TITLE: AN ANALYSIS OF THE IMPACT OF THE TAX REFORM ACT ON THE PROPERTY/CASUALTY INDUSTRY

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The property/casualty industry has operated under essentially the same federal income tax law since 1921. In the latter part of 1986 a new tax bill was signed into law that substantially revises the way property/casualty companies are taxed. Analysis of the impact of the new tax code will be vital to insurance companies. The insurance industry will now have to learn to live with substantial tax costs and will have to adjust operations accordingly. In addition to increasing the overall tax burden, the tax law will have the effect of smoothing out taxable income decreasing the uses of carrybacks and carryforwards. The new tax rules will have substantial impact on investment management. This paper will provide an analysis and explanation of the text of the new law, examples of how the tax burden will be calculated, and an analysis of investment strategies in this new environment.

INTRODUCTION

The Tax Reform Act of 1986 significantly impacts the taxation of property and casualty insurance companies. This is the result of several factors, specifically the change in corporate rates; a reduction of the dividends-received deduction; the change in the treatment of capital gains; revenue offset; proration; discounting of loss reserves; and the alternative minimum tax.

The first section of this paper enumerates the changes in the tax law and discusses them in detail. The second section contains examples of calculations of the taxable income and presents analyses of various financial consequences of the revised tax law.

THE TAX REFORM ACT OF 1986

I. General Provisions

A. Corporate Rates

Under the Tax Reform Act of 1986 (ACT), a new tax rate structure for corporations has been introduced. This rate structure is effective for taxable years beginning on or after July 1, 1987 and is demonstrated by the following table:

Taxable Income	Tax Rate
$50,000 or less	15%
$50,001-$75,000	25%
over $75,000	34%

There is an additional five-percent tax imposed on taxable income between $100,000 and $335,000 to phase out the benefit of the lower tax brackets.

The above rates are to be contrasted with existing rates, which are as follows:

Taxable Income	Tax Rate
$25,000 or less	15%
$25,001-$50,000	18%
$50,001-$75,000	30%
$75,001-$100,000	40%
over $100,000	46%

Under present law, there is an additional 5 percent tax on taxable income between $1 million and $1.405 million to phase out the benefit of the lower tax brackets.

For calendar year taxpayers, such as most insurers, a blended rate applies for 1987. The blended rate has the effect of reflecting the lower rates for that portion of a corporation's fiscal year income that falls after June 30, 1987. The blended rate is 40 percent (i.e., (.46 + .34) ÷ 2).

B. Capital Gains

Under present law, long-term capital gains are taxed at 28 percent. The Tax Reform Act changes this rule for tax years beginning after 1986. The post 1986 rate on capital gains is 34 percent.

Beginning in 1988 long-term capital gains will be taxed at the same rates as ordinary income and a distinction (for tax purposes) will no longer exist between investments held for less than six months and those held longer. However, as under present law, the use of capital losses is limited to offsetting capital gains.

II. Dividends Received Deduction

Under present law, corporations are entitled to deduct 85 percent of certain dividends received during the tax year from gross table income. The deduction results in an effective tax rate of 6.9% (15% of the top rate of 46%) on those dividends.

With a reduction of the maximum corporate rate to 34 percent in 1988, the deduction is reduced to 80 percent. Therefore, the maximum effective rate on dividends is reduced to 6.8% (20% of 34%) in 1988 and thereafter. In 1987, the effective rate on dividends will be 8% (20% of 40%).

This provision applies to dividends received or accrued after December 31, 1986. The effective rates listed above change where the alternative tax or proration provisions apply. These provisions are discused in Section IV.

III. Provisions Affecting Property and Casualty Insurers

A. Unearned Premium Reserve (Revenue Offset)

This provision of the Act requires property and casualty insurers to include in taxable income annually 20% of the increase in their unearned premium reserve. This is intended to accomplish a better matching of acquisition expenses and premium income. The Act also provides a transition rule for outstanding balances as of December 31, 1986. Specifically, 20% of outstanding balances at the end of 1986 are includable ratably over a six-year period beginning in 1987. A decrease in the unearned premium results in 20% (10% for insurers of certain debt obligations) less income.

Life insurance reserves of a property/casualty insurer are not subject to this provision even though life reserves are generally classified as an unearned premium reserve when a company does not qualify as a life insurance company under Section 816. Nor does this provision affect property and casualty unearned premiums of a life company.

A special rule has been fashioned for financial guarantee insurance of securities. This applies to insurance against default in the payment of principle or interest on securities with a maturity of five years or more. For such business, the deduction for the increase in the unearned premium reserve is reduced by 10% instead of 20%. The rate reduction also applies to the December 31, 1986 balance of the unearned premium reserve. Financial guarantee insurance on securities with maturities of less than five years is subject to the general rule.

If a property and casualty insurer fails to qualify as a property and casualty insurance company within the six-year period, the untaxed amount of the December 31, 1986 unearned premium reserve is included in taxable income for the last year the company qualified as a property and casualty insurer. In the words of the Conference Committee, "if a company ceases to be a property and casualty insurance company during the phase-in period ... the phase-in should be accelerated to prevent permanent avoidance of the income inclusion."

In addition, it should be noted that net retrospective rate credits and experience refunds should not be subject to the above provision since there are no related acquistions expenses. Title insurance companies are not subject to revenue offset; special rules are provided for title insurers under the discounting provisions.

B. Discounting of Loss Reserves

Property and casualty insurers are required to discount loss reserves and loss adjustment expenses (LAE) in the following manner:

- the rate of discount for 1987 will be 100% of the midterm applicable federal rate;

- the payout period will be based on industry averages or, at the election of the company, its own experience on a line-by-line basis;

- the maximum payout period for outstanding Schedule O reserves will be three years and for Schedule P 10 years;

- there will be an extension of the 10-year period for certain reserves remaining at the end of 10 years; and

- the discount rate will be adjusted annually beginning in 1988, predicated on 100% of the midterm applicable federal rate as it changes from year to year.

The provision also provides for a fresh start at the beginning of 1987, the first year in which discounting will be required. "Fresh Start" is defined and discussed in the second part of this section.

The impact of discounting is to spread the deduction for ultimate incurred loss and LAE over a number of years to reflect the assumed investment earnings on incurred but unpaid losses and LAE. Loss adjustment expenses are added to loss reserves for purposes of discounting.

1. Methodology

The methodology requires the development of a loss and LAE payout pattern for each line of business, based on data contained in Schedules O and P of the most recent annual statement filed before the determination year. For the purpose of discounting loss reserves, the term "determination year" means calendar year 1987 and each 5th calendar year thereafter. The IRS will provide the assumed discount rate which will be applied to the developed payout patterns to yield discount factors by accident-year age. Once established, the series of aged accident-year discount factors will be "vintaged" for that particular accident year, regardless of changes in payment patterns and interest rates. The discounted unpaid loss as of the end of any tax year is the present value of losses determined by reference to three factors:

- the gross amount (i.e., the undiscounted loss reserve per the annual statement);

- the pattern of payment of claims; and

- the rate of interest.

This methodology is applied by line of business and by accident year.

Where annual statement reserves are discounted, and the taxpayer discloses the basis of discounting in the annual statement, such reserves are grossed up in order to arrive at undiscounted reserves. The tax discounting methodology is applied to the undiscounted reserves. The tax discounted reserves can never exceed the annual statement discounted reserves.

For 1987 and future years, the interest rate is equal to 100% of the average of the midterm applicable federal rate, based on annual compounding, effective as of the beginning of each of the calendar months in the base period. The base period is defined as the most recent 60-calendar-month period ending before the beginning of the determination year. The midterm applicable federal rate is a rate to be determined by the Secretary of the Treasury. It is based on the average market yield on outstanding marketable obligations of the United States with maturities between three and nine years. It is published

monthly. To avoid a retroactive impact, the base period will not include any month beginning before August 1986. Therefore, for 1987 the interest rate will be the average midterm applicable federal rate for the last five months of 1986. This rate will also be used for purposes of computing the fresh start. The rate for 1988 will be the average of the 17-month period ending with December 1987. Once a rate is established for an accident year, it cannot be subsequently changed.

Loss payment and loss adjustment expense patterns also will be determined by the Treasury and will be applied to each line of business. Payment patterns will be announced every five years beginning with 1987. The Conference Committee Report spells out the method of determination for the Treasury and stipulates that all losses are to be treated as paid in the middle of year. In essence, a two-year lag in data will occur. According to the Conference Report, payment patterns for 1987-1991 are derived from the most recent "Bests" published data on January 1, 1987, which is data for 1985. For 1992, data available on January 1, 1992 is to be used; such data being from 1990. The data used in the examples in the Conference Report was drawn from Best's Aggregates and Averages.

For computational purposes, Schedule O and P losses are distinguished further. Schedule O losses paid after the first year following the accident year are to be treated as paid equally in the second and third year following the accident

year. With regard to Schedule P losses, losses paid after the close of the 10-year period after the accident year are to be treated as paid in the tenth year.

In a special rule that promises to provide a degree of complexity, an extension of up to five years is mandated where payments in the tenth year exceed the ninth year payment. In such cases, payments due after the tenth year are treated as being paid equally in an amount not to exceed the payment in the tenth year.

However, if the amount of losses treated as paid in the penultimate year of the payment pattern is zero or negative, then the average of the amounts treated as paid in the three penultimate years of the payment pattern is taken into account for purposes of extending the loss payment pattern by up to an additional five years. If the average of the three years is negative, additional preceding years of the payment pattern should be averaged in successively until the average is positive.

Examples constructed by the Treasury Department and included in the Conference Agreement are reproduced in Appendix A.

a. International and Reinsurance Lines

With respect to international and reinsurance business, shown as a one-line Schedule O item, loss

payment patterns are composite industry factors as published by the Treasury, combining all lines of business described on Schedule P. Where a reinsurer shows each line separately on Schedule P, it will be permitted to use industry averages by line as established by the Treasury. A question remains as to whether, in this situation, a reinsurer can elect to use its own experience.

b. Accident and Health Insurance

With respect to active lives, reserves held for life insurance and noncancellable A&H are not subject to discounting to the extent calculated as prescribed by Federal Tax rules in Section 807(b) of the Code. However, cancellable A&H reserves held by a life company are subject to discounting. For unpaid losses relating to disability other than credit disability, Section 807 general rules will apply. However, calculations will be adjusted to reflect the prevailing state assumed rate in effect for the year when the loss occurred rather than the year in which the contract was issued. Moreover, the reserves cannot be greater than those shown on the annual statements. Finally, companies may use their own experience relating to mortality and morbibity.

c. Election to Use Own Experience

An election is available for a company to use its own historical payment pattern. The determination is based on the general computational rules applicable for nonelecting companies. The election is made with respect to any determination year and will apply for that determination year and the four succeeding calendar years. Thus, a company may use its historical payment pattern in order to compute its discounted reserves for 1987-1991. A technical reading of the statute could lead to the conclusion that, where an election is made, each year in the election period would be based on the most recent information rather than one data base being applied to all five years as is the case where industry averages are used. A change in election to the pattern established by the Treasury may be made for 1992-1996 where an election to use a company's own information is made for 1987-1991.

The election is made on a timely filed return. The election cannot be made for international and reinsurance business. Moreover, a sweeping mandate is given to the Treasury to prescribe regulations to prevent abuses in developing historical payment patterns.

The Conference Committee Report states that no election should be permitted for any line of business where

90 percent of taxpayers, having reserves in that line of business, have reserves that are larger than those of the taxpayer for the line of business for the determination year.

