PRICING CASUALTY EXCESS REINSURANCE: DISCOUNTING EXPECTED L&LE
Draft

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In developing an estimated price for casualty excess of loss reinsurance contracts, it is not uncommon to adjust the expected loss component of the rate to reflect the estimated value of investment income on funds held to pay outstanding loss reserves. The discount rate is generally a function of 1) a projected payment pattern for losses and loss adjustment expenses (L&LE), and 2) a specified interest rate. While, for many excess reinsurance contracts, it may be difficult to accurately project L&LE payments over time, the mechanics of the technique are fairly straightforward. An example of its application to a workers compensation excess program is provided in Appendix A.

The technique has been criticized for several reasons. The purpose of this draft is to investigate two of the most common objections:

1) a reinsurer's objective should be to price business to an underwriting profit, and

2) the Tax Reform Act of 1986 (TRA) has offset to a large extent the investment income imputed to the reinsurer in the above adjustment.

In view of its intuitive reasonableness, the principal focus was on the second objection. A model was developed to quantify the magnitude (if any) of the offset necessary due to the provisions of the TRA, and to adjust the discount rate accordingly. Our preliminary conclusions, as well as the assumptions and methodology, are discussed in the paragraphs that follow.

Our principal conclusion is as follows:

- Counter to intuitive expectations, a significant upward adjustment in the discount rate is <u>not</u> necessitated by the provisions of the TRA.

We would appreciate comments and suggestions with respect to the analysis presented in the subsequent paragraphs.

BACKGROUND

The principal components of a reinsurer's economic return are income from 1) underwriting and 2) investments, and both of these need not be simultaneously positive in order for the reinsurer to earn an adequate return. The principal criticism of the traditional actuarial pricing method is that it fails to explicitly recognize the

investment component of this equation. For example, the traditional profit margin of 5% of premiums has historically been applied across all lines of business, ignoring the relatively greater magnitude of investment earnings generated by the "long-tail" lines of business (although in many states and for some lines of business, explicit recognition of investment income is now required in the ratemaking methodology).

In considering the merits of explictly considering investment income in reinsurance pricing, two qualifications must first be noted:

1) Implicit recognition has been given to investment income in the actual market price of insurance (and reinsurance), and there are some arguments for continuing to give investment income only indirect attention in the ratemaking process. These arguments are presented in Appendix B.

2) It is also recognized that excess reinsurance is more volatile (and risky) than primary insurance; if a 5% underwriting margin provides an adequate return for a stable, non-volatile line of business, then clearly a higher margin should be required for a more

volatile line of business.

These qualifications notwithstanding, we believe that it is appropriate and beneficial for both the ceding company and the reinsurer if the reinsurer explicitly recognizes investment income in its pricing. It better enables both parties to isolate the various components of the quoted price and determine whether the rate is reasonable, inadequate, or excessive.

To provide a simple illustration, assume that the expected ceded losses and allocated loss adjustment expenses (hereinafter abbreviated as L&LE) for a given reinsurance contract are $1,000 and the reinsurer's loading for expenses, profit, and contingencies is 100/75th. The various components of the final price, related to premium, are as follows:

Component	$	Pct.
L&LE	$1,000	75%
Op. Expenses	133	10%
Brokerage	67	5%
Profit & Cont.	133	10%
Total	$1,333	100%

However, if L&LE are paid out evenly over a ten year timeframe, and the reinsurer earns investment income on the funds held in the interim at an annual rate of 6%,

then $432 of investment income will be generated over the ten year period. The present value of this investment income (discounted at 6%) is $242, or 18% of the premium.

It can be argued that 6% is not the appropriate interest rate to use for discounting and that a risk-adjusted rate should be used; however, this issue will be addressed later. For purposes of this illustration, it is assumed that 6% is the appropriate rate. Thus, the total return, as a function of premium, is 28% (10% profit and contingency margin plus 18%).

This is not necessarily to imply that 28% is an excessive return; rather it is to demonstrate that the reinsurer's return, as it relates to premium, is far in excess of the 10% underwriting profit margin contemplated in the rate.

Discounting the expected L&LE effectively provides a credit to the ceding company for the anticipated investment income on funds held to pay L&LE, thus limiting the reinsurer's expected profit to the margin contemplated in its loading. In this example, if the expected L&LE are discounted to $758 to reflect the anticipated investment income, then the reinsurer's return would be limited to the 10% margin cited in the table above.

METHODOLOGY

The basic methodology was to construct a simplified income and cash flow statement for a single accident year cohort, assuming that expected L&LE of $1,000 are paid out over a period of sixteen years, according to the payment pattern presented in Appendix A. Investment income is earned at a specified rate on the funds held to pay the L&LE and is accumulated in a cash balance.

Each scenario modeled consists of two illustrations. For example, in the first illustration in Exhibit A (top of Exhibit), the reinsurer collects 100% of the $1,000 and accumulates a positive cash balance over the sixteen year timeframe (the line entitled "Cumulative"). In the second illustration in Exhibit A (bottom of Exhibit) the $1,000 is discounted to $718 (71.8% of the undiscounted pure premium). This reduction reflects the expected investment income that will be earned until all L&LE are paid. The reinsurer's final cash balance for the sixteen year period is $0.00.

This does not mean that the expected profit is being driven to zero. Rather, it demonstrates the point that we

made earlier, i.e., that the effect of discounting L&LE is to strip out any profit margin from the loss component of the reinsurance price. Note that there is no provision in this example for the reinsurer's expenses, profit, and contingencies. It is assumed that whatever loading is added to the $1,000 pure premium would be sufficient to provide for these items.

The base case scenario in Exhibit A excludes any consideration of taxes. A fundamental goal of this exercise was to develop a method for deriving an appropriate discount factor that reflects tax considerations. Consequently, in subsequent scenarios we tested the impact of taxes under the terms of: 1) the old tax law (pre-1987) and 2) the new tax law (post-1987). These results are presented in Exibits B through G and are discussed below.

