio. Similarly, tax should also be imputed on the capitalized underwriting profit.

In arriving at a correct procedure, two points must be observed. Firstly, the double taxation of these gains must be kept to a minimum; and secondly, explicit recognition should be given to the deferred aspect of the tax, because to assume that it is paid at the end of each year tends

to understate the average rate of return over a period of time.

The procedure which meets these two conditions is to subtract the imputed tax on the total net unrealized gain earned over the entire period of measurement from the terminal adjusted net worth. Thus:

$$w_{t-1}(1 + r_t) + c_t(1 + \beta_t r_t) = d_t(1 + \alpha_t r_t) + w_t$$

$$t = 1, 2, \dots, n-1 \quad (13)$$

$$w_{n-1}(1 + r_n) + c_n(1 + \beta_n r_n) = d_n(1 + \alpha_n r_n) + w_n - x_n \quad (14)$$

where  $x_n$  = tax imputed to total net unrealized gains over the  
n years

The average rate of return over the n years is now obtained by taking the unweighted geometric mean of  $(1 + r_t)$  for  $t = 1, 2, \dots, n$ . The weighting procedure is the subject of the next step.

Step 3 - The Choice of the Weighting System<sup>(4)</sup> - To this point in the discussion the analysis has been limited to arriving at the correct rate of return on net worth for one company over one year. The final step in arriving at a meaningful return measure for the entire industry is to answer the question of what type of weighting procedure should be used in aggregating over companies and over time.

Weighting across companies to get an aggregate rate of return figure is one issue. If the rate of return for the industry or a subset of the industry is required, as is the case in this study, then a weighted arithmetic mean, weighted by net worth, is the correct procedure. All published studies to date have used a weighted average procedure and there seems to be little argument on this point.

The second issue relating to weighting procedure is what method should be used for measuring the average rate of return over a period of time. In

previous studies, most of the authors have not made explicit the weighting procedure they have used. In fact, it seems that a different procedure for weighting across time was used in each study.

To determine the correct weighting procedure, it is necessary to analyze the relationship between the annual rate of return ratios and the underlying compound interest rate assumption. The rate of return ratio, assuming the simplest case where dividends and new capital are zero is again the following:

$$r_t = \frac{\Delta w}{w_{t-1}} \quad (15)$$

$$\text{or } w_{t-1}(1 + r_t) = w_t \quad t = 1, 2, \dots, n \quad (16)$$

Substituting backwards for  $t = 1, 2, \dots, n$ , the following is obtained:

$$w_0(1 + r_1)(1 + r_2) \dots (1 + r_n) = w_n \quad (17)$$

It is easy to see the direct correspondence between this and  $w_0(1 + \bar{r})^n = w_n$ , where  $\bar{r}$  is the average annual compound rate. Similarly, it is clear from this that the correct weighting of the yearly rates of return is to take the unweighted geometric average of the yearly rates  $(\prod_{i=1}^n (1 + r_t))^{1/n} - 1$  as a close approximation to  $\bar{r}$ . This will always be feasible because  $(1 + r_t) > 0$ , even in the years in which there are large unrealized capital losses.

Finally, in the more general case:

$$w_{t-1}(1 + r_t) + c_t(1 + \beta_t r_t) = w_t + d_t(1 + \alpha_t r_t)$$

$$t = 1, 2, \dots, n \quad (18)$$

And substituting backwards for  $t = 1, 2, \dots, n$ , the following is obtained:

$$w_0(1 + r_1) (1 + r_2) \dots (1 + r_n) + \sum_{t=1}^n c_t(1 + \beta_t r_t) R_t$$

$$= w_n + \sum_{t=1}^n d_t(1 + \alpha_t r_t) R_t$$

$$\text{where } R_t = \prod_{i=t}^n (1 + r_i) \text{ for } t=1, 2, \dots, n-1 \quad (19)$$

and

$$R_n = 1$$

Again an unweighted geometric average of  $(1 + r_t)$  ( $t = 1, 2, \dots, n$ ) provides a good approximation to the average compound rate  $1 + \bar{r}$ :

$$w_0(1 + \bar{r})^n + \sum_{t=1}^n c_t(1 + \beta_t \bar{r}) (1 + \bar{r})^{n-t} = w_n + \sum_{t=1}^n d_t(1 + \alpha_t \bar{r}) (1 + \bar{r})^{n-t}$$

$$0 \leq \beta_t \leq 1 \quad c_t \geq 0$$

$$0 \leq \alpha_t \leq 1 \quad d_t \geq 0 \quad (20)$$

This completes the theoretical analysis on how the rate of return should be calculated for the Canadian general insurance industry. The next chapter will present a brief explanation of the empirical procedures performed in this study. Following this, Chapter 5 will present the actual results that were arrived at through using a random sample of insurance companies.

#### FOOTNOTES

1. State of New York Insurance Department, "Report of the Special Committee on Insurance Holding Companies", Report to the State of New York Insurance Department, February 1968.
2. John L. Anderson, "Financial Accounting Practices of Property and Liability Insurance Companies", The Journal of Risk and Insurance, Vol. XXXIX, No. 2, June 1972, pp. 201 - 213.

## FOOTNOTES - (Continued)

3. Rafal J. Balcarek, "The Effect of Loss Reserve Margins on Calendar Year Results", Proceedings of the Casualty Actuarial Society, Vol. LIII, 1966, pp. 1 - 16.
4. Gerald M. Dickinson "Calculating the Profitability of Non-Life Insurance Companies. Some Clarifying Comments", Working Paper.

## Chapter 4

### The Empirical Procedures

This chapter will present a brief description of the procedures that were performed in the empirical area of this study.

#### The Population Defined

The first step was to define the population of insurance companies from which a random sample could be selected. The defined population excluded the following:

1. Foreign companies that operate through branch offices in Canada, but the population includes subsidiaries of foreign companies.
2. Mutual insurance companies.
3. Companies that only offer insurance to specialist groups such as farmers, etc.
4. Companies that were not operating in Canada prior to 1955.

The last restriction was imposed to eliminate small companies which would be expected to be unprofitable at the outset of their operations. In other words, the population consisted of stock companies that were:

1. Canadian in origin or subsidiaries of foreign companies operating in Canada and
2. operating prior to 1955.

The addition of the constraint concerning specialist groups reduced the population to 52 companies.

#### The Population Stratified

The second empirical step that was performed was to stratify the population into segments. This was done on the basis of the total admitted assets in the reported statements in the last year of the study. The

population was divided into three groups: those companies which have total admitted assets greater than \$20,000,000; those with assets between \$10,000,000 and \$20,000,000; and those under \$10,000,000. These groups will be referred to in the study as large, medium and small companies respectively.

#### The Sample Selected

The next step was to select from each of these three groups, a sample of twelve companies using a random number table. Table XVI in the appendix is a listing of the thirty-six companies comprising the sample along with their reported total admitted assets in 1970.

#### The Data Collected

The data source for this study was the Report of the Superintendent of Insurance.<sup>(1)</sup> From this source all the data needed to calculate the adjusted rate of return on net worth for the ten years (1961 - 70) was collected.

#### The Adjusted Net Worth Calculated

The next step was to calculate the adjusted net worth amount for each company and for each of the eleven years. As explained in depth in Chapter 3, this step entailed making adjustments to the statutory reported assets and liabilities. Table XVII in the appendix is a presentation of the actual expense ratios used in the unearned premium reserve adjustment. In particular, the expense ratio for each year is an average of the ten largest companies as defined by the volume of the net premiums written.

#### The Rate of Return Calculated

The adjusted net worth figures form the basis for the calculation of

the rates of return as described in Chapter 3. Several rates of return on net worth were actually calculated:

1. The yearly return, before and after taxes, for each company in each year. The main purpose here was to show the effect of income taxes.

2. The yearly average return, before and after taxes, for each of the three size groups (small, medium and large) in each year. The same was done for the entire industry by using a weighted return. The main purpose here was to determine if any economies of scale exist in the insurance industry.

3. The unweighted geometric and arithmetic averages of the nine and ten year return, before and after taxes, for each of the three defined size groups. The nine year return was calculated when it was realized that the first year of the study was an exceptionally good year for the insurance industry. The main purpose here was to omit the first year's influence on the overall return in order to see what affect this year had on the average rate.

4. The unweighted geometric and arithmetic average of the nine and ten year return, before and after taxes for the entire industry. The determination of the weights used has been explained in Chapter 3.

#### The Sources of Return

The final step was to break down the rate of return on net worth after taxes into its three component parts in order to determine the relative importance of each component. These components can be viewed as the sources for the earned rate of return. The three sources of the return on net worth are the following:

1. Investment income which mainly consists of interest, dividends, and rents received less all investment expenses. This source of return is not difficult to determine because the amount is given in the Report of the Superintendent of Insurance. In this instance, no adjustment is made to the statutory figure.

2. The actual underwriting profit or loss which must be distinguished from the statutory underwriting profit or loss. As explained in Chapter 3, this involves accounting for the degree of overstatement in the unearned premium reserve.

An estimate was also made of the tax shield effect which companies derive from using an accounting method which understates underwriting profit (or exaggerates underwriting losses).

A common way of expressing underwriting results is as a percentage of net premiums earned. An analysis of incurred or actual and statutory underwriting profit or loss to net premiums earned was made to determine what effect there would be on this ratio by using the higher actual underwriting figure.

3. The residual or other income which mainly consists of gains or losses from changes in the difference between the cost and market value of investments. An imputed tax (tax credit) to unrealized capital gains (losses) was not calculated because there was no capital gains tax in Canada during the time period of this study.

The next chapter will present the detailed results of this study. Chapter 6, the final chapter, will present a summary of the results, present conclusions, and then suggests what extensions could be made to this study that would enable more research to be undertaken on the rate of return

earned in the general insurance industry.

FOOTNOTES

1. Superintendent of Insurance. "Report of the Superintendent of Insurance For Canada 1960 - 1970", Vols. I & II, Information Canada, Ottawa.

## Chapter 5

### The Results

The purpose of this chapter is to present the results and offer an analysis or an explanation for these results.

#### The Industry Rate of Return

##### The Industry Rate of Return Before Taxes

Under this heading the underlying purpose is to show what the insurance industry earned during the period, ignoring the effect of income taxes. The reader will remember that it was decided in Chapter 3 that the correct return measure is the unweighted geometric average of the yearly rates of return. It should also be remembered that these yearly rates of return are weighted arithmetic averages of the three size classes (large, medium, and small) using the adjusted net worth figure at the beginning of each year from each class as the basis for the weighting procedure. However, an unweighted arithmetic average over time will also be calculated in this study because it is the measure many of the other studies have used. This will permit this study to compare the results of this unweighted arithmetic average with the correct measure, the unweighted geometric average. Furthermore, a nine year rate of return was also calculated because of the high rate of return that occurred in the first year of the study (1961 - 22.75%). Table III presents the nine and ten year industry rate of return before taxes based on both an unweighted geometric and arithmetic average.

Table III

The Industry Rate of Return Before Taxes

	<u>1961 - 1970</u>	<u>1962 - 1970</u>
Unweighted Geometric Average	9.5%	7.5%
Unweighted Arithmetic Average	9.7%	8.3%

The averages in Table III are calculated from the weighted yearly returns given in Table IV.

Table IV

The Yearly Industry Rate of Return Before Taxes  
(weighted using the adjusted net worth figure)

1961 - 22.75%	1966 - 4.84%
1962 - 5.38%	1967 - 14.04%
1963 - 7.23%	1968 - 21.27%
1964 - 7.47%	1969 - 00.34%
1965 - 7.11%	1970 - 6.70%

In the author's opinion, Table III shows that the insurance industry as a unit has not earned a high before tax rate of return. On the contrary, the return could be considered to be relatively low in the majority of the years under study. Table IV shows that in only three years (1961, 1967, 1968) did the insurance industry earn what could be considered a high rate of return. The other years represent a mediocre return at best. In fact, one year (1969) resulted in an extremely low rate of return. Later in this chapter it will be shown that the three high rates of return can be attributed mainly to increases in the market value of investments held, though variation in the underwriting results also played some part.

Table III shows that by using a geometric average as opposed to an arithmetic average has a relatively minor effect in a downward direction on the rate of return. This is to be expected because by definition a geometric average is always less than its corresponding arithmetic average. However, by excluding the high return earned in 1961, the average rate of return by either averaging procedure is decreased significantly. This tends to stress the importance of the three high returns that were earned. Without these three good years, the average return would drop considerably below its already modest level.

#### The Industry Rate of Return After Taxes

The underlying purpose in this section is to show what effect the income taxes had on the rate of return earned by the general insurance industry. Table V is the unweighted geometric and arithmetic industry average after taxes, both calculated on a nine and ten year period.

Table V

The Industry Rate of Return After Taxes

	<u>1961 - 1970</u>	<u>1962 - 1970</u>
Unweighted Geometric Average	7.3%	5.5%
Unweighted Arithmetic Average	7.5%	6.2%

The averages in Table V are calculated from the weighted yearly returns given in Table VI.

Table VI

The Yearly Industry Rate of Return After Taxes  
( weighted using the adjusted net worth figure )

1961 - 18.71%	1966 - 1.50%
1962 - 3.96%	1967 - 8.48%
1963 - 6.89%	1968 -17.13%
1964 - 6.71%	1969 -00.80%
1965 - 5.34%	1970 - 4.18%

Table IV and Table VI taken as a unit show what effect income tax had on the weighted yearly rates of return. It appears that income taxes had a large effect on the before tax rate of return in only two years of the study. The 1966 return is now very low, similar to the return earned in 1969. The 1967 return is now no longer a high return because a large proportion of this return before tax has simply been reduced by income taxes.

Table VII presents the effect income taxes had on the rate of return earned over the period studied.

Table VII

The Average Tax Effect on the Industry  
Rate of Return

	+ <u>1961 - 1970</u>	* <u>% change</u>	+ <u>1962 - 1970</u>	* <u>% change</u>
Unweighted Geometric Average .....	2.2%	23%	2.0%	27%
Unweighted Arithmetic Average .....	2.2%	23%	2.1%	25%

where

+ = the industry rate of return before taxes minus the industry rate of return after taxes

\* = the industry rate of return before taxes minus the industry rate of return after taxes divided by the industry rate of return before taxes.

This table shows that on the average, insurance companies have tended to pay a relatively low rate of tax over this period either because their actual pre-taxable earnings have been low and/or the statutory reporting requirements have tended to understate true earnings. It is generally

expected to find large profitable companies approaching the fifty percent tax bracket.

Table V shows that by using the arithmetic average instead of the correct geometric average results in a relatively minor distortion of the industry return in an upward direction. This is expected because the same thing was found to occur with the before tax rate of return. However, the nine year rate of return was again significantly below the ten year rate of return. To emphasize, the two or three good years play a very large role in keeping the average return over this period from falling significantly below its present level.

Generally speaking, investors are concerned with the after tax rate of return, what accrues to them after the various governments have taken their share. Is the 7.3 percent geometric average a satisfactory rate of return? For the most part, this decision has to be left with the individual investor who has his own preferences. However, some thoughts can be put forward by looking at the promised federal bond yield over the same time period. This latter type of investment is usually considered to carry the lowest degree or amount of risk. On Canadian government bonds the long term promised yield has ranged from slightly below 4 percent in 1961 to almost 8 1/2 percent in 1968 to 1970. The return on provincial and municipal bonds, generally paralleled the federal long term bond yield, though the yield or return was 1 percent to 1 1/2 percent higher. The upper limit of the provincial or municipal bond yield therefore approaches the after tax rate of return earned in the insurance industry over the same time period. All this is saying is that if management of the insurance companies had put the funds that were under their control, as represented by the net worth, into government bonds, they may have earned a higher rate of

return. The author feels it is relatively safe to conclude that the average rate of return on net worth earned by the insurance industry over this time period was not excessive and indeed would be considered to be somewhat on the low side if compared to average returns earned by other industries.