A special rule is provided for title insurers. Premiums received under title policies are treated as earned in the year in which received, and amounts set aside in reserve for claims with respect to such a contract are treated as a reserve for unpaid losses. Such reserves are not subject to the unearned premium reserve provision but are subject to discounting.

2. Fresh Start

The Act provides a "fresh start" forgiveness. The January 1, 1987 reserve, which would normally be identical to the December 31, 1986 reserve, will be discounted on the same basis as the December 31, 1987 reserve. Any difference in the December 31, 1986 historical reserves and the amount as redetermined by discounting for purposes of calculating the January 1, 1987 reserves will be forgiven, i.e. it will never be included in taxable income.

In what appears to be a reference relating to life insurance concepts, there is a restriction provided for reserve

"strengthenings." The fresh start will not apply to a "reserve strengthening" reported for tax purposes after December 31, 1985. Reserve strengthenings in 1986 will be allowed as a deduction in calculating losses incurred in 1986 but will not be subject to fresh start when calculating the January 1, 1987 reserve. Consequently, where a strengthening is deemed to occur, the increase will not even be treated as a change in accounting method. It must be noted that the statute uses the word "strengthening" without amplification. The Conference Committee Report states that the strengthening provision is intended to prevent taxpayers from "artifically increasing the amount of income that is forgiven under the fresh start provision." The Conference Committee Report specifies that "reserve strengthening is considered to include all additions to reserves attributable to an increase in an estimate of a reserve established for a prior accident year (taking into account claims paid with respect to that accident year) and all additions to reserves resulting from a change in the assumptions (other than changes in assumed interest rates applicable to reserves for the 1986 accident year) used in estimating losses for the 1986 accident year, as well as all unspecified or unallocated additions to loss reserves."

The Conference Committee Report indicates that of primary concern is an avoidance of an artifical increase in reserves. To construe the Report to mean that any increase for 1985 and

prior years is a strengthening not subject to fresh start severely penalizes property/casualty companies by not allowing the normal relief provisions of the change in accounting rules. This would be completely contrary to the general intent of the fresh start provisions. Consequently, it would seem, it must be only abusive situations that would be prevented from using the fresh start provisions.

The fresh start provisions can be illustrated as follows (assuming a 3 year payment pattern and a 5% interest rate:)

	December 31, 1986	December 31, 1987	1987 Deduction
Undiscounted Loss Reserves	100X	140X	40X
Discounted Loss Reserves With Fresh Start	86X	121X	35X
Discounted Loss Reserves Without Fresh Start	100X	121X	21X

The fresh start benefit is the difference between the undiscounted and discounted loss reserves at December 31, 1986 or 14X (100X - 86X). If the fresh start benefit were not allowed, the 1987 deduction would be 21X (121X - 100X). The cost of discounting would be 19X (40X - 21X). With the fresh start the cost of discounting is 5X (40X - 35X). Moreover, the 14x is a deduction as the reserve is rebuilt to 100x no later than when the claim is satisfied.

Included in the discounting provisions is instruction to the Treasury to provide a solution to a long standing dispute that arises in the IRS test for reasonableness of estimates of unpaid losses. The Treasury is directed to provide the proper treatment of "salvage and reinsurance recoverable with respect to unpaid losses." This could have an impact on the open question dealing with the testing of unpaid losses, or it could signal a change in the long-standing rule of the Continental and Allstate cases not requiring the accrual of salvage and subrogation on paid losses.

Discounting for tax purposes will present additional challenges to the property and casualty insurance industry. Where economic pricing is done, the impact of using "discounted" reserves for tax purposes will need to be factored into the cash-flow models. Where the company does not hold the funds, as in the case of premium deferrals, retrospective plans, and some reinsurance arrangements, pricing adjustment may be required to provide the economic equivalent of the assumed investment income effect on the timing of income recognition.

The use of tax discounted reserves also creates a new source of risk to the property and casualty insurer. Where assumed discount rates are high and actual interest rates decline, the after-tax yields may not be sufficient to produce the assumed level of investment income. This change may make the property and casualty industry more sensitive to the need for asset-liability matching.

C. Proration

The Act provides that 15% of tax-exempt income and the dividend-received deduction are a reduction to tax losses incurred. The provision applies to bonds and stocks acquired after August 7, 1986 and is effective for tax years beginning after December 31, 1986. Municipal bond income could be taxed at an effective rate of 5.1% (15% x 34%) (6% in 1987). Dividend income could be taxed at an effective rate of 10.88% (12.8% in 1987). Where the alternative minimum tax applies, the effective rate on dividend income and tax-exempt income is changed. This rate structure is discussed in Section IV.

The portion of dividends received from an affiliate attributable to stock or tax-exempt obligations acquired after August 7, 1986 is subject to proration. An offset is provided where the payor is a life or property and casualty company that has previously been subject to proration on the amount of an otherwise 100% excludable dividend, a portion of which is deemed subject to proration in the hands of the parent. A dividend from an affiliate is treated as paid first from current earnings and profits attributable to tax-exempt interest and the deductible portion of dividends received.

The transfer of tax-exempt bonds among affiliates after August 7, 1986 is treated as an acquisition of the bonds after August 7, 1986.

If an affiliate is acquired after August 7, 1986, all stocks and bonds owned by the affiliate are deemed to have been acquired after August 7, 1986, regardless of when the securities were actually purchased by the affiliate.

The provision is effective for tax years beginning after December 31, 1986.

D. Protection Against Loss Account

Under present law, mutual property and casualty insurance companies are permitted a deduction for contributions to a "protection against loss" account. The Act repeals this deduction effective for tax years beginning after December 31, 1986. The amounts included in the protection against loss account as of December 31, 1986 are included in income under the provisions of existing law. Amounts reflecting additions from the fifth preceding year that have not been absorbed by losses are included in taxable income except that one-half of the twenty five percent portion of the earlier year's underwriting gains provision may remain deferred until absorbed by losses or mutuality ceases.

E. Small Companies

Under present law, mutual property and casualty companies are

divided into three categories depending upon their level of gross income. The categories are as follows:

1) tax exempt: those mutuals with gross income under $150,000 per taxable year;

2) small mutuals: those companies with gross income between $150,000 and $500,000 per taxable year; and

3) ordinary mutuals: those companies with gross income greater than $500,000 per taxable year.

A small mutual is taxed solely on investment income, provided such company has not elected to be taxed as an ordinary mutual and/or does not have a balance in its protection against loss (PAL) account. If annual gross income falls below $150,000, an electing mutual's "ordinary status" is automatically terminated, and any balance remaining in a PAL account is immediately taxable. The same result obtains where an electing mutual renounces with IRS permission its "ordinary" status.

Ordinary mutuals are taxed on underwriting income as well as investment income. An election to be taxed as an ordinary mutual allows the electing company to offset investment income with underwriting losses and to carry forward an unused loss deduction.

Mutual insurance company taxable income is taxed, as a general rule, at corporate income tax rates. The Code provides an

alternative tax for certain small companies. The rate structure is as follows:

1) No tax is imposed on taxable investment income where such income is less then $3,000;

2) Taxable investment income over $3,000 but less than $6,000 is taxed at a rate of 30 percent; and

3) Where gross income is over $150,000 but less than $250,000 an additional proration reduces the tax liability.

The Tax Reform Act provides that insurance companies, other than life companies, are eligible to be taxed solely on investment income if their net written premiums (or, if greater, direct written premiums) for the taxable year exceed $350,000 but do not exceed $1,200,000. Such treatment is afforded to those companies that elect in a timely filed return. In the absence of such an election, taxes will be imposed upon both underwriting income and investment income. Under either scheme, general corporate tax rates apply.

To determine the amount of direct or net written premiums of a member of a controlled group of corporations, the direct or net written premiums for all members of the controlled group are aggregated. For purposes of this test, a controlled group includes affiliates in which there is a 50 percent-or-greater stock ownership.

Insurance companies, other than life companies are eligible for exemption from tax if net written premiums (or, if greater, direct written premiums) for the taxable year do not exceed $350,000. The same rules stated above with regard to controlled groups apply here as well.

The provisions are effective for taxable years beginning after December 31, 1986

F. Deduction of Policyholder Dividends

The Treasury Department is required to conduct a study of the tax treatment of policyholder dividends by mutual property and casualty insurance companies. The issue is whether a portion of the dividends paid to policyholders should be disallowed as a deduction on a basis similar to that applied to mutual life insurers in the 1984 Act. The disallowance would be based on the theory that a mutual company policyholder is both a policyholder and an equity owner of the company. The deemed portion of the dividend attributable to the equity interest could be disallowed as a deduction to treat that portion of the dividend similar to dividends paid to stockholders by a stock casualty company. In fact under the life company theory the payment of dividends to policyholder is irrelevant in calculating the so-called equity tax.

The study is due January 1, 1989 and will include an analysis of the impact of the new law on the property and casualty industry.

IV. Alternative Minimum Tax

A. General Rules

The new Code will raise a substantial amount of additional tax revenue through a new corporate alternative minimum tax (AMT). The AMT concept requires the calculation of alternative minimum taxable income (AMTI). AMTI is obtained by adding certain tax preference items and other additions to regular taxable income which includes capital gains. It is important to recognize that regular taxable income is in both bases. The alternative tax is imposed at 20% on alternative minimum taxable income (AMTI) in excess of $40,000, but only if the AMT is more than the regular corporate tax. Thus the higher tax is the burden. The $40,000 exemption amount is reduced by 25¢ for each $1 that AMTI exceeds $150,000. Thus, the exemption is completely unavailable when AMTI exceeds $310,000.

The new AMT will require corporations to keep separate books for the regular tax and the AMT. A fundamental change is also introduced requiring the use of financial accounting income (book income) to determine a tax preference. For insurance companies, book income will normally be annual statement income after dividends to policyholders but before federal income taxes unless GAAP statements are prepared. Under this concept, 50% of the excess of financial accounting income over AMTI is a tax preference item. There are likely to be significant unresolved issues arising from applying this new concept.

The AMT is computed on a consolidated basis where an election to file a consolidated return is in effect for regular tax purposes.

The foreign tax credit is allowable against the AMT, but cannot reduce the liability by more than 90% of the tentative AMT liability. Investment credits can offset up to 25% of AMT after offset by the foreign tax credit, but they cannot reduce the liability by more than 90% of the tentative AMT liability.

Alternative minimum taxable income is reduced by net operating losses (NOLs) to the extent of 90% of AMTI. For years after 1986, such losses are recomputed under the minimum tax rules and reduced by tax preferences. Loss carryforwards arising in pre-1987 years will be carried forward in full. Where both regular taxable income and AMTI show a loss, there will be no AMT liability, but there will almost always be a difference in NOL carryforwards.

In most instances, insurers will be required to maintain a record of two loss carryovers - one for AMT pruposes and one for regular tax purposes. Any additional NOL used against AMTI will not be deemed to be a reduction of NOL available for regular income tax purposes. For example, assume 100X regular taxable income, 180X AMTI and 1,000X NOL carryforward. For regular tax purposes, only 100X of the 1,000X will be considered used. For AMT purposes, 90% of 180X (i.e., 162X) will be absorbed. Thus, NOL carryover for regular tax purposes is 900X and for AMT purposes is 838X.