RESULTS UNDER THE OLD TAX LAW
(Exhibits B and C)

As indicated earlier, one objection to the method used to derive a discount rate is that it is overly simplistic, because it fails to consider the ramifications of the TRA. However, since the method ignores taxes entirely, a logical hypothesis is that it was theoretically simplistic

even before the tax law was changed. Hence, we decided that it would be beneficial to first determine the appropriate discount factor under the old tax law, before deriving an appropriate discount factor reflecting the new tax law.

Exhibit B

We initially assumed that the interest income earned at a 6% interest rate was attributed to tax-exempt bonds. Hence in the first illustration (before discounting), there is no taxable underwriting or investment income and no taxes. As a result, the cumulative cash balance is identical to Exhibit A (no taxes).

In the second illustration (after discounting), the pure premium has been discounted to $502, creating an underwriting loss of $498 ($502 - $1,000) in Year 1. From a tax standpoint, this creates a tax credit of $229 (46% of $498) that could theoretically be applied to offset taxable income from other operations. The value of this credit is treated as a cash contribution in this Exhibit.

Because of this tax credit, the final discount factor

of 50.2% is lower then in Exhibit A, and the premium required to fund the expected L&LE payments is $502 (versus $718).

Exhibit C

A critical assumption underlying the projections in Exhibit B is that the reinsurer has other operations with taxable income which can utilize the tax credit arising from the underwriting loss created by the discounting of the pure premium in this particular transaction. A possible problem with this assumption is that if the reinsurer priced every contract on this basis, it may not have sufficient income to use up the tax credits generated by the underwriting losses.

In Exhibit C, no credit has been allowed for the underwriting loss created by discounting.

However, at the same time, it has been assumed that the reinsurer is able to shift its investment portfolio mix in Year 1 to taxable bonds, in order to offset at least some of the tax credit that is otherwise lost. As a result, while the discount factor and discounted premium are greater than they

were in Exhibit B (69% and $699, versus 50.2% and $502), it is stll less than the discounted rate derived under the no-tax scenario.

Conclusion - Our hypothesis was confirmed (i.e., the method that we originally used to discount losses is a simplification because it ignores taxes); however, it appears that our original calculation was a conservative simplification (from the reinsurer's viewpoint), at least in light of the old tax law.

Hence, the obvious question is whether this conclusion is also applicable under the provisions of the TRA.

RESULTS UNDER THE NEW TAX LAW (TRA)
(Exhibits D and E)

The principal provisions of the TRA that we have attempted to reflect in our revised model are as follows:

1) Tax Rate - the marginal tax rate was changed from 46% to 34%,

2) L&LE Reserves - Reserves on unpaid L&LE are discounted for purposes of calculating taxable income according to methods prescribed by the Treasury

Department. A firm has the option of using factors based on its own experience or industry experience, subject to certain restrictions. For purposes of these examples, we used Schedule P Composite industry experience for 1985 (use of Schedule P Composite for business reported as Reinsurance in the Annual Statement is mandated by the Treasury). Alternatively, industry experience for the statutory *Workers Compensation* line would be used, if the firm reports its premiums in this line.

3) Proration - Under the TRA, 15% of otherwise tax-exempt interest income is taxable. The effective tax rate is 5.1% (15% x 34%).

For simplification purposes revenue offset has been ignored. Possible implications of the Alternative Minimum Tax (AMT) will be addressed separately.

Exhibit D

The assumptions underlying Exhibit D correspond to Exhibit B, i.e., all invested funds are in tax-exempt bonds and any tax credit is treated as a cash contribution. Two items to note with respect to the tax calculation are:

1) the discounting of L&LE reserves creates a timing difference. It does not create additional taxable income, but it does defer part of the deduction for L&LE,

2) the proration of tax-exempt income is a permanent difference; it creates additional taxable income. The total regular tax of $35 in the first illustration can be attributed solely to the proration provision.

The effect of adjusting the pure premium of $1,000 to reflect investment income in the second illustration is the same as it was in Exhibit B, although the magnitude is not as great. The adjustment creates a tax benefit due to the increase in the underwriting loss. This benefit is mitigated due to the discounting of L&LE reserves for tax purposes; however, the final discount (adjustment) factor derived (62.83%) is still lower than the discount (adjustment) factor that we derived in the no-tax scenario (71.81% - Exhibit A).

Exhibit E

The assumptions in Exhibit E correspond to Exhibit C, i.e., no tax credit is allowed for the underwriting loss and investable funds are invested in taxable bonds. The result is similar: the discount (adjustment) factor derived in the second illustration (70.37%) is not as low the the factor derived in Exhibit D but is still comparable to the discount factor derived excluding taxes (71.81%).

Conclusion - The provisions of the TRA do not appear to necessitate an upward adjustment in our original adjustment factor (excluding taxes). In fact, in light of the examples cited above, it can argued that the original factor that we derived is conservative.

ALTERNATIVE MINIMUM TAX (AMT)
(Exhibits F and G)

An additional complexity arising out the new tax law is the provision for the Alternative Minimum Tax. Basically, this provision was created because of the fact that many major corporations with substantial reported income were effectively paying no taxes. Congress decided that this was inappropriate from a public policy standpoint. Under the new law, every corporation must pay at least the

Alternative Minimum Tax, which is based on AMT income as prescribed by the Treasury Department.

The AMT provisions have effectively created a separate and parallel set of rules for calculating taxes which are somewhat complex. One complication is that separate sets of rules apply for 1987-90 and 1990 and beyond.

For simplification purposes, we ignored the AMT in Exhibits D and E. In Exhibits F and G, we estimated the AMT (using the rules that apply for 1990 and beyond) on a simplified basis and substituted the AMT for the regular tax in all years. While the adjustment factors derived in these exhibits were somewhat higher than those derived in Exhibits D and E (regular tax), the results do not necessitate any change in our previously-stated conclusion.

