A Practical Approach to Risk Margins in the Measurement of Insurance Liabilities for Property and Casualty (General Insurance) under Developing International Financial Reporting Standards

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ABSTRACT

The International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) continue to debate and refine the financial reporting standards that will emerge from Phase II of their joint project on insurance contracts. The changes to the measurement of insurance liabilities for financial reporting are potentially quite significant for most insurance organizations around the world.

The paper presents the authors' views on practical approaches to consider in calculating risk margins in the measurement of insurance liabilities for property and casualty (also referred to as general insurance or non-life) insurance contracts. In particular, the paper focuses on the use of an approach to estimate risk margins that:

(1) recognizes risk and uncertainty in the amount and timing of future payments needed to satisfy insurance liabilities;

(2) reflects an objective assessment and measurement of risk for insurance liabilities and the price of risk in terms of the amount an insurer would rationally pay to be relieved of the insurance contract obligations that underlie such liabilities; and

(3) provides useful financial information for users of IFRS financial statements.

1. BACKGROUND, SCOPE AND LIMITATIONS

1.1 Background

The concept of risk as an actuarial consideration in the valuation of insurance liabilities has been well understood by the actuarial profession. However, for property and casualty insurance, also known as general insurance or non-life insurance, it is not common practice in many countries to include explicit risk margins or other risk adjustments for general purpose financial reporting. Actuarial practices in a few countries have established what sometimes are referred to as "technical prudential" provisions, typically to satisfy the solvency requirements of insurance regulators/supervisors. Such technical provisions have included a margin or provision for adverse deviations that reflect the risk that the actual amount ultimately paid to extinguish the liabilities could be greater than the expected value estimate of liabilities.

In practice, actuaries have used a variety of technical methods and assumptions to consider such risks, and in many situations risk margins have been implicitly embedded in the assumptions or the selection or interpretation of the results of analyses or models. In the U.S. and certain other jurisdictions, the lack of sufficient adjustments for the time value of money has also been considered to provide an implicit risk margin. Generally Accepted Accounting Principles (GAAP) in most countries have used the amounts established in the financial statements filed with insurance regulators/supervisors, resulting in some jurisdictions including explicit risk margins in their financial statements while others have no explicit risk provisions or risk adjustments. The International Accounting Standards Board (IASB), in developing International Financial Reporting Standard No. 4 (IFRS 4) for insurance contracts, has questioned the inconsistencies in practices applied to determine insurance liabilities in different countries. Such inconsistencies have, in part, been the result of differences in the objectives of insurance regulators/supervisors and the interpretation of accounting guidance as it applies to various types of insurance.

Based on a goal of establishing common principles-based global standards for financial reporting, the IASB has worked for several years on a project to develop standards that would be adopted in most countries, including the U.S., which would provide a common set of principles for the financial reporting of insurance contracts. One of the areas with significant impact to actuaries is the measurement of insurance liabilities under IFRS 4.

There is an extensive discussion of risk margins in a research paper (IAA, 2009), entitled *Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins.* Many different views and examples of how risk margins might be considered are presented. In this paper, the concept of a risk margin for non-life insurance liabilities is further explored through the application of actuarial research to U.S. insurance company financial statement data available from public sources.

Based on the IASB's 2007 Discussion Paper (DP), *Preliminary Views on Insurance Contracts* (IASB, 2007) and subsequent discussions of the IASB Board, explicit risk margins, or an explicit risk adjustment, have been included in many of the alternatives for the measurement basis for insurance liabilities. Consequently, while the final IFRS 4 guidance is not known at the time this paper was written, practical actuarial approaches to risk margins can be developed based on the latest alternatives being discussed by the IASB and FASB. This paper pursues the concepts of "current fulfillment value" and "the amount the entity would rationally pay to be relieved of risk", and the resulting implications for estimating a risk adjustment in the measurement of insurance liabilities.

In January 2010, the discussion papers written by the technical staff of the IASB and FASB (IASB reference agenda 6A / FASB memo agenda 35A) refer to "a risk adjustment for the effects of

uncertainty about the amount and timing of future cash flows." Such "risk adjustment" in the measurement of insurance liabilities is described by the IASB/FASB as one of the "building blocks" to be used to "portray a current assessment of the insurer's obligation." In these latest discussions the IASB/FASB has replaced the term "risk margin" with "risk adjustment". Since the difference in terminology is not significant to the actuarial approaches developed in this paper, the authors have retained the term risk margin. Based on the authors' understanding of the IASB/FASB's use of the term "risk adjustment", that term is essentially synonymous with the term "risk margin" as used in this paper. The actuarial techniques presented in this paper to develop a risk margin are intended to meet the same objectives of a risk adjustment as described in the IASB/FASB documents.

1.2 Scope and Limitations

The intent of this paper is to discuss the elements needed for practical actuarial models that can be used to derive risk margins to be included in the measurement of insurance liabilities, to illustrate the results of a one practical model using actual data, and to provide some key observations on the relationships and sensitivities of risk margins to the input data.

