REPORT ON RESERVE AND UNDERWRITING RISK FACTORS

American Academy of Actuaries Property/Casualty Risk-Based Capital Task Force

P&C Risk-Based Capital

One of the components of the proposed Property & Casualty Risk-Based Capital formula is reserve and underwriting risk factors. The American Academy of Actuaries Property & Casualty Risk-Based Capital Task Force has prepared the following report on these risk factors and recommended them to the NAIC P&C Risk-Based Capital Working Group. The Task Force recognizes that the measurement of risk is an emerging area of thought and technology. The Task Force views this report as a good foundation for further study of this critical issue, and not as the "definitive word" on the subject. Hopefully this report will stimulate further study of and papers on this subject.

Another component of the formula is covariance. Also included here is a report on this topic to the Working Group.

American Academy of Actuaries
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Report on Reserve and Underwriting Risk Factors

From the
American Academy of Actuaries
Property/Casualty Risk-Based Capital
Task Force

Management Report

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Introduction

Until its abolition in March of 1993, the Actuarial Advisory Committee to the NAIC Property/Casualty Risk-Based Capital (RBC) Working Group had been engaged in a comprehensive study of the factors for reserve and underwriting risk in the risk-based capital formula. This study included reviewing and testing the current draft factors, and also the development of reserve and underwriting factors by several alternative means. The American Academy of Actuaries Property/Casualty Risk-Based Capital Task Force has continued, and completed that study.

This report summarizes our analysis, conclusions and recommendations. It is supplemented by a set of Technical Appendices which document our analysis and supporting calculations more fully.

This report starts with a critique of the method that was used by the Working Group to develop the current reserve and underwriting risk factors. Next, these factors are compared to the alternative factors recommended by the Academy Task Force. The balance of the report describes the methodology that the Task Force developed to produce the recommended alternative risk factors.

The reserve and underwriting risk factors in the risk-based capital formula imply a set of charges by line of business. *The focus of this study is on the appropriateness of the level of these charges and not on the specific formula mechanics through which the factors would be applied.* For example, it is not the purpose of this report to discuss whether or how individual company experience should be reflected in developing the risk charges, or whether reserve risk charges should be converted to factors applicable to historical premiums rather than held reserves. Instead, we are considering the basic issue of the level of the risk charges by line of business.

Critique of Current Reserve and Underwriting Risk Factors

The current factors are based on industry "worst-case" experience.
The current reserve and underwriting risk factors in the draft risk-based capital formula are based on the "worst case" experience of the industry over the ten years from 1981-1990, as reported in 1990 Annual Statements. Specifically:

- The reserve risk factors for each line reflect the average company's reported reserve development in the worst year of development for the industry for that line.

- The written premium risk factors for each line reflect the average company's reported loss ratio in the worst year of experience for the industry for that line.

- In the RBC formula, all of the reserve and underwriting risk factors are offset by a credit for the time value of money, using a flat 5% interest rate and loss payout patterns derived using IRS methodology.

For example, the industry's worst reserve inadequacy for Homeowners occurred in December, 1983. Through December, 1990 the average company has reported adverse Homeowners reserve development of 19.3%. Offsetting that development for interest at 5% (a factor of .910) produces a net development, and a net RBC charge of 8.6% of Homeowners reserves.

Similarly in 1989, the worst year of the last ten, the average company experienced a Homeowners' loss ratio of 82.2%. Discounting that loss ratio for interest at 5% (a factor of .919) reduces it to 75.5%. Adding underwriting expenses of 31.8% produces a combined ratio of 107.3%, and a net RBC charge of 7.3% of written premium.

The chart on the following page summarizes the current RBC factors for each line, and the net charges they imply.

Current Reserve and Underwriting Risk Charges

	Reserve Risk			Underwriting Risk			
Line of Business	Nominal *Factor*	Discount *Factor*	Net *Charge*	Loss *Ratio*	Discount *Factor*	Expense *Ratio*	Net *Charge*
Homeowners/Farmowners	0.193	0.910	0.098	0.822	0.919	0.318	0.073
Private Passenger Auto Liability	0.223	0.917	0.121	1.047	0.921	0.239	0.203
Commercial Auto Liability	0.278	0.917	0.172	1.087	0.921	0.301	0.302
Workers Compensation	0.228	0.818	0.005	1.026	0.856	0.179	0.057
Commercial Multiperil	0.434	0.910	0.305	0.923	0.919	0.371	0.219
Products Liability	0.512	0.829	0.253	1.087	0.825	0.260	0.157
General Liability	0.512	0.829	0.253	1.087	0.825	0.267	0.164
Medical Malpractice	0.597	0.786	0.255	1.730	0.783	0.159	0.478
Special Liability	0.163	0.908	0.064	0.890	0.918	0.399	0.217
2-Year Line Composite	-0.037	0.962	0.074	0.718	0.961	0.274	-0.036
Property Reinsurance	0.423	0.924	0.315	1.507	0.925	0.251	0.645
Casualty Reinsurance	0.844	0.731	0.348	1.433	0.728	0.251	0.294

It should be noted that the net charges shown in the above chart are the charges applicable to the average company. In the current draft formula, the charges applicable to individual companies will vary from those shown above, due to the influence of their own reserve development, underwriting experience, and expense ratios.

We believe that the *first* level of testing should be to assure that these net risk-based capital charges by line of insurance are reasonable. The focus of this study is, therefore, on the appropriateness of these net charges, and *not* on the specific formula mechanics through which they would be applied. Issues of formula mechanics are subsidiary to the basic issue of the levels of the net risk charges. In this report, we are neither endorsing nor repudiating the existing formula mechanics; we are merely setting aside mechanics-related issues to focus solely on the level of the charges. Once the level of net charges is established, those charges can be converted into factors that accommodate any chosen set of formula mechanics.

The current factors emphasize the specific forces underlying the last industry down-cycle, rather than the current and future risks to the industry.

The current factors reflect the historical experience of the industry in the last underwriting down-cycle. In particular, they reflect the severe adverse reserve development that occurred in general liability, medical malpractice and reinsurance, and the very severe loss ratios in malpractice and reinsurance.

The experience during this particular cycle is dominated by several factors:

- The tort liability explosion, particularly in respect to asbestos and environmental liabilities.
- A great deal of naive capacity, focused especially on general liability and reinsurance lines.
- High interest rates, creating intense pressures to engage in cash flow underwriting.
- High inflation rates.

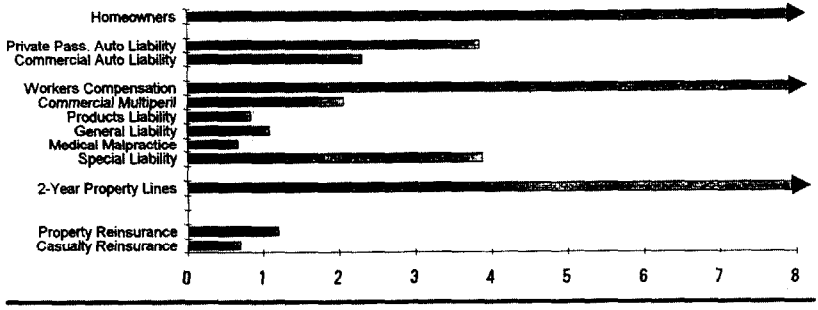
While the next down-cycle could easily be as severe, the specific forces that drive it will probably be different (as they are in each cycle), such that the incidence of adverse results by line will probably also be different. For example, industry observers currently see Workers Compensation as a line in great distress. However, during the last cycle Workers Compensation loss ratios and reserve developments were not particularly unfavorable. As a result, the current reserve and underwriting risk factors for Workers Compensation are relatively modest. A similar observation might apply to Homeowners, given the recent catastrophe experience.

The methodology underlying the current factors, therefore, seems somewhat overly focused on the specifics of the recent past. While past experience is useful as a guide, it needs to be interpreted in terms of the current and future risks faced by the industry.

The current factors create very high capital requirements (relative to *industry norms) for some lines, and very low ones for others. Their* implementation may cause significant market dislocations.

To test the reserve and underwriting risk factors for each line of business, we developed an industry Premium-to-Surplus ratio model. In that model, each set of reserve and underwriting risk factors were combined with those applicable to assets to produce the overall risk-based capital for the line. The resulting risk-based capital can then be compared to the premium volume to determine the implied Premium-to-Surplus ratio. These results are presented below.

Implied Premium-to-Surplus Ratios - Current Factors



As can be seen, the current factors imply very different Premium-to-Surplus ratios by line of business. Capital requirements are quite high for Liability, Medical Malpractice and Reinsurance; and quite low for Homeowners, Workers Compensation and Property.

In reviewing the above chart, it is important to understand that the above Premium-to-Surplus ratios represent maximums. If the industry (or an average company) were to actually operate above the Premium-to-Surplus ratio shown, it will have crossed the risk-based capital threshold; with actual surplus below the risk-based capital requirement. The industry will,

therefore, have to capitalize each line *below* the Premium-to-Surplus ratios shown to prevent individual companies from triggering regulatory attention.

Our use of the Premium-to-Surplus ratio as a test of the formula should not be misinterpreted as an endorsement of this test as a measure of the capital adequacy of an individual company. The Premium-to-Surplus ratio has been justifiably criticized for its shortcomings as a measure of leverage. Here we are only using it to present overall *industry* capital requirements for each line, using a conventional measure as a matter of convenience.

Premium-to-Surplus ratios do vary among different segments of the industry, reflecting different risk profiles of the mix of business written by each industry segment (see the recent study by ISO, for example). *The Academy Task Force fully supports the notion that the Risk-Based Capital requirements by line should reflect discernable differences in the riskiness of each line.* However, we are concerned that the swings in capital requirements displayed in the preceding chart seem greater than most would think reasonable.

Based on current industry norms, the implied capital requirements for products and general liability, medical malpractice, and reinsurance seem to be too high. This is a critical issue as it is likely to affect the available capacity in these lines. Companies will tend to reduce their future writings in lines where they perceive that capital requirements are too high, focusing instead on lines where capital requirements are less. If the differences between current perceptions of capital requirements by line and RBC calculated requirements by line are large, the significant market implications of the differences require that the assumptions underlying the RBC factors be analyzed critically.

Finally, we would caution that the Premium-to-Surplus ratio model was developed as a heuristic tool to aid in reviewing the implications of the level of the various risk-based capital charges. The model required a number of simplifying assumptions that are reasonable at the overall industry level, but are not appropriate for use in evaluating the impact of the formula on an individual company. For example, in the model we assume an industry average mix of invested assets for each line, and we do not consider any of the charges for investments in affiliates. Due to these simplifying assumptions, the model

understates the total risk-based capital generated by the formula, by an estimated 15 to 20%. Despite these limitations, we believe the model is a useful tool for comparing the relative risk-based capital requirements by line of business.

The assumptions underlying the Premium-to-Surplus rate model are summarized in the last section of this report. Further details can be found in Appendix C.

Recommended Reserve and Underwriting Risk Factors

Our recommended factors reflect the inherent riskiness of each line of insurance.

After testing a variety of approaches, the Academy Task Force has developed a set of alternative reserve and underwriting risk factors, which it recommends the Working Group adopt and incorporate into the draft RBC formula.

The methodology, rationale and supporting data that underlie our recommended alternative factors are described in the next section of this report. Additional supporting detail is provided in a set of Technical Appendices. While the methodology underlying the recommended factors is somewhat complex, we believe the resulting factors better reflect the inherent riskiness of each line of insurance.

Our recommended alternative reserve and underwriting risk factors are summarized in the chart below.

Proposed Alternative Reserve and Underwriting Risk Charges

		Reserve Risk			Underwriting Risk			
Line of Business		Nominal Factor	Discount Factor	Net Charge	Loss Ratio	Discount Factor	Expense Ratio	Net Charge
Homeowners/Farmowners		0.304	0.928	0.210	1.012	0.941	0.318	0.270
Private Passenger Auto Liability		0.209	0.918	0.110	0.899	0.924	0.239	0.070
Commercial Auto Liability		0.232	0.901	0.110	0.967	0.899	0.301	0.170
Workers Compensation		0.282	0.850	0.090	1.101	0.882	0.179	0.150
Commercial Multiperil		0.293	0.882	0.140	0.873	0.881	0.371	0.140
Products Liability -	Claims-made	0.269	0.875	0.110	1.133	0.847	0.260	0.220
	Occurrence	0.411	0.815	0.150	1.407	0.789	0.260	0.370
General Liability -	Claims-made	0.243	0.885	0.100	1.080	0.864	0.267	0.200
	Occurrence	0.370	0.825	0.130	1.320	0.805	0.267	0.330
Medical Malpractice -	Claims-made	0.254	0.845	0.080	1.326	0.823	0.159	0.250
	Occurrence	0.399	0.765	0.070	1.666	0.745	0.159	0.400
Special Liability		0.293	0.897	0.160	0.845	0.912	0.399	0.170
2-Year Line Composite		0.325	0.966	0.280	0.941	0.963	0.274	0.180
International		0.339	0.859	0.150	1.154	0.882	0.262	0.280
Property Reinsurance		0.400	0.914	0.280	1.310	0.915	0.251	0.450
Casualty Reinsurance		0.465	0.751	0.190	1.389	0.748	0.251	0.290

The overall level of risk-based capital is a key judgement that must be made before the formula can be finalized. Raising the charges increases the level of capital, which increases the security afforded to policyholders. At the same time, the higher level of capital implies higher costs for policyholders, to provide the necessary returns on the higher capital. Ultimately, the formula must strike a balance between the competing objectives of security and cost.

Our recommended factors are meant to be "neutral" on this issue. We have calibrated them so that they produce the *same* amount of total risk-based capital for the primary insurance industry as the current factors. This was done largely to permit their comparability to the current factors, and should not be interpreted as an endorsement of the resulting level of capital, per se.

If, after review and testing, the Working Group wishes to raise or lower the level of capital, our factors can easily be recalculated to reflect the desired level. As will be seen in subsequent sections, the methodology we have developed to calculate the factors makes use of an explicit capital standard (the Expected Policyholder Deficit) as an input. We calculated factors at several alternative capital standards before settling on our recommendation.

Note that the recommended risk factors include separate factors for claims-made versus occurrence business. As part of our analysis, we performed a separate study of the relative riskiness of the two coverage forms. Based on that study, we are recommending lower factors for claims-made business than for occurrence business.

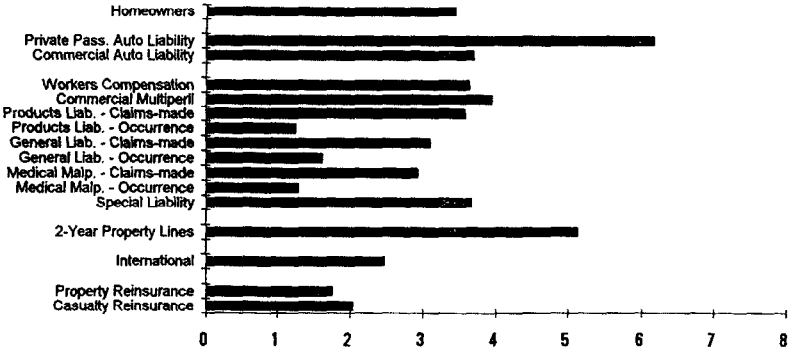
Our study also updates the discount factors to reflect 1991 Schedule P experience. The discount factors continue to be based on IRS payout pattern methodology and a 5% interest rate.

Finally as a simplification to the formula we have constructed underwriting risk factors that include provision for the risk associated with both written and unearned premium, but are applicable *only* to written premium. Thus, if our factors were adopted, it would be appropriate to delete the unearned premium component in the formula.

The resulting capital requirements for each line are more reasonable.

Our recommended alternative factors also imply maximum Premium-to-Surplus ratios, as summarized in the chart below.

Implied Premium-to-Surplus Ratios · Proposed Alternative Factors



Not only are the proposed alternative factors more rigorously developed, but, as can be seen, they do not produce the wide differences in Premium-to-Surplus ratios as do the current factors. Most importantly, they do not imply unreasonably stringent capital levels for any line. The variation in Premium-to-Surplus ratios is more consistent with the observed variation in capitalization across different segments of the industry.

As was noted in an earlier section, since the Premium-to-Surplus ratio model does not capture all elements of the risk-based capital formula, it understates the total risk-based capital the formula will generate. The implied Premium-to-Surplus ratios for all lines are correspondingly overstated. We do not believe this shortcoming of the model distorts the overall picture presented in the preceding chart.

It is essential that work continue to improve and refine the measurement of risk.

The Academy Task Force believes that its recommended alternative factors, and the approach it has developed to measure risk, are a substantial improvement over the current draft factors. However, the Task Force also recognizes that the measurement of risk is an emerging area of thought and technology. The Task Force views this report as a good foundation for further study of this critical issue, and not as the "definitive word" on the subject.

