AMERICAN ACADEMY *of* ACTUARIES

Interim Report of the Long Term Care Risk-Based Capital Work Group

To the

NAIC Risk-Based Capital Working Groups

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TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

1.1 The Charge

The NAIC Health Risk-Based Capital Working Group and Life Risk-Based Capital Working Group asked the Academy of Actuaries (Academy) to review the RBC formulas for Disability Income (DI), Long Term Care (LTC), Stop Loss and Limited Benefit insurance products. To respond to the request, the Academy assembled groups from members of its Life Capital Adequacy Subcommittee and its Task Force on Health Risk-Based Capital. A Work Group was formed to specifically address LTC. This report is based on the analysis performed by this Work Group.

1.2 General Requirement

The Work Group followed the similar requirement of 5% ruin probability as with other lines of business. This requirement means that the recommended Risk-Based Capital formula should provide for sufficient total capital to withstand a 5% ruin probability over a specified period of time.

1.3 Description of the Study Process

The Work Group started with the Risk-Based Capital simulation model for DI. The Disability Income model assumed a stationary population of in-force policyholders. The Work Group modified the model to accommodate the growing LTC market and an anticipated increasing loss ratio in the foreseeable future.

1.4 Model Results

The following risk-based capital requirements are direct results of the model based on a set of baseline assumptions. These assumptions are deemed to be most likely to materialize over the next five to ten years.

Direct Earned Premiums

Under $75 million:	35.6% of earned premiums
Over $75 million:	4.9%[1] of earned premiums

[1] Throughout this report the values for "Over $75 million" are a factor that would be applied to the entire amount. Once a factor basis is agreed upon, these factors will be converted to use the same factor for the first X dollars and a lower factor for the amounts in excess of X to equal the overall level of RBC.

Throughout this report, risk-based capital results are stated separately for two groups of companies: under $75 million and over $75 million. The earned premium is expressed as direct earned premiums even though the factors should apply to earned premiums net of reinsurance. This is so because the data source is only available as direct earned premiums. The Work Group uses $75 million direct earned premiums to approximate $50 million of net earned premiums. This approximation will be validated or the breakpoint be adjusted for the final report.

1.5 Issues

There are two issues that surfaced in the analysis of the modeling results. First, there is a significant difference in modeling results for large blocks and small blocks. To some extent, this can be expected, as the volatility of experience is great for small number of claims. Another plausible explanation is that the raw data for the smaller blocks may have inaccuracies due to the limited resources in the report preparation.

The second issue is concerned with applying the factor to the premium in the risk-based capital formula. In the foreseeable future, a significant portion of the LTC insolvency risk is more appropriately related to the level of claims than to premium volume.

1.6 Alternatives for RBC Formula

The Work Group recommends that NAIC RBC Work Groups consider alternatives to the current premium-based formula combining these elements for LTC:

Claim Reserves:	5.0% of claim reserves, plus
Earned Premiums[2]	
Under $75 million:	31.8% of earned premiums
Over $75 million:	1.1% of earned premiums, or
Incurred Claims[2]	
Under $30 million:	74.0% of incurred claims
Over $30 million:	2.6% of incurred claims, or
Some portion of both Earned Premium and Incurred Claims.	

Consistent with other product lines, a set of baseline assumptions formed the pivot for the analysis of model results. However, the Work Group believes that certain assumptions such as phase-in delay and phase-in factor can be different between small blocks and large blocks. An alternative set of model results should be considered for small blocks (see Section 7.3.2):

Earned Premiums	
Under $75 million:	10.7% of earned premiums
Incurred Claims	
Under $30 million:	24.9% of incurred claims

The Work Group also recommends that NAIC RBC Work Groups consider the potential market impact of a large disparity between the formulas for small and large blocks.

A majority of the Work Group supports a recommendation that the claim reserve component stay as is (5%) with the remainder of the charge evenly split as a percent of earned premium and a percent of incurred claims. The HRBC formula would need to have the 5% claim reserve component added. The other formulas already contain this component.

1.7 Remaining Tasks

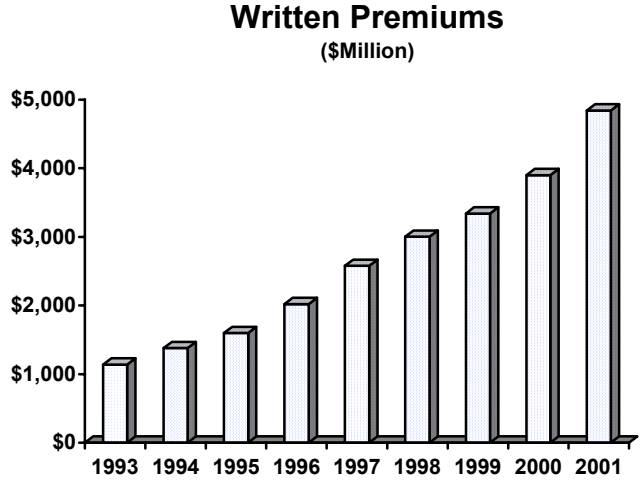
In order to complete the analysis and recommendations, the Work Group will need to determine the average portion of LTC business that is reinsured. This is necessary because the RBC formula should be based on net amounts but the raw data was available only on a direct basis.

At the appropriate time, after receiving initial reactions of this interim and further instructions, the Work Group plans to conduct a survey to test the actuarial implications of any proposed changes in the RBC formula. Finally, formula changes will need to be defined for all three formulas (if similar changes are desired in each), and instructions written for each formula (tax adjustments will vary at a minimum).

2 PROJECT OVERVIEW

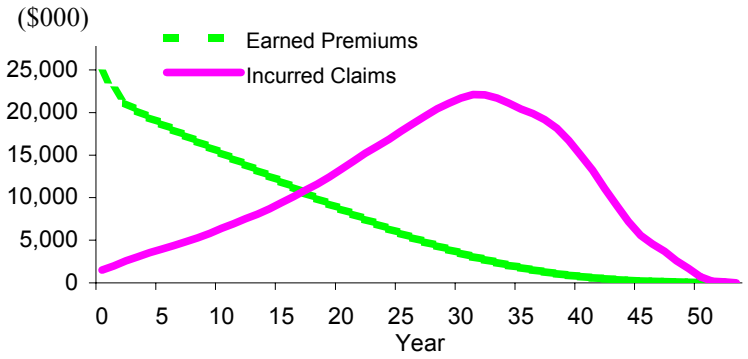
2.1 Product Characteristics

LTC insurance is a relatively new market. Although there were a few companies offering this coverage as early as 1975, no company achieved measurable growth before 1988. Since then, new business growth has been significant.



Source: LTC Experience Form A

Almost all LTC policies have level premiums payable for life. However, premiums are not guaranteed and can be changed by risk class within a policy form. For a block of issued business, written premiums, other than rate increases, will decrease in the future due to policy terminations. Claim frequencies are usually less than 1% in the early years. Claims will be less than premiums in the early years and will exceed premiums in the later years.



Typical Premiums & Claims Pattern for A Block of New Issues

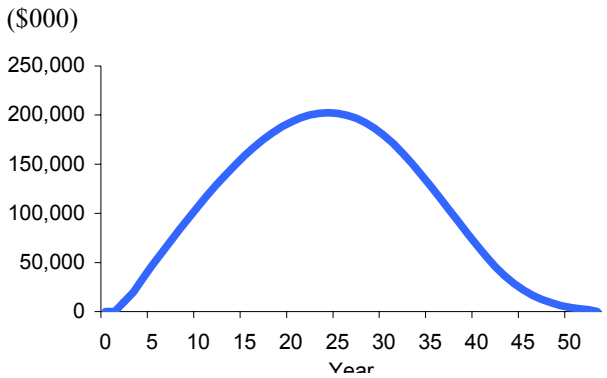
The net cash flow generated from a block of LTC business essentially reflects the premium and claim relationship. It is characterized by positive cash flow in the early years when premiums exceed claims and expenses and negative cash flow in the later years when the reverse holds. Since the current average issue age is in the early 60s for individual insurance and late 40s for group insurance, the liabilities of such a block can last for more than 40 years. Consequently, future claims are subject to secular trends in policy termination, health status of the elderly population and changes in attitude regarding utilization of LTC services.