This paper shows how to apply the research about a model of loss reserve risk and a model for the market price of risk that can be used to reflect market input from actual non-life insurance company data. The paper will present the results of the application of these models to actual insurance company data reported by major U.S. insurers to insurance regulators/supervisors through December 31, 2008. Five major lines of insurance were selected, for which published data from the largest 100 insurers (based on recent premium volume) in each line was available in sufficient detail to provide a reasonable basis for the analysis. These lines of insurance, as defined by U.S. insurance regulators/supervisors, include:

- Private Passenger Auto Liability (motor insurance for liability to third parties)
- Commercial Auto Liability (motor insurance for business/transport, for liability to third parties)
- Commercial Multi-Peril (combination policies with property insurance and standard third party liability insurance, excludes personal lines policies)
- Other Liability Occurrence (various types of commercial third party liability insurance, excluding motor, products liability, medical malpractice and insurance with claims made coverage, such as directors & officers or errors & omissions)
- Workers Compensation (including coverage for lost wages and medical cost resulting from work related injuries)

This paper does not include exhaustive testing of the approach presented. The authors recognize that such testing, including back-testing of the methodology to prior years' data, is needed to further understand the strengths and weaknesses of this methodology. There are a wide variety of alternative models and methods to estimate probability distributions for post-claim insurance liabilities, as well as to develop the parameter estimates or parameter assumptions for the probability distribution. In practice, actuaries will need to select the models or methods that provide an appropriate representation of the probability distributions of the cash flows underlying insurance liabilities. In addition, the reader should recognize that the primary available indicators of the market price of risk are limited to active market transactions, such as new insurance policies and renewal policies that are subject to re-pricing by the insurer at renewal. Consequently, there is a

variety of market transaction data that could be used to evaluate the market price of risk, but it is clearly not a single static value.

Insurance markets can vary widely across different insurance product features, policyholder risk characteristics, local market conditions, underwriting practices, pricing practices, etc. Consequently, any representation of the market value of risk for use in estimating risk margins will be an aggregated average, or central value, over a portfolio of insurance contracts for a particular time period. Furthermore, from time to time unanticipated types of losses can emerge under non-life insurance contracts; for example asbestos and environmental claims were clearly not originally considered in the insurance contract provisions, the underwriting, or the pricing of policies when the exposure to such claims was unknown. Such situations would necessitate adjustments to the historical data used in estimating the market value of risk and to the technical approach for estimating the probability distribution appropriate for the unpaid losses from such unanticipated types of claims.

Over the past several years, considerable research and many ideas have been developed and published involving stochastic loss reserve models, loss reserve ranges, loss reserve risk, and models to quantify risk margins or the price/cost of risk. These advancements in actuarial science and practice have made it possible to develop the approach suggested in this paper for estimating risk margins. This approach can help actuaries in their roles as technical specialists in the measurement of insurance liabilities as may be required under the Phase II development of IFRS for insurance contracts.

2. INTRODUCTION

This paper will consider various concepts from certain actuarial research papers written in the last ten years to suggest practical methods to determine explicit risk margins to be included in the measurement of insurance liabilities from unpaid non-life claims. More specifically, the paper focuses on the application of risk margins for post-claim insurance liabilities arising from property and casualty (general or non-life) insurance claims. IFRS 4 also addresses the measurement of pre-claims insurance liabilities, which are beyond the scope of this paper. For ease of reference, the term "non-life" will be used to in lieu of "property and casualty or general insurance", recognizing that the term non-life refers to claims from specific types of insurance contracts.

Actuaries frequently refer to insurance liabilities for unpaid claims as reserves for unpaid losses and loss adjustment expenses, or simply, loss reserves. "Technical provisions" or "loss provisions" are other terms sometimes used for loss reserves. However, the elements considered in the basis of the valuation of insurance liabilities have varied depending on local practice or on the understanding of what should be reflected in the loss reserves. The expected value of unpaid claim amounts, the discount for the time value of money, and risk margins are the typical elements that have be considered for the valuation. However, there has been a diversity of practice in which elements are included and how they are determined. This paper will focus on the risk element as a separate, explicit element in the valuation and will demonstrate a proposed methodology for the determination of the risk element.

The main challenges considered in this paper are:

(1) How to determine a basic and practical stochastic risk model for unpaid claim amounts for most standard lines of non-life insurance;

(2) How to utilize insurance market inputs on pricing levels, particularly the market level of profitability, based on available insurance industry data in the U.S.;

(3) How to determine a basic and practical risk model for the insurance market risk associated with the market inputs on pricing levels;

(4) How to use the insurance market inputs from (2) and the insurance market risk model from (3) to calibrate a value of risk parameter, λ, that can be applied to the stochastic risk model from (1) to compute risk margins for a portfolio of unpaid claims;

(5) How to relate the risk model to the cost of capital; and

(6) How to validate the risk margin results by sensitivity testing.

Results are also presented by applying the approach outlined in the paper to recent U.S. insurance company data for many of the largest 100 insurance groups in each of five non-life lines of insurance.

2.1 Organization of This Paper

The organization of the remainder of this paper consists of eight sections:

Section 3. Risk Margins for Financial Reporting

Section 4. Reserve Risk Distributions

Section 5. Insurance Market Inputs and Risk Distributions

Section 6. Risk Margins and the Cost of Capital

Section 7. Valuation of Insurance Market Risk using a Risk Transform

Section 8. Application of a Risk Transform for Reserve Risk Margins

Section 9. Testing of Approach on Data from Largest 100 U.S. Insurers

Section 10. Results, Conclusions and Areas for Additional Research

The remainder of the paper includes a series of exhibits showing the results of the testing of the risk margin method using historical U.S. data and an appendix which has additional analysis of the historical adequacy of estimated ultimate losses using the same dataset compiled for the testing of the risk margin method.