Development of Alternative Measures of Reserve and Underwriting Risk

The approach underlying the current factors can be summarized as follows:

- Industry-wide bias in reserving and pricing was identified as a major risk factor, and it was measured from Schedule P information on an undiscounted basis.

- It was agreed that investment income on assets corresponding to loss reserves and premium should be considered before using the values from Step 1.

- Individual company fluctuation around the industry bias was considered relevant, but was not reflected because (a) the factors derived from Steps 1 and 2 above were already sufficiently conservative, and (b) there was not readily available a method to measure individual company variation.

The approach that the Academy Task Force has taken improves on the current approach in the following ways:

1. The method continues to use Schedule P runoff information as a starting point.

2. Rather than using a flat 5% interest rate, the interest rate is based on the prevailing interest rate during the historical period. Since company earnings actually reflected these prevailing rates, the variable rates better measure the risk.

3. Measurements of industry variability over time and individual company variability around the industry average have been prepared in a form which can be reflected in the analysis.

With these improvements, the alternative reserve and underwriting risk factors have been developed, as described further in the sections below.

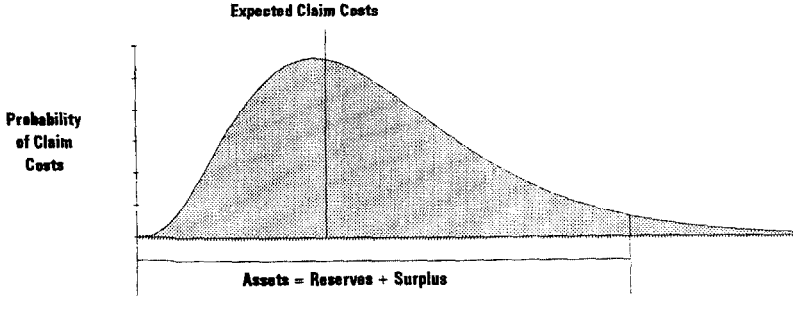
Our reserve and underwriting risk factors are developed using a consistent conceptual approach.

The fundamental risk associated with insurance contracts is that the actual cost of claim liabilities will vary from expected costs.

This risk obviously exists on all future business, because the insured events may or may not occur. In addition, the claim costs of the events that do occur are affected by the future social and economic conditions during which they are settled, adding to the uncertainty of their cost. A portion of the risk therefore remains on past business, to the extent that not all claims are settled.

Because claims can take several years or more to settle, their economic cost needs to be measured on a present value basis, using interest rates prevailing at the time.

In order to minimize the adverse consequences of risk, an insurer's resources (i.e., assets) must exceed the expected cost of its claim liabilities by a margin sufficient to handle all but the most extreme fluctuations in actual claim costs. The insurer's resources are equal to its reserves and its surplus. Pictorially:



At the right hand extreme in the preceding chart, there is a small probability that actual claim costs will be sufficiently large so as to exceed all of the insurer's resources. In such circumstances, the insurer would be economically insolvent, with resources inadequate to finance its claim costs.

For each line of insurance, we attempted to measure the extent to which a company's actual (present value) claim costs can vary from expected. In other words, we attempted to measure the shape of the probability distribution in the preceding chart. We measured this variation by looking at historical claim experience over the last ten years, comparing actual claims to expected claims.

- For reserve risk, we compared the present value of the actual claim runoff that has emerged to the reserves that were originally established for those claims.

- For underwriting risk, we compared the present value of the actual accident year claim payments to the loss portion of the earned premium, after deducting underwriting expenses.

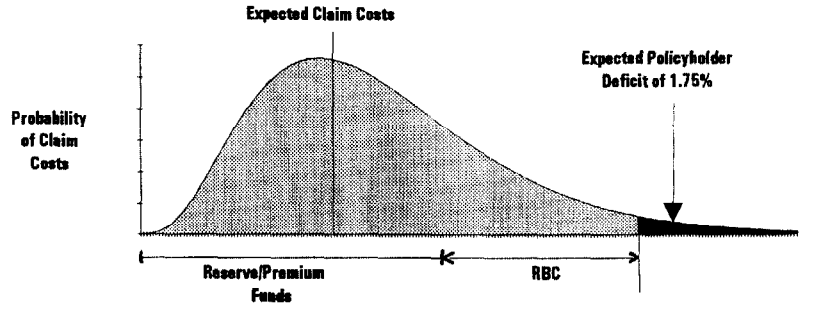
We measured the variability for each line by studying the variation in industry experience over time, and also the variation in individual company experience from the industry. The total variability for the line is the combination of the two.

Once the shape of the probability distribution has been estimated, the risk-based capital charges can be derived. The latter is determined by:

- Selecting an acceptably small probability of insolvency, represented by the right-hand tail of the distribution.

- Determining the amount of funding already provided directly by reserve requirements and premiums.

The measurement of risk-based capital is displayed pictorially below:



As was discussed in the former NAIC Actuarial Advisory Committee's Conceptual Framework, dated February 1992, risk-based capital requirements must consider the potential costs of insolvencies, as well as their probabilities. They developed the concept of the Expected Policyholder Deficit (EPD) as a way to consistently assess insolvency risk. For each different risk (e.g., investment, credit, reserve, etc.) the net risk capital charges should be set high enough so that the expected cost of insolvency due to that risk is reduced to an acceptably low level. The principal advantage of the EPD approach is that each risk (and each line of business) is given consistent risk-capital treatment.

The recommended risk-based capital charges were selected to achieve (approximately) an Expected Policyholder Deficit equal to 1.75% of expected claim liabilities. The 1.75% EPD standard was chosen arbitrarily; it appears to produce total risk-based capital for the primary insurance industry that is roughly equal to that produced by the current charges. The standard can easily be raised or lowered during the testing phase, as the overall formula is "calibrated."

Note that in the diagram above, reserve/premium funding is intentionally not equal to expected costs. This illustrates the point that conservatism in the chosen accounting standard can create implicit capital requirements in addition to explicit requirements set through the risk-based capital formula. The most significant items in this area are:

- The requirement that loss and LAE liabilities be recorded at their full, undiscounted value creates an implicit capital margin equal to the difference between the full and discounted value.

- The requirement that acquisition costs be fully expensed without any offsetting reduction in the unearned premium reserve creates a similar implicit capital margin.

Our recommended alternative risk-based capital factors reflect the presence of these implicit capital margins, inherent in statutory accounting.

Consideration must also be given to any bias in the reserves or premiums. Bias is a statistical term that measures the extent to which an estimate differs from the true ultimate value of an unknown quantity. If the estimate consistently overstates or understates the true value, it is said to be biased.

First, our starting point was the same as that underlying the current factors: historical industry experience.

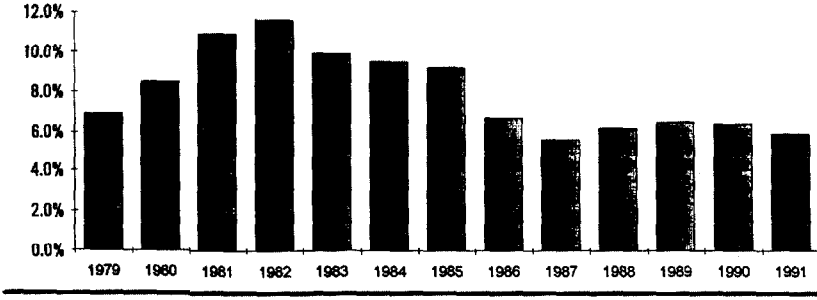
Using a database of Schedule P data purchased from A.M. Best, we analyzed the historical experience of the industry over the ten year period from 1982 to 1991. (Thus, our analysis is a year more recent than underlies the current factors.) As was done by the Working Group, we segregated the experience of the reinsurers from the primary insurers (we used A.M. Best's classification of companies to do this). We also used the same approach as the Working Group to construct approximate ten-year histories for the 2-year property lines, and the non-proportional reinsurance lines.

Second, rather than using a flat 5% interest rate, we varied the rate based on prevailing interest rates during the historical period.

The current factors are based on nominal reserve development and nominal loss ratios. Separately, credit for the time value of money is given using a constant 5% interest rate. This approach overlooks the correlation between the level of interest rates and industry underwriting experience. Intuitively, it makes sense that during periods of high interest rates loss ratios will be higher, because market considerations force companies to set their prices in anticipation of investment income. Since high interest rates often occur during high inflation periods, it also makes sense that reserve development will be worse during periods of high interest rates. Industry experience over the last ten years generally supports both of these hypotheses.

In our review of historical reserve development, we compared the held reserves at each year end to the present value of the actual payments against those reserves through 12/91, plus the present value of projected payments beyond that point. In these calculations, we used a *dynamic* interest rate. The rate applicable to each accident year was set equal to the average prevailing rate on 5-year U.S. treasuries, less 2%. For the older years, the interest rates are relatively high; for the more recent years they are roughly comparable to the 5% rate that is currently employed in the draft RBC formula. The chart below displays the accident year interest rates calculated in this manner.

Accident Year Interest Rates - Five Year Treasuries Less 2%



The intent of this approach was to compare the true economic cost of the liabilities to the industry's reserve provision for them. The chart below illustrates these calculations for the Commercial Multiperil line.

Industry Historical Reserve Adequacy - Commercial Multiperil

	YEAR ENDING									
	12/82	12/83	12/84	12/85	12/86	12/87	12/88	12/89	12/90	12/91
(1) Industry Carried Reserves	5,712	6,545	7,834	9,813	11,877	13,762	15,566	17,872	19,932	21,728
(2) Current (12/91) Implied Reserves										
(a) Nominal	7,738	9,523	11,253	12,881	13,904	15,121	16,449	18,865	20,169	21,728
(b) Discount Factor	0.749	0.767	0.776	0.783	0.803	0.825	0.835	0.845	0.843	0.852
(c) Present Value	5,793	7,308	8,733	10,087	11,170	12,476	13,740	15,938	17,000	18,503
(3) Deficiency/(Redundancy)										
(a) Nominal	2,026	2,978	3,419	3,068	2,027	1,359	883	993	237	0
(b) Present Value	81	763	899	274	(707)	(1,286)	(1,826)	(1,934)	(2,932)	(3,225)
(c) Nominal Percent	35.5%	45.5%	43.6%	31.3%	17.1%	9.9%	5.7%	5.6%	1.2%	0.0%
(d) Present Value Percent	1.4%	11.7%	11.5%	2.8%	-6.0%	-9.3%	-11.7%	-10.8%	-14.7%	-14.8%

Parallel calculations were performed on accident year losses to measure underwriting risk. The present value of losses and loss adjustment expenses were compared to the loss portion of the premium for each accident year. These calculations are illustrated for the Commercial Multiperil line in the following chart.

Industry Historical Premium Adequacy - Commercial Multiperil

	ACCIDENT YEAR									
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
(1) Industry Premiums	6,437	6,671	7,268	9,592	13,582	15,753	16,583	16,545	16,869	16,610
(2) Underwriting Expense Ratio	0.371	0.371	0.371	0.371	0.371	0.371	0.371	0.371	0.371	0.371
(3) Loss Portion of Premium	4,049	4,196	4,572	6,033	8,543	9,909	10,431	10,407	10,611	10,448
(4) Current (12/91) Indicated Losses										
(a) Nominal	5,542	6,360	7,367	8,109	7,650	8,326	9,391	11,447	11,458	11,929
(b) Discount Factor	0.835	0.845	0.845	0.849	0.876	0.892	0.887	0.888	0.877	0.895
(c) Present Value	4,626	5,375	6,225	6,882	6,705	7,424	8,329	10,160	10,054	10,676
(5) Deficiency/(Redundancy)										
(a) Nominal	1,494	2,184	2,795	2,075	(893)	(1,583)	(1,039)	1,040	847	1,482
(b) Present Value	577	1,179	1,853	848	(1,838)	(2,485)	(2,102)	(247)	(556)	228
(c) Nominal Percent	36.9%	51.6%	61.1%	34.4%	-10.5%	-16.0%	-10.0%	10.0%	8.0%	14.2%
(d) Present Value Percent	14.3%	28.1%	36.2%	14.1%	-21.5%	-25.1%	-20.2%	-2.4%	-5.2%	2.2%

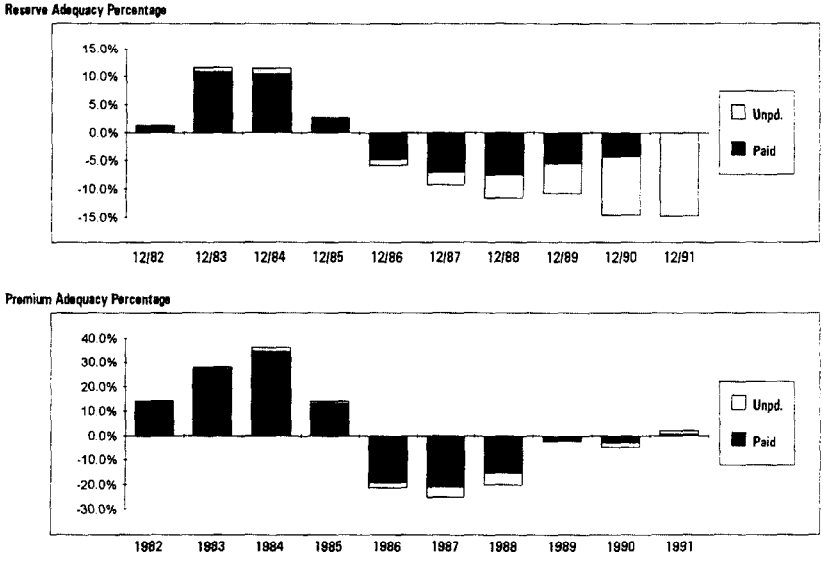
The details of both of these sets of calculations for each line of business are presented in Appendix A.

Third, we feel the best measure of risk is one that looks at the variability in results, not at their absolute level.

As has already been noted, the current reserve and underwriting risk factors focus on the "worst-case" level of industry experience. For Commercial Multiperil, the worst year of reserve development (as reported through 12/91) was December, 1983 when reserves were 45.5% inadequate on a nominal basis and 11.7% inadequate on a present value basis. The worst year for underwriting was 1984 when the loss ratio was 101.4%. In that year, industry premiums were inadequate by 61.1% of losses on a nominal basis and 36.2% of losses on a present value basis.

We believe that risk is more appropriately measured by analyzing the *variability* of results (statistically, the standard deviation), rather than their absolute level. The latter has been influenced by the particular circumstances of the last underwriting down-cycle. Using reserve and underwriting variability measures is also consistent with the approaches used to develop charges for other risk-capital elements. For example, the stock risk factor is based on a variability measure, rather than the worst-case decline in the stock market. Also, it should be recognized that the historical deficiencies *are* included in the variability calculations. The variability in Commercial Multiperil results is displayed graphically below.

Variability in Reserve and Premium Adequacy - Commercial Multiperil



(The shading of the bars reflect the proportion of losses that are *paid* (and therefore known) as of 12/91.)

The results of our analysis of industry risk are summarized on Exhibit 1. For each line, we have computed both the mean reserve and premium deficiency, and the standard deviation of those deficiencies. Both statistics have been computed on a simple and a weighted basis; in the latter case the weights are the percentage of losses that are actually paid as of 12/91. The weighted statistics have the advantage of giving greater credence to the more mature years, where the experience is more certain.

In reviewing Exhibit 1, several observations are noteworthy:

- During the entire ten year period, aggregate industry reserves were *never inadequate* on an economic basis. At their weakest point, December 1984, the economic margin was only 4.2%, but it was positive.

- During the entire ten year period, aggregate industry rates were inadequate in four of the ten years. In 1984, premiums were inadequate on an economic basis by roughly 10%.

- Over the ten year period, the average economic margin in the loss reserves was about 12%, as compared to an expected margin of about 20% based on the payouts and interest rates that prevailed. One could tentatively conclude from this that on average roughly 40% (8% of 20%) of the intended margin is taken up by an inherent bias towards optimistic estimates in the reserve setting process.

- Over the ten year period, the average margin in the premiums was a profit of about 1.5%, suggesting that they exhibit a small positive bias over the long run.

- Finally, a comparison of the combination of the by line standard deviations (labeled Primary, Reinsurance and Industry "Total" on the Exhibit) to the standard deviations of calculations performed on the all-lines composites shows the value of diversifying across lines of business. The overall industry result is only half as variable as the average of the by-line variability.

In addition to variability of industry results, there is also the risk that an individual company will vary from the industry.