Besides morbidity, policy termination, investment yields on statutory assets and expenses are the other risk factors for LTC insurance.

2.2 Capital Investment

Insurance companies offering LTC products expect a return on their investments. As with other products, the capital investment or surplus strain is comprised margins in statutory reserves, acquisition expenses and risk-based capital. The return is influenced as well by the speed at which the surplus strain is recovered.

A consequence of the long-tailed nature of LTC risks is that appropriate statutory active life reserve levels are a crucial factor in maintaining margins for risks. Significant build-up of reserve occurs during the early years and does not subside until much later.



Typical Active Life Reserve Pattern for A Block of New Issues

Currently, LTC is a product that needs to be sold and is not routinely bought. Much of this is due to a general lack of public understanding of the benefits of LTC insurance or the incorrect assumption that Medicare covers the need. The selling process, together with relatively intensive underwriting requirements, produces a fairly high expense for acquisition.

The market has recently gone through a period of compression that may continue as well. This may be due to the lower than expected level of sales. It may well also be a signal of an imbalance in the current risk and reward profile of the product.

Many believe that the capital investment for new LTC sales is quite high even without risk-based capital requirements. Altogether, the resulting return on investment is generally not commensurate with the risks the insurance companies are assuming. At least a substantial portion of the risks is due to the relative newness of the market. Companies generally do not have adequate experience to assess their future liabilities.

2.3 LTC RBC History

Prior to this report, RBC has not been based on modeling the risks of LTC insurance. Instead, the model for DI from 1991 was used (it was assumed to be the most comparable health product for which RBC factors had been calculated). In 1994, another Academy group reviewed all types of health products using a consistent model. That group deemed the underlying data for LTC insurance to be insufficiently mature to be useful.

Since 1995, the model was revised in 2000 to address DI risks with extensive active life reserves. This report uses the revised model[2] and historical LTC loss ratio experience to develop RBC factors specific to LTC products.

2.4 Objectives

There are two general objectives for this project. The foremost objective is to determine and recommend a formula suitable for the next five to ten years specific to LTC insurance and based on experience data. Limitations on data and model made it impossible to find a formula useful beyond this period. We also believe that formulas need to be reviewed periodically, especially for an evolving market such as LTC.

Second, the formula should reflect appropriately the emerging risks. The current formula, which is primarily premium-based, generally produces an incidence of risk-based capital that several members of the Work Group believe is not in-step with the most significant variation risk (i.e., the basis for RBC) for the typical period capital is required for RBC purposes - the growing claims in the later years. In addition, a small but growing amount of LTC insurance is sold with a limited premium period.

2.5 General Guidelines

As with all other products in the Life & Health RBC formula, the modeling assumes reserves associated with the LTC block of business are adequate. The recommended risk-based capital will only cover the insolvency risks due to fluctuation of experience and will not cover any deficiencies in the reserves.

A standard assumption for RBC has been that the company is well managed and its reported data presents a fair picture of the actual results year by year. Deviations from a reasonable pattern of loss ratios for health products are assumed to be statistical variations, correction of prior trend estimates and environmental change. Regarding its rate adjustment practice, it is assumed that the company will react in a rational and consistent manner to changes in experience. The actual historical data for the entire LTC group of insurance companies does not fit these assumptions.

[2] The revised model for DI assumed a stationary population. This assumption was not deemed correct for LTC insurance and adjustments to the model were made to reflect expected durational changes to loss ratios.

The Work Group realizes that the present effort is simply part of a continuum to provide a consistent starting point to measure one risk of company insolvency. Solvency monitoring experience is increasingly available. Further revisions to the underlying models may be appropriate. Better data and methods will undoubtedly be used in the foreseeable future to refine the risk-based capital requirements for LTC insurance as well as other aspects of an insurer's operations.

2.6 Scope of LTC Products

LTC policies that will be governed under the recommended formula include individual and group policies, policies with limited payments as well as LTC riders attached to other insurance or annuity contracts. It is not intended to cover LTC benefits that accelerate the normal benefits of a life or annuity contract.

3 MODELING CONSIDERATIONS

3.1 General Considerations

The insolvency risk of any particular insurance company depends on its own characteristics. Among other things, such characteristics include free surplus, product portfolio, management organization and strength, product experience and growth potential. Ideally each company should hold the level of risk-based capital covering its specific insolvency risk.

Recognizing that no single formula fits equally well for all companies, the NAIC has established three formulas connected to various Annual Statements. We have focused on the Life &Health RBC formula as most LTC insurance are written by life insurance companies. We believe that a similar approach is appropriate for the other formulas as well.

LTC is a relatively new market where a few companies have ten or more years of experience and other companies have just a few years. The task is to devise a formula that is appropriate for the majority of companies. In order to achieve this objective using available data, the companies are assumed to behave as a typical company that mirrors

the industry average[3] relative to past and future growth, reserve methodology, investment strategy, expenditures and profit objectives.

For LTC insurance, the specific risks include claims, persistency, investment earnings and expenses. Only claim risk is modeled. C-2 risk for RBC is generally seen as covering the variation from expected for insurance obligations (e.g., claims). Persistency risk is ignored as discussed below. Investment risk is covered in the C-1 component. Expense risk is generally not considered product specific and, if included, would be in the C-4 component.

3.2 Period of Projection

The model used to develop health RBC factors looks at the risk of failure over a three to seven year period. The model actually starts several years before the measured period since results in any year are based on expected management actions to loss ratio deviations from prior periods that are still being "phased-in." We have limited the projection period in any modeling to be no more than ten years.

3.3 Relationship with Reserve Standards

Risk-based capital and statutory reserves together make up the total required needed to retire a company's liabilities with a reasonable level of protection from variations of experience. It follows that adequacy of risk-based capital is dependent on the adequacy of reserves.

The similarity in function between risk-based capital and statutory reserves does not imply that one is merely an extension of the other. A distinction between risk-based capital and statutory reserves is the time period each is intended to cover. LTC statutory active life reserves cover the duration of the in-force policies that can span over 40 years. Risk-based capital covers momentary demand on surplus for periods of typically less than ten years.

The potential for overlap between the RBC and the margin of the statutory reserve assumptions over best estimates is a difficult and contentious issue. While the statutory reserve margin may be intended to cover a longer future period and RBC a shorter period, both cover potential for future deviations from expected experience. As such, a reasonable argument exists that, by adding the two together, the probability of ruin may be effectively reduced to less than the 5%

[3] The differences in years of experience, the recent consolidation and the substantially different growth rates mean that this "average" is highly suspect. The model, however, requires assumptions (or ranges of assumptions) that are generated from this average company.

target. Where experience begins at any point to increase above the expected, a question than exists as to how the reserves should be increased. The model does not address this issue. The implicit assumption is that the reserves are adequate but nothing about the degree of adequacy. This issue should be considered in the future.

Current statutory minimum reserve standards stipulate interest and persistency assumptions but no morbidity basis. A Society of Actuaries Work Group is currently investigating the feasibility of constructing a morbidity table using industry experience data. Such a table could be used as the LTC morbidity standard for future new business.