3. RISK MARGINS FOR FINANCIAL REPORTING

Risk margins, along with discounting, have emerged as controversial concepts in non-life financial reporting. This is evident from the diversity of practice that has existed for many years across various jurisdictions with respect to risk margins and discounting. Some jurisdictions, such as Australia and Canada, have included risk margins and discounting in their financial reporting requirements for several years. Others, like the U.S., generally ignore discounting and avoid explicit

risk margins, although implicit risk margins may be embedded in some commonly used processes to select estimates for financial statement values. The controversy is also evident in the insurance industry's overwhelmingly negative responses to the current exit value approach suggested for the reporting of insurance contract liabilities in the IASB's 2007 Discussion Paper (DP), Preliminary Views on Insurance Contracts (IASB, 2007).

The IASB/FASB has articulated certain measurement principles for insurance liabilities, based on a foundation consisting of building blocks. The first of the building blocks is that the measurement should be unbiased and determined from current data and information. This principle is intended to clarify that a measurement with these attributes is not locked in based on assumptions made when the policy was issued. Furthermore, any level of prudence or conservatism included explicitly or implicitly in the assumptions or methods used for this measurement would be inconsistent with this principle. The second building block is that the measurement should recognize the time value of money. The third building block is that the measurement should include a risk adjustment (risk margin) for the effects of uncertainty about the amount and the timing of the future cash flows associated with fulfillment of the contract obligations.

One of the proposed criteria that have emerged for the risk element in the measurement of the value of insurance liabilities is the amount an insurer would rationally pay to be relieved of the insurance contract obligations that underlie such liabilities. It is recognized that, based on the status of historical and current markets, insurance liabilities are not traded in open market transactions. Consequently, the valuation of such liabilities cannot be determined simply by reference to market transactions. Absent a developed market where the trading of such liabilities is significant enough to be a reliable indication of value, a measurement objective was needed that recognizes the economic value of these liabilities and that is relevant to financial reporting and the users of financial reports.

The IASB has proposed a building block approach for the measurement of insurance liabilities which has gone through a few iterations. The version below was provided in the IASB/FASB staff paper (IASB agenda reference 6A / FASB reference 35A) addressing the measurement objective and risk adjustment for the January 2010 joint boards meeting. That staff paper describes the boards' current thinking about the measurement approach which should portray a current assessment of the insurer's obligation, using building blocks which include:

1) the unbiased, probability-weighted average of future cash flows expected to arise as the insurer fulfills the obligation;
2) the time value of money; and
3) a risk adjustment (a risk margin)

The IASB's position is grounded in the premise that the values reported for insurance contracts in financial statements should reflect economic value. The boards are considering the measurement of that value from the entity's perspective, in terms of the cost of the resources necessary to fulfill its contract obligations.

One additional building block has been added to the three listed above:

4) an amount that eliminates any gain at inception of the contract.

This fourth building block is a separate concept to address the recognition of gains from insurance transactions. However, this fourth building block can be impacted by the result of the other three building blocks. The focus of this paper is on the third building block, which will require significant actuarial input and analysis.

3.1 Current Exit Value

In the DP, the IASB uses the expression "current exit value" to describe a measurement basis for insurance liabilities. Current exit value (CEV) is defined as the amount the insurer would expect to pay at the reporting date to transfer its remaining contractual rights and obligations immediately to another entity. Since there is no observable market for trading insurance liabilities, and consequently no observable market pricing of insurance liabilities, there is a need to estimate the value for these quantities using an approach such as the building blocks established by the IASB. In the DP, the IASB uses the expression "current exit value" to describe a measurement basis. CEV is defined as the amount the insurer would expect to pay at the reporting date to transfer its remaining contractual rights and obligations immediately to another entity.

Many of the non-life insurers who responded to the DP take the position that the approach suggested by the IASB will not provide more useful information in relation to the U.S. GAAP model. Concerns from these insurers include the fact that the model is very different from U.S. GAAP and therefore will have uncertain impact on financial statements; it is untested and could result in significant implementation cost; and it is based on a hypothetical market for insurance liabilities that does not exist. This last point is mentioned by many respondents to the DP. Insurers intend to fulfill their obligations to the policyholder - they do not intend to trade these liabilities on the open market and in most cases are precluded from doing so, thereby calling the exit value concept into question. The strong preference in the majority of the U.S. non-life insurer responses was to maintain the U.S. GAAP approach of undiscounted reserves with no explicit risk margin.

3.2 Developments concerning Risk Margins Subsequent to the DP

Several developments have occurred since the 2007 release of the DP. The FASB joined the Insurance Contracts project, signaling a strong likelihood of U.S. GAAP and IFRS convergence. The IASB moved away from the "current exit value" measurement basis and has given serious consideration to two alternative models. One is based on the updated model in IAS 37 Provisions, Contingent Liabilities, and Contingent Assets. The other is based on a current fulfillment value model. The boards and their staff have been developing these concepts in tandem with the intent to have a consistent approach taken in IAS 37 and for Phase II of the Insurance Contracts Project.