Industry results can be expected to vary from year to year, due to cycles, catastrophes and changing economic conditions. In addition, individual companies can be expected to vary from the industry result. To measure "company" risk, we ran identical calculations to those we did for the industry on each company group for the 1985 year. (1985 was chosen because it is the most mature year in the 1991 Schedule P for which the company's growth over the prior three years can be observed. Other studies suggest that rapid growth contributes to risk, and we therefore wanted to be able to isolate companies that were growing rapidly from those that were not.) Because the 1985 results were particularly adverse, the actual results calculated for each company group were re-scaled to reflect "normal" results for the industry. The results of these calculations were used to generate distributions of company results about the industry mean result, which were then used to measure "company" variability.

Our analysis of company variation about the industry mean is illustrated in the charts on the next four pages for the Commercial Multiperil line. (Similar exhibits are displayed for each line of business in Appendix B.) Previous studies have shown that company size and rate of growth affect risk. Accordingly, we segmented the total population of companies by both criteria. Generally, the company variation data confirms that:

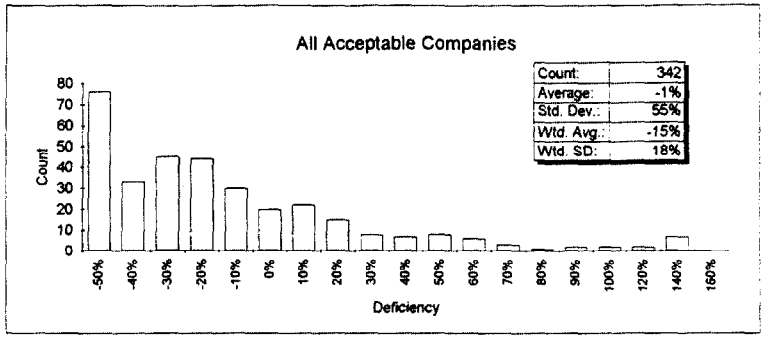
- Small companies (those with premium or reserves under $50-million) have more volatile results than large companies.

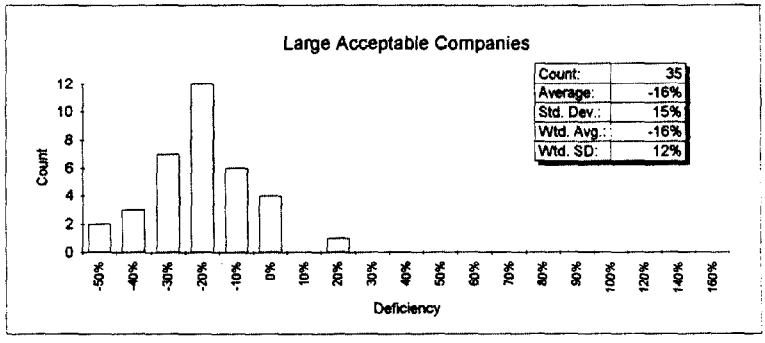
- Rapidly growing companies (those with three-year average premium growth above 10%) have worse results than stable companies.

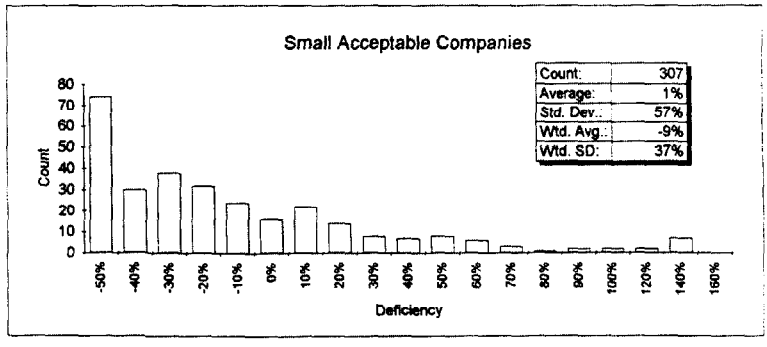
For each population of companies, we computed simple and weighted means and standard deviations. (Here the weights are the reserves or premiums of the company.) Our results are summarized in Exhibit 2.

Commercial Multiple Peril

Present Value Reserve Deficiency Analysis

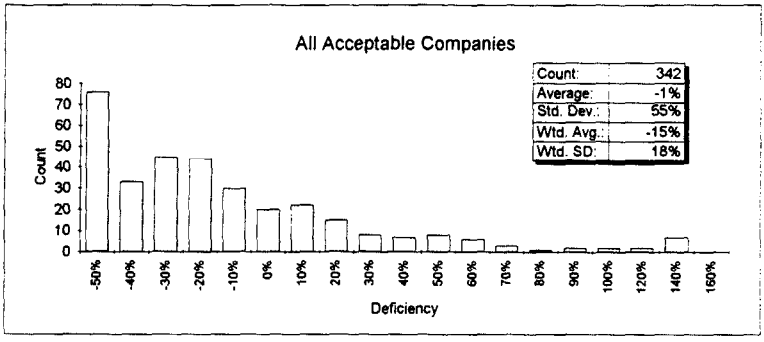


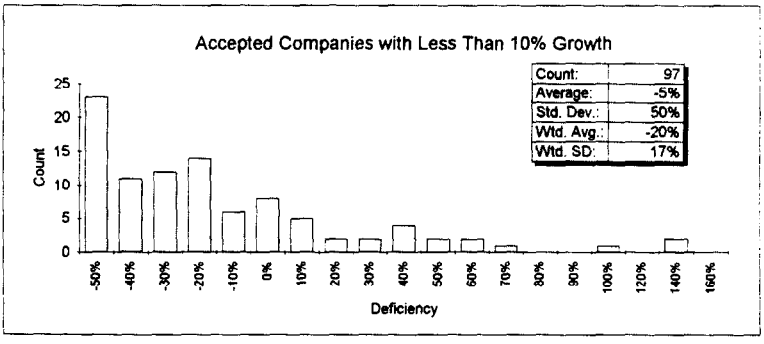


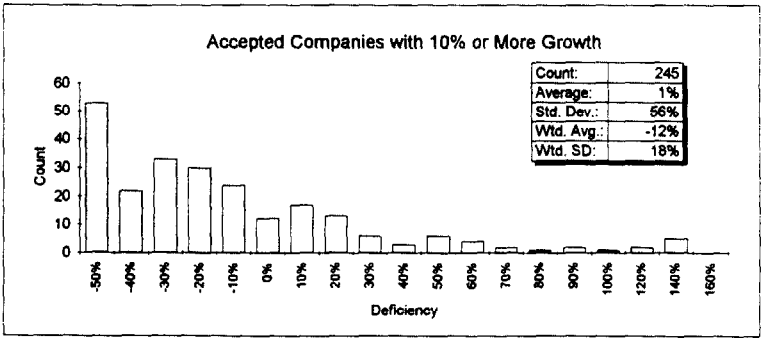


Commercial Multiple Peril

Present Value Reserve Deficiency Analysis

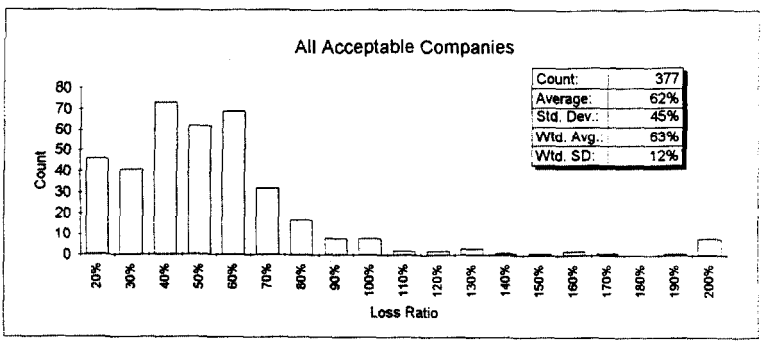


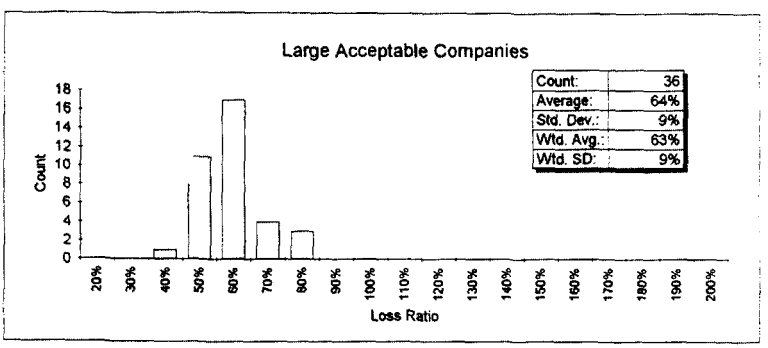


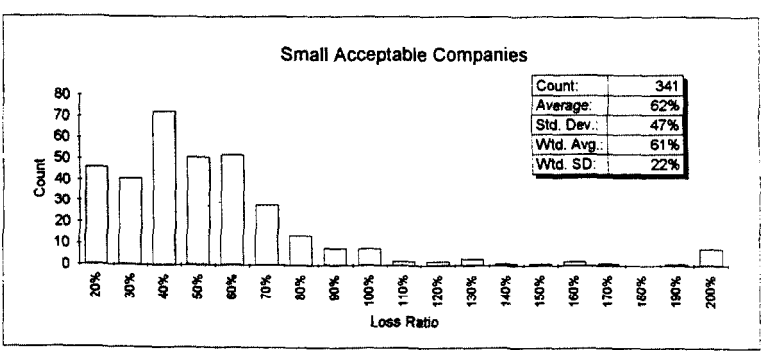


Commercial Multiple Peril

Present Value Loss Ratio Analysis

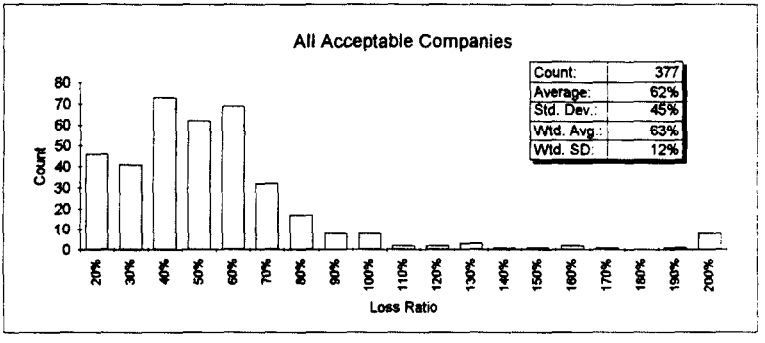


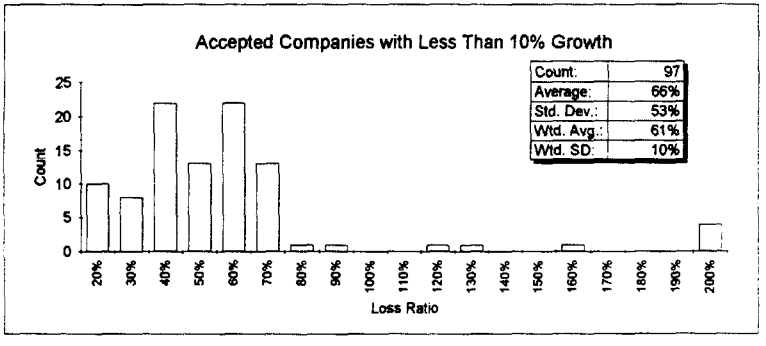


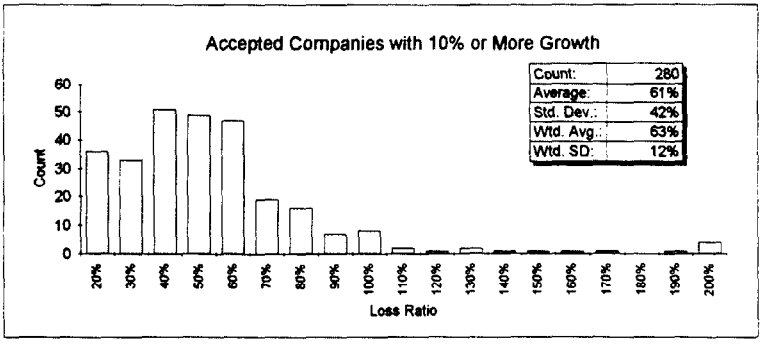


Commercial Multiple Peril

Present Value Loss Ratio Analysis







(Note that the standard deviations on the preceding two pages, and in Appendix B, are the standard deviations of the loss and ALAE ratios. Ultimately, we chose to measure underwriting risk as the standard deviation of the adequacy of the loss and LAE portion of the premium. This necessitated an adjustment to the Appendix B results, to account for underwriting and unallocated loss adjustment expenses. This adjustment is reflected in the standard deviations in Exhibit 2.)

The total risk a company faces is a combination of "industry" risk and "company" risk.

The "industry" risk measures and "company" risk measures calculated for each line in Appendices A and B are summarized in Exhibit 3. As a next step, the two sources of risk are combined to produce an indicated total risk for each line. Finally, from the total risk an indicated total funding level is calculated at various Expected Policyholder Deficit levels.

Working across Exhibit 3 from left to right:

- The "industry" risk standard deviations reflect the observed variation of industry results over time. Both simple and weighted standard deviations are shown, along with a standard deviation that is a 50-50 weighting of the weighted standard deviation for the line and the weighted standard deviation for the industry total. The latter reflects the lack of full credibility that should be attached to the individual line data.

  The "selected" industry risk standard deviations are based on the 50-50 weighted standard deviation, except where a judgmental selection was required by special circumstances. Those situations are noted below:

  – For Products and General Liability, the selections reflect the composite indications and a selected 1% differential. These lines were split for the first time with the 1992 Annual Statement. Companies were required to construct the entire ten year histories at that time, requiring allocations of bulk reserves and other adjustments. While the data suggests that Products Liability is riskier, we feel that the individual line data is

probably distorted by misallocations and other data problems. These distortions would tend to overstate the risk of the lines.

- For International, the selected standard deviations are weighted averages of the primary and reinsurer indications. Since this business is virtually all reinsurance, we do not believe that the risk factors for this line should vary by type of company.

- For Property Reinsurance (A&C), we selected the standard deviations judgmentally, by reference to the other lines. The data for this line is "inferred" by subtracting the casualty lines from the Schedule P summary. We do not believe the resulting data produces an entirely credible result.

- For Casualty Reinsurance (D), we selected the standard deviation of the Reinsurance (B) line; since Reinsurance (D) is in runoff, ten years of data does not exist. Also, by the time the risk-based capital formula is implemented, all that will realistically be left in Reinsurance (D) will be casualty reinsurance.

- For Homeowners underwriting risk, we selected a higher standard deviation because we believe that the ten year period used is not fully indicative of the catastrophe risk that exists in this line. Preliminary calculations based on estimates for the 1992 accident year produce an eleven year standard deviation of 22.7%, which probably overstates the risk.

- The "company" risk standard deviations reflect the observed variations of company results from the industry. As was noted earlier, small companies exhibit greater variation than large companies. This difference is accounted for by the explicit inclusion of a size charge applicable to small companies in the RBC formula. The basic risk charges need, therefore, only account for the variation observed among large companies. The exhibit shows the simple standard deviations for large companies and the weighted standard deviations for all companies. While the former statistic is technically better, it sometimes reflects too small a sample of companies to be fully credible. In such circumstance, the weighted standard deviation is an acceptable alternative.

As was the case with "industry" risk, we relied on the 50-50 weighted standard deviations, in all but a few instances:

- For Products and General Liability, the selections are based on the Composite results, for the reason noted earlier.

- For Medical Malpractice reserve risk, the selected standard deviation reflects a downward adjustment in recognition that the year-end 1985 reserves, on which the "company" risk is based, reflect a greater proportion of occurrence business than is currently the case. As will be seen later, occurrence business appears to have greater reserve risk than claims-made business.

- For International, the "company" risk standard deviations are selected judgmentally as no credible data was available.

- The total risk for each line is calculated by combining the selected industry and company risk measures, using a "square-root rule." Such an approach inherently assumes independence between industry and company variation.

- Finally, the total measures of risk are used to calculate total funding requirements (a lognormal statistical distribution was assumed) at three different confidence levels. The total funding represents the margin above expected (present value) losses that is required to reduce the expected policyholder deficit cost to an acceptably low level. For example, on the selected risk measures, Homeowners loss and loss expense liabilities require a 24.1% margin above their expected present value in order to reduce the EPD cost to 2%.

We have developed separate reserve and underwriting risk factors for claims-made and occurrence policies.

The historical database used to develop measures of reserve and underwriting risk reflect a combination of claims-made and occurrence policy forms for the commercial liability lines.

Intuitively, the claims-made form should pose less reserve and underwriting risk because only the cost of reported claims must be estimated.