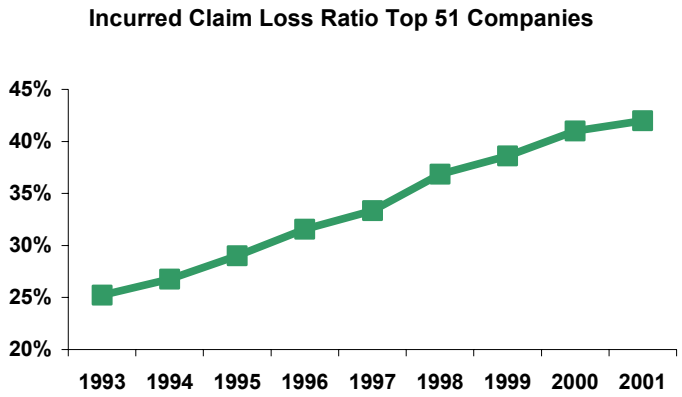
The approach taken here is based on the revisions to the model for DI and assumes a level of reserve that is consistent with the industry average. The implicit assumption is that this average represents a common view of reserve adequacy. Investment income is assumed to be earned on the reserve balances at rates that differ from the valuation rate.

3.4 Consistencies and Differences with RBC Model for Similar Product Lines

The LTC simulation model started out as a copy of the model for DI. The choice of the DI model is obvious. DI and LTC have similar product features such as level premiums with active life reserves. However, DI coverage normally ends at an attained age such as 65 where as LTC coverage has no age limit. DI has a longer history than LTC and is more subject to economic fluctuation. LTC is more subject to secular trend risks from increased utilization. These differences have significant implications in terms of model assumptions as discussed below.

3.4.1 Increasing Loss Ratios

LTC is a level-premium product with claims in the early policy durations of a block of business starting out low and exceeding premiums in the later durations. The corresponding incurred claim loss ratios for a closed block will increase by policy duration. With a healthy growth rate, the loss ratio will not increase as fast as the low loss ratio for new business loss ratio tempers the increase in the in-force block of business. Nevertheless, as an industry, the incurred claim loss ratio has been slowing increasing.



Using a reasonable industry future growth rate, we project continuously increasing loss ratios over the period where the RBC model is tested. Accordingly, we estimated the annual loss ratio trend that will be used to isolate the random fluctuation in the loss ratios. From the loss ratio data, we determined the approximate annual percentage increase in loss ratio as follows:

Incurred Claim LR	Under $50 Million Premiums	Over $50 Million Premiums
Under 25%	5%	3%
25% to 40%	1%	2%
Over 40%	3%	1%

The trended loss ratios are used in the determination of the standard deviation and serial correlation of loss ratios as well as in the surplus simulation model. This is a departure from the usual risk-based capital assumption of stationary expected loss ratios for other health products such as Disability Income.

3.4.2 Policy Terminations

Termination is a product risk for LTC. Termination can be due to death or voluntary lapse. To the extent that actual terminations are less than pricing assumptions, more claims are likely to be incurred in the future. This negative impact will emerge slowly in the future. In the relatively short horizon for insolvency risk, this is not considered to pose a serious problem. Year to year fluctuation in termination experience can occur. When

there is less termination than expected during a year, the increase in statutory reserve can be material. It can lower profit margin and increase insolvency risk. However, current industry experience suggests that the total termination rate is quite low. Fluctuation in termination rates under low termination scenarios produces relatively minor impact on insolvency risk.

For this reason, policy terminations are not modeled. This is also consistent with risk-based capital models for other lines of business.

3.4.3 Investment Income

The Disability Income (DI) model assumes that expenses and profits are at a steady state and the only profit variance comes from claims. For the foreseeable future, the investment income for LTC products is expected to grow as reserve balance grows. Expense relating to claim administration is also expected to grow but its impact is much less than investment income. The LTC model ignores the growth and uses a constant profit margin over the testing period. The Work Group recognized that this is a conservative simplification but is an appropriate one considering the difficulty in assigning investment yield assumptions under the current interest rate environment.

3.4.4 Company Actions

For LTC in-force business, product management is typically limited. It may involve premium rate adjustments, active claim management and conversions of existing policies to newer forms. Rate adjustments are by far the most prevalent actions to date. The other two alternatives are relatively new and untested.

Benefits are typically paid up to the lower of actual expenses and a per diem maximum. In some cases the daily benefit amounts increase in the future, e.g., they increase with a fixed schedule such as 5% per year. It follows that the companies' liabilities are much less subject to inflationary costs of services as compared with other health risk (e.g., major medical). Rate adjustments are much more likely to be due to not meeting certain

assumptions (particularly persistency and claim frequency) than changes in costs of services.

Only rate adjustments were modeled. Simulating the rate increase process is challenging both because companies' practices vary tremendously and many of the rate changes that have occurred are due to unique circumstances (purchased blocks of business or multiple rate increases on a single policy form) that are not consistent with future management of LTC blocks.

The process starts with the emergence of experience that differs from expected. The likely process would typically involve composite variations to all assumptions. However, the RBC model uses loss ratios as determining solvency risk and rate actions to avoid insolvency. Loss ratios do not reflect the composite effect of variations that really drive rate increases. This may reduce the effectiveness of the model in simulating management actions.

For purposes of the RBC model, we have looked at claim variations by themselves. The decision to adjust premium rates will depend on the company's capability to detect changes in experience, credibility of experience data, the financial impact of the emerging experience and the company's philosophy regarding rate adjustments. Once the decision is made, the amount of rate adjustment and timing will then depend on the resources available, adequacy of justification, the filing process, the length of the approval process, the administrative complexity of a rate adjustment and contractual provisions regarding the adjustment.

The risk-based capital model uses several parameters to simulate rate adjustments. First, rate increase action is triggered by the loss ratio exceeding a high limit. Corresponding, a rate decrease action is triggered by the loss ratio being less than a low limit. The rate adjustment action is assumed to affect a certain portion of the LTC block. Finally, the rate adjustment is implemented after a specific period of time. These parameters for rate action are estimated from the company survey.

3.4.5 Serial Correlations

In any time series, there is a tendency for data points to move towards the mean. For loss ratio trends on a block of LTC business, this can be caused by management actions to target certain goals regarding product performance. These actions include improved pricing, sales method and underwriting on new business, rate adjustments on in-force business, improved claims management, etc. This phenomenon of centering toward the mean is measured statistically by the serial correlation.

Serial correlation is an input to the RBC model. The Disability Income Work Group also utilized serial correlation in their analysis. The companies' loss ratio data has the effect of lowering the surplus requirement when serial correlation is used.

There is an argument that it is redundant to apply serial correlation to a model for which management action on rate adjustment is already accounted. However, it is impossible to separate the effect of in-force rate adjustments on companies' loss ratios from other management actions. The Work Group voted to determine surplus requirements with and without the use of serial correlation in order to provide a range of results for consideration.

4 MODEL DESCRIPTION

In accordance with its charge and consistent with the manner in which risk-based capital factors are generally determined, the NAIC asked the Work Group to develop baseline assumptions for use in developing potential values for the RBC formula for LTC. The Work Group responded to the NAIC's request by developing one possible set of such baseline assumptions that we believe to be reasonable based on the company survey described in this interim report. However, we wish to emphasize that these baseline assumptions are by no means the only assumptions that an LTC company could or is likely to use, nor are they intended to set a standard for actuaries or to preclude LTC companies and their actuaries from selecting and applying whatever assumptions appear to be reasonable in a particular set of circumstances.

4.1 General Description

The basic model used in the development of this recommendation has its foundation in the model used in the development of the DI RBC factors. Various modifications were made to this model to recognize issues unique to the LTC products.

The model uses a stochastic process to generate the surplus amount needed to avoid ruin at the desired level.