3.3 IAS 37 Model

In July 2009, the IASB/FASB Staff paper on the Insurance Contracts - Project Measurement Approaches for Insurance Contracts (IASB/FASB, 2009 pp. 7, Paragraph 27) stated, "The measurement objective of the IAS 37 project builds on the amount an insurer would rationally pay to be relieved of an obligation." This statement of the measurement objective proposes that the measurement should not require estimation of the amount a third party would demand for taking over the liability. This is illustrated by the following sentence in the staff paper appendix regarding the updated IAS 37 model (IASB/FASB, 2009 pp. 17, paragraph A9), "The risk margin would reflect the amount at which an insurer would be indifferent between keeping a risk and transferring or settling the risk immediately." Hence, the risk margin would be measured from the perspective of the insurer who currently holds the liability. This perspective of the IAS 37 model is that of the insurer rather than a hypothetical market participant. This clarification potentially alleviates the concerns expressed by critics of the CEV model.

In January 2010, the IASB issued an Exposure Draft of Proposed Amendments to the Measurement of Liabilities in IAS 37 (IASB, 2010). The IAS 37 Exposure Draft defines the amount

an entity would rationally pay at the end of the reporting period to be relieved of the present obligation in terms of the lowest of three values:

a) The present value of the resources required to fulfill the obligation;
b) The amount the entity would have to pay to cancel the obligation; and
c) The amount the entity would have to pay to transfer the obligation to a third party.

One of those values (c) is the CEV. Rather than discarding the CEV, the IASB has retained it as one alternative for meeting this measurement objective. The other values include the current fulfillment value (a), restated in terms of the "value of resources required", and the settlement value (b). The determination of these values will involve consideration of the appropriateness, relevance and reliability of the approaches and assumptions needed to estimate them. This paper explores a practical approach to the estimation of the current fulfillment value (a), but could also be applied to estimating (c).

3.4 Current Fulfillment Value

Current fulfillment value (CFV) is defined as the expected present value of the resources required to fulfill the obligations to the policyholder over time. The definition of CFV does not appear to require explicit risk margins. However, two insurance contracts may have the same expected present value yet contain underlying fulfillment obligations with significantly different uncertain cash flows. This difference in uncertain cash flows indicates that the expected present values alone do not fully capture the economic impact on the holder of the obligations. Consequently, the IASB has held to the position that an explicit risk element is a necessary component in the measurement model that is ultimately adopted for insurance contracts.

The January 2010 IASB Exposure Draft for IAS 37 amendments (IASB, 2010) uses the notion of "the present value of the resources required to fulfill the obligation". That Exposure Draft includes a description of the two elements of the calculation of this value:

> "(a) the expected outflows of resources and the time value of money; and
>
> (b) the risk that the actual outflows of resources might ultimately differ from those expected."

Therefore, the CFV concept appears to have emerged as a consistent approach under both IAS 37 and Phase II of the Insurance Contracts Project.

3.5 Summary

While the measurement basis for insurance contracts is still under debate as of the writing of this paper, there is a need for actuaries to develop a common set of techniques which could be used to estimate explicit risk margins. The estimation of risk margins could become an integral part of the financial reporting process for non-life insurance contracts. Financial and actuarial literature is rich with discussion of risk margins, particularly in recent years as the topic has taken on additional importance with the development of the IFRS on insurance contracts. However, there are not many practical examples and tools which can be used by non-life insurers to estimate risk margins as the IASB/FASB has defined them for financial reporting under IFRS. This paper attempts to provide such practical examples and tools.

4. INSURANCE LIABILITY RISK DISTRIBUTIONS

A first step to estimating an explicit risk margin is to determine the underlying risk model for unpaid claim amounts. There are many methods and models to choose from for the purpose of developing an appropriate model of the risk inherent in insurance liabilities. For insurance liabilities related to unpaid claims, typically referred to as reserves for unpaid losses or unpaid losses and loss adjustment expenses, most actuarial approaches applicable to non-life risks produce estimates of a central value, such as the mean. Also, uncertainty in such actuarial central estimates is typically reflected in a range of estimates that represents a range of values that are considered, by the actuary, to be reasonable for the intended use(s) of the estimates. The elements that drive the uncertainty, and hence the range of estimates, typically include the credibility of the data, missing or data reliability issues, changes in pattern of claim payments and claim estimates (e.g., case reserves), volatility in development patterns, shifts in patterns, changes in litigation risk, inflationary impacts on historical data versus future impacts, and differences in operations (e.g., underwriting, claims administration, mix of claim types, etc.).

Given the wide range of possible uncertainty elements, it can be quite a technical challenge to create a risk distribution model that sufficiently captures the drivers of uncertainty into a mathematical model or an analytical method. When the phenomenon being measured is not well behaved based on available data, models or methods that attempt to capture that risk in quantitative terms are subject to model specification risk, primarily due to either a model/method that is too simple or one that is over-specified (over-parameterized). Validation can also be a challenge due to data limitations, changes in the drivers of uncertainty over time, or other conditions. Also, for purposes of incorporating a risk margin for financial reporting valuation, one of the important features of measurement is the reliability of the estimate, in addition to the relevance and transparency of the estimate.