A table listing all of the premium adjustment factors derived in Exhibits A through G is presented as follows:

Base Case (No Taxes)	71.81%		
	Old Tax Law	New Tax Law	AMT
Tax Credit treated as Cash Contribution	50.19%	62.83%	69.66%
No tax credit allowed, Change in Inv. Mix	69.94%	70.37%	72.17%

ADDITIONAL ISSUES

Two issues not addressed in the paragraphs above that merit further investigation are as follows.

Timing and Interest Rate Risks

For purposes of the analysis above it was assumed that L&LE would be paid out at a specified pattern and that interest income would be earned at a specified rate. In actuality, it is highly unlikely that the L&LE will pay out at the assumed pattern or that the reinsurer's investment portfolio will earn interest income at the rate specified. The variances from the expected case can work in the reinsurer's favor or to its detriment. In other words, there are timing investment risks that need to be considered.

While it is possible to apply quantitative techniques

in measuring these risks, their magnitude is to a large extent a subjective consideration, and qualitative judgment may be no less reliable than quantitative techniques. In the original discount factor derivation (Appendix A), we attempted to subjectively account for the timing and investment uncertainty by making what we believed were conservative assumptions at every step in the calculation.

To provide another illustration of an adjustment for these risks, it is useful to recall the simple example discussed earlier. Expected ceded incurred L&LE for a given reinsurance contract are $1,000 and the reinsurer's loading for expenses, profit, and contingencies is 100/75th. The various components of the final price, related to premium, are as follows:

Component	$	Pct.
L&LE	$1,000	75%
Op. Expenses	133	10%
Brokerage	67	5%
Profit & Cont.	133	10%
Total	$1,333	100%

It is anticipated that L&LE will be paid out evenly over a ten year timeframe, and the reinsurer will earn investment income on the funds held in the

interim at an annual rate of 6%. The present value of the $432 of investment income earned over the ten year period (discounted at 6%) is $242, or 18% of the premium.

However, to reflect the uncertainty with respect to both the timing of the actual payments and the actual rate at which the reinsurer's investments will earn interest, the reinsurer may apply a higher (risk-adjusted) discount rate to the $432 of investment income cited above. Assuming that this rate is 10% (instead of 6%), then the present value of the $432 of investment income is only $167, or 13.4% of premium.

Estimating the Reinsurer's ROI

An issue related to the one above is best described by two fundamental questions - 1) what exactly is the reinsurer's expected return on its investment in the various examples above, and 2) which expected returns satisfy his target criteria.

In order to address the first question, it would be useful to enhance the model used for this analysis to incorporate 1) assumptions with respect to surplus

requirements and 2) net present value and/or internal rate of return estimates at various risk-adjusted discount rates. We have constructed at least one other model that incorporates these features and believe that the analysis presented in this memo can be readily extended to quantify the reinsurer's expected return on investment.

CONCLUSION

We believe that the examples presented in Exhibits A through G illustrate that it is not inappropriate to discount expected incurred L&LE to reflect investment income, regardless of the provisions of the tax law.

However, it is intuitively apparent that the provisions of the TRA will affect reinsurers more adversely than primary insurers, due to the heavier discounting of reinsurers' L&LE reserves. Possibly, this warrants higher loadings in the rates for some reinsurance contracts. Extending the model used in this analysis to include an internal rate of return measure will enable us to quantify to some extent what the magnitude of this loading should be.

As indicated earlier, any comments, and/or suggestions would be greatly appreciated.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
WITH NO TAXES																	
Premium	1000																1000
Incurred L&LE 100%	1000																
Paid L&LE	68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Chg. in Reserve	932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Und. Profit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash From Und.	932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Inv. Income @ 6.0%	58	56	50	45	43	43	42	42	42	42	42	42	42	42	42	42	715
Total Cash	990	-52	-146	-47	-6	-14	2	-8	2	2	2	-8	2	2	-8	2	715
Cumulative	990	938	792	745	739	725	727	719	721	723	725	717	719	721	713	715	
Discounted Paid L&LE	66	99	169	75	38	41	27	32	24	23	22	26	19	18	21	16	716
Discount Factor:	71.81%																
Adjusted Premium	718																
Paid L&LE	68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Und. Expenses	0																
Cash from Und.	650	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	-282
Inv. Income @	41	38	31	25	22	20	18	17	15	14	12	10	8	6	4	1	282
Total Cash	691	-70	-165	-67	-27	-37	-22	-33	-25	-26	-28	-40	-32	-34	-46	-39	0
Cumulative	691	621	456	389	362	325	303	270	245	219	191	151	119	85	39	0	