The Industry Rate of Return Before Taxes by Industry Class or Size

Under this heading, the underlying purpose is to determine if there are any economies of scale operating in the general insurance industry. Specifically, are there any differences in the before tax rate of return earned by small, medium and large size companies? Table VIII is a presentation of the before tax unweighted geometric and arithmetic average return by size class, both on a nine and ten year basis.

Table VIII

The Industry Rate of Return Before Taxes by Industry Size

	<u>1961 - 1970</u>	<u>1962 - 1970</u>
<u>Small Companies</u>		
Unweighted Geometric Average .....	7.9%	6.1%
Unweighted Arithmetic Average .....	8.0%	6.9%
<u>Medium Companies</u>		
Unweighted Geometric Average .....	7.0%	5.0%
Unweighted Arithmetic Average .....	7.4%	5.9%
<u>Large Companies</u>		
Unweighted Geometric Average .....	9.7%	8.1%
Unweighted Arithmetic Average .....	10.8%	9.2%

As can be seen, on a before tax basis, the small size companies did earn a slightly higher rate of return than the medium size companies. It is quite possible that the small companies not wanting to spread themselves too thinly over many lines of insurance business, have as a result, concentrated o

one or two insurance lines that were either more profitable, or this has allowed such companies simply to maintain better control over the various expense of running an insurance business. The large companies have done appreciably better than either the small or medium size companies. This does suggest that there is some evidence of economies of scale in the general insurance industry. Large companies are able to take advantage of management expertise, labour specialization in performing a single function, and other various cost economies. In short, it seems that medium size companies suffer because they are either too large to be able to concentrate their effects on one or two profitable lines and or too small to take advantage of the cost economies and management expertise that the large companies possess.

#### The Industry Rate of Return After Taxes by Industry Class or Size

The purpose here is to see if income taxes have any effect on the differences in the rates of return earned by the three different size classes. Table IX is a presentation of the after tax unweighted geometric and arithmetic average return by size class, both on a nine and ten year basis.

Table IX

#### The Industry Rate of Return After Taxes by Industry Size

	<u>1961 - 1970</u>	<u>1962 - 1970</u>
<u>Small Companies</u>		
Unweighted Geometric Average .....	5.2%	3.7%
Unweighted Arithmetic Average .....	5.3%	4.2%
<u>Medium Companies</u>		
Unweighted Geometric Average .....	5.6%	3.7%
Unweighted Arithmetic Average .....	5.8%	4.3%
<u>Large Companies</u>		
Unweighted Geometric Average .....	8.0%	6.1%
Unweighted Arithmetic Average .....	8.2%	6.9%

Table X shows the effect income taxes had on the rate of return earned by the three different size classes.

Table X

The Average Tax Effect on the Industry Rate of Return  
by Size Class

	+ <u>1961 - 1970</u>	* <u>% change</u>	+ <u>1962 - 1970</u>	* <u>% change</u>
<u>Small Companies</u>				
Unweighted Geometric Average .....	2.7%	34%	2.4%	39%
Unweighted Arithmetic Average .....	2.7%	34%	2.7%	39%
<u>Medium Companies</u>				
Unweighted Geometric Average .....	2.4%	34%	1.3%	26%
Unweighted Arithmetic Average .....	2.6%	35%	1.6%	27%
<u>Large Companies</u>				
Unweighted Geometric Average .....	1.7%	18%	2.0%	25%
Unweighted Arithmetic Average .....	2.6%	25%	2.3%	25%

where + and \* are as defined under Table VII except that the size class percentage return is substituted for the industry percentage return.

Table IX and Table X do present some mixed or rather conflicting results but some information can still be extracted from these two tables. It seems that the small size companies paid a greater amount of income tax as a percentage of pre-tax earnings such that this reduced their after-tax rate of return to that of or even below that of the medium size companies. The large companies rate of return remained appreciably above that of either the small or medium size companies as these large companies seemingly paid less taxes as a percentage of their pre-tax earnings. One

reason for this may be that the large companies received a higher proportion of their return in the form of realized or unrealized capital gains which are not taxable. This statement will be supported later when the three sources of the rate of return are discussed. A second reason why large companies paid less taxes as a percentage of their pre-tax earnings stems from the possibility that the large companies grew at a faster rate than the small or medium size companies. This becomes a more distinct possibility when it is remembered that the companies were divided into the three size categories based on their total admitted assets at the end and not the beginning of the time period. Specifically, a faster growth rate would allow the large companies to capitalize more of their underwriting profits into the unearned premium reserve. Table XXIX in the appendix supports this viewpoint because it shows that it was for the large companies that the unearned premium adjustment had the largest effect on the statutory underwriting result. The unearned premium adjustment expressed as a percentage of the statutory underwriting profit is a good representation of the amount of hidden profit in the statutory underwriting results. The percentage was 26.4 percent for large companies and only 17.3 percent and 13.4 percent for the small and medium companies, respectively. The related tax shield effect (Table XXIX), which will be discussed later, presents the same picture because the tax shield is largest for the large companies.

#### Other Results Concerning the Rate of Return

The reader can refer to the various tables in this chapter or to the tables in the appendix in order to find support for the following remarks.

The Low and High Rates of Return Experienced by Each Size Class - The

medium-size companies experienced several years in which there was a negative rate of return. The large-size companies did not experience any negative rates of return while the small companies experienced such a return in only two years. Both the small and medium-size companies experienced several years in which they received a positive but low rate of return. Again, the large companies did appreciably better because a low return was experienced in only two years (1966 and 1969).

On the other hand, the small companies had a high rate of return in only two years (1961 and 1968) while the other two size classes received a relatively high return in three years (1961, 1967, and 1968). To emphasize, it seems that the large size companies did better because of their ability to use certain economies of scale and the possibility that they were not held back by the lack of management expertise or by other limited resources, etc. But it is also necessary to stress that these economies seemingly do not begin until a certain size of insurance operation is reached.

Dividends, Additional Capital, Income Taxes, and Adjusted Net Worth Divided by Size Class - Table XXI in the appendix presents the adjusted net worth amount for each company and the total amount for each size class along with the total yearly change in this figure. This will give the reader some idea of the difference in size composition of each of the three classes, as defined by the amount of the total adjusted net worth. It will also lend understanding to the weights that were used for each size class in arriving at the industry yearly rates of return.

Table XXII in the appendix shows the dividends paid by each company and the yearly total for each of the three size classes for the ten year period. It is interesting to note that the small size companies paid

none or very little in the way of dividends, while the companies that were classified as large almost always paid a dividend in each year. As would be expected, the medium-size companies fell somewhere inbetween.

Table XXIII shows that the opposite situation exists when examining the additional capital that is inserted into the industry during the period under study. Specifically, additional insertions of capital were a frequent occurrence in small and medium size companies, but this was rare for the large-size companies. A possible explanation is that large companies have sufficient retained earnings on which to draw from to finance their expansion. This may also be an explanation for their high dividend payout.

Table XXIV in the appendix gives the income taxes that were paid by each company with totals for each of the three size classes. It shows that large companies have had to pay some income tax in the majority of years. On the other hand, the small and medium size companies have not paid income taxes in several of the years of the study and have, in fact, enjoyed the benefits of a refund of income taxes through loss carry forward provisions. At the same time, it has already been explained why these taxes paid by the larger size companies represent a smaller percentage of their pre-tax earnings.

There are two or three reasons why the small and medium size companies did not pay tax in several of the years of the study. First, and the most obvious one is the negative rates of return or losses that were incurred in some of the years. This in turn, permitted the companies to take advantage of the loss carry forward provisions of the tax act where these losses could be offset against subsequent income. Many of the small or medium size companies might have been new companies that could take advantage

of higher capital cost allowances or other tax incentives. Finally and along the same lines, these medium or small size companies are probably not as diversified as the large companies and hence suffer more from business cycle fluctuations and trends in the economy. This of course means there will be years in which the returns will be low with subsequent low income tax liabilities.

This completes the discussion relating to the rate of return that was earned in the insurance industry and by the different groups of that industry, both on a before and after tax basis. Attention will now be turned towards a different viewpoint of the rate of return. Specifically, what are the sources for the rate of return that was earned or received?

#### The Sources for the Industry Rate of Return

There are basically three sources of return earned by general insurance companies. These are the following:

1. investment income
2. underwriting income or profit
3. residual or other income (mainly consisting of unrealized capital gains)

The remainder of this chapter will discuss these three income sources.

#### I. Investment Income

Investment income consists basically of interest, dividends, and rents received. Table XI is a summary of the investment income earned by the three size classes and by the entire industry. The figures in this table and for subsequent tables in this chapter are unweighted arithmetic averages for the three size groups and a weighted arithmetic average across the industry using the same weighting procedure as described earlier for the industry return figure.

Table XI

Investment Income  
Adjusted Net Worth

	<u>1961 - 1970</u>	<u>1962 - 1970</u>
Entire Industry	9.01%	9.12%
<u>Industry Segments or Classes</u>		
Small Companies	7.60%	7.70%
Medium Companies	10.00%	10.17%
Large Companies	9.08%	9.18%

Several things are worth noting here. The industry investment income for the ten year period (9.01%) accounts for almost the entire industry before tax rate of return while the nine year investment income (9.12%) does in fact account for more than the entire industry rate of return before taxes.

Table XI also shows somewhat surprisingly that the medium size companies earned a higher investment income than either the small or large size companies. What accounts for this situation is difficult to determine. It is quite possible that the smaller companies lacked management expertise in investment policy while the larger companies, though they had this management expertise, were just too large to keep abreast or to be in constant touch with all facets of their investment program. Expressing this in another way, the medium size companies have both adequate investment management and the ability to continually evaluate their investment policy. Furthermore, managers of small companies may be far more risk conscious than other managers, and therefore desire to remain in liquid investments, retain a shorter investment horizon, etc. all of which would contribute to a lower investment income. Finally, another possible reason why medium companies have higher investment income is because they have larger underwriting losses (see Table XII). Since underwriting losses can be offset

against investment income, medium companies may have put more in high coupon bonds; hence, resulting in higher investment income. On the other hand, the large and small companies with better underwriting profits, may go for discount bonds; hence, resulting in lower investment income but some capital gains on maturity, which are non-taxable.

Table XXV in the appendix presents as a percentage, the overall average and yearly investment income for each of the three size classes. The same table also shows the overall average and yearly weighted arithmetic average for the entire industry. Table XXVI in the appendix expresses basically the same thing but in dollar amounts for each company along with totals for each of the three size groups. These tables show that the investment income earned increased rather slowly but steadily over the time period. There were no wide fluctuations from year to year in the income received. This would be expected as the companies hold a large volume of long term bonds.

## II Underwriting Income

The second source of the rate of return for general insurance companies is underwriting income. Table XXVII in the appendix presents as a percentage, the overall average and the yearly underwriting income for each of the three size groupings. The same table also shows the overall average and the yearly weighted arithmetic average for the entire industry.

Table XXVIII in the appendix shows the amount of overstatement in the unearned premium reserve, or in other words, the degree of understatement in the true or incurred underwriting profit. The yearly change in this figure is then calculated in order to arrive at the required adjustment which is then added to the statutory underwriting figure in order to arrive

at the incurred or actual underwriting income for each size class. The information presented in these two tables is summarized in Table XII.

Table XII

	<u>Adjusted Underwriting Profit</u> <u>Adjusted Net Worth</u>	
	<u>1961 - 1970</u>	<u>1962 - 1970</u>
Entire Industry	0.07%	-0.49%
<u>Industry Segments or Classes</u>		
Small Companies	0.36%	0.04%
Medium Companies	-3.53%	-3.75%
Large Companies	0.91%	0.39%

As can be seen, over the ten year period, the small and large size companies experienced a small underwriting profit. Over this same period the industry profit was similiarly small. However, over the nine year period the industry suffered a small loss, though both the small and large size companies still experienced a small profit. The surprising result about Table XII is that the medium companies did appreciably worse with an underwriting loss of 3 1/2 percent to 3 3/4 percent on their net worth. This loss is sufficient to offset the higher investment income gains discussed earlier so that the overall return to the medium companies is smaller than that for the small and large companies. As mentioned earlier, the underwriting and investment returns may be related because the underwriting result may be a determining factor in deciding to invest in high coupon or low coupon discount bonds. This also tends to confirm the earlier hypothesis that these medium size companies are not large enough to take advantage of any economies of scale like the large companies can nor are they forced like the small companies because of limited resources to specialize in only a small number of insurance lines and hence to gain

expertise in these insurance lines.

Table XXXVII in the appendix also shows that the underwriting result varies from year to year. There may be a good underwriting profit in one year only to be cancelled out by a large underwriting loss in the following year. This is in contrast to the investment income source which was fairly constant over the time period studied. Specifically, relatively poor underwriting years (expressed as a percentage of net worth) occurred in the following years:

- a) small companies - 1962, 1963, 1964, 1965, 1969, 1970
- b) medium companies - 1961, 1962, 1963, 1964, 1965, 1969, 1970
- c) large companies - 1962, 1963, 1964, 1965, 1969, 1970

It is interesting to note that from the above there is only one year (1961) that was not listed as a poor underwriting year for all three size classes.

On the other hand, relatively good underwriting years are few in number. They are the following:

- a) small companies - 1966, 1967, 1968
- b) medium companies - 1966, 1967
- c) large companies - 1961, 1966, 1967

The Tax Shield Effect - The difference between underwriting profits calculated on a statutory basis and on an actual or incurred basis should also be taxed as the difference represents profits capitalized by statutory accounting procedures when premiums are growing. Such gains would be subject to tax when realized. The amount of the tax shield effect is the difference between the tax that was actually paid and the tax that would be paid if the understatement in the underwriting result was accounted for in making the tax calculation. The reader must remember that the rate of change in the adjusted unearned premium reserve represents the

difference between the statutory and the incurred underwriting result. In this study a 50 percent tax rate is assumed; therefore the amount of the tax shield is one-half of the difference referred to in the preceding sentence. Normally, the tax shield effect would be a positive amount because the unearned premium reserve is usually overstated due to growing premiums, inflation, etc. The amount of the tax shield effect can be expressed in percentage terms by dividing the amount of the tax shield by the tax that was actually paid. The following results were obtained:

- a) small companies: 12.1%
- b) medium companies: 15.4%
- c) large companies: 18.5%

The above ratio shows that if account was taken of the underestimation in underwriting profit stemming from the overstatement of the unearned premium reserve, the income taxes would be appreciably higher than what they are under statutory reporting requirements. The differences in the ratios for the three size companies shows that the tax shield effect is largest for the large companies, then the medium companies, and finally the small companies. This is as expected when it is remembered that the tax shield effect can be attributed to the faster rate of growth of the large companies as represented by the faster rate of growth in their premiums received and in the rate of expansion in the unearned premium reserve.

What effect did the tax shield have on the rate of return on net worth? Table XIII shows the average tax shield effect on the average after tax rate of return on net worth. The averages used are ten year arithmetic averages.