4.2 Model Standard Deviation and Serial Correlation

A model standard deviation and serial correlation are generated as inputs into the stochastic process. For each company, the actual incurred claim loss ratios are adjusted to produce a series of new loss ratios that would have resulted in the absence of management actions (assumed to have occurred in accordance with the model's parameters). The resulting loss ratio pattern is assumed to represent random fluctuation in the loss ratios. This is consistent with the basic tenet of risk-based capital. A sample standard deviation and serial correlation are then determined on the yearly averages of the actual loss ratios and the adjusted loss ratios. Finally, premium-weighted averages of the standard deviation and serial correlation are separately calculated for two groups of companies based on the size of in-force premiums in 2001.

4.3 Risk-based Capital Simulation Model

The model starts with an in-force block of LTC business and an initial amount of required surplus. Fluctuations in loss ratios are generated and applied to the block of each year, resulting in increases or decreases in net income that are carried through to the required surplus level. The model also reflects management actions to the loss ratio data through premium rate changes.

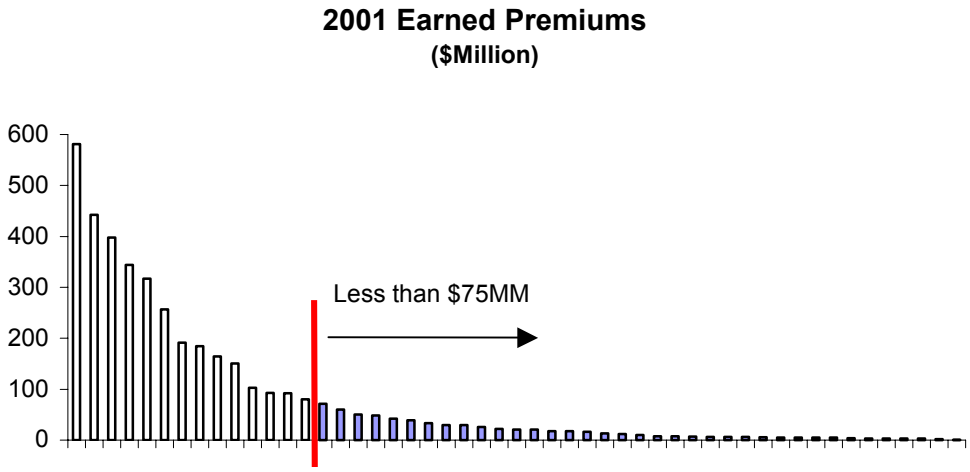
After a seasoning period, the initial surplus is re-established and each scenario is run for a period of years. Ruin occurs if the surplus level becomes negative during the testing period. Thousands of scenarios are run for each test in order to determine if the initial surplus level is sufficient to avoid ruin at the desired 95% probability. An iterative process is then used to find the initial surplus level that achieves such desired level.

5 DATA COLLECTION

5.1 LTC Experience Forms

The primary source of data on loss ratios is the LTC Experience Forms (a supplement to the Annual Statement). There are three forms that are annually provided to regulators from companies selling LTC. Form A is an annual nationwide experience exhibit of loss ratios for the calendar year prior to the reporting year. Loss ratios are available by group of similar policy forms. Form B is a cumulative nationwide experience exhibit and Form C is a statewide cumulative experience exhibit. The yearly incurred claim loss ratios for this study come from Form A.

Among the financial items, paid claims, changes in claim reserves, earned premiums and active life reserve balances can be obtained from these forms. The Work Group obtained data for 105 companies on a yearly basis from 1991 through 2001.



The top 51 companies accounted for over 85% of the total in-force business in 2001. Of the 51 companies, 11 have premiums over $100 million, 14 companies over $75 million and 16 companies over $50 million.

Data between 1991 and 1995 are either not complete or unreasonable for a significant number of companies, 23% of the 51 companies. The Work Group decided to use data from 1996 through 2001 instead. Even so, six companies submitted data that appeared to be incomplete or unreasonable. These companies were contacted. Three companies resubmitted corrected data and data from two other companies were limited to later years. Results before and after the adjustments indicated that the adjustments have very minor effect on the overall results.

5.2 Company Survey

A survey of companies currently selling LTC was conducted to gather other model inputs. Eleven companies responded. All together, they accounted for 54% of the total LTC business in-force. The survey collected information relating to anticipated growth rate, expected profit level and capital management. With respect to rate adjustments, companies were asked about loss ratio triggering level, anticipated proportion of total business affected and time frame for implementation.

Not all companies answered all questions. There was, however, a minimum of five answers to each question. Since the survey is confidential, results were averaged over the number of responses without regards to size of business.

6 ASSUMPTION SELECTION FOR BASELINE MODEL

6.1 Baseline Model

There are more than twenty inputs for the model. Some of these have significant impact on the outputs while others have only a marginal impact. To anchor the analysis of the modeling results, a set of baseline assumptions was chosen. Additional runs were then performed by varying the inputs. The analysis and recommendation are based on reviewing the sensitivity of the results.

6.2 Size of Business

The current formula uses two tiers for the premiums factor: 25% of earned premiums (net of reinsurance) for the first $50 million and 15% in excess of $50 million. The Work Group followed the same structure and divided the companies into two groups using a $75 million break point. The break point is chosen to approximate the $50 million net earned premiums as the Experience Form data is before reinsurance.

6.3 Claim Variation

The loss ratio standard deviation along with the serial correlation of loss incurred claim ratios is used to generate deviations from the expected loss ratio that are used in the stochastic model.

Loss Ratio Standard Deviation:	4.7%	$75 million and above
	11.8%	under $75 million

Serial Correlation of Loss Ratios: 0

As noted in the discussion of serial correlation, results were also generated from model runs with serial correlation inputs. In these runs, the serial correlations from actual data are:

Serial Correlation:	-28.9%	$75 million and above
	-33.3%	under $75 million

6.4 Profit Margin

The block of business used in the model has a pre-tax profit as a percentage of premiums set equal to 11%. This number was developed in using an inforce premium model and validated in several other ways. An LTC company could select any profit margin that it deemed appropriate; the 11% profit margin used here is for illustrative purposes only.

An inforce business model was developed based on asset share data for a variety of different LTC plans. The asset share data was developed into a statutory income projection using historical as well as expected future sales patterns. The 11% pre-tax profit margin represents an average profit margin from this model over the next three to seven years. This assumption was also validated from an industry survey as well as the judgement of individuals on the committee.

6.5 Target Loss Ratio

The target loss ratio represents the starting loss ratio from which deviations are generated in the model. The target loss ratio used in the model is 75%. This loss ratio represents both incurred claims and increases in active life reserves. Note that the input standard deviation and serial correlation for claim variation are derived from actual incurred claim loss ratios. The implicit assumption is that the fluctuation in loss ratio is entirely from incurred claims, not increases in active life

reserves. Changes in active life reserves from expected are results of changes in persistency. This assumption is consistent with not modeling persistency risk.

The 75% assumption was developed from the inforce business model described above and represents expect loss ratio levels over the next three to seven years. Upward trend in loss ratios is not assumed in this aspect of the model.

Other outputs from the inforce business model were also checked for reasonableness. Mainly, investment income was equal to 21%[4] of premium and the expense margin (including commissions and premium tax) was equal to 35%. A 35% tax rate is assumed on profits and losses. The group felt these assumptions were reasonable given the underlying growth rates and time horizon of the model.

6.6 Management Action Assumptions

The model uses various assumptions about how management will adjust premium rates to recognize emerging experience. All of these assumptions are based on the results of a survey of LTC carriers as well as the judgement of members of the task force. Assumptions made include:

High Reprice Ratio: 86%

The high reprice ratio reflects the level that the actual loss ratio must exceed before management will take action by increasing premium rates. This number is 115% of the target loss ratio.

Low Reprice Ratio: 60%

The low reprice loss ratio reflects the level that the actual loss ratio must fall below before management will take action by decreasing premium rates. This number is 80% of the target loss ratio.