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
OLD TAX LAW																		
Premium		1000																1000
Incurred L&LE	100%	1000																
Paid L&LE		68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Chg. in Reserve		932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Und. Profit		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash From Und.		932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Inv. Income:																		
Taxable @	9.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax-exempt @	6.0%	58	56	50	45	43	43	42	42	42	42	42	42	42	42	42	42	715
Taxes @	46%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Cash		990	-52	-146	-47	-6	-14	2	-8	2	2	2	-8	2	2	-8	2	715
Cumulative		990	938	792	745	739	725	727	719	721	723	725	717	719	721	713	715	
Discount Factor:		71.81%																
Tax Adjustment		69.900%																
Net Factor		50.195%																
Adjusted Premium		502																
Paid L&LE		68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Und. Profit		-498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-498
Cash from Und.		434	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	-498
Inv. Income:																		
Taxable @	9.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax-exempt @	6.0%	28	38	31	25	22	20	18	17	15	14	12	10	8	6	4	1	269
Taxes @	46%	-229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-229
Total Cash		691	-70	-165	-67	-27	-37	-22	-33	-25	-26	-28	-40	-32	-34	-46	-39	0
Cumulative		691	621	456	389	362	325	303	270	245	219	191	151	119	85	39	0	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
ASSUMPTIONS																	
(Old Tax Law)																	
Payout Pattern	0.068	0.108	0.196	0.092	0.049	0.057	0.04	0.05	0.04	0.04	0.04	0.05	0.04	0.04	0.05	0.04	1
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	
Weights	0.066	0.099	0.1694	0.075	0.0377	0.0414	0.0274	0.0323	0.0244	0.023	0.0217	0.0256	0.0193	0.0182	0.0215	0.0162	
Discount Factor	71.81%																
Credit for Tax Benefit (1,0)	1																
Investment Mix																	
Taxable	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	
Adjusted Investment Mix																	
Taxable	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
OLD TAX LAW																		
Premium		1000																1000
Incurred L&LE	100%	1000																
Paid L&LE		68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Chg. in Reserve		932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Und. Profit		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash From Und.		932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Inv. Income:																		
Taxable @	9.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax-exempt @	6.0%	58	56	50	45	43	43	42	42	42	42	42	42	42	42	42	42	715
Taxes @	46%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Cash		990	-52	-146	-47	-6	-14	2	-8	2	2	2	-8	2	2	-8	2	715
Cumulative		990	938	792	745	739	725	727	719	721	723	725	717	719	721	713	715	
Discount Factor:		71.81%																
Tax Adjustment		97.400%																
Net Factor		69.943%																
Adjusted Premium		699																
Paid L&LE		68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Und. Profit		-301	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-301
Cash from Und.		631	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	-301
Inv. Income:																		
Taxable @	9.0%	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60
Tax-exempt @	6.0%	0	38	31	25	22	20	18	17	15	14	12	10	8	6	4	1	241
Taxes @	46%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Cash		691	-70	-165	-67	-27	-37	-22	-33	-25	-26	-28	-40	-32	-34	-46	-39	0
Cumulative		691	621	456	389	362	325	303	270	245	219	191	151	119	85	39	0	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
ASSUMPTIONS (Old Tax Law)																	
Payout Pattern	0.068	0.108	0.196	0.092	0.049	0.057	0.04	0.05	0.04	0.04	0.04	0.05	0.04	0.04	0.05	0.04	1
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	
Weights	0.066	0.099	0.1694	0.075	0.0377	0.0414	0.0274	0.0323	0.0244	0.023	0.0217	0.0256	0.0193	0.0182	0.0215	0.0162	
Discount Factor	71.81%																
Credit for Tax Benefit (1,0)	0																
Investment Mix																	
Taxable	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	
Adjusted Investment Mix																	
Taxable	100.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	0.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
NEW TAX LAW																		
Premium		1000																1000
Incurred L&LE	100%	1000																
Paid L&LE		68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Chg. in Reserve		932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Und. Profit		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash From Und.		932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Inv. Income:																		
Taxable @	9.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax-exempt @	6.0%	58	53	47	41	39	39	38	37	37	37	37	37	37	37	36	36	646
Taxes		54	5	-6	0	1	2	0	-3	-2	-5	-4	-4	-2	-1	-1	1	35
Total Cash		936	-60	-143	-51	-11	-20	-2	-10	-1	2	1	-9	-1	-2	-13	-5	611
Cumulative		936	876	733	682	671	651	649	639	638	640	641	632	631	629	616	611	
Discount Factor:		71.81%																
Tax Adjustment		87.50%																
Net Factor		62.83%																
Adjusted Premium		628																628
Paid L&LE		68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Und. Profit		-372	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-372
Cash from Und.		560	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	-372
Inv. Income:																		
Taxable @	9.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax-exempt @	6.0%	36	37	30	23	21	19	17	15	14	12	11	9	7	6	4	1	262
Taxes @	0%	-74	4	-7	-1	0	1	-1	-4	-3	-6	-5	-6	-4	-3	-2	0	-111
Total Cash		670	-75	-159	-68	-28	-39	-22	-31	-23	-22	-24	-35	-29	-31	-44	-39	1
Cumulative		670	595	436	368	340	301	279	248	225	203	179	144	115	84	40	1	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
New Tax Law																	
Tax Payout Pattern																	
Schedule P	0.34314	0.26722	0.12541	0.08113	0.04904	0.03699	0.01953	0.01320	0.00980	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.03043	1
Workers Comp.	0.2592	0.2861	0.1333	0.0774	0.0447	0.035	0.0188	0.0173	0.015	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0758	0.9998
Selected	0.34314	0.26722	0.12541	0.08113	0.04904	0.03699	0.01953	0.01320	0.00980	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.03043	1
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	
Tax Disc. Factors																	
Int. Factors *7.5%*	*0.9645*	*0.8972*	*0.8346*	*0.7764*	*0.7222*	*0.6718*	*0.6249*	*0.5813*	*0.5408*	*0.5031*	*0.4680*	*0.4353*	*0.4049*	*0.3767*	*0.3504*	*0.3260*	
Discount Factors	0.83953	0.81037	0.79251	0.77002	0.75127	0.72024	0.70809	0.70457	0.70712	0.73819	0.77257	0.81103	0.85466	0.90502	0.96448	1	
Loss Reserves:																	
Undiscounted	932	824	628	536	487	430	390	340	300	260	220	170	130	90	40	0	
Chg.	932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Discounted	782	668	498	413	366	310	276	240	212	192	170	138	111	81	39	0	
Chg.	782	-114	-170	-85	-47	-56	-34	-36	-28	-20	-22	-32	-27	-30	-42	-39	0
Difference in Chgs.	150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Before Adjustment																		
Und. Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proration:		9	8	7	6	6	6	6	6	6	6	6	6	6	6	5	5	100
Disc. LR Impact		150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0
Inv. Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxable Income		159	14	-19	-1	4	5	0	-8	-6	-14	-12	-12	-7	-4	-3	4	100
Regular Tax @	34%	54	5	-6	0	1	2	0	-3	-2	-5	-4	-4	-2	-1	-1	1	35
AMT																		
Adjusted Earnings		-101	39	66	42	35	34	38	45	43	51	49	49	44	41	39	32	546
Inclusion %		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
AMT Income		83	43	31	31	30	31	29	26	26	24	25	25	26	27	26	28	511
AMT @	20%	17	9	6	6	6	6	6	5	5	5	5	5	5	5	5	6	102
Selected Tax	1	54	5	-6	0	1	2	0	-3	-2	-5	-4	-4	-2	-1	-1	1	35
After Adjustment																		
Und. Income		-372	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-372
Proration:		5	6	5	3	3	3	3	2	2	2	2	1	1	1	1	0	40
Disc. LR Impact		150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0
Inv. Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxable Income		-217	12	-21	-4	1	2	-3	-12	-10	-18	-16	-17	-12	-9	-7	-1	-332
Regular Tax @	34%	-74	4	-7	-1	0	1	-1	-4	-3	-6	-5	-6	-4	-3	-2	0	-111
AMT																		
Adjusted Earnings		-119	25	51	27	20	17	20	27	24	30	27	26	19	15	11	2	222
Inclusion %		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
AMT Income		-306	31	17	16	16	15	12	8	8	5	4	3	2	2	1	1	-165
AMT @	20%	-61	6	3	3	3	3	2	2	2	1	1	1	0	0	0	0	-34
Selected Tax	1	-74	4	-7	-1	0	1	-1	-4	-3	-6	-5	-6	-4	-3	-2	0	-111