Table XIII

The Underwriting Tax Shield Effect  
on the Rate of Return on Net Worth

(10 year arithmetic averages)

	(1)	(2)	(1) - (2)
	After Tax Return (Using Actual Tax Paid) Adjusted Net Worth	Tax Shield Adjusted Net Worth	After Tax Return (if tax had been based on adjusted earnings) Adjusted Net Worth
*S.C.	5.3%	00.34%	4.96%
*M.C.	5.8%	00.42%	5.38%
*L.C.	8.2%	00.50%	7.70%

\* = Small Companies - Medium Companies - Large Companies

Though the tax shield effect did have an effect on the amount of taxes paid, Table XIII shows that it does not have much effect on the average after tax rate of return on net worth. The amount of the tax shield expressed as a percentage of net worth ranged from 1/3 of 1 percent to 1/2 of 1 percent. Expressing the tax shield effect in a different way, that is, as a percentage of the calculated after-tax return, the effect is only about 6 or 7 percent.

Underwriting Profit/Net Premiums Earned - Frequently, in the insurance literature, the underwriting result is expressed as a percentage of the net premiums earned and not as a percentage of net worth. Table XIV expresses both the statutory and incurred underwriting profit as a percentage of the net premiums earned. This is done on a weighted basis for the industry and on an unweighted basis for each of the three size classes. The averages are arithmetic averages. The underlying purpose of Table XIV is to show what effect the adjustment to the statutory underwriting result has on this commonly quoted ratio as representing the profitability of insurance

operations.

Table XIV

Statutory and Incurred Underwriting Profit  
Related to Net Premiums Earned

	<u>1961 - 1970</u>	<u>1962 - 1970</u>
<u>Industry</u>		
Statutory	-01.03%	-01.40%
Incurred	-00.29%	-00.29%
<u>Small Companies</u>		
Statutory	-00.71%	-01.02%
Incurred	00.01%	-00.40%
<u>Medium Companies</u>		
Statutory	-03.37%	-03.60%
Incurred	-02.86%	-03.05%
<u>Large Companies</u>		
Statutory	-00.25%	-00.67%
Incurred	00.57%	00.12%

As can be seen, the effect of the adjustment expressed as a percentage of net premiums earned is small, generally less than 1 percent. This can probably be attributed to the fact that even though the adjustment is large in relation to the tax actually paid or to the statutory underwriting profit the net premiums earned denominator is much larger; the total premiums range from 156 to 380 million over the period. As a result, any adjustments expressed in this way has a small effect on the final underwriting result. This would also be expected if such a comparison was based on the adjusted net worth at the beginning of each year. The reader will remember that this study expressed the incurred or actual underwriting profit as a percentage of the adjusted net worth at the beginning of the year (see Table XII).

### III Residual or Other Income

This residual source of the rate of return mainly consists of unrealized capital gains. Failure to include these gains as a profit source tends to underestimate the rate of return of insurance companies. Of course, if unrealized capital gains are considered, consistency demands that unrealized capital losses must also be included.

Table XV expresses the residual income as a percentage of the adjusted net worth. Once again, the averages used are arithmetic averages, weighted in the case of the industry source.

Table XV

Residual or Other Income  
Adjusted Net Worth

	<u>1961 - 1970</u>	<u>1962 - 1970</u>
Entire Industry	00.62%	-00.33%
<u>Industry Segments or Classes</u>		
Small Companies	00.04%	-00.84%
Medium Companies	00.93%	-00.52%
Large Companies	00.81%	-00.39%

As can be seen, the income attributable to this source was relatively significant in most instances. The above source for the 10 year period represents about 10 percent of the total return over the period. The small size companies did not do as well as either the medium or large size companies.

Writers who object to the inclusion of unrealized capital gains and losses do so not because of the results given above but because of the volatility of financial asset prices from year to year. Table XXXII in the appendix does indeed illustrate the fluctuation in this source of

return from year to year. And it is for this reason that insurance company profitability can only be measured meaningfully over a fairly long time span and even then attention must be focused on the economic conditions present at the terminal dates used in the calculation. For example, note the differences in the income above by the delation of 1961, a year in which the market prices of investments held rose sharply.

The Tax Shield Effect - When calculating net profits, there was the question of whether these unrealized profits and losses should be taxed. It was pointed out in Chapter 3, that it is more accurate to impute some taxation to these profits with offsetting tax credits for losses, since such gains and losses would be subject to tax when realized. Specifically, a capital gains tax would help to reduce any capital loss because a portion of that loss could be deducted from other income. Of course, it would also reduce a capital gain by the amount of the tax.

As was stated in Chapter 4, an adjustment for the tax shield effect associated with unrealized capital gains and losses was not made in this study because insurance companies in Canada did not pay a capital gains tax in the period under study, (1961 - 1970). Finally, it is interesting to note that if a capital gains tax was accounted for; whether it would or would not have an effect on the income from this source (which represents 10% of the rate of return over the 10 year period) depends on what the capital gains tax rate would have been.

The last chapter, Chapter 6, will present a summary of these results and give some conclusions relating to the profits earned by the Canadian general insurance industry.

## Chapter 6

### Conclusions

This study, which is the first study of any sophistication in Canada, has examined the rates of return earned by a random sample of property and liability insurance companies. The rates of return were calculated for a ten year period, 1961 - 1970. This study reached the following main conclusions:

1. The rate of return earned on net worth is the only meaningful measure for insurance companies. Many of the previous studies have not recognized this. However, certain adjustments must be made to the statutory asset and liability accounts in order to arrive at the true rate of return earned on net worth. These adjustments usually involve correcting for understatements in asset accounts and overstatements in liability accounts.

2. Many of the previous studies have examined only the income statement in calculating a rate of return. Given the data available and the statutory reporting requirements, the balance sheet must also be analyzed in addition to the income statement.

3. The rate of return earned during this period was not considered to be excessive though the return did fluctuate widely from year to year. Furthermore, on the average, income tax accounted for only about 25 percent of the before tax rate of return.

4. The large-size companies, as measured by admitted asset size in 1970, did better than medium or small size companies both on a before and after tax basis. It was concluded that after a certain volume of insurance business is reached, some economies of scale may exist. On a before tax

basis, the small companies earned a slightly higher rate of return than the medium size companies did. It was suggested that this might reflect the limited resource capability of small insurers, thus forcing them into choosing fewer but more profitable insurance lines.

5. In most years, the small companies did not pay any dividend. On the other hand, the large companies almost always paid a dividend. The medium companies fell somewhere in between. Any additional capital that was raised during the period of study was raised by the small and medium sized companies. Large companies tended to finance their higher rate of expansion through retained earnings. This might imply that the large companies were the better managed companies because they grew at a faster rate than the smaller companies without the need for external financing.

6. The rate of return before taxes comes from three generally defined sources; investment (interest, dividends, and rents), underwriting, and other or residual income (mainly consisting of unrealized capital gains).

7. The investment income accounted for most of the industry rate of return before taxes. In terms of this source of return, the medium size companies had a higher investment income on net worth than the larger companies and appreciably better than the smaller companies. This is likely due to the type of bond purchased. The medium size companies purchased high coupon bonds because their underwriting losses could be applied against the investment income received, in order to reduce the amount of income taxes payable. On the other hand, the large and small companies purchased discount bonds in order to receive a non-taxable gain at maturity because they did not have a large amount of underwriting losses that could be offset against

investment income. In all instances, the income earned from this source increased slowly but rather steadily throughout the period.

8. In terms of the underwriting income or profit, the medium size companies did appreciably worse than either of the other two size groups. This lower underwriting result (loss) suffered by the medium size companies was large enough to offset their higher investment income discussed above. The tax shield effect associated with the underwriting adjustment involving the overstatement in the unearned premium reserve had little effect on increasing the rate of return although it did have an effect on the taxes actually paid.

9. Income from other sources, mainly consisting of unrealized capital gains and/or losses, accounted for almost 10 percent of the rate of return earned over the period. A tax shield associated with unrealized capital gains and losses was not calculated because during the period of the study there was no capital gains tax in effect in Canada.

The reader can refer to Table XXXII in the appendix for a detailed summary of the results of the study.

This study has made several adjustments to overcome some of the deficiencies of the conservative accounting system used by the property and liability insurance companies. For example, this study included all unrealized capital gains and losses into the rate of return measure. An adjustment was made to the unearned premium reserve to more accurately reflect the amount of the liability. However, even with an allowance for such adjustments, the property and liability insurance industry was found to be earning a reasonable but not monopoly profits. At the same time, this does not necessarily mean that companies are operating in a perfect market and therefore because of this reasonable rate, are necessarily on

average efficient.

We have also shown that there are some economies of scale in the non-life insurance industry. Questions which demand further attention are at what level of operation do economies of scale exist and how great are these economies? If significant economies do exist, this may suggest that legislation should be introduced to encourage a greater degree of concentration within the industry in order to reap these economies. This in turn might result in some lowering of the premium rates paid by policyholders.

A second area ripe for investigation relates to the present investment regulation. In particular, some companies appear to be holding the statutory maximum of 25 percent of their assets in common stock and this would seem to suggest that these companies may prefer to hold more of such assets. An easing of these investment restrictions may permit companies to earn higher profits by taking more risk and this also may help to keep prices down.

## BIBLIOGRAPHY

## A. BOOKS

- Li, Jerome C.R., Numerical Mathematics, Edwards Brothers, Inc., Ann Arbor, Michigan, 1966
- Long, John D. and Davis W. Gregg, Property and Liability Insurance Handbook, Richard D. Irwin, Inc., Homewood, Ill., 1965

## B. ARTICLES

- Anderson, Dan Robert, "Effects of Under and Overvaluations in Loss Reserves", The Journal of Risk and Insurance, Vol. XXXVIII, No. 4, December 1971
- Anderson, John L., "Financial Accounting Practices of Property and Liability Insurance Companies", The Journal of Risk and Insurance, Vol. XXXIX, No. 2, June 1972
- Bailey, Robert A., "A Review of the Little Report on Rates of Return in the Property and Liability Insurance Industry", The Proceedings of the Casualty Actuarial Society, Vol. LVI, 1969
- Balcarek, Rafal J., "Effect of Loss Reserve Margins on Calendar Year Results", The Proceedings of the Casualty Actuarial Society, Vol. LIII, 1966
- Dickinson, Gerald M., "The Rate of Return Earned by U.K. Insurance Companies in the U.S." The Journal of the Chartered Insurance Institute, 1973
- Dickinson, Gerald M., "Calculating the Profitability of Non-Life Insurance Companies: Some Clarifying Comments", Working Paper
- Ferrari, J.R., "The Relationship of Underwriting, Investments Leverage, and Exposure to Total Return on Owners' Equity", The Proceedings of the Casualty Actuarial Society, Vol. LV, 1968
- Forbes, Stephen W., "Growth Performances of Non-Life Insurance Companies 1955 - 66", The Journal of Risk and Insurance, Vol. XXXVII, No. 3, September 1970
- Forbes, Stephen W., "Rates of Return in the Non-Life Insurance Industry", The Journal of Risk and Insurance, Vol. XXXVII, No. 3, October 1970
- Goddard, Russell P., "Total Earnings From Insurance Operations - The Investors Viewpoint", The Proceedings of the Casualty Actuarial Society, Vol. LV, 1968

## B. ARTICLES

- Hammond, J.D., E.R. Melander, and N. Shilling, "Economies of Scale in the Property and Liability Insurance Industry", The Journal of Risk and Insurance, Vol. XXXVIII, No. 2, June 1971
- Hammond, J.D. and N. Shilling, "The Little Report on Prices and Profits in the Property and Liability Insurance Industry", The Journal of Risk and Insurance, Vol. XXXVI, No. 1, March 1969
- Hammond, J.D. and N. Shilling, "Some Empirical Implications of the Return on Investible Funds Measure of Profitability", The Journal of Risk and Insurance, Vol. XXXVII, No. 4, December 1970
- Hofflander, Alfred E. and R. Hal Mason, "Prices and Profits in the Property and Liability Insurance Industry", The Journal of Risk and Insurance, Vol XXXV, No. 2, June 1968
- Long, John D., "The Property - Liability Insurance Industry", Business Horizons, Vol. XI, No. 1, February 1968
- Long, John D., "Comments on the Plotkin Paper", The Journal of Risk and Insurance, Vol. XXXVI, No. 3, June 1969
- Norgaard, Richard and George Schick, "Profitability in the Property and Liability Insurance Industry", The Journal of Risk and Insurance, Vol. XXXVII, No. 4, December 1970
- Plotkin, Irving H., "Rates of Return in the Property and Liability Insurance Industry: A Comparative Analysis", The Journal of Risk and Insurance, Vol. XXXVI, No. 3, June 1969
- Trieschmann, James S., "Property - Liability Profits: A Comparative Study", The Journal of Risk and Insurance, Vol. XXXVIII, No. 3, September 1971

## C. PUBLICATIONS BY GOVERNMENT AND OTHER ORGANIZATIONS

- Arthur D. Little Inc., "Prices and Profits in the Property and Liability Insurance Industry", Report to the American Insurance Association, November 1967
- Arthur D. Little Inc., "Rates of Return in the Property and Liability Insurance Industry 1955 - 67", Report to the National Association of Independent Insurers, June 1969
- Canada, Canadian and British Insurance Companies Act.  
R.S.C., 1970, C.I - 15
- Canada. Superintendent of Insurance. Report of the Superintendent of Insurance for Canada, 3 Vols, 1960 - 70

## C. PUBLICATIONS BY GOVERNMENT AND OTHER ORGANIZATIONS

Peat, Marwick, Mitchell and Co. and Price Waterhouse and Co.  
Calculation of Rates of Return on Invested Capital of Canadian General Insurance Companies. Report to the Insurance Bureau of Canada, January 1967

Standard and Poors Corporation. The Compustat Information Manual. Standard and Poors Corporation, New York, N.Y. August 1966

State of New York Insurance Department. Report of the Special Committee on Insurance Holding Companies. Report to the State of New York Insurance Department, February 1968

## APPENDIX

Table XVI

## The Random Sample of Canadian General

## Insurance Companies Used in this Study

<u>COMPANY NAME</u>	<u>TOTAL ADMITTED ASSETS</u>
<u>LARGE COMPANIES</u>	
	<u>GREATER THAN \$20,000,000</u>
1. Western Assurance	\$70,041,000
2. British America	55,473,000
3. Canadian Indemnity	45,783,000
4. Dominion Insurance	38,886,000
5. General Accident of Canada	37,224,000
6. Dominion of Canada General	36,141,000
7. Guardian Insurance of Canada	27,954,000
8. Canadian Reinsurance	26,520,000
9. Canadian General	25,725,000
10. Wellington Fire	24,905,000
11. Canadian Surety	23,749,000
12. Halifax	21,497,000
<u>MEDIUM COMPANIES</u>	
	<u>\$10,000,000 - \$20,000,000</u>
1. Canadian Accident & Fire	\$17,552,000
2. London & Midland	17,247,000
3. Acadia	16,836,000
4. Federal Fire	15,894,000
5. Consolidated Fire	14,215,000
6. General Security of Canada	14,193,000
7. Quebec	13,166,000
8. Globe Indemnity	12,926,000
9. Merit	12,407,000
10. Guarantee Co. of North America	11,645,000
11. Mercantile & General of Canada	11,189,000
12. Hudson Bay	11,317,000
<u>SMALL COMPANIES</u>	
	<u>LESS THAN \$10,000,000</u>
1. Stanstead & Sherbrooke	\$8,155,000
2. Missisquoi & Rouville	8,051,000
3. Canadian Home	8,010,000
4. Fidelity Insurance	6,945,000
5. Great Eastern	6,903,000
6. Fire of Canada	6,557,000
7. Canadian Health & Accident	6,274,000
8. Federation	6,189,000
9. Scottish Canadian	5,353,000
10. Reliance of Canada	4,968,000
11. Commonwealth	4,906,000
12. London - Canada	4,693,000