For any year, the excess of AMT over the regular tax is allowed as a credit against future year's regular tax. The credit is allowed as a carryover for an unlimited period of years. The minimum tax credit may not reduce a taxpayer's tax liability below the AMT for the year in which the credit is utilized. Thus, the cost of paying the alternative minimum tax would be the investment income lost on the tax paid from the date of payment to the time the credit is utilized. The intention is to allow a credit for deferral preferences to avoid having those items subject to both alternative minimum tax and full regular tax. However, the new tax law is specific in providing that, for years 1987, 1988 and 1989, the credit applies to any AMT paid as a result of the book income preference, notwithstanding that some differences between AMTI and book income may result from exclusion items such as tax-exempt interest. For 1990 and subsequent years, when this preference is determined as 75% of the excess of current year's adjusted current earnings over otherwise AMTI, the minimum tax credit is not available with respect to the book income preference to the extent such preference is attributable to tax-exempt interest or excludable dividends.

Rules are provided to avoid including the same item in AMTI twice. For example, the book/tax preference is calculated at 50% of the excess of book income over AMTI before that preference which avoids double counting of items such as proration amounts.

In addition to the adjustments discussed above, all of the preference items from present law, other than capital gains, are retained. However, there are certain changes in application. Intangible drilling costs are a preference for all corporations rather than just personal holding companies as under the present law.

To avoid tax preference treatment, an election is available for certain preferences. Generally, under this election, an item is written off for regular tax purposes over a longer period. For example, intangible drilling costs are amortized straight-line over 120 months. Of course, this treatment will increase regular taxable income.

There are three preferences that are most likely to affect insurance companies:

- book income preference;
- interest on certain private activity municipal bonds issued after August 7, 1986;
- accelerated depreciation on real and personal property to the extent in excess of depreciation calculated under an alternative method.

B. Book/Tax Difference

The Act creates a new corporate tax preference item that is

designed to raise significant tax revenue. For 1987, 1988 and 1989, the preference consists of one-half of the amount by which the adjusted net book income (before federal and foreign income taxes) of a company exceeds its AMTI before calculation of this item. Generally, for 1987, 1988 and 1989, the book/tax preference item would result in an AMT liability when book income is more than 2.4 times AMT income (before the preference for the book tax difference). Also, a corporation would be subject to the AMT if total preference items equal at least 65% of taxable income, or at a lower threshold where tax credits offset the regular tax.

Under the Act, corporations must pay estimated taxes based on the higher of regular or minimum tax liability.

For tax years beginning after December 31, 1989, the preference consists of 75% of the amount by which adjusted current earnings, rather than book income, exceeds AMTI before this adjustment. Adjusted current earnings is essentially earnings and profits with certain adjustments. It is anticipated that specific guidelines for computation of adjusted current earnings will be forthcoming.

If a corporation issues financial statements prepared under different accounting methods, the following order of priority applies for years ending before January 1, 1990:

financial statements required to be filed with the Securities and Exchange Commission (GAAP income);

- audited financial statements that are used for credit purposes, for reporting to shareholders, or for any other substantial nontax purpose, which may or may not be GAAP.

- financial statements required to be provided to other federal, state or local governmental agencies, such as state insurance departments.

Where a corporation does not have any of the financial statements listed above, any other financial statements used to report to creditors, to shareholders or for any other substantial nontax purpose are used to calculate the book/tax difference. In this situation, and in the second category above, if a corporation issued more than one financial statement within the same category, the following order of priority would apply:

- financial statements issued to creditors;

- financial statements issued to shareholders;

- other financial statements.

Where an election to file a consolidated tax return for regular tax is in effect, book income is adjusted to reflect only the corporations contained in the consolidated federal income tax return, thus, foreign subsidiaries, excludable life insurance companies and Section 936 corporations are excluded. Adjustments are also made to eliminate the earnings or losses of nonconsolidated corporations

accounted for under the equity method of accounting and where financial reporting and tax year-ends do not coincide.

In the case of property/casualty insurers, the severity of the book/tax preference will be somewhat ameliorated by other provisions such as 1) revenue offset, 2) proration, and 3) discounting.

The following list includes some of the more common items that might create a book/tax difference.

- tax-exempt interest;

- dividends-received deduction;

- gains on installment sales to the extent not already treated as a preference item; and

- items of income and deduction that are reported in different accounting periods for book and tax purposes, such as:

  - certain deferred compensation plans
  - self-insurance
  - warranty reserve expense
  - estimated losses on discontinued operations
  - reserves for contingencies
  - rents received in advance
  - certain fees received in advance

The Secretary of the Treasury has been granted broad regulatory authority to adjust book income to prevent the omission or duplication of any item.

Proration in Detail

As mentioned above with regard to proration, the effective rate on dividends and tax-exempt income changes with the application of the alternative minimum tax.

Where the AMT applies, the effective rate on tax-exempt interest on securities acquired after August 7, 1986, in taxable years 1987, 1988 and 1989, is 11.5%. In taxable year 1990 and subsequent years, the effective rate is 15.75%. The above rates are calculated as follows:

	1987, 1988 and 1989	
1.	15% of tax-exempt interest included in taxable income x 20%	3.0%
	Plus tax-exempt interest portion of book/tax preference [(85% ÷ 2) x 20%)]	8.5%
	Total	11.5%
	1990 and thereafter	
2.	15% of tax-exempt interest included in taxable income x 20%	3.0%
	Plus tax-exempt interest portion of adjusted current earnings preference [(85% x .75) x 20%)]	12.75%
	Total	15.75%

With regard to securities acquired on or before August 7, 1986, the effective rate on tax-exempt interest is 10% for taxable years

1987, 1988 and 1989. In taxable year 1990 and beyond, the effective rate is 15%. The above rates are calculated as follows:

1.	[(100% ÷ 2) x .20%]	10%
2.	[(100% x .75) x .20%]	15%

In years prior to 1990, the AMT credit will be available to offset future years' regular tax liability. For municipal bond interest the credit will be 6.4% (11.5 - 5.1) in 1988 & 1989 and 5.5 in 1987 (11.5 less 6). Starting in 1990, the credit will no longer be available for municipal bond interest included in the adjusted current earnings item.

The effective tax rate on dividend income on securities acquired after August 7, 1986 is 13.2% in taxable years 1987, 1988 and 1989. In 1990 and subsequent years, the effective rate is 16.6%. These rates are calculated as follows:

	1987, 1988 and 1989	
1.	(20% of dividend income and 15% of 80% (68%) exclusion) x 20%	6.4%
	Plus dividend exclusion portion of book/tax preference [(68% ÷ 2) x 20%)]	6.8%
	Total	13.2%
	1990 and thereafter	
2.	(20% of dividend income and 15% of 80% (68%) exclusion) x 20%	6.4%
	Plus dividend exclusion portion of book/tax preference [(68% x .75) x 20%)]	10.2%
	Total	16.6%

With regard to securities acquired on or before August 7, 1986, the effective tax rate on dividend income is 12% for taxable years 1987, 1988 and 1989. In taxable year 1990 and beyond the effective rate is 16%. These rates are calculated as follows:

1.	(20% + 1/2 of 80%) x 20%	12%
2.	(20% + 3/4 of 80%) x 20%	16%

D. Interest on Certain Private Activity Municipal Bonds

The new law provides that tax-exempt interest on certain private activity bonds is a tax preference item. The new preference applies to bonds issued after August 7, 1986. Private activity bonds are bonds the proceeds of which are used for private purposes e.g., industrial development bonds. The AMT paid with respect to this item is not available for credit. As new municipal bonds are purchased, it will be critical to distinguish between private activity and non-private activity bonds.

E. Accelerated Depreciation

For purposes of the depreciation preference under the AMT, the cost of tangible personal property will be recovered over the ADR midpoint life using the 150% declining balance method. The cost of real property will be recovered over 40 years using the straight-line

method for AMT purposes. The difference between the method used for regular tax purposes and the method used for AMT purposes is the tax preference.

Corporations with significant amounts of depreciable assets should develop accounting systems that will compute this new AMT depreciation method.

For purposes of computing earnings and profits, the cost of all property placed in service after December 31, 1986 is recovered over the ADR midpoint life using the straight-line method. This will be significant starting in 1990 when the book/tax preference is predicated on current year earnings and profits.

Among the many facets of the AMT the following are noteworthy:

(1) The AMT credit cannot reduce the regular tax below the minimum tax liability for the carryover year. Companies anticipating the payment of an alternative minimum tax in Year 1 and a regular tax in Year 2 may look to reduce their alternative minimum tax liability in Year 2 so as to increase the Year 2 credit for the alternative minimum tax paid in Year 1. To the extent consistent with this goal, it may be advisable to change investment strategy and shift from tax-exempts to taxables so as to maximize the investment yield in Year 2. Moreover municipals will become less attractive in some situations beginning in 1990, because of the change from book/tax diffenence to adjusted current earnings.

(2) The availability of an NOL and the foreign tax credit is limited to 90% of the tentative AMT, whereas the ITC is limited to 25% of tentative AMT after the other two items. However, in no event may the AMT be less than 10% of tentative AMT. Planning for full use of losses and credits will become necessary.

This section of the paper described and listed the many, detailed revisions in the tax law. This revision changes the economic environment in which property/casualty companies operate. In the following section, the financial effects of the changed operating conditions will be examined.

FINANCIAL CONSEQUENCES OF THE NEW TAX LAW

I. Calculation of Federal Income Tax

The first four examples of this section illustrate both the calculation of regular taxable income under the new tax law and the calculation of the alternative minimum taxable income. These examples serve in part to demonstrate the differences created by the 1986 Tax Reform Act.

It should be noted here that the exact calculation that would go into the tax return are not the focus of the examples. For instance, the law specifies that prorated tax exempt income is to be used to reduce losses incurred. Since in reality proration effects the investment analysis and has no effect on the underwriting operations of a company the prorated investment has been treated as part of taxable investment income in these examples. This approach is essential to analysis of the financial impact of the new tax law. Finally, it has been assumed that the company in the examples files only the Annual Statement and does not prepare GAAP income statements.

Example 1

The first example focuses on some of the details of the changes in taxable income generated by the new tax law. A simplified statutory income statement serves as a starting point.

Statutory Income (1987)

Earned Premium	127,000
Incurred Losses	102,000
Expenses	37,000
Underwriting Income	-12,000
Investment Income	19,000
Net Pre-Tax Income	7,000

Adjustments to taxable income arise from Revenue Offset, Proration and Discounted Loss Reserves. Revenue Offset provides that the additional taxable income equals 20% of the change in the Unearned Premium Reserve plus 1/6 of 20% of the 12/31/86 reserve. It is assumed here that the 12/86 and 12/87 Unearned Premium Reserves are 48,000 amd 54,000 respectively. Additional income resulting from the Revenue Offset provision is 2,800 = (.20) x (54,000 - 48,000) + (1/6)(.20)(48,000).

Initially companies will only have a relatively small percent of their assets invested in tax exempts purchased after August 7, 1986. The tax exempt investment income on "new" tax exempt securities is assumed to be 400, a small percentage of the 19,000 in total investment income. This generates 60 in additional taxable income as a result of proration.

Finally, there is the discounting of loss reserves. The table below provides the data necessary to calculate the additional taxable income.

	12/86	12/87	Change
Nominal Loss Reserves	104,200	110,720	6,520
Discounted Loss Reserves	92,530	98,660	6,130

The difference in the loss reserve change is 390 indicating the decrease in the loss reserve change deduction.

The total additional taxable income is 3,250.