High Low Ratio Phase In Factor: 40%

This number reflects the portion of the block of business that gets re-rated to reflect the higher than expected loss ratio.

[4] Since the target loss ratio includes both claims incurred and changes in active life reserves, it can be expected that investment income will increase as a percentage of premium so this value should increase over the study period. An average level was assumed and a constant ratio of investment income to premium was used.

Low Loss Ratio Phase in Factor: 20%

This number reflects the portion of the block that gets re-rated to reflect lower than expected loss ratios.

Phase In Delay: 2 years

This number reflects the amount of time from the point management recognizes that a rate increases is necessary to the point that the rate change is implemented. It reflects the time needed to file, implement and gain approval for the rate increase.

6.7 Other Model Assumptions

Loss Ratio Cap: 300%

Loss ratio is not allowed to exceed 300%.

Surplus Accumulation

Due the growth of the market and the initial capital investment on new business, it is not likely that significant dividends will be paid over the RBC testing period. Accordingly, surplus is assumed to accumulate in excess of the required amount in any year.

Tax Recognition: 100%

The assumed tax rate of 35% is the top marginal corporate tax rate. The current tax rate for LTC is actually higher because of DAC tax and the difference between statutory reserve and tax reserve in early durations. For this reason, the 35% is assumed to be fully recognized. This is consistent with DI and other accidental and health model assumptions.

Years of Seasoning: 10 years

The model is run 10 years before the testing horizon begins. The required surplus amount is reset at the end of the seasoning period.

Testing Time Horizon: 5 years

7 MODEL RESULTS

7.1 Results Using Baseline Assumptions

Using the baseline assumptions, the model produced the following surplus requirement (shown here totally as a percent of premium) for a 5% ruin probability:

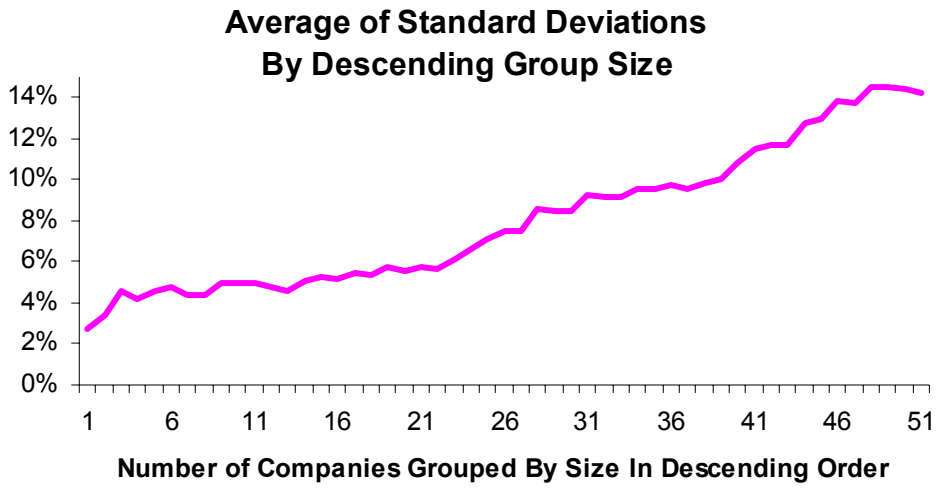
Direct Earned Premiums

Under $75 million:	35.6% of earned premiums
Over $75 million:	4.9% of earned premiums
Composite (for sensitivity)	8.9% of earned premiums

As previously noted, 14 companies have premiums over $75 million. These 14 companies together have over 80% of the total in-force premiums. Nevertheless, the discrepancy in required capital between large blocks and small blocks may well put the companies with small block at a competitive disadvantage, a possibility that the NAIC RBC Work Groups may wish to take into account.

There are at least two possible explanations for the discrepancy. First, the small blocks often have limited attention paid to accurate completion of the Loss Experience Forms. Consequently year-to-year loss ratios may not be consistent. In reviewing the forms, the Work Group noted that most incomplete data came from the small blocks. In fact, the Work Group found it necessary to exclude data after the top 51 companies because there were considerable missing data.

The other reason is the obvious fact that small blocks will have greater year-to-year fluctuation of experience. It is estimated that the average company with a small block will have approximately 40,000 policies in force. With a typical annual claim rate of less than 1%, variation in yearly claim experience can be expected. We ranked the companies by premium size and calculated the ***simple*** averages of the standard deviations of loss ratios by grouping in descending order by premium size. The resulting trend confirmed the expectation that small blocks contribute to greater variability.



7.2 Result Sensitivity by Assumption

Additional model runs were made to gain a better understanding of the impact of various assumptions to the capital requirements. The table below depicts the results obtained by varying selected model parameters one at a time in order to determining the commensurate RBC requirement to achieve a ruin probability no greater than 5%. The figures in bold represent the baseline assumptions using premium-weighted standard deviation over the 51 companies – i.e., without a split by size of earned premium.

Target Loss Ratio	56%	65%	75%	85%	94%
Required RBC	5.9%	7.1%	8.9%	10.7%	12.0%
Low Re-Price Ratio	45%	52%	60%	NA	NA
Required RBC	8.2%	8.4%	8.9%	-	-
High Re-Price Ratio	NA	80%	86%	95%	107%
Required RBC	-	2.9%	8.9%	24.4%	50.7%
Low Phase-In Factor	10%	15%	20%	25%	30%
Required RBC	8.4%	8.8%	8.9%	9.4%	9.5%
High Phase-In Factor	30%	35%	40%	45%	50%
Required RBC	12.3%	10.0%	8.9%	7.7%	7.3%
Phase-In Delay in Years	1.0	1.5	2.0	2.5	3.0
Required RBC	4.2%	6.6%	8.9%	11.4%	13.4%
Standard Deviations	2.5%	4.5%	5.9%	8.5%	11.5%
Required RBC	0.6%	4.4%	8.9%	19.2%	33.8%

Serial Correlation	-25%	-15%	0	5%	--
Required RBC	4.8%	6.0%	8.9%	10.0%	--
Pre-Tax Profits	7%	8%	11%	13%	15%
Required RBC	20.3%	17.0%	8.9%	4.4%	1.7%

7.3 Other Sensitivity Tests

7.3.1 Serial Correlation

A reason for assuming no serial correlation in the baseline assumption is that the derived standard deviation partially reflects certain modeled management actions. Specifically, these actions are based on emerging loss ratios and the manner and the ability of the management to effect premium rate changes. While such actions may contribute to the results that produce negative serial correlation, the growth rate of the business also contribute to it. Accordingly there is conservatism in the baseline assumption relative to serial correlation. Below is a comparison of the results from the baseline assumptions with those that utilized the sample standard deviation and serial correlation as determined from the data.

Required Surplus

Earned Premiums	Baseline (No Serial Correlation)	With Serial Correlation
Under $75 Million	35.6%	21.6%
Over $75 Million	4.9%	1.9%

7.3.2 Small Blocks of Business

Facing greater insolvency risk, the Work Group surmised that, for small blocks, management would likely to react more promptly to unfavorable experience. Moreover, the portion to be re-priced would be greater than that for the large blocks. Additional runs were made by increasing the phase-in factor and by reducing the phase-in delay. As an illustration, a 75% phase-in factor and 1.5 year phase-in delay resulted in the following:

Required Surplus

Earned Premiums	Baseline 2 Year Phase-In Delay 40% Phase-In Factor	1.5 Year Phase-In Delay 75% Phase-In Factor
Under $75 Million	35.6%	14.5%

7.3.3 Rate Guarantees / Impact of Rate Stability Regulations

Other than the proportion of business subject to rate changes and the time frame to implement the rate changes, the baseline assumptions ignored the effect of other rate restrictions. One restriction is the contractual guarantee, if any, that the rates will not be changed during a time period. Another potential restriction is the recent NAIC rate stability regulations. These regulations require a margin in the pricing for moderately adverse conditions. In theory, the frequency of rate changes is diminished to a certain degree.