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Credit for Tax Benefit	1																
Investment Mix																	
Taxable	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	
Adjusted Investment Mix																	
Taxable	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
NEW TAX LAW																		
Premium		1000																1000
Incurred L&LE	100%	1000																
Paid L&LE		68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Chg. in Reserve		932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Und. Profit		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash From Und.		932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Inv. Income:																		
Taxable @	9.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax-exempt @	6.0%	58	53	47	41	39	39	38	37	37	37	37	37	37	37	36	36	646
Taxes		54	5	-6	0	1	2	0	-3	-2	-5	-4	-4	-2	-1	-1	1	35
Total Cash		936	-60	-143	-51	-11	-20	-2	-10	-1	2	1	-9	-1	-2	-13	-5	611
Cumulative		936	876	733	682	671	651	649	639	638	640	641	632	631	629	616	611	
Discount Factor:		71.81%																
Tax Adjustment		98.00%																
Net Factor		70.37%																
Adjusted Premium		704																704
Paid L&LE		68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Und. Profit		-296	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-296
Cash from Und.		636	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	-296
Inv. Income:																		
Taxable @	9.0%	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60
Tax-exempt @	6.0%	0	39	32	25	22	20	18	17	15	14	12	10	8	6	4	1	243
Taxes @	0%	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
Total Cash		696	-73	-164	-67	-27	-38	-22	-33	-25	-26	-28	-40	-32	-34	-46	-39	2
Cumulative		696	623	459	392	365	327	305	272	247	221	193	153	121	87	41	2	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
New Tax Law																	
Tax Payout Pattern																	
Schedule P	0.34314	0.26722	0.12541	0.08113	0.04904	0.03699	0.01953	0.01320	0.00980	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.03043	1
Workers Comp.	0.2592	0.2861	0.1333	0.0774	0.0447	0.035	0.0188	0.0173	0.015	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0758	0.9998
Selected	0.34314	0.26722	0.12541	0.08113	0.04904	0.03699	0.01953	0.01320	0.00980	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.03043	1
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	
Tax Disc. Factors																	
Int. Factors 7.5%	0.9645	0.8972	0.8346	0.7764	0.7222	0.6718	0.6249	0.5813	0.5408	0.5031	0.4680	0.4353	0.4049	0.3767	0.3504	0.3260	
Discount Factors	0.83953	0.81037	0.79251	0.77002	0.75127	0.72024	0.70809	0.70457	0.70712	0.73819	0.77257	0.81103	0.85466	0.90502	0.96448	1	
Loss Reserves:																	
Undiscounted	932	824	628	536	487	430	390	340	300	260	220	170	130	90	40	0	
Chg.	932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Discounted	782	668	498	413	366	310	276	240	212	192	170	138	111	81	39	0	
Chg.	782	-114	-170	-85	-47	-56	-34	-36	-28	-20	-22	-32	-27	-30	-42	-39	0
Difference in Chgs.	150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Before Adjustment																		
Und. Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proration:		9	8	7	6	6	6	6	6	6	6	6	6	6	6	5	5	100
Disc. LR Impact		150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0
Inv. Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxable Income		159	14	-19	-1	4	5	0	-8	-6	-14	-12	-12	-7	-4	-3	4	100
Regular Tax @	34%	54	5	-6	0	1	2	0	-3	-2	-5	-4	-4	-2	-1	-1	1	35
AMT																		
Adjusted Earnings		-101	39	66	42	35	34	38	45	43	51	49	49	44	41	39	32	546
Inclusion %		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
AMT Income		83	43	31	31	30	31	29	26	26	24	25	25	26	27	26	28	511
AMT @	20%	17	9	6	6	6	6	6	5	5	5	5	5	5	5	5	6	102
Selected Tax	1	54	5	-6	0	1	2	0	-3	-2	-5	-4	-4	-2	-1	-1	1	35
After Adjustment																		
Und. Income		-296	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-296
Proration:		0	6	5	4	3	3	3	3	2	2	2	2	1	1	1	0	38
Disc. LR Impact		150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0
Inv. Income		60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60
Taxable Income		-86	12	-21	-3	1	2	-3	-11	-10	-18	-16	-16	-12	-9	-7	-1	-198
Regular Tax @	34%	-29	4	-7	-1	0	1	-1	-4	-3	-6	-5	-5	-4	-3	-2	0	-65
AMT																		
Adjusted Earnings		-150	27	53	28	21	18	21	28	25	32	28	26	20	15	11	2	205
Inclusion %		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
AMT Income		-199	32	19	18	17	16	13	10	9	6	5	4	3	2	1	1	-43
AMT @	20%	-40	6	4	4	3	3	3	2	2	1	1	1	1	0	0	0	-9
Selected Tax	1	-29	4	-7	-1	0	1	-1	-4	-3	-6	-5	-5	-4	-3	-2	0	-65