Unfortunately, it is not possible to segregate the ten years of historical Schedule P experience between claims-made and occurrence business in our database. In Exhibit 4, Sheets 2 and 3, a comparison of available experience for Medical Malpractice is presented. That experience shows clearly that, based on rough measures of variability, claims-made is significantly less risky than occurrence business. In reviewing the experience, however, it is apparent that much of the difference between the claims-made and the occurrence standard deviations is attributable to the extremely poor occurrence experience in 1982-1984. During that period, some companies discounted their loss reserves and/or their rates substantially; their experience may be distorting the comparison.

On Sheet 1 of Exhibit 4, we have developed separate risk measures and funding requirements for each policy form. The calculations parallel those on Exhibit 3. We have selected a risk relativity for claims-made of 80% of occurrence. While the data on Sheets 2 and 3 indicate a lower relativity, we believe the 80% factor is appropriate. The experience on Sheets 2 and 3 is very limited, and should therefore not be treated as fully credible. The 80% relativity produces risk factors that are consistent with the risk factors for other lines. For example, the claims-made risk factors are generally higher than the personal lines factors, while the occurrence factors are generally lower than the casualty reinsurance factors.

The total required funding must be compared to the funding already available from reserves and premiums to determine the appropriate risk-based capital charges.

In Exhibit 5, the total funding requirements derived in Exhibits 3 and 4 are converted to risk-based capital charges applicable to reserves and written premium.

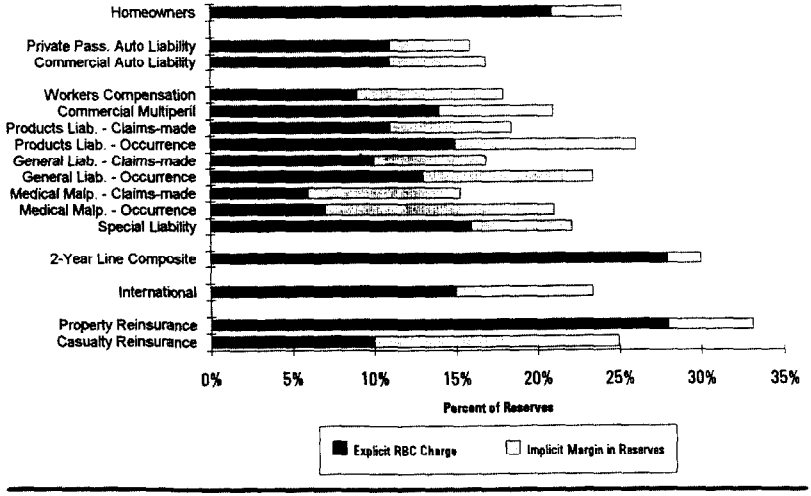
Sheet 1 presents calculations relating to reserve risk. The total funding requirements have been reduced by the implicit margins inherent in the use of full value loss reserves.

As was noted in a previous section, the industry reserves have historically shown a bias towards underestimating the full ultimate liabilities. For whatever reason, optimism in the reserve estimates has, historically, absorbed roughly 40% of the full value margin. In calculating risk-based capital charges, we have assumed that this situation will continue to exist, crediting only 60% of the full value reserve margin.

In evaluating the resulting reserve risk charges this adjustment must be kept in mind. The "long tail" lines do exhibit greater reserve risk. However, they also have the largest implicit margin already built into them. This explains the apparently anomalous results, where in some cases the risk charges are smaller for the long tail lines than the short tail lines.

The chart below summarizes the total reserve risk capital (explicit and implicit) by line, based on the selected reserve risk charges.

Total Reserve Risk Margins



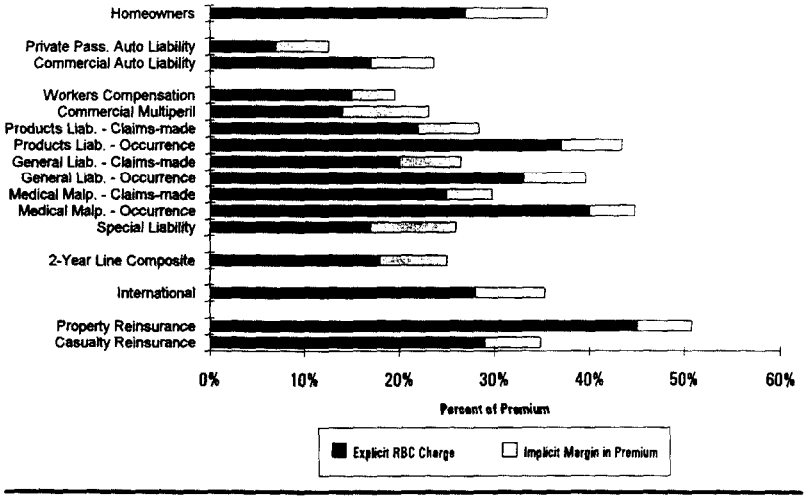
Sheet 2 presents calculations relating to underwriting risk. Premiums include provision for underwriting expenses, profit margins and expected claim costs. As was indicated previously, the industry average profit margin over the last ten years was roughly 1.5% of premium. The total funding requirements have been reduced by this margin.

In addition, the funding for unearned premiums have been reduced for prepaid acquisition expenses. These have been assumed to be roughly 2/3 of underwriting expenses.

Finally, it should be noted that the derived risk-based capital factors have been calculated to apply to written premium only, but include provision for unearned as well as written premium risk.

The chart below summarizes that total underwriting risk capital (explicit and implicit) by line, based on the selected underwriting risk charges.

Total Underwriting Risk Margins



The indicated risk-based capital charges were run through the Premium-to-Surplus ratio model. The results were used to make the final selections.

As a final test of the risk-based capital charges, the indicated charges of all three Expected Policyholder Deficit standards were run through the Premium-to-Surplus ratio model. Based on the results, which are presented in Exhibits 6 and 7, the recommended alternative factors were finally selected. As was noted earlier, the final selections are designed to produce roughly the same total risk-based capital for the primary industry as do the current factors.

Lastly, the exhibits on the next five pages compare the amounts of risk-based capital generated by each component of the formula for each line of business. For comparative purposes, all of the dollar amounts have been expressed as a percentage of earned premium. For each line, the amounts generated by the recommended factors are compared to the amounts generated by the current factors.

As we have already noted, the results of our Premium-to-Surplus ratio model depend heavily on a specific set of assumptions. These fall in three major areas:

- *The other components in the RBC formula*
  We have assumed that the factors for credit risk and investment risk will not change from those in the current draft formula. We have used the covariance adjustment recommended in our recent report of February, 1993.

- *The allocation of other assets and liabilities to line of business*
  The model requires that assets, other than invested assets, be allocated to line of business. Other assets include premium balances, reinsurance recoverables, EDP equipment, and other receivables. Similarly, all liabilities must be allocated to line of business.

- *The mix of invested assets by class*

  We have assumed an industry average mix of invested assets. Specifically, we have assumed the following mix of invested assets.

Bonds	81.9%
Other Fixed	2.4
Subtotal	84.4
Common Stock	12.0
Other Non-Fixed	3.6
Subtotal	15.6
Total	100.0%

In addition, the model does not account for all elements of the current formula. It does not consider

- size charges applicable to small insurers
- growth charges applicable to companies experiencing rapid growth
- charges for investments in affiliates
- the effect of the line concentration adjustment in the covariance calculation
- the net effect (positive or negative) of adjustments for individual company experience in the reserve and underwriting risk calculations
- the net effect of individual company variations in expense ratio
- risk-based capital on any actual surplus in excess of the risk-based capital requirement
- asset concentration factors

Failure to account for these formula elements causes our model to *understate* the total risk-based capital generated by the formula. We have estimated that understatement to be on the order of 15 to 20%, based on other test results of the full formula applied to individual companies. The chart on the following page summarizes the estimated differences by component.

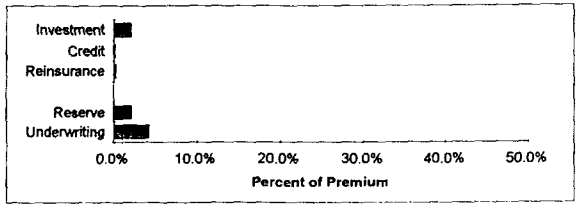
	Premium to Surplus Model	Company Detail Calculations	Difference	Reason for Difference
Reserve Risk Capital	37,499	37,979	480	Company experience adjustments
Written Premium Risk Capital	38,462	42,319	3,857	Company experience and expenses
Other Asset Risk Capital	1,021	1,021	0	
Reinsurance Risk Capital	5,817	5,817	0	
Investment Risk Capital	17,254	22,052	4,798	Assets in excess of required assets
Affiliate Risk Capital	0	22,901	22,901	Not included in P/S model
Size/Growth Risk Capital	0	2,490	2,490	Not included in P/S model
Total Before Covaraince	100,053	134,579	34,526	
Covariance Adjustment	-43,413	-63,928	-20,515	Line concentration, company vs. industry
Net Risk-Based Capital	56,640	70,651	14,011	

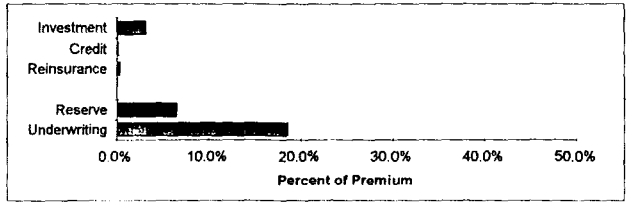
Additional details on the Premium-to-Surplus ratio model can be found in Appendix C.