Table XVII\*

The Expense Ratio Used for  
the Unearned Premium Adjustment

(1) <u>YEAR</u>	(2) <u>EXPENSES**</u>	(3) <u>NET PREMIUMS WRITTEN</u>	(4) <u>EXPENSE RATIO</u>	<u>(2)</u> <u>(3)</u>
	\$	\$	%	
1960	38,769,384	103,342,279	37	
1961	39,159,740	102,622,067	38	
1962	41,690,753	105,435,439	39	
1963	43,467,600	111,967,724	39	
1964	46,476,054	123,277,978	38	
1965	50,974,992	139,280,688	37	
1966	56,619,185	158,171,369	36	
1967	66,104,067	181,079,873	37	
1968	68,981,510	183,514,885	38	
1969	77,148,705	207,832,583	37	
1970	84,124,803	231,727,504	36	

\* - the amounts presented here are for the ten largest companies as determined by the volume of net premiums written in each year

\*\* - expenses include salaries, commission and brokerage, premium taxes and other expenses but excluding adjustment expenses

Table XVIII

The Industry Rate of Return Before Taxes  
(on adjusted net worth)

		<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
<u>Small Companies</u>						
Weight	<u>Net Worth - Small Companies</u>	<u>18,455,492</u>	<u>20,751,201</u>	<u>19,924,737</u>	<u>20,774,439</u>	<u>22,757,390</u>
	Net Worth - Industry	133,005,182	155,958,525	160,607,224	169,073,653	186,532,144
X						
	Yearly Rate of Return %	17.86	-00.98	07.42	09.06	05.38
	Weighted Rate of Return %	02.48	-00.13	00.92	01.11	00.66
<u>Medium Companies</u>						
Weight	<u>Net Worth - Medium Companies</u>	<u>27,175,828</u>	<u>31,929,806</u>	<u>31,101,550</u>	<u>31,795,400</u>	<u>36,967,570</u>
	Net Worth - Industry	133,005,182	155,958,525	160,607,224	169,073,653	186,532,144
X						
	Yearly Rate of Return %	20.80	-02.54	01.44	00.12	08.76
	Weighted Rate of Return %	04.25	-00.52	00.28	00.02	01.73
<u>Large Companies</u>						
Weight	<u>Net Worth - Large Companies</u>	<u>87,373,862</u>	<u>103,277,518</u>	<u>109,580,937</u>	<u>116,503,814</u>	<u>126,768,793</u>
	Net Worth - Industry	133,005,182	155,958,525	160,607,224	169,073,653	186,532,144
X						
	Yearly Rate of Return %	24.38	09.11	08.84	09.20	06.94
	Weighted Rate of Return	16.02	06.03	06.03	06.34	04.72

Table XVIII (Continued)

## The Industry Rate of Return Before Taxes

(on adjusted net worth)

		<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
<u>Small Companies</u>						
eight	<u>Net Worth - Small Companies</u>	<u>25,377,946</u>	<u>25,200,742</u>	<u>27,281,631</u>	<u>31,536,273</u>	<u>31,415,915</u>
	Net Worth - Industry	198,724,823	197,489,060	219,036,029	255,110,827	248,887,942
	X					
	Yearly Rate of Return %	06.44	04.09	19.97	01.90	09.40
=	Weighted Rate of Return %	00.81	00.53	02.49	00.23	01.19
<u>Medium Companies</u>						
eight	<u>Net Worth - Medium Companies</u>	<u>41,517,015</u>	<u>43,346,363</u>	<u>47,495,153</u>	<u>59,462,745</u>	<u>56,400,875</u>
	Net Worth - Industry	198,724,823	197,489,060	219,036,029	255,110,827	248,887,942
	X					
	Yearly Rate of Return %	06.29	14.05	24.43	-02.25	03.03
=	Weighted Rate of Return %	01.31	03.08	05.30	-00.52	00.69
<u>Large Companies</u>						
eight	<u>Net Worth - Large Companies</u>	<u>132,050,418</u>	<u>128,764,751</u>	<u>144,250,134</u>	<u>164,111,809</u>	<u>161,071,152</u>
	Net Worth - Industry	198,724,823	197,489,060	219,036,029	255,110,827	248,887,942
	X					
	Yearly Rate of Return %	04.09	15.99	20.47	00.98	07.45
=	Weighted Rate of Return %	02.82	10.43	13.48	00.63	04.82

Table XVIII (Continued)  
 The Industry Rate of Return Before Taxes  
 (on adjusted net worth)

Industry Rate of Return Before Taxes %

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
	22.75	05.38	07.23	07.47	07.11
	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
	04.84	14.04	21.27	00.34	06.70
Unweighted Geometric Average (10 years) -	9.5%				
Unweighted Geometric Average ( 9 years) -	7.5%				
Unweighted Arithmetic Average (10 years) -	9.7%				
Unweighted Arithmetic Average ( 9 years) -	8.3%				

Table XIX

## The Industry Rate of Return After Taxes

(on adjusted net worth)

		<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
<u>Small Companies</u>						
eight	<u>Net Worth - Small Companies</u>	<u>18,455,492</u>	<u>20,751,201</u>	<u>19,924,737</u>	<u>20,774,439</u>	<u>22,795,781</u>
	Net Worth - Industry	133,005,182	155,958,525	160,607,224	169,073,653	186,532,144
	X					
	Yearly Rate of Return %	15.19	-02.75	06.07	07.54	02.43
=	Weighted Rate of Return %	02.11	-00.37	00.75	00.93	00.30
<u>Medium Companies</u>						
eight	<u>Net Worth - Medium Companies</u>	<u>27,175,828</u>	<u>31,929,806</u>	<u>31,101,550</u>	<u>31,795,400</u>	<u>36,967,570</u>
	Net Worth - Industry	133,005,182	155,958,525	160,607,224	169,073,653	186,532,144
	X					
	Yearly Rate of Return %	18.60	-02.10	01.86	00.05	06.95
=	Weighted Rate of Return %	03.80	-00.43	00.36	00.01	01.38
<u>Large Companies</u>						
eight	<u>Net Worth - Large Companies</u>	<u>87,373,862</u>	<u>103,277,518</u>	<u>109,580,737</u>	<u>165,563,814</u>	<u>126,768,793</u>
	Net Worth - Industry	133,005,182	155,958,525	160,607,224	169,073,653	186,532,144
	X					
	Yearly Rate of Return %	19.48	07.19	08.47	08.37	05.38 <sup>00</sup>
=	Weighted Rate of Return %	12.80	04.76	05.78	05.77	03.66

Table XIX (Continued)

## The Industry Rate of Return After Taxes

(on adjusted net worth)

		<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
<u>Small Companies</u>						
eight	<u>Net Worth - Small Companies</u>	<u>25,157,390</u>	<u>25,377,946</u>	<u>271,290,842</u>	<u>31,536,273</u>	<u>31,415,915</u>
	Net Worth - Industry	198,724,823	197,489,060	219,036,029	255,110,827	248,887,942
	X					
	Yearly Rate of Return %	02.64	-00.16	16.02	-00.20	06.52
=	Weighted Rate of Return %	00.33	-00.02	01.97	-00.02	00.82
<u>Medium Companies</u>						
eight	<u>Net Worth - Medium Companies</u>	<u>41,517,015</u>	<u>43,346,363</u>	<u>47,495,153</u>	<u>59,462,745</u>	<u>56,400,875</u>
	Net Worth - Industry	198,724,823	197,489,060	219,036,029	285,110,827	248,887,942
	X					
	Yearly Rate of Return %	04.02	08.91	21.84	-03.07	01.15
=	Weighted Rate of Return %	00.84	01.95	04.73	00.72	00.26
<u>Large Companies</u>						
eight	<u>Net Worth - Large Companies</u>	<u>132,050,418</u>	<u>128,764,751</u>	<u>144,250,134</u>	<u>164,111,809</u>	<u>161,071,152</u>
	Net Worth - Industry	198,724,823	197,489,060	219,036,029	255,110,827	248,887,942
	X					
	Yearly Rate of Return %	00.50	10.05	15.81	00.16	04.79
=	Weighted Rate of Return %	00.33	06.55	10.41	00.10	03.10

Table XIX (Continued)

The Industry Rate of Return After Taxes

(on adjusted net worth)

Industry Rate of Return After Taxes %

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
	18.71	03.96	06.89	06.71	05.34
	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
	01.50	08.48	17.31	00.80	04.18
Unweighted Geometric Average (10 years) -	7.3%				
Unweighted Geometric Average ( 9 years) -	5.5%				
Unweighted Arithmetic Average (10 years) -	7.5%				
Unweighted Arithmetic Average ( 9 years) -	6.2%				

Table XX

## The Industry Rate of Return Before Taxes by Industry Size Class

(on adjusted net worth)

	(Percent)									
	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Small Companies	17.86	-00.98	07.42	09.06	05.38	06.44	04.09	19.97	01.90	09.40
Medium Companies	20.80	-02.54	01.44	00.12	08.75	06.29	14.05	24.43	-02.25	03.03
Large Companies	24.38	09.11	08.84	09.20	06.94	04.09	15.99	20.47	00.98	07.45
	<u>1961 - 1970 geometric average</u>		<u>1962 - 1970 geometric average</u>		<u>1961 - 1970 arithmetic average</u>		<u>1962 - 1970 arithmetic average</u>			
Small Companies	7.9		6.1		8.0		6.9			
Medium Companies	7.0		5.0		7.4		5.9			
Large Companies	9.7		8.1		10.8		9.2			

Table XX (Continued)

## The Industry Rate of Return After Taxes by Industry Size Class

(on adjusted net worth)

(Percent)

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Small Companies	15.19	-02.75	06.07	07.54	02.43	02.64	-00.16	16.02	-00.20	06.52
Medium Companies	18.60	-02.10	01.86	00.05	06.95	04.02	08.91	21.84	-03.07	01.15
Large Companies	19.48	07.19	08.47	08.37	05.38	00.50	10.05	15.81	00.16	04.79
	<u>1961 - 1970</u>		<u>1962 - 1970</u>		<u>1961 - 1970</u>		<u>1962 - 1970</u>			
	geometric		geometric		arithmetic		arithmetic			
	average		average		average		average			
Small Companies	5.2		3.7		5.3		4.2			
Medium Companies	5.6		3.7		5.8		4.3			
Large Companies	8.0		6.1		8.2		6.9			

Table XXI

## The Yearly Adjusted Net Worth

(dollars)

Small Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
London - Canada	\$ 1,178,799	\$ 1,517,658	\$ 1,473,642	\$ 1,425,965	\$ 1,517,643	\$ 1,528,479
Commonwealth	407,283	451,986	406,591	422,927	445,156	425,175
Reliance of Canada	1,162,925	1,455,222	1,346,803	1,206,760	1,830,125	1,933,197
Scottish Canadian	1,067,036	1,321,818	1,292,679	1,449,155	1,643,985	1,791,698
Federation	1,036,739	1,125,449	998,521	975,787	922,497	890,158
Canadian Health & Accident	5,158,313	5,318,653	5,212,443	5,400,028	5,846,844	5,902,228
Fire of Canada	1,233,498	1,426,667	1,166,980	1,362,647	1,152,383	3,136,643
Great Eastern	854,814	731,139	774,034	943,434	1,036,054	1,149,349
Fidelity Insurance	1,799,655	2,193,157	2,072,573	2,304,835	2,560,473	2,691,707
Canadian Home	1,258,530	1,354,163	1,208,607	1,349,781	1,517,755	1,334,624
Missisquoi & Rouville	1,600,238	1,818,416	1,831,054	1,988,636	2,292,373	2,391,922
Stanstead & Sherbrooke	<u>1,697,662</u>	<u>1,836,873</u>	<u>1,940,810</u>	<u>1,944,484</u>	<u>2,030,473</u>	<u>1,982,210</u>
TOTAL ADJUSTED NET WORTH	\$18,455,492	\$20,751,201	\$19,924,737	\$20,774,439	\$22,795,781	\$25,157,390
CHANGE IN ADJUSTED NET WORTH		2,295,709	- 826,464	849,702	2,021,342	2,361,609

Table XXI (Continued)

## The Yearly Adjusted Net Worth

(dollars)

Small Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
London - Canada	\$ 1,503,365	\$ 1,606,094	\$ 2,022,077	\$ 2,198,095	\$ 2,343,162
Commonwealth	308,674	281,964	325,510	565,826	687,622
Reliance of Canada	2,101,504	2,307,425	2,948,708	2,457,081	2,737,014
Scottish Canadian	1,705,689	1,934,699	2,118,429	2,118,003	2,225,387
Federation	926,657	1,015,794	1,188,381	1,196,825	1,308,995
Canadian Health & Accident	5,452,262	5,500,243	6,087,186	6,043,765	5,497,496
Fire of Canada	3,503,749	3,272,257	3,447,464	2,554,712	2,610,347
Great Eastern	1,112,323	1,262,740	1,392,472	1,367,214	1,635,310
Fidelity Insurance	2,785,162	3,333,514	4,165,805	4,574,633	4,400,928
Canadian Home	1,659,941	1,897,673	2,410,767	2,715,031	2,801,643
Missisquoi & Rouville	2,290,150	2,623,748	3,130,499	3,379,752	4,671,136
Stanstead & Sherbrooke	<u>2,028,400</u>	<u>2,152,591</u>	<u>2,298,975</u>	<u>2,244,978</u>	<u>2,641,738</u>
TOTAL ADJUSTED NET WORTH	\$25,377,946	\$27,290,742	\$31,536,273	\$31,415,915	\$33,560,778
CHANGE IN ADJUSTED NET WORTH	220,556	1,912,796	4,245,531	-120,358	2,144,863

Table XXI (Continued)

## The Yearly Adjusted Net Worth

(dollars)

Medium Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Hudson Bay	\$ 3,356,053	\$ 3,763,415	\$ 3,705,495	\$ 3,883,315	\$ 4,112,754	\$ 4,056,386
Mercantile & General of Canada	2,262,967	2,439,778	2,917,872	2,532,327	2,550,847	2,614,904
Guarantee Co. of North America	3,098,849	3,341,493	3,215,256	3,723,025	3,516,960	3,625,170
Merit	5,151,261	5,524,311	4,882,529	4,031,056	3,473,598	3,446,639
Globe Indemnity	2,811,533	3,304,536	3,193,145	3,289,818	3,474,143	3,456,320
Quebec	450,680	586,003	549,222	1,671,547	1,796,939	1,766,091
General Security of Canada	127,296	1,252,069	1,150,966	1,116,237	1,268,087	1,487,364
Consolidated Fire	1,484,484	1,839,430	1,833,975	2,004,314	3,660,273	4,273,664
Federal Fire	1,601,562	2,004,743	1,969,137	1,972,758	4,378,871	4,644,088
Acadia	3,816,792	4,332,799	4,019,256	3,996,850	4,157,480	4,372,650
London & Midland	943,076	691,319	802,692	960,198	1,125,881	1,862,917
Canadian Accident & Fire	<u>2,071,275</u>	<u>2,849,710</u>	<u>2,861,915</u>	<u>2,663,960</u>	<u>3,451,737</u>	<u>5,910,822</u>
TOTAL ADJUSTED NET WORTH	\$27,175,828	\$31,929,806	\$31,101,550	\$31,795,400	\$36,967,570	\$41,517,015
CHANGE IN ADJUSTED NET WORTH		4,753,978	828,256	693,850	5,172,170	4,549,445