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Credit for Tax Benefit	0																
Investment Mix																	
Taxable	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	
Adjusted Investment Mix																	
Taxable	100.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	0.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
NEW TAX LAW																	
Premium	1000																1000
Incurred L&LE 100%	1000																
Paid L&LE	68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Chg. in Reserve	932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Und. Profit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash From Und.	932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Inv. Income:																	
Taxable @ 9.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax-exempt @ 6.0%	58	55	49	43	41	40	39	38	37	37	36	36	35	34	33	32	643
Taxes	17	9	6	6	6	6	6	5	5	5	5	5	5	5	5	5	101
Total Cash	973	-62	-153	-55	-14	-23	-7	-17	-8	-8	-9	-19	-10	-11	-22	-13	542
Cumulative	973	911	758	703	689	666	659	642	634	626	617	598	588	577	555	542	
Discount Factor:	71.81%																
Tax Adjustment	97.00%																
Net Factor	69.66%																
Adjusted Premium	697																697
Paid L&LE	68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Und. Profit	-303	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-303
Cash from Und.	629	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	-303
Inv. Income:																	
Taxable @ 9.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax-exempt @ 6.0%	40	40	33	26	23	21	19	17	15	14	12	10	8	6	4	1	289
Taxes @ 0%	-47	7	4	4	4	3	3	2	2	1	1	1	1	0	0	0	-14
Total Cash	716	-75	-167	-70	-30	-39	-24	-35	-27	-27	-29	-41	-33	-34	-46	-39	0
Cumulative	716	641	474	404	374	335	311	276	249	222	193	152	119	85	39	0	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
New Tax Law																	
Tax Payout Pattern																	
Schedule P	0.34314	0.26722	0.12541	0.08113	0.04904	0.03699	0.01953	0.01320	0.00980	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.03043	1
Workers Comp.	0.2592	0.2861	0.1333	0.0774	0.0447	0.035	0.0188	0.0173	0.015	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0758	0.9998
Selected	0.34314	0.26722	0.12541	0.08113	0.04904	0.03699	0.01953	0.01320	0.00980	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.03043	1
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	
Tax Disc. Factors																	
Int. Factors 7.5%	0.9645	0.8972	0.8346	0.7764	0.7222	0.6718	0.6249	0.5813	0.5408	0.5031	0.4680	0.4353	0.4049	0.3767	0.3504	0.3260	
Discount Factors	0.83953	0.81037	0.79251	0.77002	0.75127	0.72024	0.70809	0.70457	0.70712	0.73819	0.77257	0.81103	0.85466	0.90502	0.96448	1	
Loss Reserves:																	
Undiscounted	932	824	628	536	487	430	390	340	300	260	220	170	130	90	40	0	
Chg.	932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Discounted	782	668	498	413	366	310	276	240	212	192	170	138	111	81	39	0	
Chg.	782	-114	-170	-85	-47	-56	-34	-36	-28	-20	-22	-32	-27	-30	-42	-39	0
Difference in Chgs.	150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Before Adjustment																		
Und. Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proration:		9	8	7	6	6	6	6	6	6	6	5	5	5	5	5	5	96
Disc. LR Impact		150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0
Inv. Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxable Income		159	14	-19	-1	4	5	0	-8	-6	-14	-13	-13	-8	-5	-3	4	96
Regular Tax @	34%	54	5	-6	0	1	2	0	-3	-2	-5	-4	-4	-3	-2	-1	1	33
AMT																		
Adjusted Earnings		-101	41	68	44	37	35	39	46	43	51	49	49	43	39	36	28	547
Inclusion %		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
AMT Income		83	45	32	32	32	31	29	27	26	24	24	24	24	24	24	25	506
AMT @	20%	17	9	6	6	6	6	6	5	5	5	5	5	5	5	5	5	101
Selected Tax	2	17	9	6	6	6	6	6	5	5	5	5	5	5	5	5	5	101
After Adjustment																		
Und. Income		-303	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-303
Proration:		6	6	5	4	3	3	3	3	2	2	2	2	1	1	1	0	44
Disc. LR Impact		150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0
Inv. Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxable Income		-147	12	-21	-3	1	2	-3	-11	-10	-18	-16	-16	-12	-9	-7	-1	-259
Regular Tax @	34%	-50	4	-7	-1	0	1	-1	-4	-3	-6	-5	-5	-4	-3	-2	0	-86
AMT																		
Adjusted Earnings		-116	28	54	29	22	19	22	28	25	32	28	26	20	15	11	2	245
Inclusion %		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
AMT Income		-234	33	20	19	18	16	14	10	9	6	5	4	3	2	1	1	-73
AMT @	20%	-47	7	4	4	4	3	3	2	2	1	1	1	1	0	0	0	-14
Selected Tax	2	-47	7	4	4	4	3	3	2	2	1	1	1	1	0	0	0	-14