Risk-Based Capital Components

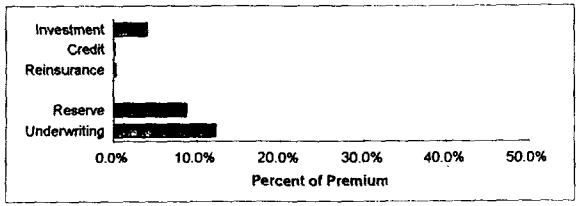
Current ***Proposed***

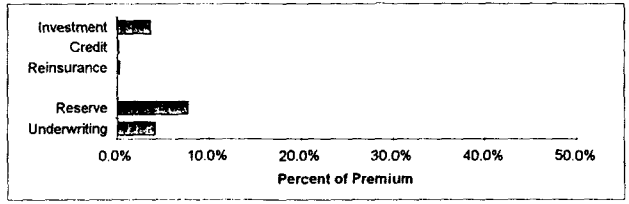
Homeowners/Farmowners



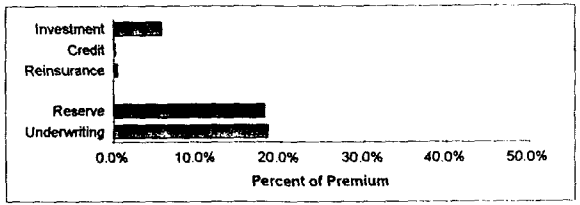


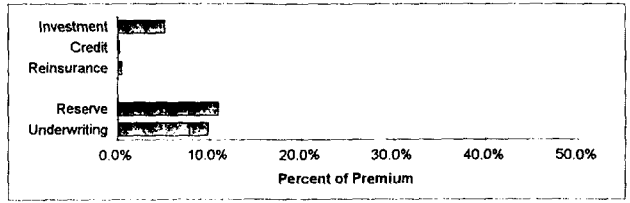
Private Passenger Auto Liability





Commercial Auto Liability

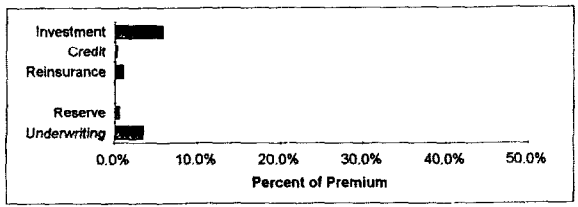


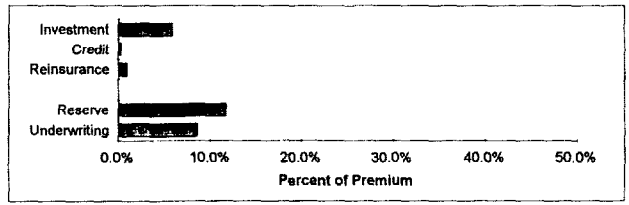


Risk-Based Capital Components

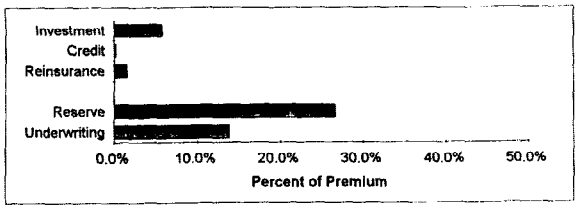
Current ***Proposed***

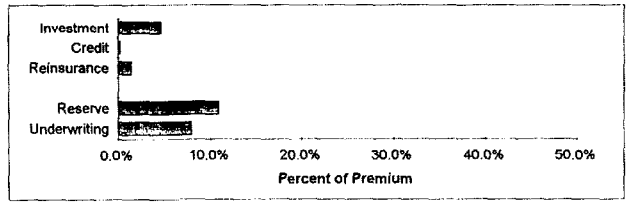
Workers Compensation



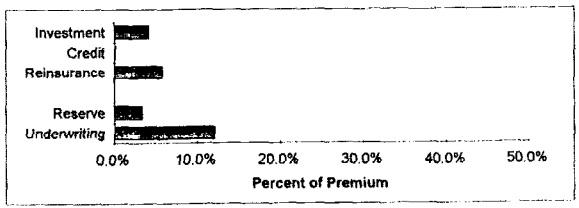


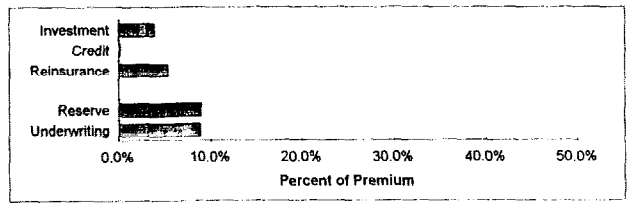
Commercial Multiperil





Special Liability

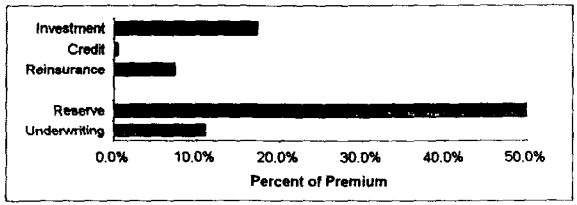


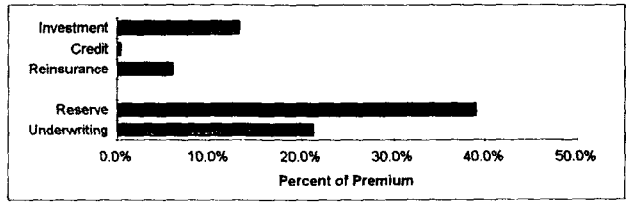


Risk-Based Capital Components

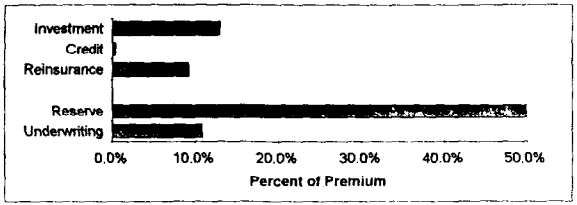
Current ***Proposed***

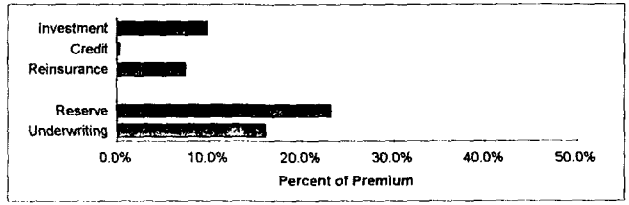
Products Liability: Composite



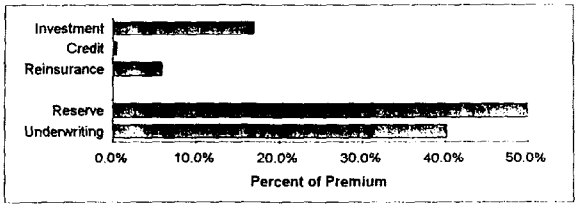


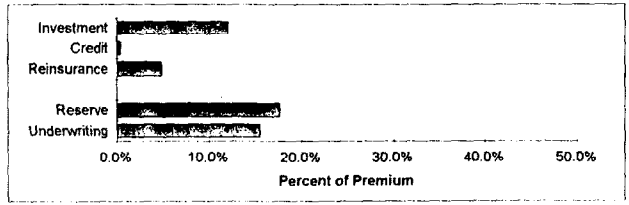
General Liability: Composite





Medical Malpractice: Composite

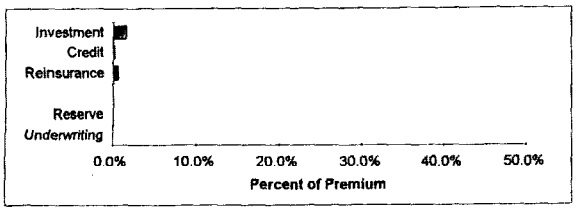


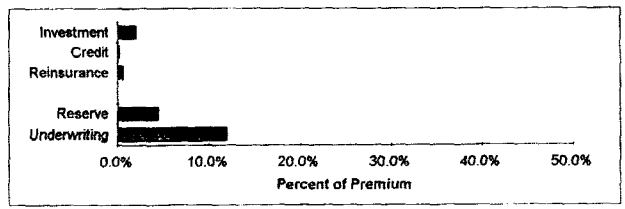


Risk-Based Capital Components

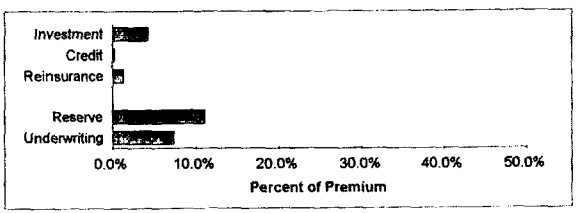
Current ***Proposed***

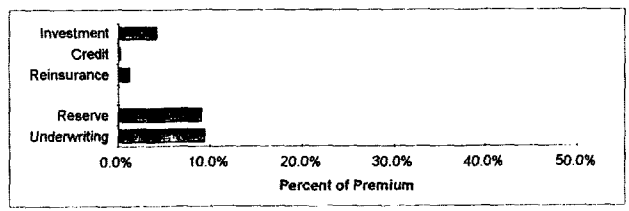
2-Year Line Composite



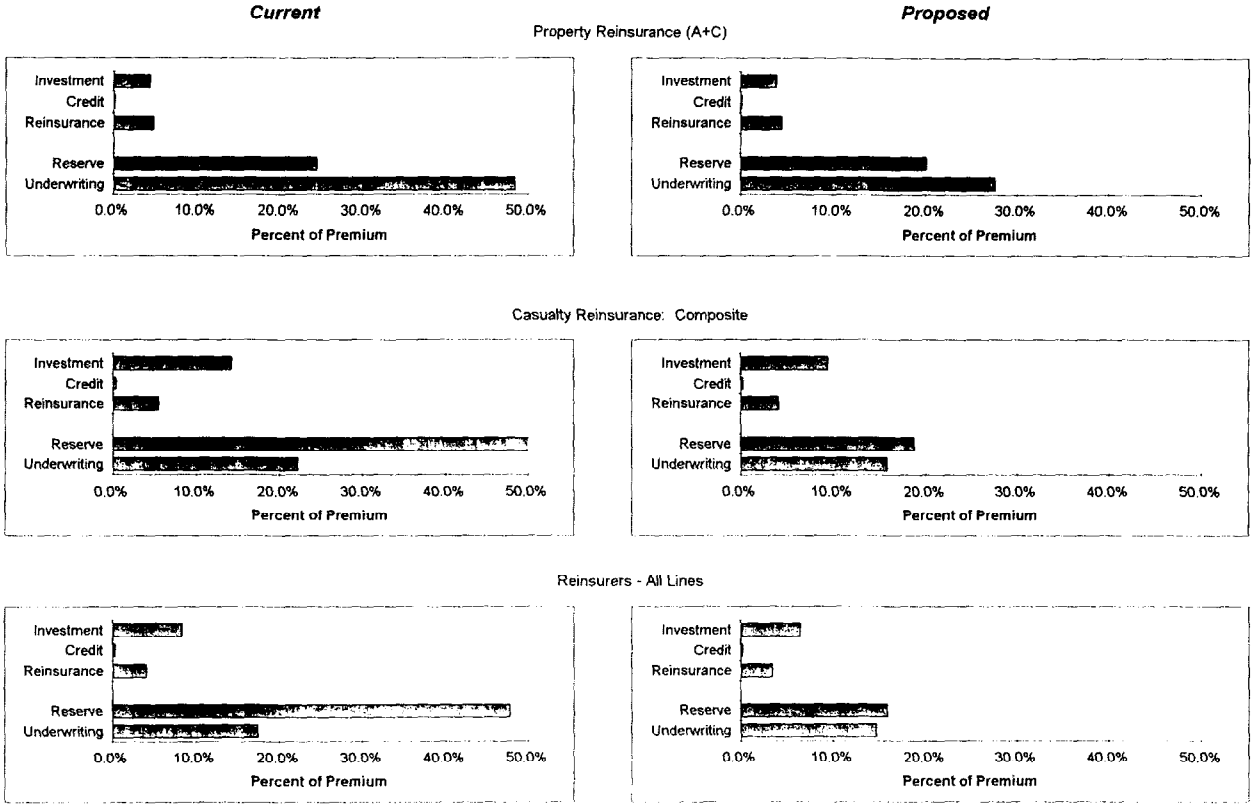


Primary - All Lines





Risk-Based Capital Components



Risk-Based Capital - Analysis of "Industry" Reserve Risk

Present Value Reserve Deficiency (Redundancy) as Percentage of Held Loss & LAE Reserves

	YEAR ENDING										Simple	Weighted	Standard	Weighted
	12/82	12/83	12/84	12/85	12/86	12/87	12/88	12/89	12/90	12/91	Average	Average	Deviation	Deviation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Homeowners/Farmowners	-5.2%	6.5%	0.7%	-3.3%	-13.1%	-11.0%	-11.8%	-9.2%	-13.2%	-8.7%	-6.8%	-6.0%	6.2%	6.6%
Private Passenger Auto Liability	-18.5%	-16.2%	-11.0%	-9.6%	-10.3%	-10.6%	-11.4%	-11.3%	-11.7%	-9.6%	-12.0%	-12.4%	2.8%	3.0%
Commercial Auto Liability	-8.2%	-3.3%	0.1%	0.2%	-4.5%	-7.9%	-9.2%	-11.0%	-12.2%	-11.5%	-6.8%	-5.4%	4.4%	4.1%
Workers Compensation	-31.3%	-25.6%	-20.2%	-15.4%	-13.8%	-13.1%	-12.4%	-11.5%	-11.2%	-12.4%	-16.7%	-18.3%	6.5%	6.9%
Commercial Multiperil	1.4%	11.7%	11.5%	2.8%	-6.0%	-9.3%	-11.7%	-10.8%	-14.7%	-14.8%	-4.0%	-0.6%	9.6%	9.2%
Products Liability	28.7%	23.6%	20.2%	14.3%	-0.6%	-8.7%	-16.3%	-21.4%	-20.0%	-21.1%	-0.1%	7.5%	19.1%	17.5%
General Liability	8.6%	16.8%	21.2%	9.4%	-6.0%	-15.6%	-19.6%	-21.0%	-21.5%	-20.9%	-4.9%	1.5%	16.3%	15.4%
Composite	12.4%	18.2%	21.0%	10.4%	-5.0%	-14.3%	-19.0%	-21.1%	-21.2%	-20.9%	-4.0%	2.7%	16.7%	15.7%
Medical Malpractice	-9.3%	-9.0%	-8.5%	-26.9%	-34.4%	-37.4%	-39.8%	-34.7%	-30.5%	-23.7%	-25.4%	-22.4%	11.7%	12.8%
Special Liability	-22.8%	-11.2%	-11.9%	-10.9%	-12.2%	-13.6%	-13.4%	-7.1%	-12.9%	-14.6%	-13.1%	-13.1%	3.8%	4.1%
2-Year Line Composite	-28.0%	-20.5%	-17.7%	-22.5%	-25.4%	-28.3%	-27.8%	-24.4%	-25.8%	-4.3%	-22.5%	-24.3%	6.9%	3.6%
International Primary	-6.5%	8.7%	5.7%	-4.5%	-6.8%	-4.1%	-4.0%	-3.4%	-7.3%	-16.0%	-3.8%	-1.9%	6.5%	5.9%
Primary Total													**8.2%**	**8.0%**
Primary Composite	**-14.6%**	**-9.1%**	**-5.7%**	**-9.2%**	**-12.7%**	**-15.3%**	**-16.7%**	**-16.0%**	**-16.1%**	**-14.0%**	**-12.8%**	**-12.1%**	**3.6%**	**3.8%**
Property Reinsurance (A&C)	-50.2%	-45.7%	-31.3%	-17.0%	-17.0%	-8.3%	-3.4%	-3.9%	-6.7%	-9.3%	-19.3%	-23.5%	16.4%	17.3%
Casualty Reinsurance (B)	-8.7%	6.7%	12.8%	2.6%	-13.9%	-23.3%	-29.0%	-29.2%	-27.7%	-28.5%	-13.8%	-7.4%	15.5%	14.7%
Casualty Reinsurance (D)	1.2%	13.7%	18.3%	15.2%	-6.2%	-19.8%					3.7%	5.0%	13.6%	12.8%
Composite	-2.6%	11.0%	16.0%	9.7%	-9.7%	-21.5%	-26.2%	-27.0%	-26.3%	-27.4%	-10.4%	-3.3%	16.8%	15.6%
International Reinsurance	-25.0%	-6.7%	-23.1%	-17.6%	-20.0%	0.0%	-12.5%	20.0%	-7.8%	-15.3%	-10.8%	-10.5%	12.6%	13.4%
Reinsurance Total													**16.7%**	**15.8%**
Reinsurance Composite	**-8.0%**	**4.9%**	**10.8%**	**6.9%**	**-10.4%**	**-20.3%**	**-24.6%**	**-25.3%**	**-24.9%**	**-26.2%**	**-11.7%**	**-6.2%**	**14.0%**	**13.1%**
Industry Total													**9.0%**	**8.7%**
Industry Composite	**-14.0%**	**-7.8%**	**-4.2%**	**-6.8%**	**-12.5%**	**-15.9%**	**-17.5%**	**-16.8%**	**-16.9%**	**-15.1%**	**-12.8%**	**-11.7%**	**4.5%**	**4.7%**

Risk-Based Capital - Analysis of "Industry" Underwriting Risk

Present Value Premium Deficiency (Redundancy) as Percentage of Loss and LAE Portion of Premium

	ACCIDENT YEAR										Simple	Weighted	Standard	Weighted
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average	Average	Deviation	Deviation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Homeowners/Farmowners	4.6%	4.7%	3.2%	10.3%	-3.8%	-7.7%	-3.9%	16.3%	9.9%	21.6%	5.5%	4.9%	8.8%	8.4%
Private Passenger Auto Liability	-2.5%	2.9%	10.3%	12.9%	11.6%	11.1%	10.7%	12.7%	13.1%	10.9%	9.4%	9.0%	4.8%	5.1%
Commercial Auto Liability	12.0%	27.2%	40.3%	24.1%	0.8%	-2.5%	0.4%	6.2%	5.3%	6.8%	12.1%	13.8%	13.2%	14.2%
Workers Compensation	-24.2%	-11.7%	1.0%	0.3%	-2.0%	-2.6%	-1.6%	0.0%	0.1%	1.2%	-4.0%	-4.9%	7.6%	8.2%
Commercial Multiperil	14.3%	28.1%	36.2%	14.1%	-21.5%	-25.1%	-20.2%	-2.4%	-5.2%	2.2%	2.1%	3.8%	20.0%	21.2%
Products Liability	-9.3%	13.4%	22.9%	-0.8%	-29.6%	-39.3%	-33.0%	-24.8%	-17.7%	-8.2%	-12.6%	-7.6%	19.2%	21.0%
General Liability	3.8%	21.5%	35.4%	9.3%	-29.9%	-32.5%	-27.6%	-22.0%	-19.1%	-16.9%	-7.8%	-0.9%	22.5%	24.2%
Composite	1.3%	19.9%	33.2%	7.7%	-29.9%	-33.5%	-28.3%	-22.4%	-19.0%	-15.8%	-8.7%	-2.1%	21.8%	23.5%
Medical Malpractice	10.7%	21.9%	14.8%	-5.2%	-24.3%	-26.8%	-26.0%	-21.0%	-9.6%	3.7%	-6.2%	-1.6%	17.3%	18.6%
Special Liability	4.5%	18.3%	14.4%	0.5%	-11.2%	-13.2%	0.8%	17.1%	10.1%	7.2%	4.9%	4.5%	10.4%	10.7%
2-Year Line Composite	-3.7%	-3.9%	-0.6%	-4.1%	-13.2%	-16.2%	-13.9%	-6.6%	-10.6%	-9.1%	-8.2%	-8.1%	4.9%	5.0%
International Primary	-28.8%	0.0%	-35.7%	-24.3%	-15.7%	-2.6%	14.9%	13.0%	13.6%	-28.3%	-9.4%	-10.1%	18.6%	18.0%
Primary Total													**9.1%**	**9.5%**
Primary Composite	**-3.6%**	**2.6%**	**8.7%**	**5.3%**	**-7.2%**	**-9.6%**	**-7.0%**	**0.3%**	**-0.7%**	**1.7%**	**-0.9%**	**-1.0%**	**5.6%**	**5.8%**
Property Reinsurance (A&C)	-7.5%	20.6%	48.5%	27.5%	-20.8%	-25.1%	-18.4%	14.2%	-1.8%	-17.0%	2.0%	3.8%	23.3%	23.9%
Casualty Reinsurance (B)	6.8%	25.2%	35.3%	-2.4%	-33.2%	-31.6%	-27.4%	-26.0%	-24.1%	-21.3%	-9.9%	-2.0%	23.5%	25.5%
Casualty Reinsurance (D)	-0.7%	10.6%	5.5%	-10.3%	-39.6%	-41.1%					-12.6%	-10.9%	20.6%	20.1%
Composite	2.0%	16.3%	16.6%	-7.0%	-36.5%	-36.1%	-27.4%	-26.0%	-24.1%	-21.3%	-14.4%	-8.8%	19.1%	21.0%
International Reinsurance	-15.9%	0.0%	-20.8%	-42.3%	9.7%	11.3%	-20.6%	42.2%	-4.3%	-17.2%	-5.8%	-5.8%	22.1%	22.7%
Reinsurance Total													**20.0%**	**21.7%**
Reinsurance Composite	**-0.6%**	**17.3%**	**22.7%**	**-0.9%**	**-33.2%**	**-33.3%**	**-25.3%**	**-16.5%**	**-19.2%**	**-20.3%**	**-10.9%**	**-7.0%**	**18.8%**	**20.5%**
Industry Total													**9.8%**	**10.1%**
Industry Composite	**-3.4%**	**3.4%**	**9.5%**	**4.8%**	**-9.3%**	**-11.3%**	**-7.5%**	**-0.2%**	**-1.3%**	**0.9%**	**-1.4%**	**-1.4%**	**6.2%**	**6.5%**

Notes to Exhibit 1

Column	Note
(1) to (10)	All figures shown are based on the calculations presented in Appendix A. For reserves, the figures are the percentage by which the present value of the subsequent paid claim runoff exceeds the held reserve for the particular year-end. A positive number indicates a deficiency, and a negative number indicates a redundancy in the reserves. For premiums, the figures are the percentage by which the present value of the claim payments exceeds the loss portion of the premium for the particular accident year. (The loss portion of the premium is calculated by applying the complement of the expense ratio to the full premium.) A positive number indicates a deficiency, and a negative number indicates a redundancy (profit) in the premiums.
(11)	These are the simple averages of the figures in Columns (1) through (10).
(12)	These are the weighted averages of the figures in Columns (1) through (10), where the weights for each year are the percentage of the nominal losses that are actually paid as of December 31, 1991.
(13)	These are the simple standard deviations of the figures in Columns (1) through (10). The figures labeled Primary, Reinsurance, and Industry "Total" are the weighted average of the individual line standard deviations in the column. (The weights are the total reserves and the total premium for the ten year period for each line.) The corresponding figures labeled "Composite" reflect direct calculations on data summarized to that level.
(14)	These are the weighted standard deviations, calculated in a manner consistent with the weighted mean.