4.1 The Rehman-Klugman Method

The methodology explored in this paper attempts to link the risk margin directly to the uncertainty in the actuarial estimates. Given the importance of reliability and uncertainty, one particular actuarial approach to developing risk distributions is worth further exploration. In a recent paper (Rehman, et al., 2009), the authors review the current literature and discuss the work of many others with similar observations about risk quantification models for non-life losses. In doing so, the authors present a risk modeling approach that is based on an analysis of actuarial estimates themselves, rather than the underlying loss data. This approach is significant in the context of financial reporting. The uncertainty of the actuarial estimates, specifically for unpaid claims, should reflect evidence about the past reliability of the actuarial estimates, particularly when such evidence suggests the uncertainty in the actuarial estimates is greater or lesser than can be attributed to the risk probability distribution of the unpaid claims. This is the essence of the Rehman-Klugman (R-K) approach. Furthermore, as these authors point out, their approach to quantifying uncertainty is independent of the method used to determine the unpaid claim estimates.

The R-K methodology produces a probability distribution model of unpaid claim liabilities based on the logarithms of the development factors (also known as age-to-age factors or link ratios) from the traditional loss development method (also known as the chain ladder method). By applying this approach to the successive annual (end of year) estimates of ultimate losses by accident year, the result is a probability model of the reliability of the actuarial estimates of ultimate losses. In order to

provide a more complete view of uncertainty in actuarial estimates, the R-K paper notes that the various sources of uncertainty, namely process risk, parameter risk and model risk, are "intertwined and thus hard to separate." Therefore, their approach attempts to take a higher level view of the uncertainty:

> "Each reserve set in the past is an estimate of its distribution and thus its errors can be estimated from the historical errors made in the estimations. Because the ultimates will converge to the true value, the errors made along the way reflect all sources of error" (Rehman, et al., 2009 p. 3)

The R-K approach also can be applied if new actuarial methods for estimating ultimate losses are found to be more reliable. If a new or improved actuarial estimation method can be used to restate the historical estimates of ultimate losses by accident year for prior development periods, the R-K method can then be applied to the restated data.

In essence, the R-K approach creates a framework that analyzes the "errors", i.e., the differences between actual and estimated values, using statistical tools from regression analysis and analysis of variance. Consequently, the R-K approach is based on a stochastic model of these errors, which focuses on the reliability of the estimation process in statistical terms and is independent of the actuarial method or methods used to develop the ultimate loss estimates in the first place. Thus, by using the results of the R-K method for measuring the total variability in the estimates, the resulting risk margins will directly reflect the reliability of the estimates. Consequently, for entities whose estimates of ultimate losses indicate volatility which are higher or lower than other entities, their risk margins will be higher or lower than such other entities.

4.2 Assumptions and Limitations to the R-K Approach

It should be noted that there are limitations and assumptions stated by the authors of the R-K method as conditions for use of the method.

The principal assumptions are that:

(1) The underlying loss development process has not changed over time;

(2) The reserving methodology has not changed over time;

(3) The estimates of ultimate losses are the result of consistent application of a specific methodology;

(4) The estimates of ultimate losses do not contain ad hoc adjustments; and

(5) The estimates of ultimate losses do not contain margins or other provisions.

4.3 Impact of Changes in Historical Conditions

If the R-K method is used to determine risk margins when the above mentioned assumptions do not hold, there may be some concern about the estimated risk margins. However, it should be possible to evaluate whether the historical conditions, relative to these assumptions, would tend to increase or decrease the uncertainty estimates. In many cases, historical conditions that are not consistent with these assumptions would tend to increase the uncertainty estimates. Consequently, if the historical data can be adjusted to lessen the impact of those inconsistencies, then lower

estimates of uncertainty should be produced. If such adjustments are not possible, then the estimates of uncertainty and the resultant risk margins will simply reflect the risk as evidenced by such history. In the context of financial reporting the risk margins would reflect the level of risk indicated by the historical evidence if a lower level of risk cannot be reasonably quantified. The risk margins developed using such data would still provide useful information to users of the financial statements since those margins would reflect the current information about the historical reliability of the entity's estimates of their ultimate losses.

Another issue for financial reporting concerning these assumptions is whether the historical conditions, or the current conditions, would result in the underestimation (or overestimation) of the risk margins. Consequently, it is important to identify changes in conditions that could result in higher (or lower) uncertainty in the estimates than is reflected in the historical data.

4.4 Insufficient Historical Data

Also, in cases where an entity is a new insurer or has only recently started writing business in a line of insurance, there could be insufficient historical data from which to make an estimate of the uncertainty of the ultimate losses. These situations would usually require the application of considerable judgment in order to develop assumptions or a model that might be relevant to quantifying uncertainty in ultimate loss estimates. While the R-K approach does not provide a solution to these situations, there can be some useful results of applying the method to industry data in order to provide a starting point for the development of risk margins through the use of external data and judgment. In section 9, results are presented from applying the R-K method to the largest 100 U.S. insurance groups in each of five lines of insurance selected for this paper. Some of the 100 U.S. insurance groups in the data set do not have sufficient historical data to apply the R-K method. However, the results of applying the R-K method for the remaining insurers provide a potentially useful set of data on the range of uncertainty measurement among a large group of insurers.