Table XXI (Continued)  
The Yearly Adjusted Net Worth  
(dollars)

Medium Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Hudson Bay	\$ 3,776,000	\$ 3,871,671	\$ 4,318,104	\$ 4,146,324	\$ 4,243,519
Mercantile & General of Canada	2,404,984	2,700,211	3,319,232	3,566,546	4,093,309
Guarantee Co. of North America	3,734,999	3,898,025	4,407,316	4,175,002	3,534,191
Merit	4,494,059	5,896,444	5,861,289	5,338,436	5,268,372
Globe Indemnity	3,179,841	3,383,594	4,129,995	4,133,699	4,434,183
Quebec	1,660,127	1,620,640	5,883,071	5,561,940	5,722,673
General Security of Canada	1,684,046	2,194,924	2,481,408	2,056,134	2,085,130
Consolidated Fire	4,388,266	4,547,784	4,880,424	4,964,653	5,343,665
Federal Fire	5,165,079	5,387,151	5,818,304	5,915,589	6,379,342
Acadia	4,119,744	4,315,082	5,476,559	5,135,385	5,531,137
London & Midland	2,953,584	3,686,220	6,218,004	5,395,458	10,655,208
Canadian Accident & Fire	<u>5,785,634</u>	<u>5,993,407</u>	<u>6,669,039</u>	<u>6,011,709</u>	<u>6,092,432</u>
TOTAL ADJUSTED NET WORTH	\$43,346,363	\$47,495,153	\$59,462,745	\$56,400,875	\$63,383,161
CHANGE IN ADJUSTED NET WORTH	1,829,348	4,148,790	11,967,592	- 3,061,870	6,982,282

Table XXI (Continued)

## The Yearly Adjusted Net Worth

(dollars)

Large Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Halifax	\$ 7,554,877	\$ 8,650,180	\$ 8,734,537	\$ 8,682,314	\$ 8,986,522	\$ 9,034,358
Canadian Surety	4,460,428	5,127,434	5,237,611	5,322,069	5,793,428	6,279,194
Wellington Fire	2,396,283	3,028,389	2,946,942	2,963,136	5,425,205	6,199,436
Canadian General	5,815,403	7,086,173	7,243,553	7,611,112	8,446,391	8,907,194
Canadian Reinsurance	5,676,131	5,259,767	5,540,230	6,096,228	6,782,622	6,777,059
Guardian Insurance of Canada	5,694,129	8,225,334	7,863,172	8,559,210	7,942,500	8,011,620
Dominion of Canada General	6,185,616	7,226,153	7,119,798	7,872,054	8,565,659	9,148,394
General Accident of Canada	7,775,602	9,478,768	9,320,337	10,511,232	12,259,204	12,943,829
Dominion Insurance	3,526,341	4,664,498	4,522,955	4,554,286	4,930,611	6,842,612
Canadian Indemnity	4,271,736	5,075,442	9,964,572	10,328,141	11,148,916	11,622,713
British America	15,315,867	18,504,207	18,806,748	20,104,154	21,430,995	21,316,192
Western Assurance	<u>18,701,449</u>	<u>20,951,178</u>	<u>22,250,482</u>	<u>23,889,878</u>	<u>25,056,740</u>	<u>24,967,817</u>
TOTAL ADJUSTED NET WORTH	\$87,373,862	\$103,277,518	\$109,580,937	\$116,503,814	\$126,768,793	\$132,050,418
CHANGE IN ADJUSTED NET WORTH		15,903,656	6,303,419	6,922,877	10,264,979	5,281,625

Table XXI (Continued)

## The Yearly Adjusted Net Worth

(dollars)

Large Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Halifax	\$ 8,994,333	\$ 9,809,150	\$ 10,978,708	\$ 10,790,915	\$ 10,623,418
Canadian Surety	6,844,022	7,125,091	7,904,283	7,791,131	7,979,066
Wellington Fire	6,588,819	7,018,420	7,751,355	8,145,094	8,665,149
Canadian General	8,674,231	8,890,700	8,980,395	8,804,595	7,573,342
Canadian Reinsurance	5,937,872	5,469,681	5,830,604	6,154,604	6,573,078
Guardian Insurance of Canada	8,167,169	8,117,260	9,290,734	8,533,745	8,440,238
Dominion of Canada General	9,037,787	10,283,735	12,613,358	13,017,270	14,722,855
General Accident of Canada	12,061,365	13,431,509	15,555,459	13,975,990	14,450,176
Dominion Insurance	7,493,679	13,800,811	16,056,650	15,461,901	15,294,525
Canadian Indemnity	10,771,550	11,339,750	12,574,785	12,599,016	13,716,130
British America	20,199,149	22,269,981	25,495,513	25,013,418	25,143,692
Western Assurance	<u>23,994,775</u>	<u>26,694,046</u>	<u>31,169,985</u>	<u>30,783,213</u>	<u>30,912,597</u>
TOTAL ADJUSTED NET WORTH	\$128,764,751	\$144,250,134	\$164,111,809	\$161,071,152	\$164,094,266
CHANGE IN ADJUSTED NET WORTH	-3,285,667	15,485,383	19,861,675	-3,040,657	3,023,114

Table XXII  
The Yearly Dividend Payout  
(dollars)

Small Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
London - Canada	\$	\$	\$	\$	\$	\$
Commonwealth						
Reliance of Canada						
Scottish Canadian Federation						
Canadian Health & Accident						
Fire of Canada						
Great Eastern				32,013	32,013	32,013
Fidelity Insurance						
Canadian Home						
Missisquoi & Rouville	40,000	40,000	40,000	40,000	50,000	50,000
Stanstead & Sherbrooke	<u>12,500</u>	<u>18,750</u>	<u>18,750</u>	<u>18,750</u>	_____	<u>94,794</u>
TOTAL DIVIDENDS	\$52,500	\$58,750	\$58,750	\$90,763	\$82,013	\$176,807

Table XXII (Continued)

## The Yearly Dividend Payout

(dollars)

Small Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
London - Canada	\$	\$	\$	\$	\$
Commonwealth					
Reliance of Canada					
Scottish Canadian					
Federation					
Canadian Health & Accident					
Fire of Canada					
Great Eastern	32,013	32,013	51,220	64,850	
Fidelity Insurance					
Canadian Home					
Missisquoi & Rouville	50,000	60,000	60,000	75,000	87,500
Stanstead & Sherbrooke	<u>          </u>	<u>25,000</u>	<u>25,000</u>	<u>25,000</u>	<u>25,000</u>
TOTAL DIVIDENDS	\$ 82,013	\$117,013	\$136,220	\$164,850	\$112,500

Table XXII (Continued)  
The Yearly Dividend Payout  
(dollars)

Medium Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Hudson Bay	\$ 73,328	\$105,409	\$105,410	\$105,409	\$105,409	\$187,903
Mercantile & General of Canada						
Guarantee Co. of North America		33,436	46,802		26,744	40,116
Merit						
Globe Indemnity	90,000	95,000	95,000	95,000	95,000	178,000
Quebec					60,000	94,200
General Security of Canada						
Consolidated Fire	27,500					
Federal Fire	24,000					
Acadia	94,000	94,000	94,000	47,000	47,000	94,000
London & Midland						
Canadian Accident & Fire	<u>80,000</u>	<u>110,000</u>	<u>150,000</u>	<u>150,000</u>	<u>40,000</u>	<u>50,000</u>
TOTAL DIVIDENDS	\$388,828	\$437,839	\$491,212	\$397,409	\$374,153	\$644,219

Table XXII (Continued)  
The Yearly Dividend Payout  
(dollars)

Medium Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Hudson Bay	\$208,527	\$142,073	\$ 164,988	\$ 183,320	\$ 219,984
Mercantile & General of Canada					
Guarantee Co. of North America	80,232	80,232	120,348	120,348	40,116
Merit			408,100		
Globe Indemnity	110,000	45,000	160,000	160,000	170,000
Quebec	102,000	66,000	78,000	240,000	240,000
General Security of Canada				67,750	
Consolidated Fire					
Federal Fire					
Acadia	188,000	188,000	188,000	188,000	188,000
London & Midland					
Canadian Accident & Fire	<u>150,000</u>	<u>300,000</u>	<u>300,000</u>	<u>300,000</u>	<u>150,000</u>
TOTAL DIVIDENDS	\$838,759	\$815,305	\$1,419,436	\$1,259,418	\$1,008,100

Table XXII (Continued)  
The Yearly Dividend Payout  
(dollars)

Large Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Halifax	\$ 50,000	\$	\$ 100,000	\$ 200,000	\$ 200,000	\$ 200,000
Canadian Surety	85,000	85,000	85,000	85,000	85,000	85,000
Wellington Fire	48,000					
Canadian General	90,000	90,000	90,000	90,000	90,000	90,000
Canadian Reinsurance						
Guardian Insurance of Canada	172,500	230,000	275,000	275,000		
Dominion of Canada General	171,751	171,751	171,751	171,751	171,751	171,751
General Accident of Canada				70,000	87,500	105,000
Dominion Insurance	24,000	24,000	24,000	24,000	24,000	24,000
Canadian Indemnity	140,000	160,000	360,000	360,000	381,000	420,000
British America	425,000	440,000	440,000	440,000	440,000	935,000
Western Assurance	<u>500,500</u>	<u>523,600</u>	<u>523,600</u>	<u>523,600</u>	<u>523,600</u>	<u>947,100</u>
TOTAL DIVIDENDS	\$1,706,751	\$1,724,351	\$2,069,951	\$2,239,351	\$2,002,851	\$2,977,851

Table XXII (Continued)  
The Yearly Dividend Payout  
(dollars)

Large Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Halifax	\$ 250,000	\$ 250,000	\$ 300,000	\$ 300,000	\$ 300,000
Canadian Surety	85,000	85,000	85,000	85,000	85,000
Wellington Fire					
Canadian General	90,000	270,000	525,000	400,000	157,000
Canadian Reinsurance	187,500	187,500	187,500	187,500	187,500
Guardian Insurance of Canada			350,000	400,000	
Dominion of Canada General	209,637	252,575	303,090	394,017	454,635
General Accident of Canada	140,000	140,000	140,000	140,000	140,000
Dominion Insurance	24,000	24,000	24,000	24,000	24,000
Canadian Indemnity	480,000	540,000	600,000	600,000	600,000
British America	1,215,000	600,000	850,000	1,115,000	1,300,000
Western Assurance	<u>1,247,400</u>	<u>616,000</u>	<u>893,200</u>	<u>1,124,200</u>	<u>1,309,000</u>
TOTAL DIVIDENDS	\$3,928,537	\$2,965,075	\$4,131,790	\$4,769,717	\$4,557,635

Table XXIII

The Yearly Additional Capital Paid In  
(dollars)

Small Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
London - Canada	\$	\$	\$	\$	\$	\$
Commonwealth						68,242
Reliance of Canada					400,000	
Scottish Canadian Federation				100,000		
Canadian Health & Accident Fire of Canada						2,149,960
Great Eastern			2,750			
Fidelity Insurance					300,000	
Canadian Home					180,000	100,000
Missisquoi & Rouville Stanstead & Sherbrooke						
TOTAL ADDITIONAL CAPITAL	\$	\$	\$ 2,750	\$ 100,000	\$ 880,000	\$2,318,202

Table XXIII (Continued)

The Yearly Additional Capital Paid In  
(dollars)

Small Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
London - Canada	\$	\$	\$	\$	\$
Commonwealth			75,000	300,000	
Reliance of Canada			300,000		
Scottish Canadian Federation					
Canadian Health & Accident Fire of Canada					
Great Eastern			8,250	10,450	169,550
Fidelity Insurance Canadian Home		2,326,920			
Missisquoi & Rouville Stanstead & Sherbrooke					<u>750,000</u>
TOTAL ADDITIONAL CAPITAL	\$	\$2,326,920	\$ 383,250	\$ 310,450	\$ 919,550

Table XXIII (Continued)  
The Yearly Additional Capital Paid In  
(Dollars)

Medium Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Hudson Bay	\$	\$	\$	\$	\$	\$
Mercantile & General of Canada						
Guarantee Co. of North America						
Merit					500,000	250,000
Globe Indemnity						
Quebec				415,000		
General Security of Canada		150,000			100,000	250,000
Consolidated Fire					2,009,750	
Federal Fire					2,519,500	
Acadia						
London & Midland		21,110	330,355			300,000
Canadian Accident & Fire					<u>400,000</u>	<u>1,764,857</u>
TOTAL ADDITIONAL CAPITAL	\$	\$ 171,110	\$ 330,355	\$ 415,000	\$5,529,250	\$2,564,857

Table XXIII (Continued)

The Yearly Additional Capital Paid In

(Dollars)

Medium Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Hudson Bay	\$	\$	\$	\$	\$
Mercantile & General of Canada					
Guarantee Co. of North America					
Merit			33,750		
Globe Indemnity					
Quebec			2,858,193		
General Security of Canada		250,000			1,306,666
Consolidated Fire					
Federal Fire					
Acadia					
London & Midland	1,000,000	850,000			6,000,000
Canadian Accident & Fire	_____	_____	_____	_____	_____
TOTAL ADDITIONAL CAPITAL	\$1,000,000	\$1,100,000	\$2,891,943	\$	\$7,306,666

Table XXIII (Continued)  
The Yearly Additional Capital Paid In  
(dollars)

Large Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Halifax	\$	\$	\$	\$	\$	\$
Canadian Surety						
Wellington Fire					2,511,375	
Canadian General						
Canadian Reinsurance						
Guardian Insurance of Canada		425,000				
Dominion of Canada General		165,000				
General Accident of Canada		484,731				
Dominion Insurance						1,500,000
Canadian Indemnity			1,000,000			
British America						
Western Assurance						
<b>TOTAL ADDITIONAL CAPITAL</b>	\$	\$ 744,731	\$1,000,000	\$	\$2,511,375	\$1,500,000

Table XXIII (Continued)

The Yearly Additional Capital Paid In  
(dollars)

Large Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Halifax	\$	\$	\$	\$	\$
Canadian Surety					
Wellington Fire					
Canadian General					
Canadian Reinsurance					
Guardian Insurance of Canada					
Dominion of Canada General					
General Accident of Canada					
Dominion Insurance		5,419,174			
Canadian Indemnity					
British America				1,463,786	
Western Assurance			<u>1,485,048</u>		
TOTAL ADDITIONAL CAPITAL	\$	\$5,419,174	\$1,485,048	\$1,463,786	\$

Table XXIV  
The Yearly Income Taxes  
(dollars)