Risk-Based Capital - Analysis of "Company" Reserve Risk

Present Value Reserve Deficiency (Redundancy) as Percentage of Held Reserves
Year-End 1985 Reserves

	All Companies					Large Companies					Small Companies				
	Number of Companies	Simple Average	Standard Deviation	Weighted Average	Weighted Deviation	Number of Companies	Simple Average	Standard Deviation	Weighted Average	Weighted Deviation	Number of Companies	Simple Average	Standard Deviation	Weighted Average	Weighted Deviation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Homeowners/Farmowners	394	-7.0%	40.0%	-9.0%	23.0%	21	-10.0%	11.0%	-9.0%	10.0%	373	-7.0%	41.0%	-10.0%	35.0%
Private Passenger Auto Liability	360	7.0%	45.0%	-10.0%	14.0%	71	-7.0%	19.0%	-10.0%	12.0%	289	10.0%	49.0%	-4.0%	26.0%
Commercial Auto Liability	300	-2.0%	49.0%	-12.0%	14.0%	38	-12.0%	11.0%	-12.0%	9.0%	262	-1.0%	52.0%	-11.0%	28.0%
Workers Compensation	281	-3.0%	45.0%	-12.0%	15.0%	57	-10.0%	18.0%	-13.0%	14.0%	224	-1.0%	49.0%	-6.0%	34.0%
Commercial Multiperil	342	-1.0%	55.0%	-15.0%	18.0%	35	-16.0%	15.0%	-16.0%	12.0%	307	1.0%	57.0%	-9.0%	37.0%
Products Liability	147	-7.0%	64.0%	-21.0%	29.0%	22	-20.0%	30.0%	-22.0%	25.0%	125	-5.0%	68.0%	-17.0%	51.0%
General Liability	412	-16.0%	48.0%	-21.0%	20.0%	48	-21.0%	21.0%	-21.0%	17.0%	364	-15.0%	51.0%	-19.0%	39.0%
Composite	416	-16.0%	48.0%	-21.0%	18.0%	55	-24.0%	18.0%	-21.0%	15.0%	361	-15.0%	51.0%	-18.0%	40.0%
Medical Malpractice	134	6.0%	61.0%	-22.0%	26.0%	40	-13.0%	38.0%	-23.0%	25.0%	94	15.0%	67.0%	0.0%	38.0%
Special Liability	123	-1.0%	54.0%	-14.0%	21.0%	9	-17.0%	15.0%	-17.0%	14.0%	114	0.0%	56.0%	-11.0%	26.0%
2-Year Line Composite	489	3.0%	58.0%	-2.0%	28.0%	42	0.0%	30.0%	2.0%	23.0%	447	3.0%	60.0%	37.0%	63.0%
International Primary	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Primary Total					**17.7%**			**19.6%**							
Primary Composite	**756**	**-7.0%**	**40.0%**	**-14.0%**	**14.0%**	**177**	**-14.0%**	**23.0%**	**-14.0%**	**13.0%**	**579**	**-5.0%**	**44.0%**	**-9.0%**	**31.0%**
Property Reinsurance (A&C)	61	-7.0%	50.0%	-11.0%	33.0%	6	-1.0%	38.0%	-10.0%	34.0%	55	-7.0%	51.0%	-14.0%	28.0%
Casualty Reinsurance (B)	75	-13.0%	37.0%	-27.0%	18.0%	20	-29.0%	17.0%	-30.0%	14.0%	55	-7.0%	40.0%	-5.0%	28.0%
Casualty Reinsurance (D)	48	0.0%	53.0%	-24.0%	24.0%	12	-9.0%	38.0%	-25.0%	21.0%	36	3.0%	57.0%	0.0%	55.0%
International Reinsurance	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Reinsurance Total					**21.7%**			**27.5%**							
Reinsurance Composite	**92**	**-10.0%**	**44.0%**	**-25.0%**	**19.0%**	**32**	**-24.0%**	**19.0%**	**-27.0%**	**14.0%**	**60**	**-3.0%**	**51.0%**	**0.0%**	**42.0%**
Industry Total					**18.0%**			**20.4%**							
Industry Composite	**897**	**-7.0%**	**44.0%**	**-15.0%**	**16.0%**	**202**	**-15.0%**	**23.0%**	**-15.0%**	**13.0%**	**695**	**-5.0%**	**48.0%**	**-7.0%**	**36.0%**

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Risk-Based Capital - Analysis of "Company" Underwriting Risk

Present Value Premium Deficiency (Redundancy) as Percentage of Loss and LAE Portion of Premium
1985 Accident Year

	All Companies					Large Companies					Small Companies				
	Number of Companies	Simple Average	Standard Deviation	Weighted Average	Weighted Deviation	Number of Companies	Simple Average	Standard Deviation	Weighted Average	Weighted Deviation	Number of Companies	Simple Average	Standard Deviation	Weighted Average	Weighted Deviation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Homeowners/Farmowners	437	-0.3%	33.7%	-0.3%	11.7%	51	-1.8%	13.2%	-0.3%	10.3%	386	-0.3%	35.2%	1.2%	19.1%
Private Passenger Auto Liability	367	6.4%	43.4%	-0.1%	10.5%	69	2.5%	11.8%	-0.1%	9.2%	298	6.4%	47.3%	2.5%	23.7%
Commercial Auto Liability	314	-2.7%	52.9%	0.1%	21.5%	31	1.6%	14.3%	1.6%	15.7%	283	-4.1%	55.8%	-4.1%	34.3%
Workers Compensation	278	-5.0%	42.6%	-0.1%	14.6%	46	-1.3%	15.8%	1.1%	12.2%	232	-5.0%	46.3%	-3.8%	26.0%
Commercial Multiperil	377	-1.4%	71.5%	0.2%	19.1%	36	1.7%	14.3%	0.2%	14.3%	341	-1.4%	74.7%	-3.0%	35.0%
Products Liability	162	-14.9%	79.7%	0.0%	43.2%	9	10.8%	39.2%	14.9%	36.5%	153	-16.2%	81.1%	-14.9%	44.6%
General Liability	430	-11.3%	65.5%	-0.4%	32.7%	25	2.3%	30.0%	1.0%	31.4%	405	-12.7%	66.8%	-4.5%	39.6%
Composite	434	-11.5%	64.0%	-0.6%	30.0%	28	0.8%	24.5%	2.1%	27.2%	406	-12.8%	66.7%	-6.0%	39.5%
Medical Malpractice	110	7.0%	77.3%	-0.1%	23.8%	12	-2.5%	17.8%	-3.7%	13.1%	98	8.2%	80.9%	7.0%	34.5%
Special Liability	124	11.5%	53.2%	-0.2%	31.6%	10	-3.5%	23.3%	-5.2%	30.0%	114	13.1%	54.9%	6.5%	34.9%
2-Year Line Composite	573	-5.0%	53.7%	3.3%	22.0%	94	3.3%	31.7%	3.3%	17.9%	479	-6.3%	57.9%	-2.2%	39.9%
International Primary	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Primary Total			**50.6%**		**17.9%**			**19.8%**		**14.8%**			**54.0%**		**31.6%**
Primary Composite	**820**	**-6.8%**	**38.2%**	**0.9%**	**13.6%**	**191**	**-1.8%**	**21.8%**	**0.9%**	**10.9%**	**629**	**-7.3%**	**42.3%**	**-4.6%**	**32.7%**
Property Reinsurance (A&C)	67	-13.2%	52.1%	0.1%	32.0%	6	-2.5%	13.4%	5.5%	14.7%	61	-14.6%	53.4%	-11.9%	46.7%
Casualty Reinsurance (B)	74	5.5%	38.7%	0.1%	24.0%	14	0.1%	20.0%	-1.2%	21.4%	60	6.8%	41.4%	6.8%	30.7%
Casualty Reinsurance (D)															
International Reinsurance	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Reinsurance Total			**42.9%**		**26.5%**			**17.9%**		**19.3%**			**45.1%**		**35.7%**
Reinsurance Composite	**93**	**10.8%**	**77.4%**	**0.1%**	**33.4%**	**28**	**1.5%**	**18.7%**	**-1.2%**	**21.4%**	**65**	**14.8%**	**92.1%**	**13.5%**	**76.1%**
Industry Total			**50.3%**		**18.2%**			**19.8%**		**15.0%**			**53.7%**		**31.8%**
Industry Composite	**1021**	**-6.1%**	**49.0%**	**-0.6%**	**15.0%**	**215**	**-2.0%**	**21.8%**	**0.8%**	**12.3%**	**806**	**-7.4%**	**53.1%**	**-4.7%**	**39.5%**

Notes to Exhibit 2

Column	Note
(1) to (15)	All figures shown are based on calculations presented in Appendix B.
(1) to (5)	These are the results for all company groups, excluding groups with immaterial (i.e., less than $50,000) reserves or premium in the line, and also excluding groups with anomalous or unusual Schedule P presentations.
(6) to (10)	These are the results for large groups, those with more than $50-million in reserves at year-end 1985 for the line, or more than $50-million in premium in calendar year 1985 for the line.
(11) to (15)	These are the results for small groups, those not qualifying as large under the criteria above.
(1), (6), (11)	These are the number of groups included in the experience for each line and the number in each sub-population.
(2), (7), (12)	For reserves, the figures are the percentage by which the average company's present value claim runoff exceeds their held reserve for year-end 1985. For underwriting, the figures are the percentage by which the average company's present value claim payments exceeds the loss and LAE portion of their premium for accident year 1985. In both cases, the figures are simple averages for the companies in each population.
(3), (8), (13)	These are the simple standard deviations of the individual group results about the average. The figures labeled Primary, Reinsurance and Industry "Total" are the weighted average of the individual line standard deviations in the column. The corresponding figures labeled "composite" reflect direct calculations on data summarized to that level.
(4), (9), (14)	These are the weighted averages of the individual company group results for the line. For reserves, the weights are the year-end 1985 held reserves for the line of each group. For underwriting, the weights are the 1985 earned premium for the line of each group.
(5), (10), (15)	These are the weighted standard deviations, calculated in a manner consistent with the weighted averages.

Risk-Based Capital - Analysis of Reserve Risk

Summary of Risk Measures and Calculation of Total Risk Funding Requirements

	"Industry" Reserve Risk				"Company" Reserve Risk				Total	Required Total Funding (Percent of Expected PV Losses)		
	Standard Deviation	Weighted Std. Dev.	50 / 50 Line/Industry	Selected Std. Dev.	Large Std. Dev.	Weighted Std. Dev.	50 / 50 Line/Industry	Selected Std. Dev.	Reserve Risk	3% EPD	2% EPD	1% EPD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Homeowners/Farmowners	6.2%	6.6%	7.6%	7.6%	11.0%	23.0%	20.5%	20.5%	21.9%	117.9%	124.1%	134.1%
Private Passenger Auto Liability	2.8%	3.0%	5.8%	5.8%	19.0%	14.0%	16.0%	16.0%	17.0%	110.7%	115.4%	123.0%
Commercial Auto Liability	4.4%	4.1%	6.4%	6.4%	11.0%	14.0%	16.0%	16.0%	17.2%	110.9%	115.7%	123.4%
Workers Compensation	6.5%	6.9%	7.8%	7.8%	18.0%	15.0%	16.5%	16.5%	18.3%	112.4%	117.5%	125.6%
Commercial Multiperil	9.6%	9.2%	8.9%	8.9%	15.0%	18.0%	18.0%	18.0%	20.1%	115.1%	120.8%	129.8%
Products Liability	19.1%	17.5%	--	13.0%	30.0%	29.0%	--	18.8%	22.9%			
General Liability	16.3%	15.4%	--	12.0%	21.0%	20.0%	--	17.8%	21.5%			
Composite	16.7%	15.7%	12.2%	--	18.0%	18.0%	18.0%	--				
Medical Malpractice	11.7%	12.8%	10.8%	10.8%	38.0%	26.0%	22.0%	16.0%	19.3%			
Special Liability	3.8%	4.1%	6.4%	6.4%	15.0%	21.0%	19.5%	19.5%	20.5%	115.8%	121.6%	130.9%
2-Year Line Composite	6.9%	3.6%	6.1%	6.1%	30.0%	28.0%	23.0%	23.0%	23.8%	121.2%	128.0%	139.0%
International Primary	6.5%	5.9%	7.3%	7.8%	--	--	--	20.0%	21.5%	117.3%	123.3%	133.1%
Primary Total	**8.2%**	**8.0%**	**8.3%**	**8.3%**	**19.6%**	**17.7%**	**17.9%**	**17.3%**	**19.4%**	**114.2%**	**119.6%**	**128.3%**
Primary Composite	**3.6%**	**3.8%**		**3.8%**	**23.0%**	**14.0%**		**14.0%**	**14.5%**			
Property Reinsurance (A&C)	16.4%	17.3%	13.0%	11.0%	38.0%	33.0%	25.5%	23.0%	25.5%	124.1%	131.5%	143.5%
Casualty Reinsurance (B)	15.5%	14.7%	11.7%	12.2%	17.0%	18.0%	18.0%	19.4%	22.9%	119.7%	126.2%	136.8%
Casualty Reinsurance (D)	13.6%	12.8%	10.8%	12.2%	38.0%	24.0%	21.0%	19.4%	22.9%	119.7%	126.2%	136.8%
Composite	16.8%	15.6%	12.2%	--	--	--	--	--				
International Reinsurance	12.6%	13.4%	11.1%	7.8%	--	--	--	20.0%	21.5%	117.3%	123.3%	133.1%
Reinsurance Total	**16.7%**	**15.8%**	**12.2%**	**12.1%**	**27.5%**	**21.7%**	**19.9%**	**19.7%**	**23.1%**	**120.1%**	**126.6%**	**137.3%**
Reinsurance Composite	**14.0%**	**13.1%**		**13.1%**	**19.0%**	**19.0%**		**19.0%**	**23.1%**			
Industry Total	**9.0%**	**8.7%**	**8.7%**	**8.7%**	**20.4%**	**18.0%**	**18.0%**	**17.6%**	**19.7%**	**114.7%**	**120.3%**	**129.2%**
Industry Composite	**4.5%**	**4.7%**		**4.7%**	**23.0%**	**15.0%**		**15.0%**	**15.7%**			

Risk-Based Capital - Analysis of Underwriting Risk

Summary of Risk Measures and Calculation of Total Risk Funding Requirements

	"Industry" Underwriting Risk				"Company" Underwriting Risk				Total	Required Total Funding (Percent of Expected PV Losses)		
	Standard Deviation	Weighted Std. Dev.	50 / 50 Line/Industry	Selected Std. Dev.	Large Std. Dev.	Weighted Std. Dev.	50 / 50 Line/Industry	Selected Std. Dev.	U/W Risk	3% EPD	2% EPD	1% EPD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Homeowners/Farmowners	8.8%	8.4%	9.3%	17.0%	13.2%	11.7%	15.0%	23.0%	28.6%	129.9%	138.4%	152.4%
Private Passenger Auto Liability	4.8%	5.1%	7.6%	7.6%	11.8%	10.5%	14.4%	14.4%	16.3%	109.6%	114.2%	121.4%
Commercial Auto Liability	13.2%	14.2%	12.2%	12.2%	14.3%	21.5%	19.8%	19.8%	23.3%	120.2%	126.8%	137.6%
Workers Compensation	7.6%	8.2%	9.1%	9.1%	15.8%	14.6%	16.4%	16.4%	18.8%	113.1%	118.4%	126.8%
Commercial Multiperil	20.0%	21.2%	15.7%	15.7%	14.3%	19.1%	18.7%	18.7%	24.4%	122.2%	129.2%	140.6%
Products Liability	19.2%	21.0%	--	16.8%	39.2%	43.2%	--	24.9%	30.0%			
General Liability	22.5%	24.2%	--	16.8%	30.0%	32.7%	--	23.9%	29.2%			
Composite	21.8%	23.5%	16.8%	--	24.5%	30.0%	24.1%	--				
Medical Malpractice	17.3%	18.6%	14.3%	14.3%	17.8%	23.8%	21.0%	21.0%	25.4%			
Special Liability	10.4%	10.7%	10.4%	10.4%	23.3%	31.6%	24.9%	24.9%	27.0%	126.8%	134.7%	147.7%
2-Year Line Composite	4.9%	5.0%	7.6%	11.0%	31.7%	22.0%	20.1%	20.1%	22.9%	119.7%	126.2%	136.7%
International Primary	18.6%	18.0%	14.1%	15.2%	--	--	--	22.0%	26.7%	126.4%	134.2%	147.1%
Primary Total	**9.1%**	**9.5%**	**9.8%**	**11.6%**	**19.8%**	**17.9%**	**18.1%**	**18.9%**	**22.2%**	**119.0%**	**125.4%**	**135.7%**
Primary Composite	**5.6%**	**5.8%**		**5.8%**	**21.8%**	**13.6%**		**13.6%**	**14.8%**			
Property Reinsurance (A&C)	23.3%	23.9%	17.0%	23.0%	13.4%	32.0%	25.1%	25.1%	34.0%	141.0%	151.6%	169.5%
Casualty Reinsurance (B)	23.5%	25.5%	17.8%	17.8%	20.0%	24.0%	21.1%	21.1%	27.6%	128.0%	136.1%	149.6%
Casualty Reinsurance (D)	20.6%	20.1%	15.1%	--	--	--	--	--				
Composite	19.1%	21.0%	15.6%	--	--	--	--	--				
International Reinsurance	22.1%	22.7%	16.4%	15.2%	--	--	--	22.0%	26.7%	126.4%	134.2%	147.1%
Reinsurance Total	**20.0%**	**21.7%**	**15.9%**	**19.4%**	**17.9%**	**26.5%**	**22.4%**	**22.3%**	**29.6%**	**132.0%**	**140.9%**	**155.8%**
Reinsurance Composite	**18.8%**	**20.5%**		**20.5%**	**18.7%**	**33.4%**		**33.4%**	**39.1%**			
Industry Total	**9.6%**	**10.1%**	**10.1%**	**11.9%**	**19.8%**	**18.2%**	**18.2%**	**19.0%**	**22.5%**	**119.4%**	**125.9%**	**136.4%**
Industry Composite	**6.2%**	**6.5%**		**6.5%**	**21.8%**	**15.0%**		**15.0%**	**16.3%**			

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Notes to Exhibit 3

Column	Note
(1)	These figures are taken from Exhibit 1, Column (13).
(2)	These figures are taken from Exhibit 1, Column (14).
(3)	These are the average of the figure for the line in Column (2) and the figure for the industry total in Column (2). This inherently dampens the variation in by-line results, reflecting the lack of full credibility that can be attached to the individual line data.
(4)	These are the selected standard deviations for "industry" risk.
(5)	These figures are taken from Exhibit 2, Column (8).
(6)	These figures are taken from Exhibit 2, Column (5).
(7)	These are the average of the figure for the line in Column (6) and the figure for the industry total in Column (6).
(8)	These are the selected standard deviations for "company" risk.
(9)	The total risk for each line is calculated by taking the square root of the sum of the squares of the figures in Columns (4) and (8).
(10), (11), (12)	These are calculated using a lognormal distribution. The coefficient of variation of the distribution is assumed to be the total risk measure in Column (9). The figures are the ratio to the mean that reduces the expected cost of claims above that ratio to the percentage shown at the top of the column.