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Credit for Tax Benefit	1																
Investment Mix																	
Taxable	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	
Adjusted Investment Mix																	
Taxable	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
NEW TAX LAW																		
Premium		1000																1000
Incurred L&LE	100%	1000																
Paid L&LE		68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Chg. in Reserve		932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Und. Profit		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash From Und.		932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Inv. Income:																		
Taxable @	9.0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax-exempt @	6.0%	58	55	49	43	41	40	39	38	37	37	36	36	35	34	33	32	643
Taxes		17	9	6	6	6	6	6	5	5	5	5	5	5	5	5	5	101
Total Cash		973	-62	-153	-55	-14	-23	-7	-17	-8	-8	-9	-19	-10	-11	-22	-13	542
Cumulative		973	911	758	703	689	666	659	642	634	626	617	598	588	577	555	542	
Discount Factor:		71.81%																
Tax Adjustment		100.50%																
Net Factor		72.17%																
Adjusted Premium		722																722
Paid L&LE		68	108	196	92	49	57	40	50	40	40	40	50	40	40	50	40	1000
Und. Profit		-278	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-278
Cash from Und.		654	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	-278
Inv. Income:																		
Taxable @	9.0%	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62
Tax-exempt @	6.0%	0	40	33	26	23	21	19	17	15	14	12	10	8	6	4	1	249
Taxes @	0%	0	7	4	4	4	3	3	2	2	1	1	1	1	0	0	0	33
Total Cash		716	-75	-167	-70	-30	-39	-24	-35	-27	-27	-29	-41	-33	-34	-46	-39	0
Cumulative		716	641	474	404	374	335	311	276	249	222	193	152	119	85	39	0	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
New Tax Law																	
Tax Payout Pattern																	
Schedule P	0.34314	0.26722	0.12541	0.08113	0.04904	0.03699	0.01953	0.01320	0.00980	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.03043	1
Workers Comp.	0.2592	0.2861	0.1333	0.0774	0.0447	0.035	0.0188	0.0173	0.015	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0758	0.9998
Selected	0.34314	0.26722	0.12541	0.08113	0.04904	0.03699	0.01953	0.01320	0.00980	0.00400	0.00400	0.00400	0.00400	0.00400	0.00400	0.03043	1
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	
Tax Disc. Factors																	
Int. Factors 7.5%	0.9645	0.8972	0.8346	0.7764	0.7222	0.6718	0.6249	0.5813	0.5408	0.5031	0.4680	0.4353	0.4049	0.3767	0.3504	0.3260	
Discount Factors	0.83953	0.81037	0.79251	0.77002	0.75127	0.72024	0.70809	0.70457	0.70712	0.73819	0.77257	0.81103	0.85466	0.90502	0.96448	1	
Loss Reserves:																	
Undiscounted	932	824	628	536	487	430	390	340	300	260	220	170	130	90	40	0	
Chg.	932	-108	-196	-92	-49	-57	-40	-50	-40	-40	-40	-50	-40	-40	-50	-40	0
Discounted	782	668	498	413	366	310	276	240	212	192	170	138	111	81	39	0	
Chg.	782	-114	-170	-85	-47	-56	-34	-36	-28	-20	-22	-32	-27	-30	-42	-39	0
Difference in Chgs.	150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Before Adjustment																		
Und. Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proration:		9	8	7	6	6	6	6	6	6	6	5	5	5	5	5	5	96
Disc. LR Impact		150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0
Inv. Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxable Income		159	14	-19	-1	4	5	0	-8	-6	-14	-13	-13	-8	-5	-3	4	96
Regular Tax @	34%	54	5	-6	0	1	2	0	-3	-2	-5	-4	-4	-3	-2	-1	1	33
AMT																		
Adjusted Earnings		-101	41	68	44	37	35	39	46	43	51	49	49	43	39	36	28	547
Inclusion %		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
AMT Income		83	45	32	32	32	31	29	27	26	24	24	24	24	24	24	25	506
AMT @	20%	17	9	6	6	6	6	6	5	5	5	5	5	5	5	5	5	101
Selected Tax	2	17	9	6	6	6	6	6	5	5	5	5	5	5	5	5	5	101
After Adjustment																		
Und. Income		-278	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-278
Proration:		0	6	5	4	3	3	3	3	2	2	2	2	1	1	1	0	38
Disc. LR Impact		150	6	-26	-7	-2	-1	-6	-14	-12	-20	-18	-18	-13	-10	-8	-1	0
Inv. Income		62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62
Taxable Income		-66	12	-21	-3	1	2	-3	-11	-10	-18	-16	-16	-12	-9	-7	-1	-178
Regular Tax @	34%	-22	4	-7	-1	0	1	-1	-4	-3	-6	-5	-5	-4	-3	-2	0	-58
AMT																		
Adjusted Earnings		-150	28	54	29	22	19	22	28	25	32	28	26	20	15	11	2	211
Inclusion %		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
AMT Income		-179	33	20	19	18	16	14	10	9	6	5	4	3	2	1	1	-18
AMT @	20%	-36	7	4	4	4	3	3	2	2	1	1	1	1	0	0	0	-3
Selected Tax	2	-36	7	4	4	4	3	3	2	2	1	1	1	1	0	0	0	-3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Credit for Tax Benefit	0																
Investment Mix																	
Taxable	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	
Adjusted Investment Mix																	
Taxable	100.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tax-exempt	0.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	

APPENDIX A

This is to the document the methodology supporting the discount factors attached. Essentially, the discount factors are a function of an estimated (or assumed) loss payment pattern and a projected interest rate.