Small Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
London - Canada	\$	\$ 7,198	\$ 16,914	\$ -986	\$=23,883	\$
Commonwealth	192	-831	190	130	174	88
Reliance of Canada						
Scottish Canadian Federation	172	166	54	59		
Canadian Health & Accident	391,502	317,741	143,673	304,510	314,302	223,333
Fire of Canada						
Great Eastern		34,490	39,400	- 39,889		32,099
Fidelity Insurance	89,008	75,134	99,009	- 11,163	1,876	92,988
Canadian Home						
Missisquoi & Rouville	56,645	50,886	61,297	21,966	27,566	83,478
Stanstead & Sherbrooke	<u>4,000</u>	<u>          </u>	<u>4,180</u>	<u>- 7,848</u>	<u>163</u>	<u>263,463</u>
TOTAL INCOME TAX	\$541,519	\$484,784	\$364,717	\$266,779	\$320,198	\$695,449

Table XXIV (Continued)

## The Yearly Income Taxes

(dollars)

Small Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
London - Canada	\$ 155,850	\$ 124,630	\$ - 3,350	\$ 101,847	\$ 143,344
Commonwealth					
Reliance of Canada	59,190	100,082	220,180	16,627	275,738
Scottish Canadian	35,000	85,000	6,000	-12,000	-468
Federation					18,725
Canadian Health & Accident	314,328	292,929	357,978	152,890	231,996
Fire of Canada					
Great Eastern	80,000	116,000	- 20,868	161	156
Fidelity Insurance	211,843	110,735	243,000	192,000	- 127,086
Canadian Home					
Missisquoi & Rouville	90,052	265,653	158,862	139,929	198,509
Stanstead & Sherbrooke	<u>          </u>	<u>24,000</u>	<u>112,000</u>	<u>69,000</u>	<u>162,500</u>
TOTAL INCOME TAX	\$ 946,263	\$ 1,119,029	\$ 1,073,802	\$ 660,454	\$ 903,394

Table XXIV (Continued)

## The Yearly Income Taxes

(dollars)

Medium Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Hudson Bay	\$153,574	\$163,131	\$ 39,155	\$-39,155	\$	\$ 43,626
Mercantile & General of Canada			-1		200	
Guarantee Co. of North America				38,000	15,063	20,415
Merit	- 155,029	-155,029			9,448	- 9,448
Globe Indemnity	127,928	133,601	19,216	-19,216		
Quebec				- 27		
General Security of Canada	485	490	458	528		840
Consolidated Fire	134,462	118,586	-118,624	-1,301	139	148
Federal Fire	140,297	115,548	-118,675	188	140	148
Acadia	17,307	109,833	- 73,052	2,147		
London & Midland						
Canadian Accident & Fire	<u>128,795</u>	<u>105,370</u>	<u>110,777</u>	<u>- 110,000</u>		<u>235,729</u>
TOTAL INCOME TAX	\$857,877	\$591,530	- \$140,746	-\$128,836	\$ 24,990	\$684,458

Table XXIV (Continued)

## The Yearly Income Taxes

(dollars)

Medium Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Hudson Bay	\$ 183,030	\$ 226,475	\$ 194,500	\$ 75,224	\$ 148,823
Mercantile & General of Canada			68,000	42,821	228,505
Guarantee Co. of North America	7,317			8,860	2,069
Merit				116,600	- 116,600
Globe Indemnity	131,237	284,420	96,980	30,954	110,896
Quebec		169,738	52,396	92,022	208,744
General Security of Canada	580	592	20,443	-6,701	378
Consolidated Fire	94,670	386,454	86,920	99,848	298,241
Federal Fire	102,800	420,266	90,394	118,856	340,653
Acadia		169,000	231,740	-181,829	45,510
London & Midland			9,914		-708,773
Canadian Accident & Fire	<u>424,041</u>	<u>572,723</u>	<u>394,701</u>	<u>82,980</u>	<u>558,947</u>
TOTAL INCOME TAX	\$ 943,675	\$2,229,669	\$1,246,068	\$ 479,635	\$1,117,393

Table XXIV (Continued)

## The Yearly Income Taxes

(dollars)

Large Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Halifax	\$ 16,000	\$ 123,730	\$ 93,000	\$-82,001	\$ 4,813	\$ 4,127
Canadian Surety	261,125	107,939	84,000	72,500	244,834	572,315
Wellington Fire	210,379	180,138	-190,248	632	386	370
Canadian General	263,000	370,500	234,000	-82,256	37,268	284,318
Canadian Reinsurance						
Guardian Insurance of Canada	600,000	350,000	-261,202	1,740		
Dominion of Canada General	537,261	563,282	23,830	-46,316	1,991	17,592
General Accident of Canada	45,000	138,001	-18,902	-12,795	275,000	17,000
Dominion Insurance	242,455	-173,497	64,394	-64,486		60,000
Canadian Indemnity	206,265	297,899	86,825	101,076	105,899	475,806
British America	438,709	513,270	1,086,038	228,616	170,667	261,785
Western Assurance	<u>695,877</u>	<u>1,772,216</u>	<u>767,010</u>	<u>286,192</u>	<u>125,708</u>	<u>271,834</u>
TOTAL INCOME TAXES	\$3,516,071	\$4,243,478	\$1,968,745	\$402,902	\$966,646	\$1,965,147

## Table XXIV (Continued)

## The Yearly Income Taxes

(dollars)

Large Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Halifax	\$ 3,668	\$ 410,000	\$ 520,000	\$ -95,000	\$ 803
Canadian Surety	900,009	664,869	517,165	-390,000	
Wellington Fire	90,610	520,757	68,823	117,482	397,250
Canadian General	307,538	632,563	616,244	218,733	-220,000
Canadian Reinsurance	2,427	221,803	338,984	280,044	63,186
Guardian Insurance of Canada	30,000	850,000	700,000	-460,000	-45,848
Dominion of Canada General	648,778	720,000	707,186	340,000	1,337,303
General Accident of Canada	300,000	335,000	75,000	-85,000	-383
Dominion Insurance	67,744	480,817	756,832	-189,209	-494,000
Canadian Indemnity	592,401	714,123	254,332	505,313	940,334
British America	775,795	921,985	1,015,911	538,249	950,816
Western Assurance	<u>942,955</u>	<u>1,219,800</u>	<u>1,075,679</u>	<u>543,373</u>	<u>1,272,609</u>
TOTAL INCOME TAXES	\$4,661,925	\$7,691,717	\$6,646,156	\$1,323,985	\$4,202,070

Table XXV

## Investment Income - Industry and by Size Class

<u>Small Companies</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
* Weight	.1387	.1330	.1240	.1228	.1222	.1265	.1285	.1245	.1236	.1262
X										
+ Investment Income	06.68%	05.98%	06.28%	06.68%	06.71%	07.31%	08.10%	09.25%	09.05%	09.92%
= Weighted Return	00.93%	00.80%	00.79%	00.82%	00.82%	00.92%	01.04%	01.15%	01.12%	01.25%
1961-1970 arithmetic average - 07.60% 1962-1970 arithmetic average - 07.70%										
<u>Medium Companies</u>										
* Weight	.2043	.2047	.1936	.1880	.1981	.2089	.2194	.2168	.2330	.2266
X										
+ Investment Income	08.49%	07.52%	08.11%	08.15%	09.32%	10.50%	11.57%	11.92%	11.75%	12.69%
= Weighted Return	01.73%	01.54%	01.57%	01.53%	01.85%	02.19%	02.54%	02.58%	02.74%	02.88%
1961-1970 arithmetic average - 10.00% 1962-1970 arithmetic average - 10.17%										

Table XXV (Continued)

Investment Income - Industry and by Size Class

<u>Large Companies</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
* Weight	.6569	.6622	.6622	.6890	.6796	.6644	.6520	.6585	.6432	.6471
X										
+ Investment Income	08.19%	07.52%	07.40%	07.58%	08.05%	08.93%	10.23%	10.66%	10.37%	11.90%
= Weighted Return	05.38%	04.98%	04.90%	05.22%	05.47%	05.93%	06.67%	07.02%	06.67%	07.70%
1961-1970 arithmetic average - 09.08% 1962-1970 arithmetic average - 09.18%										
<u>Industry Return</u>	08.04%	07.32%	07.26%	07.57%	08.14%	09.04%	10.25%	10.75%	10.53%	11.23%
1961-1970 arithmetic average = <u>09.01%</u> 1962-1970 arithmetic average = <u>09.12%</u>										

For Each Size Class:

- \* The weight is  $\frac{\text{Adjusted Net Worth} - \text{Size Class}}{\text{Adjusted Net Worth} - \text{Industry}}$
- + The rate of return is  $\frac{\text{Total Investment Income (Table XXVI)} - \text{Size Class}}{\text{Adjusted Net Worth at the beginning of the year} - \text{Size Class}}$

Table XXVI  
The Yearly Investment Income  
(dollars)

Small Companies

<u>COMPANIES</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
London - Canada	\$ 68,172	\$ 76,637	\$ 78,695	\$ 81,233	\$ 90,836
Commonwealth	20,666	21,261	21,244	20,964	18,118
Reliance of Canada	103,357	113,838	116,681	124,980	128,847
Scottish Canadian	74,466	80,515	88,082	98,322	110,502
Federation	76,905	66,459	41,806	37,256	51,724
Canadian Health & Accident	160,970	142,808	151,010	155,038	106,916
Fire of Canada	95,432	99,680	105,005	150,113	173,313
Great Eastern	76,411	74,375	77,901	87,772	113,506
Fidelity Insurance	126,444	120,477	106,535	150,133	151,323
Canadian Home	96,122	107,153	114,163	127,714	134,701
Missisquoi & Rouville	101,183	109,996	116,152	124,056	139,363
Stanstead & Sherbrooke	<u>114,523</u>	<u>119,424</u>	<u>120,731</u>	<u>143,373</u>	<u>187,579</u>
TOTAL INVESTMENT INCOME	\$1,114,651	\$1,133,223	\$1,138,005	\$1,300,974	\$1,486,728

Table XXVI (Continued)

## The Yearly Investment Income

(dollars)

Small Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
London - Canada	\$ 92,817	\$ 78,511	\$ 141,112	\$ 212,946	253,545
Commonwealth	23,761	20,068	30,818	27,077	78,809
Reliance of Canada	162,383	209,357	277,557	334,664	316,390
Scottish Canadian	125,158	133,547	149,960	165,404	184,304
Federation	58,137	57,265	80,137	83,683	103,889
Canadian Health & Accident	252,148	259,524	278,275	297,327	318,970
Fire of Canada	275,128	380,827	425,036	424,792	392,847
Great Eastern	130,522	153,632	187,742	211,307	235,538
Fidelity Insurance	180,253	202,168	230,135	254,251	273,282
Canadian Home	135,623	164,439	225,254	275,132	296,063
Missisquoi & Rouville	161,319	186,530	204,886	256,468	325,569
Stanstead & Sherbrooke	<u>222,755</u>	<u>261,728</u>	<u>283,303</u>	<u>304,872</u>	<u>332,814</u>
TOTAL INVESTMENT INCOME	\$1,820,004	\$2,107,596	\$2,514,215	\$2,847,823	\$3,112,020

Table XXVI (Continued)  
The Yearly Investment Income  
(dollars)

Medium Companies

<u>COMPANIES</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Hudson Bay	\$ 232,450	\$ 243,472	\$ 255,697	\$ 281,108	\$ 312,729
Mercantile & General of Canada	206,593	216,466	225,974	255,696	298,073
Guarantee Co. of North America	238,658	234,160	246,733	251,865	292,390
Merit	470,849	448,570	393,785	428,613	457,490
Globe Indemnity	210,219	217,457	226,818	251,306	278,589
Quebec	29,224	35,594	147,074	162,718	166,940
General Security of Canada	75,283	96,286	87,070	92,447	113,767
Consolidated Fire	116,355	133,532	157,171	193,677	301,492
Federal Fire	123,559	144,330	167,052	208,395	343,093
Acadia	287,384	316,964	293,085	286,664	296,981
London & Midland	78,519	82,595	76,420	91,759	172,866
Canadian Accident & Fire	<u>222,886</u>	<u>222,080</u>	<u>243,267</u>	<u>296,739</u>	<u>496,365</u>
TOTAL INVESTMENT INCOME	\$2,291,979	\$2,391,506	\$2,520,146	\$2,800,987	\$3,530,775

Table XXVI (Continued)  
The Yearly Investment Income  
(dollars)

Medium Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Hudson Bay	\$ 365,190	\$ 386,391	\$ 421,620	\$ 453,980	\$ 456,070
Mercantile & General of Canada	355,211	386,768	418,833	478,313	520,455
Guarantee Co. of North America	334,089	335,600	405,664	560,341	625,074
Merit	485,863	555,666	640,971	621,397	641,428
Globe Indemnity	306,742	337,056	321,625	339,182	377,818
Quebec	174,740	187,118	155,974	527,523	578,537
General Security of Canada	201,790	260,357	340,536	380,253	404,099
Consolidated Fire	373,706	471,702	552,100	648,828	712,043
Federal Fire	417,238	522,854	609,462	734,564	808,129
Acadia	411,534	476,520	516,859	586,270	626,888
London & Midland	323,018	388,999	541,244	647,508	822,150
Canadian Accident & Fire	<u>609,445</u>	<u>715,058</u>	<u>805,625</u>	<u>908,935</u>	<u>973,227</u>
TOTAL INVESTMENT INCOME	\$4,358,566	\$5,024,089	\$5,730,513	\$6,887,094	\$7,545,918

Table XXVI (Continued)

## The Yearly Investment Income

(dollars)

Large Companies

<u>COMPANIES</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Halifax	\$ 487,304	\$ 477,429	\$ 473,714	\$ 507,251	\$ 505,435
Canadian Surety	363,663	400,681	441,770	476,192	533,717
Wellington Fire	190,524	201,145	227,286	287,230	444,393
Canadian General	402,103	436,463	463,853	528,346	610,511
Canadian Reinsurance	540,672	610,139	649,687	695,766	902,157
Guardian Insurance of Canada	589,346	685,526	712,038	747,106	814,238
Dominion of Canada General	533,871	498,557	533,943	620,834	754,359
General Accident of Canada	610,863	613,546	656,208	772,441	846,242
Dominion Insurance	199,062	246,192	276,277	301,583	353,637
Canadian Indemnity	366,987	666,357	749,189	876,539	953,602
British America	1,253,181	1,292,039	1,308,837	1,433,636	1,625,190
Western Assurance	<u>1,565,266</u>	<u>1,583,108</u>	<u>1,519,843</u>	<u>1,585,781</u>	<u>1,744,880</u>
TOTAL INVESTMENT INCOME	\$7,103,472	\$7,711,182	\$8,012,645	\$8,834,705	\$10,088,311

Table XXVI (Continued)

## The Yearly Investment Income

(dollars)

Large Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Halifax	\$ 529,378	\$ 621,322	\$ 656,813	\$ 714,958	\$ 775,410
Canadian Surety	631,333	707,875	764,540	817,995	983,685
Wellington Fire	546,582	692,658	801,838	972,893	1,016,595
Canadian General	732,069	900,532	1,009,850	1,027,111	1,089,201
Canadian Reinsurance	944,233	970,332	965,694	1,107,820	1,329,338
Guardian Insurance of Canada	873,023	1,080,150	1,136,859	1,232,415	1,294,914
Dominion of Canada General	893,277	1,020,630	1,184,754	1,351,083	1,569,232
General Accident of Canada	936,009	1,032,384	1,095,224	1,210,231	1,337,489
Dominion Insurance	435,565	871,854	1,113,692	1,258,881	1,472,404
Canadian Indemnity	1,093,036	1,377,576	1,556,877	1,703,889	1,894,357
British America	1,904,794	1,942,188	2,408,491	2,601,975	2,937,773
Western Assurance	<u>2,059,221</u>	<u>2,130,315</u>	<u>2,498,436</u>	<u>2,801,329</u>	<u>3,137,773</u>
TOTAL INVESTMENT INCOME	\$11,578,520	\$13,347,816	\$15,193,168	\$16,800,580	\$18,838,171