The application of the R-K methodology to U.S. insurance group data shows that this methodology produces results that tend to be fairly consistent among most entities. As might be expected, there are a few results for individual insurers that appear to be outliers and would need further analysis before making any conclusions about those specific entities. Also, some of the insurers have fewer years available in their data set or are missing data for certain data elements. Nonetheless, the overall results appear to be quite good considering the use of published data that has various changes, adjustments and differences reflected in this data for each insurer over the 22 years of data used (1987-2008).

4.5 Number and Size of Reserve Segments

In their paper, the authors of the R-K method also discuss some of the issues surrounding "reserve segments" and the possibility of combining lines of insurance for the application of the method. In practice, actuaries tend to prefer dividing their data into a large number of reserve segments for purposes of estimating ultimate losses. While this practice is well established and provides insights recognized as important in providing more reliable estimates of ultimate losses, there is a significant difference in selecting the appropriate data set for purposes of quantifying uncertainty in the estimates of ultimate losses. The R-K approach suggests that such segments, or even entire lines of insurance, should be combined in order to recognize that there are underlying correlations between segments or lines of insurance. Moreover, in practice, actuaries would typically use the same, or very similar, methods for estimating ultimate losses by segment or by line.

Consequently, there can be significant correlation in the estimates of ultimate losses due to the actuarial estimation process itself.

The aggregation of reserve segments for purposes of estimating risk margins will need to comply with the final IFRS 4 guidelines. Based on observations of the IASB/FASB's initial views on this aggregation issue at the time of the writing of this paper, it appears that the aggregation guidelines might be based on the comparability of the underlying business being aggregated with respect to the similarity of the cash flows, or perhaps the similarity of the uncertainty in the cash flows. Consequently, the R-K method may also be useful as a possible tool for testing the comparability between business segments with respect to the uncertainty associated with the liability estimates for those segments.

The R-K methodology can be applied independent of whatever techniques might be considered by the actuary in estimating the ultimate losses. Consequently, the R-K method can be used as a tool to compare the results of different methods, to test for correlations between methods, or to provide a statistical basis for selecting a range of estimated ultimate losses.

4.6 Level of Aggregation and Diversification

If the measurement objective for financial reporting is to reflect the amount that an entity would rationally pay to be relieved of the obligations, then the approach to estimating risk margins should be capable of being computed at some aggregated level of uncertainty. The R-K approach is quite flexible in this regard, either by combining data before applying the method, or by further analyses, or assumptions, to obtain the parameters applicable to the combined risk of multiple segments or lines. Also, this approach provides a means to quantify the impact of diversification, and thus a means to allocate such impact for internal profitability or performance measurement. In addition, this approach could be adapted to estimate risk margins that properly measure the gross insurance liabilities before reinsurance while also measuring the asset value for ceded reinsurance recoveries, and result in an appropriate balance sheet position, net of reinsurance. Non-life insurers purchase reinsurance using a wide variety of structures, terms and conditions that can be quite different from the underlying insurance policies. For example, the purchase of catastrophe reinsurance can be on a portfolio basis, or on a stop loss basis. Also, reinsurance protection may apply to only portions of an insurer's business segments or may apply to multiple segments or lines of insurance.

This paper demonstrates a methodology for estimating risk margins applied to individual lines of insurance, but the basic methodology can be further adapted to accommodate various divisions or aggregations of business segments or lines of insurance. It may be possible to use the methodology to evaluate the impact of reinsurance by applying the method to estimates of ultimate losses that are gross of reinsurance vs. net of reinsurance. However, as discussed further below, there can be significant limitations on the viability of the method when it is applied to low frequency lines of insurance, particularly when high severity claims make up most of the losses.

4.7 The Lognormal Assumption

The R-K approach is dependent on a lognormal probability distribution assumption. The validity of this assumption is easily tested because the natural logarithm values can be checked for normality using standard statistics or by graphical means. The research for this paper used actual historical data on approximately 500 data sets, each with up to 22 years of data. Based on this research, the lognormal assumption performed quite well. When the R-K method is applied to most lines of insurance, the normality assumptions (in log scale) can be expected to produce fairly consistent

results. However, the method may not perform well when applied to datasets with very low claim frequency or extreme claim severity due to the possible divergence from normality.

For lines of insurance with very low claim frequency and extreme claim severity, more research would be needed to test, or otherwise evaluate, the expected performance of the R-K method. The obvious statistical problem with very low claim frequency is that there are very few past observations containing actual claims to test the model or method. Also, with extreme claim severity, the presence of a few extreme claims in the historical data, or the lack of such claims, are likely to indicate a very low reliability of ultimate loss estimates. Given the nature of the low claim frequency and extreme severity lines of insurance, including insurance or reinsurance on an excess of loss basis, the expectations of outcomes would be a very high probability of zero losses, but very high losses if they do occur. As the authors of the R-K point out, the methodology relies on an underlying process (approximately normal) that has some regularity in terms of a sufficient number of events and a reasonable frequency of changes in estimates. Consequently, the estimation of risk distributions for insurance liabilities with very low frequency or extreme severity characteristics will likely require an alternative approach to the R-K method. The lines of insurance tested in this paper did not have such characteristics.

4.8 Mechanics of the R-K Approach

To illustrate the use of the R-K method for a given dataset, consider a data triangle consisting of estimates of ultimate losses for several accident years at annual valuations.