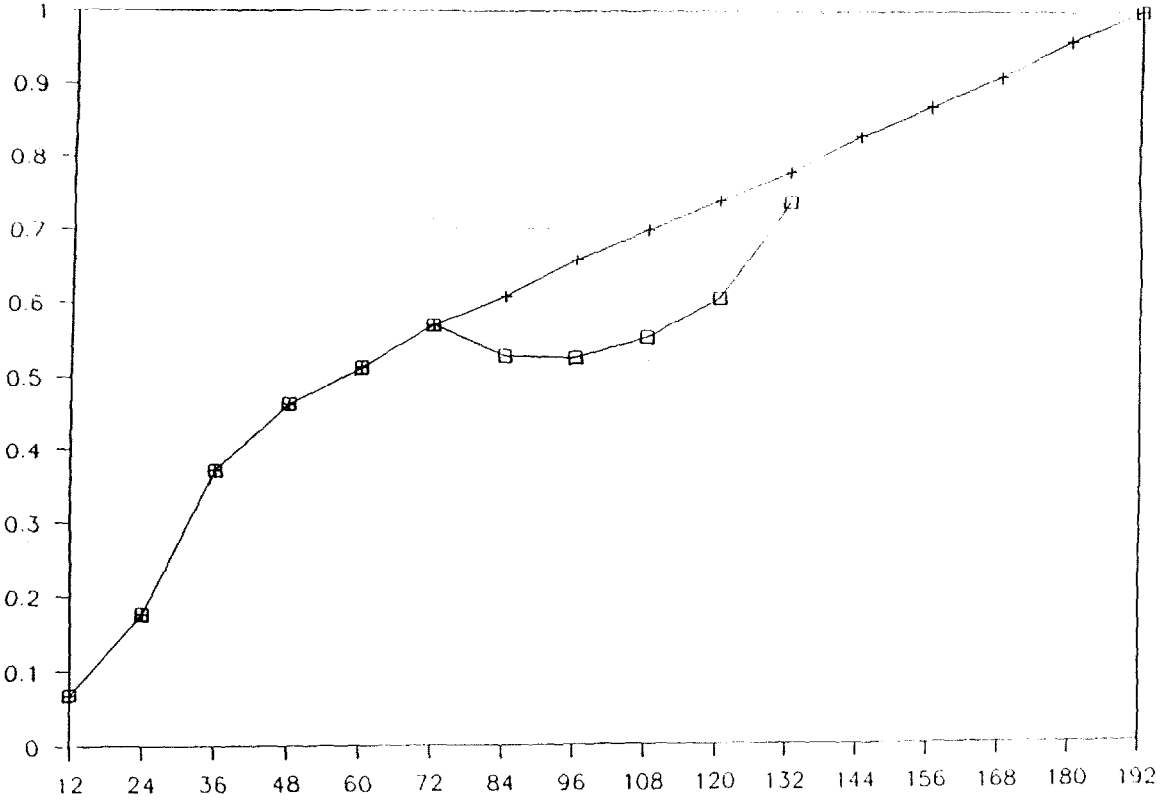
In this example, the basis for our estimated loss payment pattern are the workers compensation age-to-ultimate paid factors for Best's Selected Reinsurance Companies (Exhibits prepared by ABC Re). The cumulative paid factor for a given period is the reciprocal of the paid-to-ultimate factor.

Best's factors were selected simply because we had no other industry data to use. RAA does not publish paid-to-ultimate factors. Even though the Best factors are from reinsurance companies, it is possible that they could include some primary experience as well as excess; hence, we believe that the figures are somewhat conservative.

Unfortunately, the paid-to-ultimate factors produced negative payment factors in certain periods, due to the methodology on which they were based. We judgmentally adjusted the cumulative payment pattern by plotting the points of the Best Data and drawing a smooth curve (actually, it turned out to be a straight line) beginning at the point where the the Best data turned negative. We also elected to truncate the payment pattern at 16 years. We believe that both of these adjustments would tend to produce more conservative results.

The discount factors calculated at interest rates of 5%, 7%, and 9% are 75.45%, 68.49%, and 62.65% respectively. These factors would be applied to the loss component of the reinsurance rate to adjust the rate for investment income on loss reserves.

	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192
Best's Selected ATU Factors	14.684	5.667	2.691	2.155	1.949	1.753	1.89	1.9	1.808	1.648	1.355					
Cumulative Paid	0.068101	0.176460	0.371609	0.464037	0.513083	0.570450	0.529100	0.526315	0.553097	0.606796	0.738007					
Period Paid	0.068101	0.108358	0.195148	0.092428	0.049046	0.057367	-0.04135	-0.00278	0.026781	0.053698	0.131211					
Selected Cumulative Paid	0.068	0.176	0.372	0.464	0.513	0.57	0.61	0.66	0.7	0.74	0.78	0.83	0.87	0.91	0.96	1
Period Paid	0.068	0.108	0.196	0.092	0.049	0.057	0.04	0.05	0.04	0.04	0.04	0.05	0.04	0.04	0.05	0.04
Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5
Discount Factor @ Int. Rates:																
5.0% 75.446%	0.066361	0.100378	0.173493	0.077557	0.039340	0.043584	0.029129	0.034677	0.026421	0.025162	0.023964	0.028529	0.021736	0.020701	0.024644	0.018776
7.0% 68.485%	0.065738	0.097577	0.165499	0.072601	0.036138	0.039288	0.025767	0.030101	0.022505	0.021033	0.019657	0.022964	0.017169	0.016046	0.018745	0.014015
9.0% 62.645%	0.065132	0.094903	0.158011	0.068044	0.033248	0.035483	0.022844	0.026198	0.019228	0.017640	0.016183	0.018559	0.013621	0.012496	0.014331	0.010518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0.9
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12
24
36
48
60
72
84
96
108
120
132
144
156
168
180
192

APPENDIX B

The following is an exerpt from FOUNDATIONS OF CASUALTY ACTUARIAL SCIENCE, Chapter 8 - Special Issues (draft version published in the CAS Forum series), authored by Steve D'Arcy.

> ..... The various methodologies for including investment income in the determination of an allowable underwriting profit margin have the advantage of producing specific indications which can be used to establish rates. However, each method is subject to criticism for ignoring certain circumstances or requiring a value to be estimated that is difficult or impossible to obtain. An alternative school argues that investment income should be given indirect consideration, rather than be attempted to be included directly in the ratemaking process. The arguments in favor of this position are:
>
> 1. No formula approach is recognized as producing the correct results in all situations,
>
> 2. The effect of competition on insurance prices is ignored in ratemaking formulae, but is crucial to the ability of an insurer to charge a particular rate level,
>
> 3. If rates in a particular market are producing an excessive rate of return for insurers in total then new entry will drive the price down to the proper level,
>
> 4. If rate levels are inadequate to produce an acceptable rate of return in total then insurers will exit from the market until price levels increase to the acceptable level,
>
> 5. Analysis of the difference in rate levels in prior approval and competition states indicates that there are no significant differences in profitability over any extended time.
>
> The conclusion of these observations is that financial and insurance markets will work to produce the proper total rate of return for insurers, without the need for complicated formula adjustments. .....