Table XXVII

## Actual or Incurred Underwriting Profit - Industry and by Size Class

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
<u>Small Companies</u>										
Weight	.1387	.1330	.1240	.1228	.1222	.1265	.1285	.1245	.1236	.1262
X										
Underwriting Income	03.24%	-03.93%	-07.75%	-05.44%	-00.07%	07.76%	07.27%	05.83%	-02.18%	-01.11%
Weighted Return	00.45%	-00.52%	-00.96%	-00.67%	-00.01%	00.98%	00.93%	00.73%	-00.27%	-00.14%
1961-1970 arithmetic average = <u>00.36%</u> 1962-1970 arithmetic average = <u>00.04%</u>										
<u>Medium Companies</u>										
Weight	.2043	.2047	.1936	.1880	.1981	.2089	.2194	.2168	.2330	.2266
X										
Underwriting Income	-01.56%	-08.16%	-14.65%	-11.08%	00.46%	06.15%	05.89%	03.79%	-09.99%	-06.15%
Weighted Return	-00.32%	-01.67%	-02.84%	-02.08%	00.09%	01.28%	01.29%	00.82%	-02.33%	-01.39%
1961-1970 arithmetic average = <u>-03.53%</u> 1962-1970 arithmetic average = <u>-03.75%</u>										

Table XXVII (Continued)

Actual or Incurred Underwriting Profit - Industry and by Size Class

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
<u>Large Companies</u>										
Weight	.6569	.6622	.6622	.6890	.6796	.6644	.6520	.6585	.6432	.6471
X										
Underwriting Income	05.60%	00.80%	-05.49%	-03.42%	00.91%	05.26%	09.06%	03.75%	-04.36%	-03.00%
Weighted Return	03.68%	00.53%	-03.64%	-02.36%	00.62%	03.49%	05.91%	02.47%	-02.80%	-01.94%
	1961-1970 arithmetic average = <u>00.91%</u>					1962-1970 arithmetic average = <u>00.39%</u>				
<u>Industry Return</u>	03.81%	-01.66%	-07.44%	-05.11%	00.70%	05.75%	08.13%	04.02%	-05.40%	-03.47%
	1961-1970 arithmetic average = <u>00.07%</u>					1962-1970 arithmetic average = <u>-00.49%</u>				

For Each Size Class:

- \* The weight is  $\frac{\text{Adjusted Net Worth} - \text{Size Class}}{\text{Adjusted or Net Worth} - \text{Industry}}$
- + The rate of return is  $\frac{\text{Incurred Underwriting Profit (Table XXVIII)} - \text{Size Class}}{\text{Adjusted Net worth at the beginning of the year} - \text{Size Class}}$

Table XXVIII

The Yearly Overstatement in the Unearned Premium Reserve  
and the Statutory and Incurred Underwriting Profit  
(dollars)

Small Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
London - Canada	\$ 138,196	\$ 159,703	\$ 162,915	\$ 165,324	\$ 173,724	\$ 128,525
Commonwealth	23,843	26,988	28,590	26,991	30,738	36,394
Reliance of Canada	259,569	299,030	323,620	182,415	210,644	254,686
Scottish Canadian	122,367	136,018	149,648	164,275	170,370	194,682
Federation	97,243	107,100	115,230	104,495	108,255	104,558
Canadian Health & Accident	76,366	79,955	65,178	66,132	67,209	67,045
Fire of Canada	175,781	212,180	255,477	271,454	233,507	381,295
Great Eastern	115,767	123,611	131,263	159,241	182,429	218,037
Fidelity Insurance	200,321	197,673	135,325	150,905	162,683	183,290
Canadian Home	243,332	338,846	378,062	375,385	379,468	239,216
Missisquoi & Rouville	161,995	191,027	200,934	220,627	234,727	251,152
Stanstead & Sherbrooke	<u>194,477</u>	<u>202,654</u>	<u>213,185</u>	<u>268,324</u>	<u>294,679</u>	<u>306,450</u>
<u>TOTAL OVERSTATEMENT</u>						
IN UNEARNED PREMIUM RESERVE	\$1,809,257	\$2,074,785	\$2,159,437	\$2,155,568	\$2,248,433	\$2,365,330

Table XXVIII (Continued)

The Yearly Overstatement in the Unearned Premium Reserve  
and the Statutory and Incurred Underwriting Profit

(dollars)

Small Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
London - Canada	\$ 29,114	\$	\$ 203,250	\$ 203,695	\$ 219,678
Commonwealth	67,415	59,258	106,955	79,938	56,762
Reliance of Canada	280,381	358,028	422,887	280,726	315,617
Scottish Canadian	184,552	206,920	121,962	258,630	325,188
Federation	97,262	103,956	114,369	108,346	108,231
Canadian Health & Accident	70,418	64,806	66,529	66,483	62,101
Fire of Canada	493,172	582,758	587,575	518,523	445,083
Great Eastern	224,810	245,039	262,438	288,657	330,953
Fidelity Insurance	196,498	255,749	302,383	476,077	286,536
Canadian Home	293,708	345,516	430,416	435,207	514,142
Missisquoi & Rouville	276,863	297,192	356,166	375,026	391,491
Stanstead & Sherbrooke	<u>366,358</u>	<u>413,752</u>	<u>438,835</u>	<u>464,399</u>	<u>409,951</u>
<u>TOTAL OVERSTATEMENT</u> IN UNEARNED PREMIUM RESERVE	\$2,580,551	\$2,933,774	\$3,413,765	\$3,555,707	\$3,465,733

Table XXVIII (Continued)

The Yearly Overstatement in the Unearned Premium Reserve  
and the Statutory and Incurred Underwriting Profit

(dollars)

Small Companies

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
<u>CHANGE IN OVERSTATEMENT</u> IN THE UNEARNED PREMIUM RESERVE	+	\$ 265,528	\$ 84,657	\$ --3,869	\$ 92,865	\$ 116,897
STATUTORY UNDERWRITING PROFIT	+	<u>323,908</u>	<u>- 893,907</u>	<u>-1,523,315</u>	<u>-1,232,704</u>	<u>-132,433</u>
INCURRED UNDERWRITING PROFIT	=	\$ 589,436	\$ = 809,255	-\$1,527,184	-\$1,139,839	\$ -15,536

Small Companies

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	
<u>CHANGE IN OVERSTATEMENT</u> IN THE UNEARNED PREMIUM RESERVE	+	\$ 215,221	\$ 353,223	\$ 479,991	\$ 141,942	\$ -89,974
STATUTORY UNDERWRITING PROFIT	+	<u>1,716,410</u>	<u>1,561,909</u>	<u>1,105,300</u>	<u>-829,173</u>	<u>-258,536</u>
INCURRED UNDERWRITING PROFIT	=	\$1,931,631	\$1,915,132	\$1,585,291	\$ -687,231	\$ -348,510

Table XXVIII (Continued)

The Yearly Overstatement in the Unearned Premium Reserve  
and the Statutory and Incurred Underwriting Profit

(dollars)

Medium Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Hudson Bay	\$ 370,319	\$ 415,824	\$ 447,468	\$ 462,697	\$ 477,416	\$ 497,723
Mercantile & General of Canada	429,156	397,518	390,150	425,638	495,995	498,929
Guarantee Co. of North America	211,568	134,432	164,761	150,936	245,742	232,618
Merit	1,546,869	1,272,103	1,148,606	1,003,251	920,635	872,810
Globe Indemnity	389,219	415,824	447,466	462,697	467,261	497,722
Quebec	54,956	57,496	169,201	185,078	187,067	199,091
General Security of Canada	216,778	265,903	247,567	213,517	245,526	304,863
Consolidated Fire	276,873	309,153	429,671	460,877	509,349	794,497
Federal Fire	297,437	331,235	460,362	493,775	545,732	411,461
Acadia	427,793	454,006	419,517	418,419	384,782	475,662
London & Midland	150,741	230,799	43,739	98,515	202,868	177,990
Canadian Accident & Fire	<u>375,947</u>	<u>510,336</u>	<u>565,780</u>	<u>547,127</u>	<u>622,411</u>	<u>857,489</u>
<u>TOTAL OVERSTATEMENT</u> <u>IN THE UNEARNED PREMIUM RESERVE</u>	\$4,748,656	\$4,789,629	\$4,934,288	\$4,922,527	\$5,304,784	\$5,821,155

Table XXVIII (Continued)

The Yearly Overstatement in the Unearned Premium Reserve  
and the Statutory and Incurred Underwriting Profit

(dollars)

Medium Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Hudson Bay	\$ 601,182	\$ 628,346	\$ 634,452	\$ 628,569	\$ 632,010
Mercantile & General of Canada	468,387	394,137	416,822	493,034	499,550
Guarantee Co. of North America	245,634	362,698	587,815	841,776	822,171
Merit	881,645	993,228	1,052,654	1,024,546	900,046
Globe Indemnity	501,181	471,260	483,339	470,927	474,008
Quebec	200,474	157,284	808,156	680,950	716,678
General Security of Canada	274,041	347,308	396,792	516,488	459,888
Consolidated Fire	611,279	686,141	831,277	821,255	802,604
Federal Fire	654,942	748,502	890,570	879,916	859,934
Acadia	636,972	718,732	816,405	858,002	887,135
London & Midland	208,674	563,585	610,223	744,682	68,788
Canadian Accident & Fire	<u>923,056</u>	<u>1,026,431</u>	<u>1,123,390</u>	<u>1,220,040</u>	<u>1,038,515</u>
<u>TOTAL OVERSTATEMENT</u> IN THE UNEARNED PREMIUM RESERVE	\$6,207,467	\$7,097,651	\$8,652,105	\$9,180,185	\$8,161,327

Table XXVIII (Continued)

The Yearly Overstatement in the Unearned Premium Reserve  
and the Statutory and Incurred Underwriting Profit

(dollars)

Medium Companies

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
<u>CHANGE IN OVERSTATEMENT</u> IN THE UNEARNED PREMIUM RESERVE	+	\$ 40,973	\$ 144,659	\$ -11,761	\$ 382,257	\$ 516,371
STATUTORY UNDERWRITING PROFIT	+	<u>-462,959</u>	<u>-2,738,836</u>	<u>-4,541,137</u>	<u>-4,187,271</u>	<u>-341,267</u>
INCURRED UNDERWRITING PROFIT	=	\$ -421,986	- \$2,594,177	- \$4,552,898	- \$3,805,014	\$ 175,104

Medium Companies

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	
<u>CHANGE IN OVERSTATEMENT</u> IN THE UNEARNED PREMIUM RESERVE	+	\$ 386,312	\$ 890,184	\$1,554,454	\$ 528,080	- \$1,018,858
STATUTORY UNDERWRITING PROFIT	+	<u>2,169,043</u>	<u>1,666,314</u>	<u>266,992</u>	<u>-6,394,505</u>	<u>-2,637,737</u>
INCURRED UNDERWRITING PROFIT	=	\$2,555,355	\$2,556,498	\$1,821,446	- \$5,866,425	- \$3,656,595

Table XXVIII (Continued)

The Yearly Overstatement in the Unearned Premium Reserve  
and the Statutory and Incurred Underwriting Profit

(dollars)

Large Companies

<u>COMPANIES</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Halifax	\$ 724,107	\$ 830,897	\$ 886,977	\$ 875,878	\$ 900,799	\$ 903,583
Canadian Surety	586,997	699,726	785,277	769,399	814,688	883,691
Wellington Fire	415,310	464,179	644,507	691,285	763,924	855,043
Canadian General	633,808	722,629	759,562	804,036	856,561	1,030,608
Canadian Reinsurance	818,988	805,429	923,339	1,013,046	941,331	891,964
Guardian Insurance of Canada	329,625	1,232,232	1,490,225	1,399,301	1,445,660	1,385,401
Dominion of Canada General	904,779	936,999	1,030,751	1,193,874	1,265,158	1,369,473
General Accident of Canada	902,478	962,157	1,029,741	1,115,299	1,095,687	1,269,464
Dominion Insurance	489,827	841,307	854,972	883,324	878,690	829,176
Canadian Indemnity	823,421	876,160	1,740,698	1,839,377	2,022,512	2,181,615
British America	1,659,887	1,863,548	1,671,862	1,824,588	1,929,785	2,072,070
Western Assurance	<u>2,564,248</u>	<u>1,795,312</u>	<u>2,140,808</u>	<u>2,332,512</u>	<u>2,481,943</u>	<u>2,692,371</u>
<u>TOTAL OVERSTATEMENT</u>						
IN THE UNEARNED PREMIUM RESERVE	10,853,475	12,031,125	13,958,219	14,741,919	15,397,738	16,364,459

Table XXVIII (Continued)

The Yearly Overstatement in the Unearned Premium Reserve  
and the Statutory and Incurred Underwriting Profit  
(dollars)

Large Companies

<u>COMPANIES</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Halifax	\$ 882,607	\$ 1,096,954	\$ 1,179,451	\$ 1,187,434	\$ 1,204,215
Canadian Surety	1,027,288	1,106,556	1,335,991	1,502,704	1,671,247
Wellington Fire	916,918	1,029,212	1,246,799	1,232,882	1,203,906
Canadian General	1,062,725	1,273,740	1,312,464	1,287,927	1,304,342
Canadian Reinsurance	738,654	712,788	757,848	920,398	1,242,797
Guardian Insurance of Canada	1,282,874	1,434,811	1,622,043	1,832,124	1,905,840
Dominion of Canada General	1,429,336	1,647,068	1,873,273	1,901,911	2,014,910
General Accident of Canada	1,327,557	1,486,430	1,627,722	1,896,633	2,113,728
Dominion Insurance	1,339,845	1,561,108	1,574,106	1,620,584	1,748,454
Canadian Indemnity	2,272,386	2,761,889	3,090,990	3,207,678	2,874,100
British America	2,018,587	2,656,443	2,879,853	2,990,140	2,808,568
Western Assurance	<u>2,652,590</u>	<u>3,250,229</u>	<u>3,557,212</u>	<u>3,545,243</u>	<u>3,364,938</u>
<u>TOTAL OVERSTATEMENT</u> IN THE UNEARNED PREMIUM RESERVE	\$16,951,437	\$20,017,228	\$22,057,752	\$23,125,658	\$23,457,045

Table XXVIII (Continued)

The Yearly Overstatement in the Unearned Premium Reserve  
and the Statutory and Incurred Underwriting Profit  
(dollars)

Large Companies

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
<u>CHANGE IN OVERSTATEMENT</u> IN THE UNEARNED PREMIUM RESERVE	+	\$ 1,177,650	\$ 1,927,094	\$ 783,700	\$ 655,819	\$ 966,721
STATUTORY UNDERWRITING PROFIT	+	<u>3,682,304</u>	<u>-1,105,515</u>	<u>-6,733,331</u>	<u>-4,644,279</u>	<u>187,749</u>
INCURRED UNDERWRITING PROFIT	=	\$ 4,859,954	\$ 821,579	\$-5,949,631	\$-3,988,460	\$ 1,154,470
		<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>