In the example, 9,500 of the 19,000 of investment income is taxable. As a result the regular taxable income is -12,000 + 9,500 + 3,250 = 750 and the regular tax is 255. The Book-Tax preference is one half of the difference between book income (statutory in this example) and regular taxable income. The preference is 3,125 and the alternative minimum taxable income is 3,875. The minimum tax is 775. In this case the company's tax liability would be the minimum tax.

Example 2

Again it is assumed that the company does not file GAAP statements and that the regular and minimum tax rates are 34% and 20% respectively.

Additional assumptions are that the investment income is generated by "new" bonds and stocks, i.e. purchased after August 7, 1986 and that Other Income is zero.

Statutory Income Statement

(a)	Statutory Underwriting Gain/Loss	-2,000,000
(b)	Taxable Investment Income	2,880,000
(c)	Tax Exempt Investment Income	3,360,000
(d)	Dividends Received	1,000,000
(e)	Net Statutory Income Before Taxes	5,240,000

Regular Tax Calculation

(f)	Tax Basis Underwriting Gain/Loss	-1,400,000
(g)	Prorated Tax Exempt Income	624,000
(h)	Taxable Investment Income	2,880,000
(i)	Dividends Received	1,000,000
(j)	Gross Taxable Income	3,104,000
(k)	Dividends Received Deduction	800,000
(l)	Net Regular Taxable Income	2,304,000
(m)	Regular Tax @ 34%	783,360

Minimum Tax Calculation

(n)	Book-Tax Preference	1,068,000
(o)	Minimum Taxable Income	3,372,000
(p)	Minimum Tax @ 20%	674,400

Explanation of Calculations -

(f): Revenue Offset and Discounting will generally decrease the amount of underwriting loss (or increase the amount of underwriting gain). Hence, for a growing company, the tax basis underwriting loss (gain) will usually be less (greater) than that appearing on the Statutory Income Statement. In this example it was assumed that the difference would be 600,000.

(g): Under the new tax law, 15% of the tax exempt income and excludable dividends on securities acquired after 8/7/86 is includable in taxable income. As a result, 100% of the income from municipal bonds is subject to proration as is 80% of stock dividends. Therefore, (g) = (.15) x (c) + (.15) x (.80) x (d).

(n): It is assumed that the company has only one item to add to regular taxable income to arrive at alternative minimum taxable income. The item to be added is the Book-Tax preference which is one-half of the difference between Statutory Income and Regular Taxable Income since the company does not file GAAP statements. As a result (n) = (1/2)[(e) - (l)].

(o): Alternative minimum taxable income = minimum taxable income + book-tax preference so that (o) = (l) + (n).

Example 3

In this example some of the assets have been shifted from the taxable to the tax exempt category thereby reducing regular taxable income and the regular tax. It will be seen that the shift results in this company becoming a minimum taxpayer rather than a regular taxpayer.

Statutory Income Statement

(a)	Statutory Underwriting Gain/Loss	-2,000,000
(b)	Taxable Investment Income	2,160,000
(c)	Tax Exempt Investment Income	3,920,000
(d)	Dividends Received	1,000,000
(e)	Net Statutory Income Before Taxes	5,080,000

Regular Tax Calculation

(f)	Tax Basis Underwriting Gain/Loss	-1,400,000
(g)	Prorated Tax Exempt Income	708,000
(h)	Taxable Investment Income	2,160,000

(i)	Dividends Received	1,000,000
(j)	Gross Taxable Income	2,468,000
(k)	Dividends Received Deduction	800,000
(l)	Net Regular Taxable Income	1,668,000
(m)	Regular Tax @ 34%	567,120

Minimum Tax Calculation

(n)	Book-Tax Preference	1,706,000
(o)	Minimum Taxable Income	3,374,000
(p)	Minimum Tax @ 20%	674,800
(q)	Alternative Minimum Tax Credit	107,680

Example 4

The previous examples were somewhat artificial in that they assumed that the tax exempt income was generated entirely by assets purchased after August 7, 1986. This example is more realistic in that it assumes that the tax exempt investment income is partially from "new" stocks or bonds and partially from "old" stocks or bonds.

Statutory Income Statement

(a)	Statutory Underwriting Gain/Loss	-2,000,000
(b)	Taxable Investment Income	2,880,000
(c-1)	Tax Exempt Investment Income (Old Bonds)	2,520,000
(c-2)	Tax Exempt Investment Income (New Bonds)	840,000
(d-1)	Dividends Received (Old Stocks)	600,000
(d-2)	Dividends Received (New Stocks)	400,000
(e)	Net Statutory Income Before Taxes	5,240,000

Regular Tax Calculation

(f)	Tax Basis Underwriting Gain/Loss	-1,400,000
(g)	Prorated Tax Exempt Income	174,000
(h)	Taxable Investment Income	2,880,000
(i)	Dividends Received	1,000,000
(j)	Gross Taxable Income	2,654,000
(k)	Dividends Received Deduction	800,000
(l)	Net Regular Taxable Income	1,854,000
(m)	Regular Tax @ 34%	630,360

Minimum Tax Calculation

(n)	Book-Tax Preference	1,693,000
(o)	Minimum Taxable Income	3,547,000
(p)	Minimum Tax @ 20%	709,400

Note: (g) = (.15)(840,000) + (.15)(.80)(400,000) = 174,000

II. Alternative Minimum Tax Credit

The Alternative Minimum Tax Credit that arises in Example 3 can be combined with the result of Example 2 to demonstrate the benefit of the credit. Suppose that the company's income in 1988 is as given in Example 3 and that the income in 1989 is as given in Example 2. Then the following results:

	Year	
	1988	1989
Regular Tax	567,120	783,360
Minimum Tax	674,800	674,400
Alternative Minimum Tax Credit	107,680	-0-
Used Credit	-0-	107,680
Remaining Credit	107,680	-0-
Payable Taxes	674,800	675,680

III. Maximizing After Tax Income

Analysis of the effect of taxes on income requires consideration of a good number of variables. Among these variables are: statutory underwriting income, tax adjustments including amount of discount in loss reserves, taxable and tax exempt yields, tax rates, portions of portfolio in stocks, tax exempt bonds and taxable bonds, portion of portfolio in "old" and "new" investments and the interaction of the regular and minimum tax. It is easier to gain insight into the interaction of some of the variables if others are initially suppressed. This is the approach that will be followed in examining the interaction of the regular and minimum tax.

The new tax law specifies that in the years 1987-1989 the book/tax preference will be calculated as 50% of the difference between GAAP income and regular taxable income. For property/casualty companies that do not file GAAP statements the difference will be that between statutory income and regular taxable income. In 1990 and following the preference

is to be calculated as 75% of the difference between adjusted current earnings and regular taxable income. The Treasury Department has been directed to conduct a study to determine how adjusted current earnings shall be defined. The law also creates an Alternative Minimum Tax Credit in the years 1987-1989 for companies that pay the Alternative Minimum Tax in any of those years. In addition the corporate tax rate is scheduled to be 40% in 1987 and 34% thereafter.

This presents a choice of many different scenarios to analyze.

The one initially chosen is that of the AMTI definition scheduled for 1987-1989 at a corporate tax rate of 34% ignoring the Alternative Minimum Tax Credit. The corporate tax rate has been changed from 46% to 34% with a transition rate of 40% in 1987 so that future analysis will generally focus on the 34% rate. The AMT credit will not play a part in the analysis because of the difficulty in predicting when this credit will be used. The economic value of the credit at any point in time is at least partly a function of the time that will elapse until the credit is used.

Example 5

Assumptions:

Statutory Underwriting Income = -2,000,000;

Tax Basis Underwriting Income = -1,400,000;

Assets = 100,000,000;

Taxable Yield = 9%;

Tax Exempt Yield = 7%;

Regular tax rate = 34%;

Minimum tax rate = 20%

If the company invests all of its assets in tax exempts, then

regular taxable income = (.15)(.07)(100,000,000)

-1,400,000

= 1,050,000 - 1,400,000 = -350,000

so that the regular tax is zero.

Statutory income is -2,000,000 + (.07)(100,000,000) = 5,000,000 so that the preference is (1/2) [5,000,000 - (-350,000)] = 2,675,000 and the minimum taxable income is 2,325,000. The minimum tax is 465,000 and represents the company's tax liability since the regular tax is zero. Statutory after tax income is 7,000,000 - 2,000,000 - 465,000 = 4,535,500.

If the company invests 25% of the assets in taxables the results are:

Statutory Pretax Income = 5,500,000;

Regular Taxable Income = 1,638,000;

Regular Tax = 556,920;

Preference = 1,931,000;

Minimum Taxable Income = 3,569,000;

Minimum Tax = 713,800;

Statutory After Tax Income = 4,786,200.

Note that the company is still in the minimum tax position but the after tax income has increased.

Finally, if 100% of the assets are invested in taxables the results are:

Statutory Pretax Income	=	7,000,000
Regular Taxable Income	=	7,600,000
Regular Tax	=	2,584,000
Preference	=	-300,000
Minimum Taxable income	=	7,300,000
Minimum tax	=	1,460,000
Statutory After Tax Income	=	4,416,000

The After Tax Income has dropped from the previous situation in which 25% of the assets were invested in taxable bonds and is even less than the after tax income when all assets are invested in tax exempts. The results here indicate that the optimal After Tax Income is attained somewhere between the option of investing 100% of the assets in tax exempt bonds and the option of investing in all taxables but there is no indication given where the optimal point or points might be. In the analysis below it will be shown that the maximum After Tax Income is obtained when Regular Tax = Minimum Tax.

Let "a" equal the percentage of the assets invested in taxables so that (1-a) is the percent invested in tax exempts. Then the statutory income = [(.09)a + (.07)(1-a)](100,000,000) - 2,000,000 = (2,000,000)a + 5,000,000 and regular taxable income = [(.09)a + (.15)(.07)(1-a)] (100,000,000) = (7,950,000)a - 350,000. As a result

Regular Tax = 0 , $a \leq .04403$;

Regular Tax = (2,703,000)a - 119,000, $a > .04403$.

The preference is $(1/2)\{[(2{,}000{,}000)a + 5{,}000{,}000)] - [(7{,}950{,}000)a - 350{,}000]\}$

$= -(2{,}975{,}000)a + 2{,}675{,}000$ so that minimum taxable income is $(7{,}950{,}000)a - 350{,}000 - (2{,}975{,}000)a + 2{,}675{,}000 = (4{,}975{,}000)a + 2{,}325{,}000$.

Then

$$\text{Minimum Tax} = (995{,}000)a + 465{,}000$$

The graphs of both Regular Tax and Minimum Tax are on Exhibit I.

The lines cross at a = .34192. To the left of the intersection the minimum tax is greater and to the right the regular tax is greater. The solid line denotes the tax burden.

Graphs of After Tax Statutory Income are on Exhibit II. The ascending line is the graph of the after tax income if only the minimum tax prevailed. The graph of the line which generally descends is that of the after tax income if only the regular tax prevailed.

The after regular tax income graph initially rises because of the tax basis underwriting loss. This will shield some taxable investment income. The income begins to drop when the taxable bonds increase past the point where the additional income is no longer offset. Past this point the after tax yield on taxables is $(.66)(.09) = 5.94\%$ whereas the after tax yield on tax exempts is $[1-(.66)(.15)](.07) = 6.31\%$ so that purchases of taxable bonds rather than tax exempt bonds causes a decrease in after tax income.