Risked-Based Capital - Claims-Made vs. Occurrence Risk

Summary of Risk Measures and Calculation of Total Risk Funding Requirements

		Reserve Risk						Underwriting Risk					
					Required Total Funding (Percent of Expected PV Losses)						Required Total Funding (Percent of Expected PV Losses)		
		Historical Mix	Selected Relativity	Total Risk	3% EPD	2% EPD	1% EPD	Historical Mix	Selected Relativity	Total Risk	3% EPD	2% EPD	1% EPD
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Products Liability -	Claims-Made	0.09	0.80	18.6%	112.9%	118.1%	126.5%	0.12	0.80	24.6%	122.5%	129.6%	141.2%
	Occurrence	0.91	1.00	23.3%	120.2%	126.9%	137.7%	0.88	1.00	30.8%	134.2%	143.5%	159.0%
	Composite	1.00	0.98	22.9%	--	--	--	1.00	0.98	30.0%	--	--	--
General Liability -	Claims-Made	0.04	0.80	17.3%	111.0%	115.9%	123.6%	0.07	0.80	23.7%	121.0%	127.7%	138.8%
	Occurrence	0.96	1.00	21.6%	117.5%	123.7%	133.6%	0.93	1.00	29.6%	131.9%	140.8%	155.6%
	Composite	1.00	0.99	21.5%	--	--	--	1.00	0.99	29.2%	--	--	--
Medical Malpractice -	Claims-Made	0.34	0.80	16.6%	110.0%	114.6%	122.0%	0.54	0.80	22.8%	119.4%	125.9%	136.4%
	Occurrence	0.66	1.00	20.7%	116.1%	121.9%	131.3%	0.46	1.00	28.5%	129.6%	138.1%	152.1%
	Composite	1.00	0.93	19.3%	--	--	--	1.00	0.89	25.4%	--	--	--

Risked-Based Capital - Claims-Made vs. Occurrence Reserve Risk

Indicated Medical Malpractice Loss Development Ratios
Claims-Made vs. Occurrence
(thousands)

	Composite *			Claims-Made			Non Claims-Made		
Accident Year	Initial Incurred Loss & LAE	Current Incurred Loss & LAE	Ratio	Initial	Current	Ratio	Initial	Current	Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1982	$815,636	$894,943	1.097	$474,438	$406,353	0.856	$341,197	$488,590	1.432
1983	938,348	1,112,720	1.186	579,553	559,487	0.965	358,795	553,233	1.542
1984	1,080,338	1,239,837	1.148	639,019	646,006	1.011	441,319	593,831	1.346
1985	1,410,165	1,435,803	1.018	835,582	770,486	0.922	574,583	665,317	1.158
1986	1,782,508	1,481,340	0.831	1,124,093	861,601	0.766	658,415	619,739	0.941
1987	1,929,778	1,522,023	0.789	1,414,713	1,080,410	0.764	515,065	441,613	0.857
1988	1,977,188	1,668,878	0.844	1,540,351	1,260,153	0.818	436,837	408,725	0.936
1989	2,083,910	1,833,491	0.880	1,608,752	1,430,285	0.889	475,158	403,206	0.849
1990	2,156,634	2,051,294	0.951	1,678,813	1,571,209	0.936	478,021	480,085	1.004
Average Loss Development			0.972			0.881			1.118
Std. Dev. of Loss Development			0.147			0.087			0.262
Indicated Relativity of Claims-Made Risk to Occurrence Risk						33%			100%

* Based on data of 37 PIAA companies, St. Paul, and Medical Protective.

Risked-Based Capital - Claims-Made vs. Occurrence Underwriting Risk

Indicated Medical Malpractice Loss Ratios
Claims-Made vs. Occurrence
(thousands)

Accident Year	Composite *			Claims-Made			Non Claims-Made		
	Incurred Loss & LAE	Earned Premium	Loss Ratio	Incurred	Premium	Ratio	Incurred	Premium	Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1982	$940,231	$715,556	1.314	$429,219	$420,385	1.021	$511,012	$295,171	1.731
1983	1,169,362	805,734	1.451	589,324	482,708	1.221	580,038	323,026	1.796
1984	1,312,779	959,131	1.369	681,586	597,609	1.141	631,193	361,522	1.746
1985	1,529,401	1,309,571	1.168	815,290	774,688	1.052	714,111	534,883	1.335
1986	1,565,620	1,836,875	0.852	918,954	1,149,284	0.800	646,666	687,591	0.940
1987	1,636,043	2,196,021	0.745	1,170,418	1,635,345	0.716	465,625	560,676	0.830
1988	1,802,596	2,363,521	0.763	1,371,846	1,833,811	0.748	430,750	529,710	0.813
1989	1,967,383	2,304,225	0.854	1,538,983	1,769,100	0.870	428,400	535,125	0.801
1990	2,194,585	2,124,518	1.033	1,688,609	1,654,433	1.021	505,976	470,085	1.076
Average Loss Development			1.061			0.954			1.230
Std. Dev. of Loss Development			0.274			0.178			0.429
Indicated Relativity of Claims-Made Risk to Occurrence Risk						41%			100%

* Based on data of 37 PIAA companies, St. Paul, and Medical Protective.

Notes to Exhibit 4

Column	Note
Sheet 1: (1), (7)	The historical mixes represent an estimate of the proportion of the experience over the last ten years that was written on each policy form. The former reflects the historical mix of reserves; the latter reflects the historical mix of premiums.
Sheet 1: (2), (8)	These are selected based on the data on Sheets 2 and 3, and reference to the risk factors for the other lines of business in Exhibit 3.
Sheet 1: (3), (9)	The policy form factors reflect the selected relativity and the historical mix, and balance to the composite risk factor, which is calculated in Exhibit 3.
Sheet 1: (4) - (6) and (10) - (11)	These have been calculated in a manner analogous to Columns (10) to (12) of Exhibit 3.

Risk-Based Capital - Reserve Risk

Summary of Funding Requirements and Calculation of Net RBC Charges Applicable to Reserves

	Required Total Funding (Percent of Expected PV Losses)			Loss & LAE Reserve Funding (Percent of Expected PV Losses)				Indicated RBC Funding Charge Applicable to Reserves		
	3% EPD	2% EPD	1% EPD	5% Disc. Factors	Full Value Funding	Sel. Implicit Discount	Sel. Res. Funding	3% EPD	2% EPD	1% EPD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Homeowners/Farmowners	117.9%	124.1%	134.1%	0.928	107.8%	40.0%	104.5%	12.8%	18.7%	28.3%
Private Passenger Auto Liability	110.7%	115.4%	123.0%	0.918	108.9%	40.0%	105.2%	5.3%	9.7%	16.9%
Commercial Auto Liability	110.9%	115.7%	123.4%	0.901	111.0%	40.0%	106.3%	4.3%	8.8%	16.1%
Workers Compensation	112.4%	117.5%	125.6%	0.850	117.6%	40.0%	109.9%	2.3%	6.9%	14.3%
Commercial Multiperil	115.1%	120.8%	129.8%	0.882	113.4%	40.0%	107.6%	7.0%	12.2%	20.6%
Products Liability - Claims-Made	112.9%	118.1%	126.5%	0.875	114.3%	40.0%	108.1%	4.4%	9.2%	17.0%
Products Liability - Occurrence	120.2%	126.9%	137.7%	0.815	122.7%	40.0%	112.5%	6.9%	12.8%	22.4%
General Liability - Claims-Made	111.0%	115.9%	123.6%	0.885	113.0%	40.0%	107.4%	3.3%	7.9%	15.1%
General Liability - Occurrence	117.5%	123.7%	133.6%	0.825	121.2%	40.0%	111.7%	5.2%	10.7%	19.6%
Medical Malpractice - Claims-Made	110.0%	114.6%	122.0%	0.845	118.3%	40.0%	110.3%	-0.2%	3.9%	10.7%
Medical Malpractice - Occurrence	116.1%	121.9%	131.3%	0.765	130.7%	40.0%	116.4%	-0.3%	4.7%	12.8%
Special Liability	115.8%	121.6%	130.9%	0.897	111.5%	40.0%	106.6%	8.6%	14.1%	22.8%
2-Year Line Composite	121.2%	128.0%	139.0%	0.966	103.5%	40.0%	102.1%	18.7%	25.4%	36.2%
International	117.3%	123.3%	133.1%	0.859	116.4%	40.0%	109.2%	7.4%	12.9%	21.8%
Property Reinsurance (A&C)	124.1%	131.5%	143.5%	0.914	109.4%	40.0%	105.4%	17.7%	24.7%	36.1%
Casualty Reinsurance (B)	119.7%	126.2%	136.8%	0.751	133.2%	40.0%	117.6%	1.8%	7.3%	16.4%
Casualty Reinsurance (D)	119.7%	126.2%	136.8%	0.710	140.8%	40.0%	121.1%	-1.1%	4.2%	13.0%

Risk-Based Capital - Underwriting Risk

Summary of Funding Requirements and Calculation of RBC Charges Applicable to Written Premiums

	Required Total Funding			Premium Funding (Percent of Expected PV Losses)					Indicated RBC Funding Charge Applicable to Written Premium				
	3%	2%	1%	Underwriting Expense Ratio	Selected Profit Margin	Expected Loss Ratio	Unearned Premium Funding	Written Premium Funding	Unearned Premium Weight	Written Premium Weight	3% EPD	2% EPD	1% EPD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Homeowners/Farmowners	129.9%	138.4%	152.4%	31.8%	1.5%	66.7%	134.0%	102.2%	0.50	1.00	17.1%	25.6%	39.6%
Private Passenger Auto Liability	109.6%	114.2%	121.4%	23.9%	1.5%	74.6%	123.4%	102.0%	0.35	1.00	2.1%	6.7%	14.0%
Commercial Auto Liability	120.2%	126.8%	137.6%	30.1%	1.5%	68.4%	131.5%	102.2%	0.35	1.00	9.6%	15.7%	25.7%
Workers Compensation	113.1%	118.4%	126.8%	17.9%	1.5%	80.6%	116.7%	101.9%	0.35	1.00	8.1%	13.8%	23.0%
Commercial Multiperil	122.2%	129.2%	140.6%	37.1%	1.5%	61.4%	142.7%	102.4%	0.45	1.00	6.5%	12.7%	22.8%
Products Liability - Claims-Made	122.5%	129.6%	141.2%	26.0%	1.5%	72.5%	126.0%	102.1%	0.40	1.00	13.8%	21.0%	32.8%
Products Liability - Occurrence	134.2%	143.5%	159.0%	26.0%	1.5%	72.5%	126.0%	102.1%	0.40	1.00	25.7%	35.1%	50.9%
General Liability - Claims-Made	121.0%	127.7%	138.8%	26.7%	1.5%	71.8%	126.9%	102.1%	0.40	1.00	11.9%	18.6%	29.8%
General Liability - Occurrence	131.9%	140.8%	155.6%	26.7%	1.5%	71.8%	126.9%	102.1%	0.40	1.00	22.8%	31.8%	46.7%
Medical Malpractice - Claims-Made	119.4%	125.9%	136.4%	15.9%	1.5%	82.6%	114.6%	101.8%	0.45	1.00	16.3%	24.1%	36.7%
Medical Malpractice - Occurrence	129.6%	138.1%	152.1%	15.9%	1.5%	82.6%	114.6%	101.8%	0.45	1.00	28.5%	38.7%	55.5%
Special Liability	126.8%	134.7%	147.7%	39.9%	1.5%	58.6%	148.0%	102.6%	0.40	1.00	9.2%	15.7%	26.4%
2-Year Line Composite	119.7%	126.2%	136.7%	27.4%	1.5%	71.1%	127.8%	102.1%	0.45	1.00	9.9%	16.6%	27.4%
International	126.4%	134.2%	147.1%	26.2%	1.5%	72.3%	126.2%	102.1%	0.50	1.00	17.6%	26.1%	40.1%
Property Reinsurance (A&C)	141.0%	151.6%	169.5%	25.1%	1.5%	73.4%	124.8%	102.0%	0.35	1.00	32.7%	43.2%	61.0%
Casualty Reinsurance (B) Casualty Reinsurance (D)	128.0%	136.1%	149.6%	25.1%	1.5%	73.4%	124.8%	102.0%	0.35	1.00	19.9%	27.9%	41.3%

Notes to Exhibit 5

Column	Note
(1), (2), (3)	These figures are taken from Exhibit 3, Columns (10), (11), and (12), respectively. The claims-made and occurrence figures are taken from Exhibit 4.
Sheet 1: (4)	These are discount factors calculated using a 5% interest rate and IRS payment pattern methodology, applied to 1991 industry Schedule P data.
Sheet 1: (5)	This is the inverse of Column (4), and reflects the funding provided by full value reserves as a percentage of expected present value losses.
Sheet 1: (6)	Based on the ten years of experience reviewed, industry reserves are biased on the low side. This "implicit discounting" absorbs roughly 40% of the full value discount.
Sheet 1: (7)	The figures reflect the funding inherent in reserves that are implicitly discounted by the amount in Column (6). (7) = 1/[1-(1-(4)) x (1-(6))]
Sheet 1: (8), (9), (10)	The figures represent the RBC funding required to achieve the target total funding, after account is taken of the reserve funding in Column (7). Most importantly, they are expressed as a percentage applicable to reserves, and *not* a percentage of expected present value losses. (8) = [(1)-(7)]/(7) (9) = [(2)-(7)]/(7) (10) = [(3)-(7)]/(7)
Sheet 2: (4)	These are industry underwriting expense ratios, as reported in the 1991 Insurance Expense Exhibit.
Sheet 2: (5)	Based on the ten years of experience reviewed, industry rates are biased by approximately 1.5% above expected present value costs.