Large Companies

<u>CHANGE IN OVERSTATEMENT</u> IN THE UNEARNED PREMIUM RESERVE	+	\$ 586,978	\$3,065,791	\$2,040,524	\$1,067,906	\$ 331,387
STATUTORY UNDERWRITING PROFIT	+	<u>6,234,129</u>	<u>8,648,442</u>	<u>3,312,006</u>	<u>-8,134,884</u>	<u>-5,074,198</u>
INCURRED UNDERWRITING PROFIT	=	\$ 6,821,107	\$11,714,233	\$ 5,352,530	\$-7,066,978	\$-4,742,811

Table XXIX

The Effect of the Tax Shield  
and the Unearned Premium Adjustment  
on the Underwriting Result

(1961 - 1970)

	(1) Tax Shield= .5x the change in the overstatement of the unearned premium reserve	(2) Tax Actually Paid	(3) Tax Shield Effect (1) ÷ (2)
Small Companies	\$ 828,236	\$ 6,834,869	12.1%
Medium Companies	1,706,336	7,587,000	15.4%
Large Companies	6,301,783	34,072,771	18.5%
	(4) the change in the overstatement of the unearned premium reserve	(5) Statutory Underwriting Profit	(6) The unearned premium adjustment effect (4) ÷ (5)
Small Companies	\$ 1,656,472	\$ 9,577,595	17.3%
Medium Companies	3,412,672	25,406,061	13.4%
Large Companies	12,603,566	47,756,837	26.4%

Table XXX

Statutory Underwriting Profit to Net Premiums Earned

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1961-70</u> <u>A.A.*</u>	<u>1962-70</u> <u>A.A.*</u>
Small Companies	02.05%	-05.93%	-09.00%	-06.68%	-00.63%	07.02%	05.93%	03.48%	-02.57%	-00.76%	-00.71%	-01.02%
Medium Companies	-01.25%	-07.17%	-11.55%	-09.00%	-00.62%	03.37%	02.39%	00.37%	-07.30%	-02.92%	-03.37%	-03.60%
Large Companies	03.55%	-01.00%	-05.74%	-03.50%	00.12%	03.59%	04.39%	01.65%	-03.54%	-01.98%	-00.25%	-00.67%
Weighted Industry Ratio**	02.26%	-02.90%	-07.39%	-05.09%	-00.13%	03.85%	04.05%	01.54%	-04.40%	-02.09%	-01.03%	-01.40%

\*\* the weight used is 
$$\frac{\text{Net Premiums Earned for Small Medium size class for each year}}{\text{Net Premiums Earned for the industry for each year}}$$

\* Arithmetic Average

Table XXXI

Incurred Underwriting Profit to Net Premiums Earned

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1961-70</u> <u>A.A.*</u>	<u>1962-70</u> <u>A.A.*</u>
Small Companies %	03.74	-05.36	-09.02	-06.18	-00.70	07.90	07.27	05.00	-02.13	-01.02	00.01	-00.40
Medium Companies %	-01.14	-06.79	-11.58	-08.18	-00.32	03.97	03.66	02.54	-06.70	-04.05	-02.86	-03.05
Large Companies %	04.69	00.75	-05.07	-03.00	00.75	03.93	05.95	02.66	-03.07	-01.85	00.37	00.12
Weighted Industry Ratio** %	03.21	-01.58	-06.93	-04.52	00.41	04.31	05.52	02.88	-03.90	-02.30	-00.29	-00.68

\*\* the weight used is 
$$\frac{\text{Small Net Premiums Earned for each year} + \text{Medium size class for each year}}{\text{Large Net Premiums Earned for the industry for each year}}$$

\* Arithmetic Average

Table XXXII

## Summary of Results - Industry

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Rate of Return - After Taxes \$	24,663,520	6,138,921	10,933,612	11,351,544	9,963,158
Rate of Return - After Taxes %	18.71	03.96	06.89	06.71	05.34
Tax \$	5,319,792	2,192,716	540,845	1,311,834	3,345,054
Rate of Return - Before Taxes \$	29,983,312	8,331,637	11,474,457	12,663,378	13,308,212
Rate of Return - Before Taxes %	22.75	05.38	07.23	07.47	07.11
<u>Sources of Return</u>					
Investment Income \$	10,617,232	11,335,911	11,770,796	13,036,666	15,205,814
Investment Income %	08.04	07.32	07.26	07.57	08.14
Underwriting Results \$	5,027,404	-2,581,853	-12,029,713	-8,933,313	1,314,038
Underwriting Results %	03.81	-01.66	-07.44	-05.11	00.70
Other Income (Unrealized Capital Gains etc.) \$	14,345,806	-422,425	11,733,374	8,558,952	-3,211,640
Other Income (Unrealized Capital Gains etc.) %	10.90	-00.28	07.41	05.01	-01.73

Table XXXII (Continued)

## Summary of Results - Industry

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Rate of Return - After Taxes \$	2,968,207	16,852,087	37,356,665	-1,599,722	10,309,872
Rate of Return - After Taxes %	01.50	08.48	17.13	00.80	04.18
Tax \$	6,551,863	11,040,415	8,966,026	2,464,074	6,222,857
Rate of Return - Before Taxes \$	9,520,070	27,892,502	46,322,691	864,352	16,532,729
Rate of Return - Before Taxes %	04.84	14.04	21.77	00.34	06.70
<u>Sources of Return</u>					
Investment Income \$	17,757,090	20,479,501	23,437,896	26,535,497	29,496,109
Investment Income %	09.04	10.25	10.75	10.53	11.23
Underwriting Results \$	11,308,093	16,185,863	8,759,287	-13,620,634	-8,747,916
Underwriting Results %	05.75	08.13	04.02	-05.40	-03.47
Other Income (Unrealized Capital Gains etc.) \$	-19,545,113	-8,772,862	14,125,528	-12,050,425	-4,215,464
Other Income (Unrealized Capital Gains etc.) %	-09.95	-04.34	06.50	-04.79	-01.06

Table XXXII (Continued)

Summary of Results - Industry

	<u>AVERAGES</u>
Rate of Return - After Taxes .....	10 year geometric average = 7.3%
.....	9 year geometric average = 5.5%
.....	10 year arithmetic average = 7.5%
.....	9 year arithmetic average = 6.2%
Rate of Return - Before Taxes .....	10 year geometric average = 9.5%
.....	9 year geometric average = 7.5%
.....	10 year arithmetic average = 9.7%
.....	9 year arithmetic average = 8.3%
Investment Income .....	10 year arithmetic average = 09.01%
.....	9 year arithmetic average = 09.12%
Underwriting Results .....	10 year arithmetic average = 00.07%
.....	9 year arithmetic average = -00.49%
Other (Unrealized Capital Gains, etc.) .....	10 year arithmetic average = -00.62%
.....	9 year arithmetic average = -00.33%

Table XXXII (Continued)

## Summary of Results - Small Companies

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Rate of Return - After Taxes \$	2,759,537	-567,050	1,195,125	1,578,016	574,875
Rate of Return - After Taxes %	15.19	-02.75	06.07	07.54	02.43
Tax \$	484,784	364,717	266,779	320,198	695,449
Rate of Return - Before Taxes \$	3,244,321	-202,333	1,461,904	1,898,214	1,270,324
Rate of Return - Before Taxes %	17.86	-00.98	07.42	09.06	05.38
<u>Sources of Return</u>					
Investment Income \$	1,214,651	1,233,223	1,238,005	1,400,974	1,586,728
Investment Income %	06.68	05.98	06.28	06.68	06.71
Underwriting Result \$	589,436	-809,255	-1,527,184	-1,139,839	-15,336
Underwriting Result %	03.24	-03.93	-07.75	-05.44	-00.07
Other Income (Unrealized Capital Gains, etc.) \$	1,440,234	-626,301	1,751,083	1,637,079	-300,868
Other Income (Unrealized Capital Gains, etc.) %	07.94	-03.03	08.89	07.82	-01.26

Table XXXII (Continued)

## Summary of Results - Small Companies

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Rate of Return - After Taxes \$	657,230	-43,292	4,353,163	-62,544	2,045,407
Rate of Return - After Taxes %	02.64	-00.16	16.02	-00.20	06.52
Tax \$	946,263	1,119,029	1,073,802	660,454	903,394
Rate of Return - Before Taxes \$	1,603,493	1,075,737	5,426,965	597,910	2,948,801
Rate of Return - Before Taxes %	06.44	04.09	19.97	01.90	09.40
<u>Sources of Return</u>					
Investment Income \$	1,820,004	2,107,596	2,514,215	2,847,823	3,112,020
Investment Income %	07.31	08.10	09.25	09.05	09.92
Underwriting Result \$	1,931,631	1,915,132	1,585,291	-687,231	-348,510
Underwriting Result %	07.76	07.27	05.83	-02.18	-01.11
Other Income (Unrealized Capital Gains, etc.) \$	-2,148,142	-2,946,991	1,327,459	-1,562,682	185,291
Other Income (Unrealized Capital Gains, etc.) %	-08.63	-11.28	04.89	-04.97	00.59



Table XXXII (Continued)

## Summary of Results - Medium Companies

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Rate of Return - After Taxes \$	\$5,020,707	\$ -667,399	\$ 576,259	\$ 17,073	\$2,628,807
Rate of Return - After Taxes %	18.60	-02.10	01.86	00.05	06.95
Tax \$	591,530	-140,746	-128,836	24,990	684,458
Rate of Return - Before Taxes \$	5,612,237	-808,145	447,423	42,063	3,313,265
Rate of Return - Before Taxes %	20.80	-02.54	01.44	00.12	08.75
<u>Sources of Return</u>					
Investment Income \$	2,291,979	2,391,506	2,520,146	2,800,987	3,530,775
Investment Income %	08.49	07.52	08.11	08.15	09.32
Underwriting Result \$	-421,986	-2,594,177	-4,552,878	-3,805,014	175,104
Underwriting Result %	-01.56	-08.16	-14.65	-11.08	00.46
Other Income (Unrealized Capital Gains, etc.) \$	3,742,244	-605,474	2,480,175	1,046,090	-392,614
Other Income (Unrealized Capital Gains, etc.) %	13.87	-01.90	07.98	03.05	-01.03

A = arithmetic average

G = geometric average

Table XXXII (Continued)

## Summary of Results - Medium Companies

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Rate of Return - After Taxes \$	\$1,668,107	\$3,864,095	\$10,495,085	-\$1,802,452	\$ 683,716
Rate of Return - After Taxes %	04.02	08.91	21.84	-03.07	01.15
Tax \$	943,675	2,229,669	1,246,068	479,635	1,117,393
Rate of Return - Before Taxes \$	2,611,782	6,093,764	11,741,153	-1,322,817	1,801,109
Rate of Return - Before Taxes %	06.29	14.05	24.43	-02.25	03.03
<u>Sources of Return</u>					
Investment Income \$	4,358,566	5,024,089	5,730,513	6,887,094	7,545,918
Investment Income %	10.50	11.57	11.92	11.73	12.69
Underwriting Result \$	2,555,355	2,556,498	1,821,446	-5,866,425	-3,656,595
Underwriting Result %	06.15	05.89	03.79	-09.99	-06.15
Other Income (Unrealized Capital Gains, etc.) \$	-4,302,139	-1,486,823	4,189,194	-2,343,486	-2,088,214
Other Income (Unrealized Capital Gains, etc.) %	-10.36	-03.41	08.72	-03.99	-03.51

A = arithmetic average

G = geometric average

Table XXXII (Continued)

Summary of Results - Medium Companies

	<u>AVERAGES</u>
Rate of Return - After Taxes .....	10 year geometric average = 5.6%
.....	9 year geometric average = 3.7%
.....	10 year arithmetic average = 5.8%
.....	9 year arithmetic average = 4.3%
 Rate of Return - Before Taxes .....	 10 year geometric average = 7.0%
.....	9 year geometric average = 5.0%
.....	10 year arithmetic average = 7.4%
.....	9 year arithmetic average = 5.9%
 Investment Income .....	 10 year arithmetic average = 10.00%
.....	9 year arithmetic average = 10.17%
 Underwriting Results .....	 10 year arithmetic average = -03.53%
.....	9 year arithmetic average = -03.75%
 Other (Unrealized Capital Gains,) etc. ....	 10 year arithmetic average = 00.93%
.....	9 year arithmetic average = -00.52%

Table XXXII (Continued)

## Summary of Results - Large Companies

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Rate of Return - After Taxes \$	16,883,276	7,373,370	9,162,228	9,756,455	6,759,476
Rate of Return - After Taxes %	19.48	07.19	08.47	08.37	05.38
Tax \$	4,243,478	1,968,745	402,902	966,646	1,965,147
Rate of Return - Before Taxes \$	21,126,754	9,342,115	9,565,130	10,723,101	8,724,623
Rate of Return - Before Taxes %	24.38	09.11	08.84	09.20	06.94
<u>Sources of Return</u>					
Investment Income \$	7,103,472	7,711,182	8,012,645	8,834,705	10,088,311
Investment Income %	08.19	07.52	07.40	07.58	08.05
Underwriting Results \$	4,859,954	821,579	-5,949,631	-3,988,460	1,154,470
Underwriting Results %	05.60	00.80	-05.49	-03.42	00.91
Other (Unrealized Capital Gains etc.) \$	9,163,328	809,354	7,502,116	5,875,783	-2,518,158
Other (Unrealized Capital Gains etc.) %	10.59	00.79	06.93	05.04	-02.02

Table XXXII (Continued)

## Summary of Results - Large Companies

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Rate of Return - After Taxes \$	642,870	13,031,284	22,508,417	265,274	7,580,749
Rate of Return - After Taxes %	00.50	10.05	15.81	00.16	04.79
Tax \$	4,661,925	7,691,717	6,646,156	1,323,985	4,202,070
Rate of Return - Before Taxes \$	5,304,795	20,723,001	29,154,573	1,589,259	11,782,819
Rate of Return - Before Taxes %	04.09	15.99	20.47	00.98	07.45
<u>Sources of Return</u>					
Investment Income \$	11,578,520	13,347,816	15,193,168	16,800,580	18,838,171
Investment Income %	08.93	10.23	10.66	10.37	11.90
Underwriting Results \$	6,821,107	11,714,233	5,352,530	-7,066,978	-4,742,811
Underwriting Results %	05.26	09.06	03.75	-04.36	-03.00
Other (Unrealized Capital Gains etc.) \$	--13,094,832	-4,339,048	8,608,875	-8,144,343	-2,312,541
Other (Unrealized Capital Gains etc.) %	-10.10	-03.30	06.06	-05.03	-01.45

Table XXXII (Continued)

Summary of Results - Large Companies

	<u>AVERAGES</u>
Rate of Return - After Taxes .....	10 year geometric average = 8.0%
.....	9 year geometric average = 6.1%
.....	10 year arithmetic average = 8.2%
.....	9 year arithmetic average = 6.9%
 Rate of Return - Before Taxes .....	 10 year geometric average = 9.7%
.....	9 year geometric average = 8.1%
.....	10 year arithmetic average = 10.8%
.....	9 year arithmetic average = 9.2%
 Investment Income .....	 10 year arithmetic average = 09.08%
.....	9 year arithmetic average = 09.18%
 Underwriting Results .....	 10 year arithmetic average = 00.91%
.....	9 year arithmetic average = 00.39%
 Other (Unrealized Capital Gains, etc.).....	 10 year arithmetic average = 00.81%
.....	9 year arithmetic average = 00.39%