Exhibit I

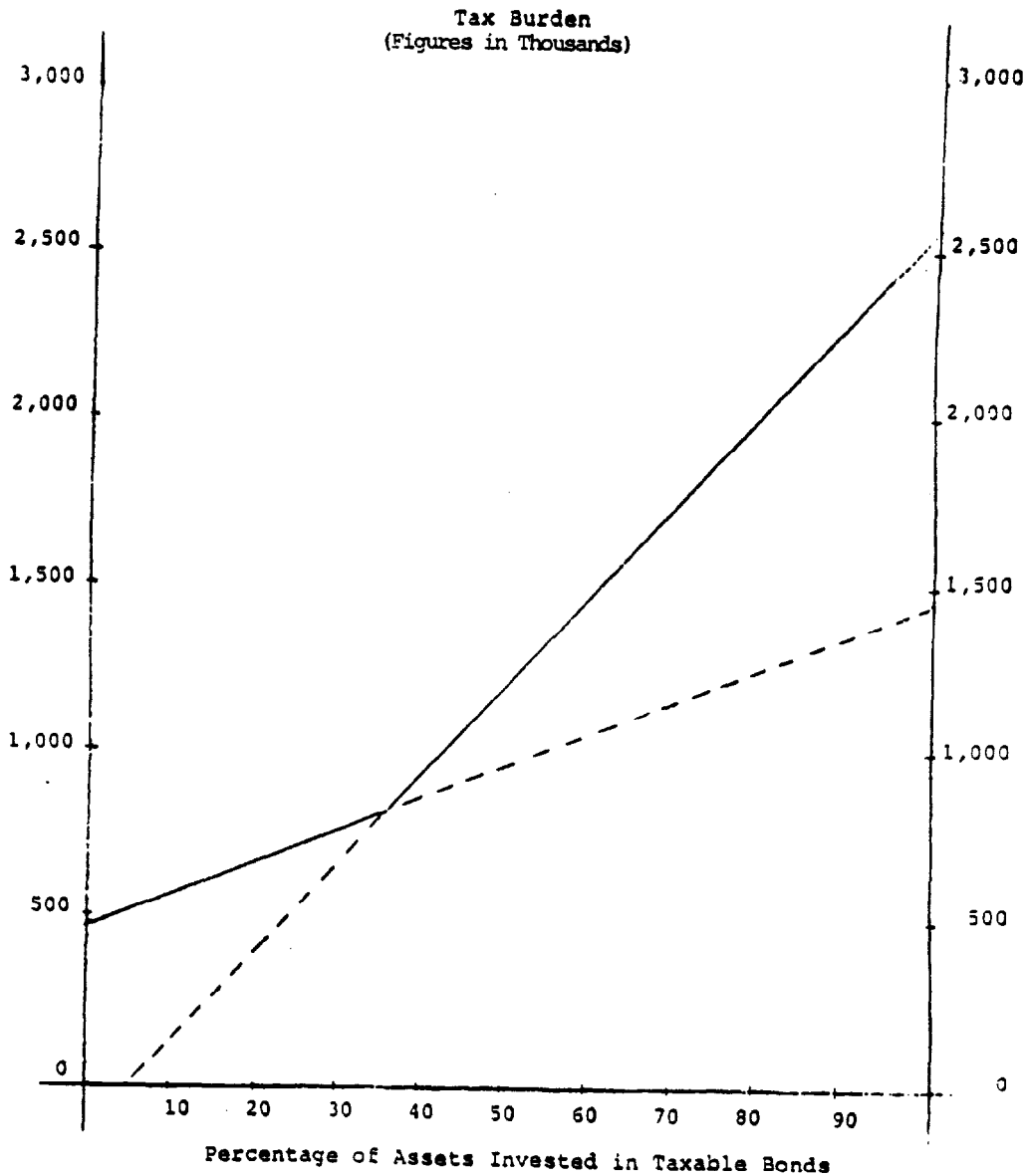
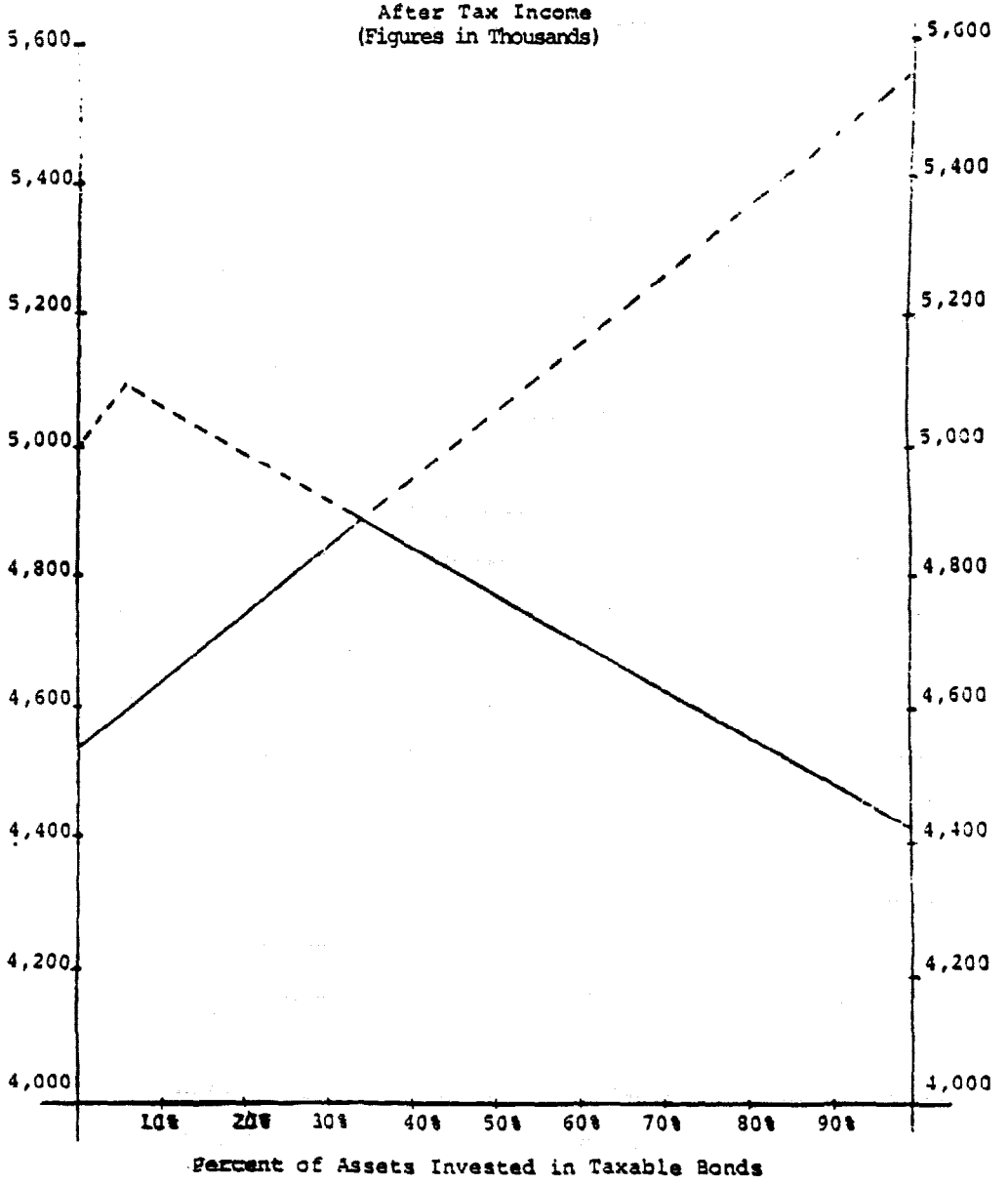

Tax Burden
(Figures in Thousands)
3,000
2,500
2,000
1,500
1,000
500
0
10
20
30
40
50
60
70
80
90
Percentage of Assets Invested in Taxable Bonds

Exhibit II


After Tax Income
(Figures in Thousands)
5,600
5,400
5,200
5,000
4,800
4,600
4,400
4,200
4,000
10%
20%
30%
40%
50%
60%
70%
80%
90%
Percent of Assets Invested in Taxable Bonds

But this is only an academic exercise for a company that has positioned its assets optimally or nearly so. The graphs cross at the point where

Pretax Income - Regular Tax = Pretax Income - Minimum Tax.

This simplifies to

Regular Tax = Minimum Tax

so that the after tax income curves cross at the same point as the tax burden curves. As a result the after tax income to the left of the intersection point is After Minimum Tax Income and to the right of the point the curve is After Regular Tax Income.

This points up a significant effect of the new tax law. Under the previous tax law property/casualty companies would generally invest in taxable bonds only to the extent that the income from these bonds was shielded by underwriting losses. It can be seen from this example that this will no longer be true. The change is wrought by the effect of the Alternative Minimum Tax and this places new emphasis on maximization of after tax income.

Example 6

The graphs in Exhibits I and II illustrate the effects of the new tax law and varying mixes of taxable/tax exempt bonds on the after tax income curve. It was assumed that the assets were invested solely in bonds, either taxable or tax exempt. This example moves one step closer to realism by introducing investment income in the form of stock dividends. In general the assumptions here are the same as those in Example 5 but with the following change. The company has 2,000,000 of its assets

invested in stocks yielding 5%. This generates 100,000 in stock dividends. The company then has the choice of investing the remaining 8,000,000 of assets in various mixes of taxable/tax exempt bonds yielding 9% and 7% respectively.

The general shape of the curve remains the same since the minimum tax is greater than the regular tax when a relatively small portion of the assets are invested in taxable bonds and the regular tax prevails when the portion is large.

One thing to note in this exhibit is the discontinuity in the income curve near the left of the graph. This is the result of the limitation on the dividends received deduction. Eighty percent of the dividends on most common and preferred stock is generally excluded from taxable income. This deduction is limited to 80% of the taxable income (including stock dividends) unless the deduction either increases a loss or creates a loss. This limitation causes a discontinuity in the income curve and has, in the past, occasionally represented a significant tax planning challenge. It would seem from this example that companies in an optimal, or nearly optimal, investment position would be unlikely to encounter this problem but this really must be examined on an individual company basis year by year.