Accident Year	12 months	24 months	36 months	48 months	60 months	72 months	84 months	96 months	108 months
2000	U^{12}_{00}	U^{24}_{00}	U^{36}_{00}	U^{48}_{00}	U^{60}_{00}	U^{72}_{00}	U^{84}_{00}	U^{96}_{00}	U^{108}_{00}
2001	U^{12}_{01}	U^{24}_{01}	U^{36}_{01}	U^{48}_{01}	U^{60}_{01}	U^{72}_{01}	U^{84}_{01}	U^{96}_{01}	
2002	U^{12}_{02}	U^{24}_{02}	U^{36}_{02}	U^{48}_{02}	U^{60}_{02}	U^{72}_{02}	U^{84}_{02}		
2003	U^{12}_{03}	U^{24}_{03}	U^{36}_{03}	U^{48}_{03}	$U^{60\ 60}_{03}$	U^{72}_{03}			
2004	U^{12}_{04}	U^{24}_{04}	U^{36}_{04}	U^{48}_{04}	U^{60}_{04}				
2005	U^{12}_{05}	U^{24}_{05}	U^{36}_{05}	U^{48}_{05}					
2006	U^{12}_{06}	U^{24}_{06}	U^{36}_{06}						
2007	U^{12}_{07}	U^{24}_{07}							
2008	U^{12}_{08}								

The R-K method uses the typical ratios of successive values (development periods 12 to 24, 24 to 36, etc.) for each accident year, but applies the ratios to estimated ultimate losses and takes the log of each ratio. These log ratios are then considered to be random variables for each development period, where each accident year is treated as a sample observation of that random variable.

Accident Year	12 to 24 months	24 to 36 months	36 to 48 months	48 to 60 months	Etc.
2000	$\ln(U^{24}_{00}/U^{12}_{00})$	$\ln(U^{36}_{00}/U^{24}_{00})$	$\ln(U^{48}_{00}/U^{36}_{00})$	$\ln(U^{60}_{00}/U^{48}_{00})$	. . .
2001	$\ln(U^{24}_{01}/U^{12}_{01})$	$\ln(U^{36}_{01}/U^{24}_{01})$	$\ln(U^{48}_{01}/U^{36}_{01})$	$\ln(U^{60}_{01}/U^{48}_{01})$	. . .
2002	$\ln(U^{24}_{02}/U^{12}_{02})$	$\ln(U^{36}_{02}/U^{24}_{02})$	$\ln(U^{48}_{02}/U^{36}_{02})$	$\ln(U^{60}_{02}/U^{48}_{02})$	. . .
2003	$\ln(U^{24}_{03}/U^{12}_{03})$	$\ln(U^{36}_{03}/U^{24}_{03})$	$\ln(U^{48}_{03}/U^{36}_{03})$	$\ln(U^{60}_{03}/U^{48}_{03})$	. . .
2004	$\ln(U^{24}_{04}/U^{12}_{04})$	$\ln(U^{36}_{04}/U^{24}_{04})$	$\ln(U^{48}_{04}/U^{36}_{04})$	$\ln(U^{60}_{04}/U^{48}_{04})$	
2005	$\ln(U^{24}_{05}/U^{12}_{05})$	$\ln(U^{36}_{05}/U^{24}_{05})$	$\ln(U^{48}_{05}/U^{36}_{05})$		
2006	$\ln(U^{24}_{06}/U^{12}_{06})$	$\ln(U^{36}_{06}/U^{24}_{06})$			
2007	$\ln(U^{24}_{07}/U^{12}_{07})$				
Average	$\frac{\Sigma \ln(U^{24}/U^{12})}{N_1}$	$\frac{\Sigma \ln(U^{36}/U^{24})}{N_2}$	$\frac{\Sigma \ln(U^{48}/U^{36})}{N_3}$	$\frac{\Sigma \ln(U^{60}/U^{48})}{N_4}$	. . .

Using the incremental development averages computed from the previous table, the cumulative log mean values are simply the sum of the incremental averages from each age (n) to "ultimate." This is similar to the typical cumulative multiplication of age-to-age development factors (also known as link ratios), but in this case the incremental values are added instead of multiplied.

$$\hat{\mu}_{n\ to\ ult} = \sum_{t=n}^{ult} Average\ \ Incremental \ln\left(U^{t+12}/U^{t}\right) \qquad (1)$$

Since the basis for this model is a lognormal random variable for each incremental development period, the distribution of the sum of the incremental averages also requires an estimate of the variance of the sum. The R-K method uses a variance-covariance matrix as depicted below. The computation of the variances and covariance for each of the age-to-age incremental values can be easily implemented in a spreadsheet using the built-in functions.