The Work Group decided not to incorporate these considerations in the baseline assumptions for the following reasons. No more than five companies were identified to have granted rate guarantee provisions to certain recently issued policy forms. A conservative estimate would be that less than five percentage of all in-force have rate guarantees. These would be policies issued during the last 3 years and therefore have relatively low impact on claim fluctuation.

The rate stability regulations have been enacted only during the last two years and in less than half of the states. Claims associated with policies under these regulations would also have minimal impact on fluctuations from expected values over the time period we anticipate this formula to be in use.

To examine the impact of rate stability regulations or rate guarantees, a run was made combining a higher trigger for rate increase, a lower phase in factor and higher profits.

Required Surplus

Earned Premiums	Baseline 115% Reprice LR 40% Phase In Factor 11% Profits	120% Reprice LR 20% Phase In Factor 14% Profits
Under $75 Million	35.6%	54.4%
Over $75 Million	4.9%	7.2%

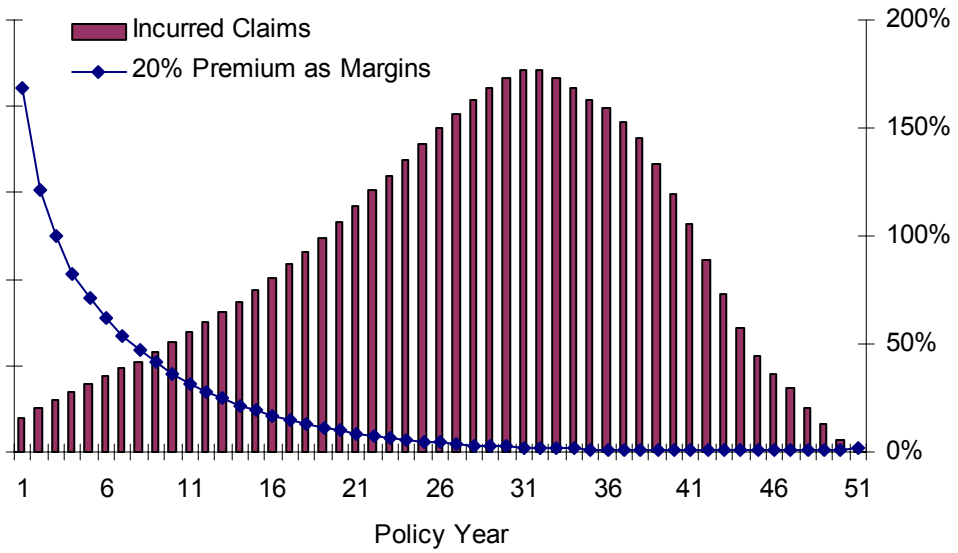
7.3.4 Limited Pay Policies

In recent years, policies with limited period of premium payments have been issued. These policies would limit the insurers' ability to restore future margins. However, the portion of limited pay policies is currently less than 1% of the total. There is no evidence that substantial portion of new sales are limited pay policies. To date, there is only one company that has a significant proportion of its policies as limited pay. For these reasons, the baseline assumptions ignored the potential impact of limited pay policies. Note that a revised formula that applies a factor to incurred claims will provide some RBC on paid-up policies whereas the current formula provides higher RBC only during the premium paying period.

8 Formula Factors

8.1 Factor Considerations

The current formula is expressed as a percentage of earned premiums and a percentage of claim reserves. For a given block of new issues, earned premiums decrease by duration due to policy terminations while claims increase. The insolvency risk modeled for LTC is variations in claim experience. When claim activities are highest in the later durations, the RBC margins using premium factor is decreasing.



Because of what some believe is a mismatch, the Work Group considered other factors to be included in the RBC formula: net amount at risk; paid claims; incurred claims; claim reserves; and active life reserves. Net amount at risk follows the premium pattern but recognizes prior claim payments.[5] The rest follows the incurred claim pattern. For the purpose of RBC factors, they are generally equivalent. Although not unanimous, the Work Group picked incurred claims, as they are readily verifiable.

The Work Group devised a model that represents the relationship between premiums and incurred claims for the industry as a whole over a period of time including the near future. The historical incurred claim loss ratios available from the LTC Experience Forms were used to validate the model.

The current claim reserve factor partially addresses the mismatch and the Work Group recommends that it should be retained. Using the projected relationship, the required model surplus is expressed as percentages of incurred claims.

Earned Premiums	As % Premiums	As% Incurred Claims
Under $75 Million	35.6%	82.8%
Over $75 Million	4.9%	11.4%

[5] To the extent that claim variation is heavily weighted to additional claims and not longer claim duration, a net amount at risk exposure value could be based on less than the full amount of coverage – e.g., the net amount for the first year of claim.

8.2 Issues and Implications

The RBC model expressed all income statement and balance sheet items as percentages of premiums, including surplus requirement for solvency. If RBC were a function of incurred claims, the required surplus would increase over the testing period and lower the ruin probability. The Work Group considered this as a slight conservatism in the modeling and did not modify the model to account for it.

The model was based on an average company. The relationship between premiums and incurred claims is unique for each company. However, there are two common consequences. For in-force business, the incurred claim factor will result in greater increases in RBC in the future than from the current premium factor, once the starting point is adjusted. For new business, the incurred claim factor should result in lower initial capital investment and will improve the return on investment.

The change in RBC factors will have a different financial impact on different companies. Moreover, the original pricing of the in-force business did not anticipate changes in RBC requirements. While any changes in the RBC formula need careful real-life consideration, the change to the incurred claim factor most likely requires even greater scrutiny.

8.3 Alternatives

The Work Group recommends that a formula be established that includes both premium and incurred claim factors. The exact percentages should be ones that minimize the financial impact of such a change to the industry overall.[6]

The Work Group also recommends that for the first several calendar years, the RBC should be the weighted averages of the current and the new formulas.

9 CONCERNS

This section documents significant concerns raised by several members with regard to the recommendations of the Work Group.

[6] Our rationale for this recommendation is the many concerns we have with the underlying data, model values and use of an industry average as the basis for defining a potentially significant increase in capital requirements for Guaranteed Renewable in force business.

9.1 Multiple Blocks of Business

The model that is generating these results is not complete in significant ways. It ignores that virtually every LTC insurance company also has significant other blocks of business. The Central Limit Theorem of statistics states that given a distribution with a mean m and variance s, the sampling distribution of the mean approaches a normal distribution with a decreasing variance as the sample size increases. In other words, small blocks of LTC could be treated in conjunction with the other blocks of business for claim variance and not treated in isolation as one way to reduce the significantly higher factor on small blocks.

9.2 Incurred Claims As Appropriate Basis?

Using incurred claims as a base for the RBC calculation leads to higher RBC in later durations when total risk is reducing and is inconsistent with the C2 formula for life insurance. The concern is that incurred claims are not a very good proxy for the exposure to risk. Premium is not a perfect measure of exposure to risk. Some members believe that premium does have the advantage that premium changes over time in a good relationship to exposure to risk.

A structural issue is that the LTC insurance industry expects to have rising loss ratios over the next five to ten year period. The current modeling reflects the industry loss ratios over the past few years. The RBC for the LTC insurance industry as a whole may end up significantly higher in five to ten years using an incurred claim based formula than was intended or would have happened for a premium based RBC formula.