Notes to Exhibit 5 (cont'd)

Column	Note
Sheet 2: (6)	This is the balance of the premium after deducting the underwriting expenses in Column (4) and the profit margin in Column (5). (6) = (1-(4)-(5))
Sheet 2: (7)	The figures reflect the funding inherent in the unearned premium reserve, under the assumption that 2/3 of underwriting expenses are prepaid. The figures are percentage of expected present value losses. (7) = [(1-1/3•(4))]/(6)
Sheet 2: (8)	The figures reflect the funding inherent in the written premium as a percent of expected present value losses. (8) = [(1-(4))]/(6)
Sheet 2: (9), (10)	The total funding must account for the current unearned premium and the next years written premium. The unearned premium is assumed to be the portion of the annual written premium shown in Column (9).
Sheet 2: (11), (12), (13)	The figures reflect the RBC funding required to achieve the target total funding for underwriting risk, after account is taken of the premium funding in Columns (7) and (8). Most importantly, the figures are expressed a percentage applicable to written premium *only*, and not as a percentage of expected present value losses. (11) = [[((9)+(10)) x (1)] - [(9)x(7)+(10)x(8)]] x (6) (12) = [[((9)+(10)) x (2)] - [(9)x(7)+(10)x(8)]] x (6) (13) = [[((9)+(10)) x (3)] - [(9)x(7)+(10)x(8)]] x (6)

Primary Insurers - Implied Premium-to-Surplus Ratios

		NAIC		Academy Task Force Analysis						
				Worst	Expected Policyholder Deficit			Benchmark		
		1989	1990	Year	3%	2%	1%	3:1	1:1	Selected
Homeowners/Farmowners		10.53	10.93	6.43	5.41	3.66	2.39	3.00	1.00	3.45
Private Passenger Auto Liability		4.12	3.86	8.52	11.18	6.75	3.92	3.00	1.00	6.18
Commercial Auto Liability		2.59	2.31	3.11	6.80	4.26	2.57	3.00	1.00	3.71
Workers Compensation		8.64	8.85	10.36	7.30	4.29	2.42	3.00	1.00	3.65
Commercial Multiperil		2.17	2.07	3.42	7.11	4.41	2.67	3.00	1.00	3.96
Products Liability:	Claims-Made				6.25	3.91	2.39	3.00	1.00	3.59
	Occurrence				2.37	1.44	0.87	3.00	1.00	1.27
	Composite	1.22	0.85	0.76	2.16	1.40	0.87	2.56	0.98	1.25
General Liability:	Claims-Made				5.69	3.57	2.14	3.00	1.00	3.11
	Occurrence				2.93	1.85	1.12	3.00	1.00	1.63
	Composite	1.56	1.09	1.22	2.93	1.98	1.24	2.71	0.99	1.75
Medical Malpractice:	Claims-Made				5.58	3.45	1.86	3.00	1.00	2.94
	Occurrence				3.03	1.68	0.78	3.00	1.00	1.31
	Composite	1.00	0.68	3.10	3.26	2.32	1.29	2.54	0.97	1.98
Special Liability		2.34	3.89	6.07	5.56	3.97	2.61	3.00	1.00	3.67
2-Year Line Composite		27.01	38.79	38.79	8.88	5.56	3.45	3.00	1.00	5.14
International Primary		2.52	1.73	5.96	4.19	2.75	1.74	3.00	1.00	2.48
Primary Line Composite		4.95	4.23	6.84	7.42	4.59	2.78	3.18	1.06	4.13
Property Reinsurance (A+C)		1.90	1.03	2.00	2.53	1.91	1.35	3.04	1.01	1.80
Casualty Reinsurance:	(B)	0.84	0.93	2.04	4.05	2.64	1.54	3.86	1.27	2.30
	(D)									
	Composite	0.27	0.38	0.81	2.50	1.68	0.86	1.67	0.57	1.41
International Reinsurance										
Reinsurance Line Composite		0.40	0.53	1.16	2.71	1.82	1.02	2.08	0.71	1.58
Industry Composite		4.71	4.09	6.69	7.36	4.56	2.76	3.18	1.06	4.10

[PRIMARY.XLW]Premium to Surplus Results 2/18/93

Reinsurers - Implied Premium-to-Surplus Ratios

	NAIC		Academy Task Force Analysis						
			Worst	Expected Policyholder Deficit			Benchmark		
	1989	1990	Year	3%	2%	1%	3:1	1:1	Selected
Homeowners/Farmowners	10.46	10.89	6.46	5.37	3.63	2.36	2.97	0.99	3.41
Private Passenger Auto Liability	4.16	3.92	8.41	11.14	6.90	4.04	3.05	1.02	6.34
Commercial Auto Liability	2.66	2.39	3.09	6.82	4.38	2.68	3.12	1.05	3.85
Workers Compensation	6.03	6.08	6.53	5.22	3.12	1.74	2.12	0.71	2.60
Commercial Multiperil	2.57	2.46	3.68	8.18	5.04	3.03	3.30	1.09	4.54
Products Liability: Claims-Made				3.66	2.36	1.42	1.61	0.56	2.09
Occurrence				0.92	0.62	0.39	0.96	0.42	0.55
Composite	0.51	0.36	0.32	0.94	0.63	0.40	0.98	0.43	0.56
General Liability: Claims-Made				5.43	3.52	2.14	2.99	1.01	3.09
Occurrence				2.81	1.83	1.13	2.88	1.02	1.62
Composite	1.64	1.13	1.27	3.18	2.07	1.28	2.93	1.02	1.83
Medical Malpractice: Claims-Made				5.06	3.55	2.19	3.93	1.40	3.24
Occurrence				2.63	1.86	1.05	3.21	1.44	1.61
Composite	1.29	0.95	3.77	4.03	2.85	1.70	3.81	1.43	2.55
Special Liability	2.13	3.43	5.14	4.00	2.82	1.85	2.27	0.76	2.57
2-Year Line Composite	12.29	22.88	22.88	6.25	4.27	2.79	2.80	0.94	3.92
International Primary									
Primary Line Composite	4.38	3.91	5.07	5.64	3.65	2.29	3.00	1.01	3.29
Property Reinsurance (A+C)	1.87	1.21	2.40	2.51	1.89	1.34	3.00	1.00	1.77
Casualty Reinsurance: (B)	0.88	0.99	2.10	4.13	2.71	1.60	4.06	1.33	2.37
(D)									
Composite	0.56	0.70	1.51	3.66	2.39	1.33	3.00	1.00	2.05
International Reinsurance	2.62	1.81	3.95	4.82	3.24	2.08	3.00	1.00	2.97
Reinsurance Line Composite	0.67	0.81	1.78	3.46	2.29	1.35	3.10	1.02	2.01
Industry Composite	1.10	1.28	2.54	4.27	2.77	1.67	3.14	1.04	2.45

Net Risk-Based Capital Reserve Charges

		NAIC		Academy Task Force Analysis						
				Worst	Expected Policyholder Deficit			Benchmark		
		1989	1990	Year	3%	2%	1%	3:1	1:1	Selected
Homeowners/Farmowners		0.092	0.086	0.065	0.128	0.187	0.283	0.211	0.635	0.210
Private Passenger Auto Liability		0.104	0.121	-0.096	0.053	0.097	0.169	0.170	0.520	0.110
Commercial Auto Liability		0.133	0.172	0.001	0.043	0.088	0.161	0.141	0.435	0.110
Workers Compensation		-0.036	0.005	-0.154	0.023	0.069	0.143	0.116	0.365	0.090
Commercial Multiperil		0.287	0.305	0.117	0.070	0.122	0.206	0.158	0.490	0.140
Products Liability:	Claims-Made				0.044	0.092	0.170	0.156	0.470	0.110
	Occurrence				0.069	0.128	0.224	0.065	0.207	0.150
	Composite	0.174	0.253	0.287						
General Liability:	Claims-Made				0.033	0.079	0.151	0.116	0.364	0.100
	Occurrence				0.052	0.107	0.196	0.072	0.241	0.130
	Composite	0.174	0.253	0.212						
Medical Malpractice:	Claims-Made				-0.002	0.039	0.107	0.083	0.255	0.060
	Occurrence				-0.003	0.047	0.128	0.032	0.109	0.070
	Composite	0.148	0.255	-0.093						
Special Liability		0.104	0.056	-0.109	0.086	0.141	0.228	0.167	0.534	0.160
2-Year Line Composite		0.109	-0.074	-0.043	0.187	0.254	0.362	0.218	0.654	0.280
International Primary		0.050	0.080	0.057	0.074	0.129	0.218	0.136	0.422	0.150
Primary Line Composite										
Property Reinsurance (A+C)		0.370	0.315	-0.034	0.177	0.247	0.361	0.168	0.525	0.280
Casualty Reinsurance: (B)		0.388	0.348	0.128	0.018	0.073	0.164	0.067	0.236	0.100
(D)		0.592	0.368	0.183	-0.011	0.042	0.130	0.067	0.236	0.060
International Reinsurance		0.050	0.245	0.200	0.074	0.129	0.218	0.172	0.525	0.150
Reinsurance Line Composite										
Industry Composite										

Net Risk-Based Capital Written Premium Charges

		NAIC		Academy Task Force Analysis						
				Worst	Expected Policyholder Deficit			Benchmark		
		1989	1990	Year	3%	2%	1%	3:1	1:1	Selected
Homeowners/Farmowners		0.076	0.073	0.147	0.171	0.256	0.396	0.317	0.953	0.270
Private Passenger Auto Liability		0.198	0.203	0.100	0.021	0.067	0.140	0.255	0.780	0.070
Commercial Auto Liability		0.297	0.302	0.282	0.096	0.157	0.257	0.211	0.653	0.170
Workers Compensation		0.063	0.057	0.008	0.081	0.138	0.230	0.174	0.548	0.150
Commercial Multiperil		0.217	0.219	0.228	0.065	0.127	0.228	0.237	0.735	0.140
Products Liability:	Claims-Made				0.138	0.210	0.328	0.234	0.705	0.220
	Occurrence				0.257	0.351	0.509	0.098	0.311	0.370
	Composite	-0.001	0.157	0.169						
General Liability:	Claims-Made				0.119	0.186	0.298	0.173	0.546	0.200
	Occurrence				0.228	0.318	0.467	0.108	0.362	0.330
	Composite	0.006	0.164	0.259						
Medical Malpractice:	Claims-Made				0.163	0.241	0.367	0.124	0.383	0.250
	Occurrence				0.285	0.387	0.555	0.048	0.164	0.400
	Composite	0.458	0.479	0.184						
Special Liability		0.392	0.217	0.110	0.092	0.157	0.264	0.251	0.801	0.170
2-Year Line Composite		-0.044	-0.036	-0.004	0.099	0.166	0.274	0.327	0.981	0.180
International Primary		0.354	0.496	0.100	0.176	0.261	0.401	0.203	0.633	0.280
Primary Line Composite										
Property Reinsurance (A+C)		0.289	0.645	0.363	0.327	0.432	0.610	0.252	0.788	0.450
Casualty Reinsurance: (B)		0.334	0.294	0.264	0.199	0.279	0.413	0.101	0.354	0.290
(D)										
International Reinsurance		0.354	0.437	0.073	0.176	0.261	0.401	0.258	0.788	0.280
Reinsurance Line Composite										
Industry Composite										

Net Risk-Based Capital Unearned Premium Charges

		NAIC		Academy Task Force Analysis						
				Worst	Expected Policyholder Deficit			Benchmark		
		1989	1990	Year	3%	2%	1%	3:1	1:1	Selected
Homeowners/Farmowners		-0.242	-0.245	-0.065	0.000	0.000	0.000	0.000	0.000	0.000
Private Passenger Auto Liability		-0.041	-0.036	-0.059	0.000	0.000	0.000	0.000	0.000	0.000
Commercial Auto Liability		-0.004	0.001	0.081	0.000	0.000	0.000	0.000	0.000	0.000
Workers Compensation		-0.116	-0.122	-0.111	0.000	0.000	0.000	0.000	0.000	0.000
Commercial Multiperil		-0.154	-0.152	-0.019	0.000	0.000	0.000	0.000	0.000	0.000
Products Liability:	Claims-Made				0.000	0.000	0.000	0.000	0.000	0.000
	Occurrence				0.000	0.000	0.000	0.000	0.000	0.000
	Composite	-0.261	-0.103	-0.004						
General Liability:	Claims-Made				0.000	0.000	0.000	0.000	0.000	0.000
	Occurrence				0.000	0.000	0.000	0.000	0.000	0.000
	Composite	-0.261	-0.103	0.081						
Medical Malpractice:	Claims-Made				0.000	0.000	0.000	0.000	0.000	0.000
	Occurrence				0.000	0.000	0.000	0.000	0.000	0.000
	Composite	0.299	0.320	0.078						
Special Liability		-0.007	-0.182	-0.156	0.000	0.000	0.000	0.000	0.000	0.000
2-Year Line Composite		-0.318	-0.310	-0.187	0.000	0.000	0.000	0.000	0.000	0.000
International Primary		0.092	0.234	-0.075	0.000	0.000	0.000	0.000	0.000	0.000
Primary Line Composite										
Property Reinsurance (A+C)		0.038	0.394	0.196	0.000	0.000	0.000	0.000	0.000	0.000
Casualty Reinsurance: (B)		0.083	0.043	0.097	0.000	0.000	0.000	0.000	0.000	0.000
(D)										
International Reinsurance		0.092	0.175	-0.167	0.000	0.000	0.000	0.000	0.000	0.000
Reinsurance Line Composite										
Industry Composite										

[BACKUP.XLW]Net RBC UPR Charges 2/18/93

Net Risk-Based Capital

	NAIC		Academy Task Force Analysis						
			Worst	Expected Policyholder Deficit			Benchmark		
	1989	1990	Year	3%	2%	1%	3:1	1:1	Selected
Primary Insurers									
Investment RBC	15,454,146	15,716,302	14,946,067	14,836,645	15,510,912	16,676,157	16,283,849	21,429,224	15,709,684
Credit	958,698	958,698	958,698	958,698	958,698	958,698	958,698	958,698	958,698
Reinsurance Credit	4,992,792	4,992,792	4,992,792	4,992,792	4,992,792	4,992,792	4,992,792	4,992,792	4,992,792
Reserve RBC	33,777,683	40,617,103	16,837,565	14,231,260	28,183,669	50,668,424	36,157,514	112,666,440	33,709,787
Underwriting RBC	24,303,855	26,931,961	21,482,484	19,369,531	32,693,791	54,205,268	52,651,706	160,930,766	34,948,016
Total	79,487,174	89,216,856	59,217,605	54,388,926	82,339,861	127,501,339	111,044,559	300,977,920	90,318,976
Covariance	(34,914,607)	(37,851,930)	(27,838,320)	(25,856,358)	(36,295,693)	(51,344,472)	(45,006,648)	(103,321,846)	(39,125,406)
Net Risk Based Capital	44,572,568	51,364,926	31,379,285	28,532,568	46,044,168	76,156,867	66,037,910	197,656,074	51,193,570
Reinsurers									
Investment RBC	1,697,654	1,672,613	1,561,847	1,482,848	1,527,335	1,609,073	1,513,052	1,670,951	1,544,417
Credit	62,670	62,670	62,670	62,670	62,670	62,670	62,670	62,670	62,670
Reinsurance Credit	823,824	823,824	823,824	823,824	823,824	823,824	823,824	823,824	823,824
Reserve RBC	11,627,325	9,620,933	3,984,254	1,282,624	3,013,934	5,940,056	2,946,783	9,781,503	3,788,717
Underwriting RBC	2,979,241	3,512,284	2,962,746	2,311,199	3,345,979	5,057,678	2,553,205	8,088,256	3,513,805
Total	17,190,713	15,692,323	9,395,340	5,963,165	8,773,741	13,493,300	7,899,534	20,427,203	9,733,433
Covariance	(5,044,487)	(5,288,390)	(4,142,500)	(2,843,089)	(3,959,044)	(5,491,400)	(3,650,534)	(7,597,507)	(4,287,512)
Net Risk Based Capital	12,146,226	10,403,933	5,252,840	3,120,076	4,814,696	8,001,900	4,249,000	12,829,696	5,445,921
Total Industry									
Investment RBC	17,151,800	17,388,915	16,507,914	16,319,493	17,038,246	18,285,230	17,796,901	23,100,175	17,254,101
Credit	1,021,367	1,021,367	1,021,367	1,021,367	1,021,367	1,021,367	1,021,367	1,021,367	1,021,367
Reinsurance Credit	5,816,616	5,816,616	5,816,616	5,816,616	5,816,616	5,816,616	5,816,616	5,816,616	5,816,616
Reserve RBC	45,405,008	50,238,036	20,821,819	15,513,884	31,197,602	56,608,480	39,104,297	122,447,943	37,498,504
Underwriting RBC	27,283,096	30,444,244	24,445,229	21,680,730	36,039,769	59,262,946	55,204,911	169,019,022	38,461,821
Total	96,677,888	104,909,179	68,612,945	60,352,092	91,113,602	140,994,640	118,944,093	321,405,123	100,052,409
Covariance	(39,959,094)	(43,140,319)	(31,980,820)	(28,699,447)	(40,254,737)	(56,835,872)	(48,657,182)	(110,919,353)	(43,412,918)
Net Risk Based Capital	56,718,794	61,768,859	36,632,125	31,652,644	50,858,865	84,158,768	70,286,911	210,485,770	56,639,491
Industry Premium	223,243,202	223,243,202	223,243,202	223,243,202	223,243,202	223,243,202	223,243,202	223,243,202	223,243,202
Industry Premium-to-Surplus Ratio	3.94	3.61	6.09	7.05	4.39	2.65	3.18	1.06	3.94