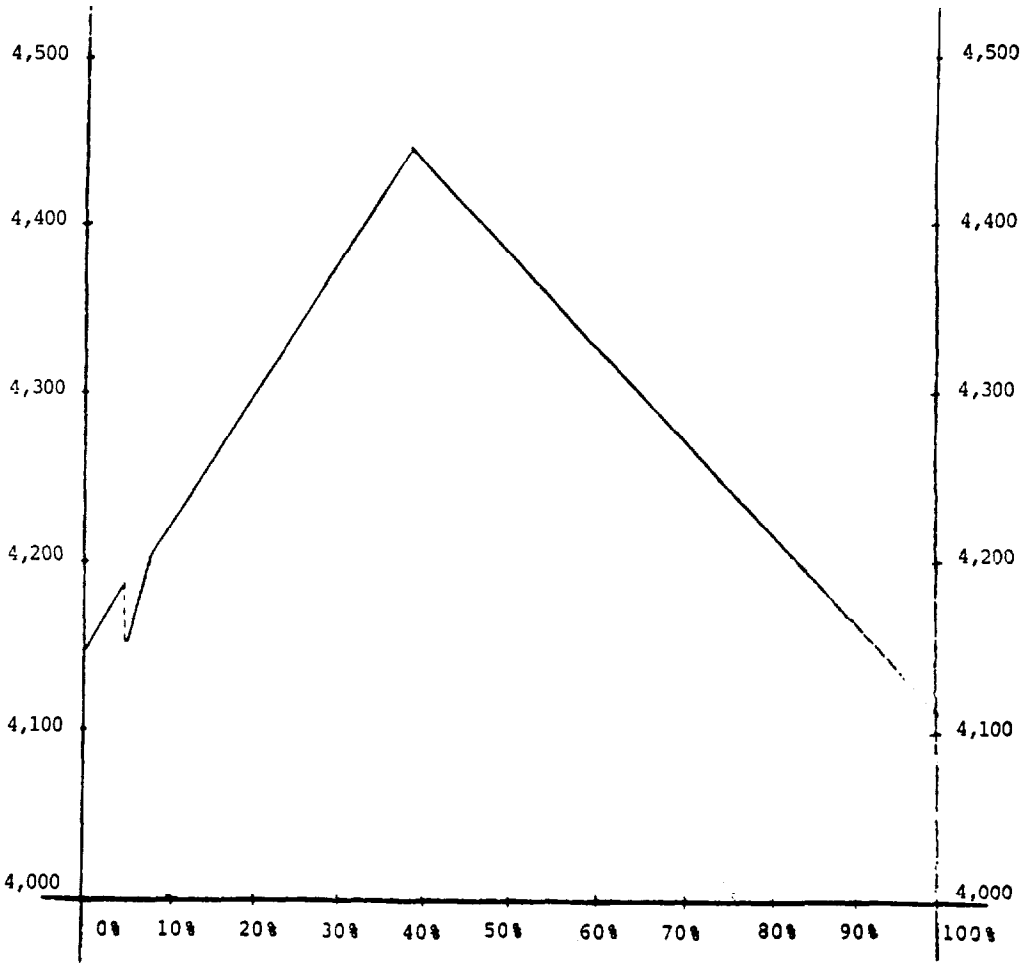
It is difficult to make a direct comparison between the income curve in this Exhibit and the one shown in Exhibit II. The reason of course is that some of the assets have been invested in stocks and this in itself generates tax exempt investment income. The "Percent Invested in Taxables" in this case refer to a percentage of the residual 80,000,000 whereas in the previous exhibit the percent referenced the entire

Exhibit III

After-Tax Income
(Figures in Thousands)

$20,000,000 invested in stocks

$80,000,000 invested in bonds



portfolio of 100,000,000.

Example 7

Eventually companies will hold investment portfolios that will not include tax exempt bonds purchased prior to August 7, 1986 and at that time all the municipal bonds in the portforlio will be subject to proration. This simplifies the analysis and is the working assumption that was employed in the previous examples. However, for at least the next several years most companies will hold a portfolio that includes both "old" and "new" municipal bonds.

This example again assumes that the company has $100,000,000 in investable assets but introduces the complicating although more realistic assumption that $60,000,000 of the assets consist of municipal bonds yielding 7% and purchased prior to August 8, 1986. The previous underwriting assumptions of a statutory underwriting loss of 2,000,000 and taxable underwriting loss of 1,400,000 will continue to be used. Assumptions on available investments continue to be 7% for municipals and 9% for taxables.

Then, for $o \leq a \leq .40$, regular taxable income = - 1,400,000 + (.15)(.07)(.40 - a) (100,000,000) + (.09)(a)(100,000,000) = (7,950,000)a - 980,000. Regular tax = (2,703,000) a - 333,200. Since statutory income = 5,000,000 + (2,000,000)a, after regular tax income = 5,333,200 - (703,000)a. For $.40 \leq a \leq 1.00$, regular taxable income = -1,400,000 + (.09)(40,000,000) + (.09)(a-.4)(100,000,000) = - 1,400,000 + (9,000,000)a so that regular tax = (3,060,000)a - 476,000 and after regular tax income = 5,476,000 - (1,060,000)a.

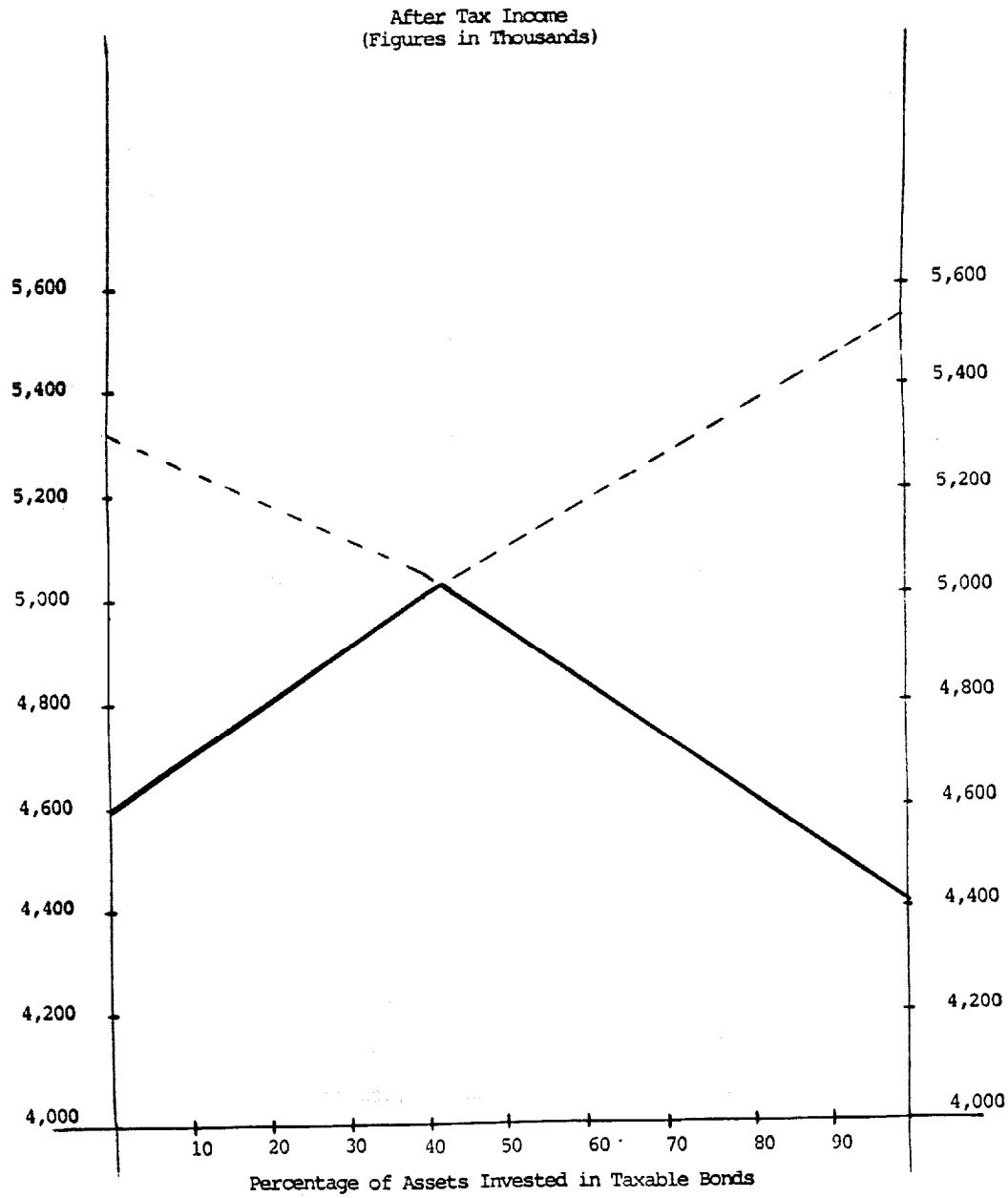
The after regular taxable income line decreases more rapidly as the percent of assets invested in taxables passes the 40% mark since the trade off beyond this point is no longer between taxable and "new" tax exempts but rather between taxables and "old" tax exempts which are taxed at a rate of zero rather than 5.1%. The graph is not sufficiently detailed for this change to show clearly but is evident from the larger negative coefficient of a.

When $o \leq a \leq .40$, the book/tax preference is - (2,975,000)a + 2,990,000 and hence minimum taxable income is (4,975,000)a + 2,010,000. As a result the minimum tax is (995,000)a + 402,000 and after minimum tax income is 4,598,000 + (1,005,000)a. For values of a between .40 and 1.00, the preference = 3,200,00 - (3,500,000)a and minimum taxable income = (5,500,000)a + 1,800,000. After minimum taxable income = (900,000)a + 4,640,000.

The after minimum tax income continues to increase as the percent of assets invested in taxables increases but as the value of "a" passes .40 the gain is slower. The reason for the change is the same as that in the analysis of the after regular taxable income.

The graphs cross at a = 42.6%. This figure is obtained by setting the $a \geq .40$ equations for regular tax and minimum tax equal and solving for a. This indicates that the company will obtain the maximum after tax income when it sells a small portion of its "old" municipal bonds and invests the proceeds in taxable yielding 9%. In most situations companies will want to retain the "grandfathered" municipal bonds. But,

Exhibit IV


After Tax Income
(Figures in Thousands)
5,600
5,400
5,200
5,000
4,800
4,600
4,400
4,200
4,000
10
20
30
40
50
60
70
80
90
Percentage of Assets Invested in Taxable Bonds

as this example demonstrates, there may be situations in which future yields would lead the company to dispose of a portion of these and invest in taxable bonds.

IV. Analysis of Effects of Changes in Asset Mix

The complexity of the new tax law as it applies to property/casualty companies makes it difficult to assess the impact of alternative investment decisions. It is not simply enough to focus on yield increase or decrease by shifting assets from one category to another even when the tax effects on that group of bonds is considered. This is illustrated in the following example. The analysis is carried out without regard to AMT credit for the reasons cited earlier.

Example 8

The assumptions used here are the same as in Example 5. Initially the company considers investing 30% of the assets in taxable bonds and 70% in tax exempts. This results in the following:

Scenario #1

Asset Distribution

Taxable Bonds = 30,000,000

Tax exempt Bonds = 70,000,000

Income Calculations

Statutory Income	= 5,600,000
Taxable Investment Income	= 2,700,000
Tax exempt Investment Income	= 4,900,000
Regular Taxable Income	= 2,035,000
Regular Tax	= 691,900

Preference	= 1,782,500
Minimum Taxable Income	= 3,817,500
Minimum Tax	= 763,500
Statutory After Tax Income	= 4,836,500

Another alternative the company is considering is that of investing 40% of the assets in taxables and 60% in tax exempts. The results are tabulated below.

Scenario #2

Asset Distribution

Taxable Bonds	= 40,000,000
Tax exempt Bonds	= 60,000,000

Income Calculations

Statutory Income	= 5,800,000
Taxable Investment Income	= 3,600,000
Tax exempt Investment Income	= 4,200,000
Regular Taxable Income	= 2,830,000
Regular Tax	= 962,200
Preference	= 1,485,000
Minimum Taxable Income	= 4,315,000
Minimum Tax	= 863,000
Statutory After Tax Income	= 4,837,800

Reconciliation of Income Difference

The very small increase in after tax income is the result of several large pluses and minuses.

(a) Yield Change

In the second scenario an additional 10,000,000 is invested in taxable bonds resulting in an increase of 900,000 in taxable investment income. Of course at the same time the tax exempt investment income decreases because of the switch in assets. The decrease in tax exempt investment income is 700,000 for a net increase of 200,000.

(b) Investment Income Tax Changes

Offsetting this is an increase in taxes. The company has moved from the minimum tax position to that of a regular taxpayer.