Actuarial policy reserves (active life reserve) may not be well reflected in the analysis. These actuarial reserves are meant to fund claims at the later durations. Use of incurred loss ratios as a major element in a RBC model is inconsistent for an individual product where the intended loss ratios include the change in long term actuarial reserves. If incurred claims are used in the LTC RBC formula, then incurred claims plus the change in long term actuarial reserves less the required interest on the long term actuarial reserves and less the required interest on the claim reserves is a more appropriate formula base although some of these additional values are not readily available for LTC alone.

9.3 Barriers To Competition

So far, all formulas for LTC developed (premium or claim base) show much higher charges for the lower tier than higher tier. To our knowledge, no other RBC formula for any line of business is skewed so drastically. The impact that the high LTC RBC would have on the cost of required capital for blocks of business with less than $50 million in premium is likely to be significant. This could tend to discourage companies from entering the LTC insurance business. It could also encourage companies with smaller block of LTC business to sell or reinsure their LTC blocks of business. These possibilities are not necessarily good for consumers. Insurers with these small blocks may even bring up the issue of restraint of trade.

9.4 Potential Improvements

The factors for blocks of business under $50 million of premium could be limited to twice the factors for blocks of business over $50 million. Other potential solutions could be pursued as well.

10 LTC RBC WORK GROUP MEMBERS

10.1 Academy RBC Work Group Members

Bob Yee (Chair)

Mike Abroe
Anthony Green
Norm Hill
Burton Jay
Warren Jones
Dan Nitz
Al Schmitz
Steve Sperka
John Timmerberg
Dan Winslow
Bill Weller

10.2 Interested Parties

Larry Gorski
Loretta Jacobs
Barbara Lautzenheiser
Bart Munson
Jim Reiskytl

APPENDIX A

Model Description

The model description is separated into four sections.

Two inputs to the simulation model is the standard deviation and serial correlation of the incurred benefit loss ratios. The first section describes how these two inputs are modified to remove the effect of management action in the data. The reason for this adjustment is that the model simulates management action when experience is emerging differently than expected. Note that model runs were made with and without this adjustment.

The surplus formulas describe how the model takes the model office input, loss ratio deviates and management action information and loops through the testing period to determine the ruin probability based on the initial required surplus amount.

The loss ratio section describes how loss ratios are determined in the model based on the distribution of random deviates.

The management action section describes how the model simulates premium rate changes based on changes in the loss ratios.

Standard Deviation and Serial Correlation

- ***Calculate*** the standard deviation and serial correlation of the incurred claim loss ratios for each of 51 companies over the years when data is available (1995 to 2001).

- ***Input parameters for 'Management Action' are***:

    - starting target incurred claim loss ratio (40%)
    - loss ratio annual increase % (vary by loss ratio class and premium size class)
    - high and low re-pricing incurred claim loss ratios
    - phase-in % for high & low
    - phase-in delay
    - 2001 premium

- ***Change Due to Management Action:*** Start with actual loss ratio year 1, apply the repricing criteria, phase-in %, phase-in delay.

- ***LR Trend:*** Multiply by the ***Annual Trend %*** to determine total next year's expected change in LR due to management action and trend. The Annual Trend % varies by premium class and loss ratio class.

- Subtract from next year's actual to get ***Change in LR due to Random Claim Fluctuation.***

- This is done for each year in test period.

- Calculate the **Standard Deviation** & ***Serial Correlation*** of the changes for each company.

Determine the premium-weighted averages of **Standard Deviation** & ***Serial Correlation*** by premium class.

Surplus Formulas

The model starts with a target surplus amount that is reset to initial level at the beginning of the testing period (After the initial seasoning period is completed). For each year in the testing period, the amount of surplus changes based on profits earned in the year, where profit is defined as:

- the pricing pre-tax profit (expressed as a percentage of premium

- any gain or loss caused by the actual loss ratio deviating from the pricing loss ratio

Formulas:

Surplus (J + 1) = Surplus (J) +CIS(J); *all values are expressed as a percent of premium.*

where

CIS(J) = Profit(J) – Tax(J)

Profit(J) = Pricing Pre-tax Profit + TLR(J) – LRH(J)

Tax(J) = Profit(J) x Tax rate

Definitions:

CIS = Change in Surplus
TLR = Target Loss Ratio
LRH = Loss Ratio History

The Model loops through these formulas for a total number of years equal to the seasoning period plus the testing time horizon.

Loss Ratio Modeling

A target loss ratio (TLR) is an input to the model for the underlying block of business.

Actually loss ratios (LRH) are generated based on a random walk. A random deviate is generated based on the assumed standard deviation (STD) and serial correlation (SC) for the distribution. The loss ratio in the current year is equal to the previous year's loss ratio plus the random deviate.

Formulas:

$$LRH(J) = \left(LRH(J-1) \Big/ PD(J) \right) + RN(J)$$

$$RN(J) = SC \times RN(J-1) + RND(O,1) \times STD \times (1 - SC^2)^{1/2}$$

where,

Serial Correlation (SC) and standard deviation (STD) are model inputs.
RND is a random number generated based on a normal distribution with a mean of 0 and standard deviation equal to the model inputs.

PD represents Premium per dollar. This is set equal to 1 initially and adjusted based on management actions.

Management Actions

A pricing loss ratio is calculated to represent the loss ratio used to re-price new business in the event experience improves or deteriorates to the re-pricing thresholds. If the pricing loss ratio has exceeded the thresholds, premiums are adjusted based on the ratio of the pricing loss ratio and the target loss ratio and the phase in factors. The premium adjustment is rolled into the actual loss ratio going forward based on the phase in delay.

Formulas:

PLR < LRR, then PD = (1 – LPIF) + (LPIF) X PLR/TLR

$$PLR < LRR, \text{ then } PD = (1 - LPIF) + (LPIF) \times PLR/TLR$$

If,

$$PLR < HRR, \text{ then } PD = (1 - HPIF) + (HPIF) \times PLR/TLR$$

PLR is a weighted average of prior loss ratios (LRH) used to price new business. The PLR used to price new business is calculated from previous loss ratios based on the phase-in delay.

LPIF, HPIF = Low and high loss ratio phase-in factor.

LRR, HRR = Low and high loss ratio re-price levels.

APPENDIX B

Survey Result Summary

		Average	Average	Co. 13	Co. 11	Co. 10	Co. 9	Co. 8	Co. 7	Co. 6	Co. 5	Co. 4	Co. 3	Co. 2	Co. 1
1	**Industry Growth**	**9%**			10%		>10%	>10%	5-10%	10%	5-10%	5%	>10%	5%	
1a	**Co Growth**	**10%**		5-10%	>10%		>10%	>10%	5-10%	>10%	10%	5%	>10%	>10%	
2	**Prem Deduct.**	**11%**			>10%					>15%	10%	7%		5-10%	
3	**ROI or Stat Prof**	**ROI**	**Pre-Tax***	ROI	Pre-T	Pre-T	ROI	ROI	After-T	ROI	After-T	After-T	After-T	ROI	ROI
4	**Co Target**	**14%**	**10%**	12%	11%	12-15%	15%	15%	4-5%	12%	5%	5-6%	5%	16%	12-16%
5	**Industry Target**	**14%**	**12%**	10-15%	11%	12-15%	15%	15%	4-5%	15%	5-10%	5-6%	10-15%	15%	10-12%
6	**Industry Actual**	**10%**	**6%**	5%	5-8%	10%	9%	12%		10-15%	< 5%	3%	1-2%	12%	
7a	**Reprice Upper**	**113%**		120%		130%			115%	105%	110%	110%	110%	115%	115%
7b	**Reprice Lower**	**70%**		80, 95%					80%		85%	70%	40%	50%	85%
8	**% Repriced**	**56%**				100%	30%	30-40%				100%		40%	20%
9	**Phase In (Months)**	**27**		6-12	6-24	6-9	30	24	12		18	12	60		18
10	**Invest Yield**	**7.1%**		7.5%	6-7%	7-8%	7.25%	7-7.5%	6.75-7%		7%	6.75%	7%	7.2%	7%