Taxes on the new taxable bond income amount to 306,000 = .34 x 900,000 whereas the taxes on the tax exempt income were 80,500 = 700,000 x .20 x [.15 + (.50)(.85)]. This results in an increase in taxes of 225,500. At the same time the change from the minimum tax position to the regular tax position results in a decrease in the taxes levied on the municipal bonds held under both scenarios. Under the minimum tax the tax burden on the 4,200,000 in tax exempt income would be 483,000 = 4,200,000 x .20 x [.15 + .50 x .85] and, under the regular tax, the tax is 214,200 = 4,200,000 x .34 x .15. Finally there is the change in the taxes on the taxable bonds that are held under each scenario. The applicable rate changes from 20% to 34% resulting in an increase in taxes of 378,000 = (.34 - .20)(2,700,000). The sum of the three elements of the changes in the tax on investment income is a tax increase of 334,700.

(c) Underwriting Tax Changes

Lastly there is the tax effect on the underwriting loss. In the first instance the underwriting loss tax benefit was calculated as 20% times - 1,700,000. The underwriting loss is neither that calculated under statutory accounting nor the determination of regular taxable income. It results from starting with the regular underwriting loss and then adding one half of the difference between the statutory and regular underwriting loss. That is, -1,700,000 = -1,400,000 + (1/2)[-2,000,000 - (-1,400,000)].

In the second calculation the underwriting loss benefit is simply calculated as 34% times -1,400,000. This example demonstrates that analysis of changes in asset mix is complicated by the fact that both the rate and underwriting loss change as a taxpayer moves from the minimum tax to regular tax position.

A summary of the gains and losses resulting from moving from one investment mix to the other is given in the table below.

Table 1
Gains/Losses Resulting from
Change in Investment Mix

a. Yield Change		
Increased Taxable Investment Income	900,000	
Decreased Tax Exempt Investment Income	700,000	
	+200,000	
b. Investment Income Tax Changes		
1. Eliminated Tax on Tax Exempt Bonds	80,500	
Tax on Additional Taxable Bonds	306,000	
	-225,500	
2. Minimum Tax on Retained Tax Exempt Bonds	483,000	
Regular Tax on Retained Tax Exempt Bonds	214,200	
	+268,800	
3. Minimum Tax on Retained Taxable Bonds	540,000	
Regular Tax on Retained Taxable Bonds	918,000	
	-378,000	
c. Underwriting Tax Changes		
Minimum Tax on Regular U/W loss	-280,000	
Minimum Tax on Book-Tax Preference U/W loss	-60,000	
Minimum Tax on U/W loss	-340,000	
Regular Tax on U/W loss	-476,000	
	+136,000	
		+1,300

V. Loss Ratio Impact on Optimal Asset Mix

Optimizing after tax income in a given year will not be an easy matter and will require a good deal of coordination between various groups within a company. Achieving the maximum returns over a longer period could be even more difficult. The optimal point in the taxable/tax exempt bond mix in Example 5 was highly dependent on the underwriting loss although that point was not emphasized in that discussion.

The graph in Exhibit V indicates the range over which the optimal mix might vary. As before the assumption is that the company has 100,000,000 in assets investable in taxables or tax exempts yielding 9% and 7% respectively. It is also assumed that the earned premium is 40,000,000 and that expenses equal 30% of the premium. An additional assumption is that because of discounting the incurred loss on a tax basis is 98% of the loss on a statutory basis. For example, if the incurred loss is 30,000,000 on a statutory base, then the incurred loss is 29,400,000 on a tax basis. These assumptions overly simplify the real situation but will serve to make the point.

Under the above assumptions,

$$\text{Statutory Income} = [(.09)a + (.07)(1-a)] (100,000,000) + [1 - .3 - LR] (40,000,000)$$

$$= 35,000,000 + (2,000,000)a - (40,000,000)LR;$$

$$\text{Regular Taxable Income} = [(.09)a + (.15)(.07)(1-a)] (100,000,000) + [1 - .3 - (.98)LR] (40,000,000)$$

$$= 29,050,000 + (7,950,000)a - (39,200,000)LR;$$

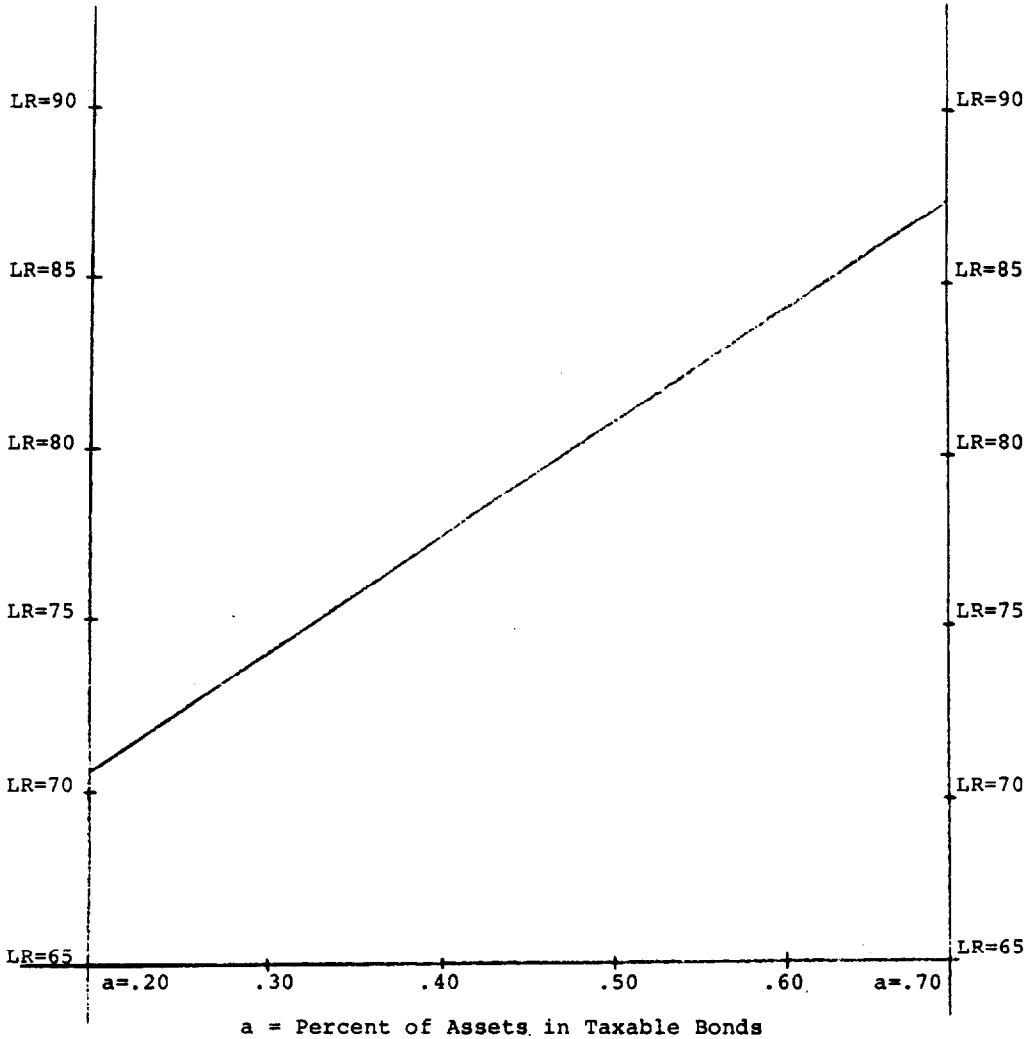
$$\text{Book-Tax Preference} = 2,975,000 - (2,975,000)a - (400,000)LR;$$

$$\text{Minimum Taxable Income} = 32,025,000 + (4,975,000)a - (39,600,000)LR;$$

$$\text{Regular Tax} = 9,877,000 + (2,703,000)a - (13,328,000)LR;$$

Exhibit V

Effect of Combined Ratio on
Investment Distribution



Minimum Tax = 6,405,000 + (995,000)a - (7,920,000)LR.

As shown previously, the maximum after tax income is obtained when Minimum Tax = Regular Tax. This leads to the following relation between a and LR,

$$a = (3.1663)LR - 2.0338.$$

A graph such as this can be useful in tax planning. Assume first that the combined ratio moves 10 points during a typical industry cycle. Also assume that the low loss ratio point is 75% and that the high point is 85%. Then at the most profitable point in the cycle the company would wish to have approximately 34% in taxable bonds and at the least profitable point approximately 66% in taxable bonds. This represents a large shift in the portfolio but the company can plan for the movements given information that can be drawn from this type of analysis.

VI. Discounting and the Fresh Start

As discussed earlier discounting of loss reserves is to be implemented using the "fresh start" approach. This has been shown to lessen the initial burden of discounting. However companies must distinguish between the costs appearing on the calendar year financial statements and those resulting from current transactions. In addition the fresh start benefit will eventually be exhausted. The following example demonstrates the effects of the fresh start benefit and shows how it masks the discount in the current year's loss reserves.

Example 9

Incurred Loss History

Year	Incurred Loss
1983	70,000
1984	80,000
1985	90,000
1986	100,000
1987	110,000
1988	120,000
1989	130,000
1990	140,000

Payout Rates

Year	Rate
1	35%
2	30%
3	20%
4	10%
5	5%

Loss Reserves @ 12/31/86

Accident Year	Loss Reserve
1983	3,500
1984	12,000
1985	31,500
1986	65,000

Assume 7% rate of interest in determining the discount factors. In this example the 7% represents a nominal return and the coupons are assumed to be paid twice yearly for an annual effective rate of 7.123%. Then the discount factors that will be applied to the loss reserves are

Year	Discount Factor
Current	.91346
1st Prior	.93009
2nd Prior	.94480
3rd Prior	.96618

These were calculated in the manner outlined by the Treasury Department. For example

$$.91346 = (1/.65)[.30/1.035 + .20/(1.035)^3 + .10/(1.035)^5 + .05/(1.035)^7]$$

The discounted loss reserves as of 12/86 are calculated in the following table.

Table 2

Accident Year	Nominal Reserves	Discount Factor	Discounted Reserves
1986	65,000	.91346	59,375
1985	31,500	.93009	29,298
1984	12,000	.94480	11,338
1983	3,500	.96618	3,382
	112,000		103,393

The value of the fresh start benefit is 8,607 = 112,000 - 103,393. This benefit flows in over the next four years in this example as the losses are paid and the discounted losses develop upward. The four year time frame is due to the fact that in this example, the loss reserve held at 12/31/86 will be paid on in four years. Naturally for most companies the period over which this fresh start benefit will be realized will be longer than in the example here.

In 1987 the paid losses from the accident years 1986 and prior amounts to 59,500 and the year ending discounted loss reserves from those years is 49,173. Combined with the prior discounted reserve figure the resulting upward development is 5,280 = 59,500 + 49,173 - 103,393.

The fresh start amounts flow in as follows:

Calendar Year	Fresh Start Benefit
1987	5,280
1988	2,347
1989	811
1990	169
	8,607

The fresh start benefit will interact with the discount in the most recent accident year to produce the discount for tax purposes. This interaction produces a calendar discount that differs from the accident year discount. Accident year 1987 serves as an example.

The loss reserves resulting from the 1987 accident year have a discounted value of 65,312 as of 12/87 so that the discounted incurred loss for the most recent accident year is 103,812. The additional income generated by discounting is 6,188 = 110,000 - 103,812. But the additional income that shows up on the tax return is 908 = 6,188 - 5,280, the latter number being the portion of the fresh start benefit that will be realized in calendar year 1987.

The distinction is important. Those charged with estimating and offsetting the costs of the new tax bill will need to separate the benefit of the fresh start provision from the cost associated with writing new business.

Conclusion

We now have a new body of tax rules - the Internal Revenue Code of 1986 replacing the 1954 Code. The basic theory of taxing property/casualty companies has been changed for the first time since 1921. Revised definitions of income and expense will serve to diminish the efficacy of the role of the Annual Statement in determining taxable income. The change in the tax law significantly and suddenly alters the economic environment in which property/casualty companies operate.

Some of the financial implications have been explored in this paper but it will be some time until the full impact of the new tax law is realized. This is due to the complexity of the law, the inability to forecast market conditions and company reactions as well as uncertainties surrounding the law i.e. clarifications which await regulations and studies. However, it seems certain that investment strategies must undergo a significant change. It is also clear that the new tax law will impose substantial new costs on the industry. Tax planning and revised investment strategies may serve to mitigate these costs. But there still will be a need for companies to increase premiums if acceptable levels of after tax profitability are to be maintained.

Companies must monitor their operations and await amplification of the new tax law to be forthcoming in the Technical Corrections Act and regulations as well as the Treasury study on the impact of this new tax law.

Of course no paper on this subject can point the way towards dealing with the financial aspects of every problem arising out of the new rules. However, the techniques presented should serve as a general guide to approaching the questions that will arise.

Appendix A

Determination of Payment Patterns

The Treasury Department has outlined a specific method for determining the payment patterns to be used in discounting of loss reserves for tax purposes. The section of the Conference Report which contains examples of the method is reproduced below. Data used in the examples is drawn from the 1986 Best's "Aggregates and Averages" containing 1985 Annual Statement data.

The following example illustrates the appropriate methodology for determining a payment pattern for a line of business for any given accident year. In the case of an electing taxpayer, the data used would be the annual statement data for the line of business reported on the taxpayer's most recently filed annual statement. Example 1 illustrates the development of a payment pattern for a Schedule P line, and example 2 illustrates the development of a payment pattern for a Schedule O line of business.

Example 1: payment pattern for Schedule P line

The development of reserve discount factors for a Schedule P line of business is illustrated in Table 1. This example is based on the 1985 consolidated industry totals for automobile liability. The 1985 annual statement is used because it contains the most recent loss development data.

Table 1.—Reserve Discount Factor Development, Automobile Liability

[Discount rate is assumed to be 7 percent per annum]

Years before current year	Year loss incurred	Loss and loss expense payments to date (thousands)	Total losses and loss expense incurred [1] (thousands)	Perentage				
				Cumulative fraction of loss paid [2] (percent)	Fraction of loss paid during year [3] (percent)	Fraction of loss unpaid, year-end (percent)	Discounted fraction unpaid, year-end (percent)	Reserve discount factor [4] (percent)
AY+0	1985	$10,734,519	$31,281,287	34.3161	34.3161	65.6839	58.7454	89.4365
AY+1	1984	10,397,279	28,217,053	65.1992	30.8831	34.8008	30.9119	88.8251
AY+2	1983	20,047,248	24,986,358	80.2335	15.0343	19.7665	17.5241	88.6555
AY+3	1982	19,808,529	22,243,403	89.0535	8.8200	10.9465	9.6273	87.9486
AY+4	1981	18,974,882	20,225,272	99.8149	4.7614	6.1851	5.3760	86.9181
AY+5	1980	17,105,852	17,717,213	96.5493	2.7344	3.4507	2.9238	84.7308
AY+6	1979	16,266,022	16,633,374	97.7915	1.2422	2.2085	1.8435	83.4743
AY+7	1978	14,534,843	14,766,868	98.4287	.6372	1.5713	1.3135	83.5901
AY+8	1977	12,853,464	13,027,563	98.6636	.2349	1.3364	1.1624	86.9808
AY+9	1976	11,389,407	11,506,437	98.9829	.3193	1.0171	.9135	89.8135
AY+10	Pre76	91,306,371	91,545,592	NA	.3193	.6978	.6472	92.7417
AY+11	NA	NA	NA	NA	.3193	.3785	.3622	95.6845
AY+12	NA	NA	NA	NA	.3193	.0592	.0572	96.6736
AY+13	NA	NA	NA	NA	.0592	0	0	96.6736

[1] "Total losses and loss expense incurred" equals "loss and loss expense payments" plus "losses unpaid" plus "loss expense unpaid" as defined in Schedule P.
[2] "Cumulative fraction of loss paid" equals ratio of "loss and loss expense payments" to "total losses and loss expense incurred".
[3] "Fraction of loss paid during year" equals the change in the "cumulative fraction of loss paid" from the previous year for AY+0 through AY+9 (see text for computation after AY+9).
[4] The reserve discount factor is 96.6736 in AY+12 and all subsequent years.

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Schedule P of the 1985 annual statement itemizes "loss and loss expense payments" and "total losses and loss expense incurred" for the 10-year period 1976-1985 and the total for all years before 1976 (see Table 1). The number of years that have passed since the accident year through the current year (1985) is shown in the first column of Table 1; for example, the year 1976 is referred to as AY+9. From these data, the cumulative fraction of loss and loss expense paid through 1985, for losses incurred in 1976-1985, is computed as the ratio of "loss and loss expense payments" to "total losses and loss expense incurred". For AY+0 through AY+9, the fraction of loss and expense paid during each accident year is estimated as the change in the cumulative fraction of loss and expense paid from the previous accident year. Since unpaid loss and loss expense at the end of AY+9 (1.0171 percent) exceeds the amount of loss and expense payments in AY+9 (0.3193 percent), the special rule for long-tail lines is applicable. Under this rule, unpaid loss and expenses at the end of AY+9 are deemed to be paid at at a rate of 0.3193 percent in AY+10 through AY+12, and the balance, 0.0592 percent, is deemed to be paid in AY+13.

The reserve discount factors are equal to the ratio of discounted unpaid losses to undiscounted unpaid losses in each accident year. For purposes of discounting, losses are deemed to be paid in the middle of the year. For example, if the discount rate is 7 percent, then the discounted unpaid loss in AY+11 is computed as the present value of losses deemed to be paid in AY+12 and AY+13:

$$0.3622 = \frac{0.3193}{1.07^{1/2}} + \frac{0.0592}{1.07^{3/2}}.$$

Consequently, as shown in Table 1, the reserve discount factor for AY+11 is 95.6845 percent, the ratio of discounted unpaid losses (0.3622 percent) to undiscounted unpaid losses (0.3785 percent) in AY+11. The reserve discount factor for the year that the last claim is deemed to be paid (AY+13), and for all subsequent years, is the reserve discount factor for the preceding year (96.6736 percent in AY+12).

Example 2: payment pattern for a schedule O line

The development of reserve discount factors for a schedule O line of business is illustrated in Table 2. This example is based on the 1985 consolidated industry totals for fire insurance. The 1985 annual statement is used because it contains the most recent loss development data.

Table 2.—Reserve Discount Factor Development, Fire Insurance

[Discount rate is assumed to be 7 percent per annum]

Years before current year	Year loss incurred	Net losses paid in year [1] (thousands)	Unpaid losses beginning year [2] (thousands)	Fraction unpaid loss paid in year [3] (percent)	Fraction of total loss paid in year [4] (percent)	Fraction of total loss unpaid, year-end (percent)	Discounted fraction unpaid, year-end (percent)	Reserve discount factor [5] (percent)
AY+0	1985	$1,182,445	$2,142,829	55.1815	55.1815	44.8185	42.1950	94.1464
AY+1	1984	687,222	944,426	72.7661	32.6127	12.2058	11.4138	93.5114
AY+2	Pre84	196,764	462,600	NA	6.1029	6.1029	5.8999	96.6736
AY+3		NA	NA	NA	6.1029	0	0	96.6736

[1] "Net losses paid in year" equals "losses paid during the year less reinsurance received during the year" less "salvage and subrogration received in the current year" as defined in Schedule O.
[2] "Unpaid losses, beginning year" equals "net losses paid in year" plus "losses unpaid" as defined in Schedule O.
[3] "Fraction unpaid loss paid in year" equals ratio of "net losses paid in year" to "unpaid losses, beginning year".
[4] "Fraction of total loss paid in year" equals "fraction unpaid loss paid in year" times previous year's "fraction of total loss unpaid, year-end" for AY+0 and AY+1 (see text for computation after AY+1).
[5] The reserve discount factor is 96.6736 in AY+2 and all subsequent years.

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Schedule O of the 1985 annual statement itemizes "losses paid" and "losses unpaid" for the 2-year period 1984-1985 and the total for all years before 1984 (see Table 2).[1] The number of years that have passed since the accident year through the current year (1985) is shown in the first column of Table 2; for example, the year 1984 is referred to as AY+1. From these data, the fraction of unpaid losses paid in 1985, for losses incurred in 1984 and 1985, is computed as the ratio of "net losses paid in year" to "unpaid losses, beginning year". For AY+0 and AY+1, the fraction of total loss paid in the current year is estimated as the fraction of unpaid losses paid in the current year times the previous year's fraction of total loss unpaid at year-end. The fraction of loss paid during AY+2 and AY+3 is deemed to be one-half of the fraction of total loss unpaid at the end of AY+1 (6.1029 percent equals one-half of 12.2058 percent).

The reserve discount factors are equal to the ratio of discounted unpaid losses to undiscounted unpaid losses in each accident year. For purposes of discounting, losses are deemed to be paid in the middle of the year. For example, if the discount rate is 7 percent, then the discounted unpaid loss in AY+1 is computed as the present value of losses deemed to be paid in AY+2 and AY+3:

$$11.4138 = \frac{6.1029}{1.07^{1/2}} + \frac{6.1029}{1.07^{3/2}}$$

Consequently, as shown in Table 2, the reserve discount factor for AY+1 is 93.5114 percent, the ratio of discounted unpaid losses (11.4138 percent) to undiscounted unpaid losses (12.2058 percent) in AY+1. The reserve discount factor for the year that the last claim is deemed to be paid (AY+3), and for all subsequent years, is the reserve discount factor for the preceding year (96.6736 percent in AY+2).

In the case of the example involving Auto Liability the column labeled "Loss and Loss expense payments to date" is simply Column 6 of Schedule P - Part 1A of the Composite Industry Annual Statement. "Total losses and Loss expense incurred" is Column 11 of the same schedule.

In Example 2, the column "Net losses paid in year" is Column 2 of Schedule O - Part 1 ("Losses paid during the year less reinsurance received during the year - On losses incurred during 1985") minus Column 5 ("Salvage and subrogation received in the current year - On losses incurred during 1985"). The column "Unpaid losses beginning year" equals "Net losses paid in year" plus Column 10 ("Losses unpaid December 31 of current year - On losses incurred during 1985").

In order to calculate the percentage of losses paid within the accident year for the most current year, "Net losses paid" is divided by "Unpaid losses beginning year" using the same approach as in Example 1. However, to calculate the percent of incurred losses paid in the first year following the accident year, the percentage of loss reserves outstanding at the end of the accident year and paid in the first following year, 72.8% in the case, is multiplied by 44.8% yielding 32.6%. The estimated percent of losses unpaid at the end of the first following year then is approximately 12.2% i.e. 12.2 = 100 - 55.2 - 32.6. This remaining amount is deemed to be paid equally over the following two years. Hence the estimated payout pattern for Fire is 55.2%, 32.6%, 6.1%, 6.1%.

The methodology employed seems to be designed in a way that allows the Treasury Department to determine payout patterns from the latest composite annual statement without recourse to prior annual statements.