Pre-T = Pre-Tax Statutory Profits
After-T = After-Tax Statutory Profits

* After-Tax Statutory Profits translated to Pre-Tax Statutory Profits assuming 35% tax rate

APPENDIX C

Experience Form A Incurred Claim Loss Ratios

Company Code	2001 Premiums	1995	1996	1997	1998	1999	2000	2001	Annual Loss Ratio Changes 1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	Std Dev Without Mgmt	Std Dev With Mgmt
70025	581,440,917	27%	32%	38%	37%	40%	46%	49%	5%	6%	-1%	3%	7%	3%	3%	3%
65099	442,457,473	19%	20%	19%	17%	20%	29%	27%	1%	-1%	-2%	3%	9%	-2%	4%	4%
76325	398,152,241	41%	49%	50%	55%	66%	56%	61%	7%	1%	6%	11%	-9%	4%	7%	7%
61263	344,106,901	41%	36%	34%	34%	34%	33%	38%	-5%	-1%	0%	-1%	-1%	5%	3%	3%
63282	316,805,515	52%	44%	49%	46%	39%	38%	44%	-8%	5%	-3%	-7%	0%	5%	6%	5%
87726	256,410,459	20%	25%	15%	17%	19%	21%	25%	6%	-11%	2%	1%	3%	4%	6%	6%
65005	191,728,646	22%	22%	24%	21%	24%	25%	23%	0%	2%	-3%	3%	1%	-2%	2%	2%
62235*	184,394,331	35%	29%	30%	20%	15%			-7%	1%	-10%	-4%			5%	5%
65978	164,188,241	12%	13%	19%	35%	50%	48%	41%	1%	6%	16%	15%	-2%	-7%	9%	8%
64130	150,493,346	17%	14%	19%	27%	28%	26%	34%	-3%	6%	7%	1%	-2%	8%	5%	5%
69477	102,790,608	16%	21%	28%	31%	34%	34%	49%	5%	7%	3%	3%	0%	15%	5%	5%
61387	93,047,544	30%	34%	35%	32%	32%	34%	34%	4%	1%	-3%	0%	2%	0%	3%	3%
86231	92,524,438	34%	33%	35%	37%	44%	47%	52%	-2%	3%	2%	7%	3%	5%	3%	3%
67121	80,069,474	22%	22%	23%	19%	21%	37%	20%	0%	1%	-5%	3%	16%	-17%	11%	11%
90611	71,409,530	32%	33%	14%	9%	8%	8%	5%	1%	-19%	-5%	-1%	0%	-3%	8%	8%
60054	60,293,744	16%	20%	18%	26%	28%	31%	28%	3%	-2%	8%	2%	3%	-3%	4%	4%
71412	50,139,118	38%	27%	32%	46%	51%	38%	42%	-11%	5%	14%	5%	-13%	4%	11%	10%
66915	48,505,375	10%	12%	18%	24%	23%	22%	23%	2%	6%	6%	0%	-2%	1%	3%	3%
68330*	41,937,300	110%	110%	92%					0%	-17%					12%	14%
69345	39,195,384	12%	7%	7%	7%	7%	12%	13%	-4%	0%	0%	0%	4%	1%	3%	3%
60593	33,048,538	44%	37%	53%	61%	55%	53%	64%	-7%	15%	8%	-5%	-3%	11%	9%	9%
60380	29,694,755	24%	31%	31%	29%	31%	36%	37%	8%	0%	-2%	2%	5%	1%	4%	4%
71404	29,305,235	22%	17%	14%	23%	48%	22%	31%	-4%	-3%	9%	25%	-25%	9%	17%	18%
68241	25,619,818	32%	31%	31%	19%	54%	42%	27%	-1%	0%	-12%	35%	-13%	-14%	19%	19%
64297	21,843,307	39%	57%	31%	4%	4%	12%	9%	18%	-26%	-27%	0%	9%	-3%	18%	17%
65110	20,914,482	9%	9%	37%	14%	15%	13%	12%	0%	28%	-23%	1%	-2%	-1%	16%	18%
80578	20,558,276	15%	12%	18%	31%	19%	23%	23%	-3%	6%	13%	-12%	4%	0%	9%	9%
92916	17,828,902	43%	50%	106%	127%	132%	77%	82%	7%	55%	22%	4%	-55%	6%	36%	23%
83437	17,506,711	16%	25%	26%	14%	22%	25%	21%	9%	1%	-12%	8%	3%	-4%	8%	8%
65021	16,492,512	41%	40%	58%	57%	64%	75%	71%	-1%	18%	-1%	7%	11%	-4%	8%	8%
71471	13,222,647	58%	112%	75%	95%	75%	74%	66%	53%	-36%	19%	-20%	0%	-8%	32%	32%
69515	11,918,010	2%	6%	8%	17%	14%	10%	16%	5%	2%	9%	-3%	-4%	6%	5%	6%
80594	10,076,551	9%	30%	17%	20%	15%	19%	18%	21%	-13%	3%	-5%	4%	-1%	11%	13%
60836	7,797,686	74%	61%	70%	61%	62%	102%	86%	-13%	9%	-9%	1%	40%	-16%	21%	19%
62553	7,647,312	36%	41%	47%	48%	41%	23%	28%	5%	6%	1%	-6%	-18%	5%	9%	8%
77887	7,007,746	32%	34%	30%	63%	55%	52%	82%	2%	-4%	33%	-8%	-3%	30%	18%	19%
61271	6,212,712	12%	11%	9%	13%	13%	13%	17%	-1%	-2%	4%	0%	0%	4%	2%	2%
64211	6,106,093	47%	92%	103%	105%	107%	105%	98%	45%	11%	2%	2%	-2%	-7%	19%	11%
69353	6,029,901	19%	28%	45%	15%	18%	17%	17%	9%	17%	-31%	4%	-1%	1%	16%	17%
65676	5,750,679	5%	13%	27%	27%	20%	36%	144%	7%	14%	0%	-7%	16%	109%	43%	42%
86355	5,330,453	72%	83%	68%	129%	81%	94%	75%	11%	-15%	62%	-48%	13%	-19%	38%	38%
61751	5,031,433	84%	96%	68%	52%	55%	79%	85%	13%	-28%	-17%	3%	24%	6%	19%	14%
68284	5,020,422	19%	19%	37%	20%	20%	23%	7%	1%	17%	-17%	0%	2%	-15%	13%	14%
69701	4,965,853	77%	51%	88%	10%	102%	133%	149%	-26%	37%	-79%	92%	32%	16%	58%	58%
67199	3,600,628	117%	123%	150%	167%	182%	152%	192%	6%	27%	17%	15%	-30%	40%	24%	22%
60186	3,448,831	30%	32%	18%	32%	13%	13%	133%	1%	-14%	14%	-19%	0%	120%	52%	52%
71835	3,213,348	7%	15%	13%	1%	15%	22%	14%	8%	-2%	-12%	13%	7%	-8%	10%	11%
66281	3,171,598	9%	3%	2%	112%	124%	75%	71%	-7%	-1%	110%	12%	-48%	-5%	53%	47%
68195	3,047,072	4%	8%	16%	10%	14%	11%	45%	4%	8%	-6%	5%	-3%	33%	14%	14%
86991	2,138,512	20%	13%	16%	21%	20%	29%	48%	-8%	4%	5%	-2%	10%	18%	9%	9%
68500	833,974	15%	11%	15%	25%	23%	22%	16%	-4%	4%	10%	-2%	-1%	-6%	6%	6%

* Loss ratios for certain years were ignored due to confirmed report inconsistency