	12-24 months	24-36 months	36-48 months	Etc.
12-24 months	$Var\left[\ln\left(\frac{U^{24}}{U^{12}}\right)\right]$	$Cov\left[\ln\left(\frac{U^{24}}{U^{12}}\right),\ln\left(\frac{U^{36}}{U^{24}}\right)\right]$	$Cov\left[\ln\left(\frac{U^{24}}{U^{12}}\right),\ln\left(\frac{U^{48}}{U^{36}}\right)\right]$	...
24-36 months	$Cov\left[\ln\left(\frac{U^{24}}{U^{12}}\right),\ln\left(\frac{U^{36}}{U^{24}}\right)\right]$	$Var\left[\ln\left(\frac{U^{36}}{U^{24}}\right)\right]$	$Cov\left[\ln\left(\frac{U^{36}}{U^{24}}\right),\ln\left(\frac{U^{48}}{U^{36}}\right)\right]$	...
36-48 months	$Cov\left[\ln\left(\frac{U^{24}}{U^{12}}\right),\ln\left(\frac{U^{48}}{U^{36}}\right)\right]$	$Cov\left[\ln\left(\frac{U^{36}}{U^{24}}\right),\ln\left(\frac{U^{48}}{U^{36}}\right)\right]$	$Var\left[\ln\left(\frac{U^{48}}{U^{36}}\right)\right]$	...
Etc.	...	...	...	...

By applying the R-K method to historical data, the parameters of a lognormal distribution, μ and σ, are estimated for each accident year based on the latest maturity applicable to each accident year. The lognormal parameters for each accident year produce an expected adjustment factor from the mean of the fitted lognormal probability distribution which can be applied to the latest value of estimated ultimate losses for each accident year. In addition, the fitted distribution can be used to represent the probability distributions of ultimate loss outcomes by accident year. Since the paid loss amounts are fixed and known at the latest evaluation date, the outcomes of the insurance liabilities for the unpaid losses are simply the ultimate loss outcomes less the known paid loss amounts at the evaluation date. Then, the distributions from each accident year can be combined to produce an aggregate probability distribution for the total insurance liabilities for unpaid losses of all open accident years as of the latest valuation date.

The aggregate probability distribution for all accident years is the sum of the individual accident years. Since a lognormal distribution was used for each accident year, the sum of the results would not be lognormal. However, as mentioned by Rehman and Klugman, the results can be easily simulated. The results for this paper were obtained by a 500 sample simulation for each accident year and the simulation results were evaluated for normality (in the log scale). The evaluations consistently indicated that the sum of the simulated accident year results was a reasonably good fit to a lognormal. The 500 simulation size appeared to be sufficient to support these research results. The sensitivity of the results to a larger number of simulations was tested by running multiple 500 simulation computations and observing no significant changes in the results.

4.9 Consideration of Independence between Accident Years

One area of additional consideration is whether the estimates for each of the accident years are independent. The R-K method implicitly assumes independence by adding the random variables for each accident year in order to arrive at a total probability distribution for the unpaid losses, without adjustment for covariance between accident years. Another recent paper (Underwood, et al., 2009), *A Top-Down Approach to Understanding Uncertainty in Loss Ratio Estimation*, explores a measure of

estimation error for ultimate insurance losses which is very similar to Rehman and Klugman, arriving at a similar lognormal model of estimated ultimate loss ratios. However, Underwood and Zhu analyzed cross sectional data by company to study the probability distribution of errors in the estimates of ultimate loss ratios by accident year. They produced results from their research that indicated a time series relationship in the sample average log errors across accident years. These results suggest that there may be some correlation in the estimates of ultimate losses between accident years. Also, similar time series analyses for the cross sectional datasets used in the research for this paper suggest a similar relationship between accident years for the estimated mean of the log of the ratio of the estimates of ultimate losses as of different maturities.

Underwood and Zhu found a linear relationship between the absolute value of the estimated mean of the log ratio and the standard deviation of the errors for the one line of insurance they studied, but the results of the analysis for this paper did not indicate such a relationship. Rather, the standard deviation estimates from the datasets used for this paper were fairly constant by accident year and appeared to be independent of the value of the estimated mean (See the summary of results in the Appendix).

The assumption of independence between accident years in the R-K method was not specifically tested. However, the results for this paper did not suggest that the independence assumption would produce an underestimate or overestimate of the total variance for the unpaid losses of multiple accident years. However, further research may be needed to support this conclusion more generally.

4.10 Policy Year or Underwriting Year Data in lieu of Accident Year Data

The R-K methodology is not dependent on using loss data organized by accident year. Policy year or underwriting year data could be substituted for accident year. Since the R-K methodology is testing for the uncertainty in the estimates of ultimate losses, the data can be organized by grouping claims, such as by the accident date or loss date of the claims, or by grouping policies, such as for policies underwritten with effective or renewal dates during particular time periods. Other groupings may also be used, if needed.

In order to meet financial reporting requirements, the insurance liabilities may need to be separated into estimates of loss reserves (post claim) and estimates of policy/premium reserves (pre-claim). At the time of the writing of this paper, the IASB/FASB was discussing the measurement of insurance liabilities on the basis of net cash flows that reflect the cash outflows related to the obligations under the insurance contracts offset by future cash inflows related to the insurer's rights under insurance contracts. The final IFRS 4 guidelines may suggest that risk margins are also on a similar net basis. As mentioned in Section 2, the scope of this paper does not include consideration of pre-claim liabilities, nor does it include consideration of the netting of risk margins based on cash inflows and outflows.

4.11 Summary

This section has discussed the possible uses and limitations of the R-K methodology as one practical means of estimating a risk probability distribution for the value of the resources required to fulfill the present obligations. This risk distribution can then be used to estimate a value for the risk that the actual outflows of resources might ultimately differ from those expected. In the next section, a pricing model for risk will be explored that could be used to incorporate market inputs in assessing a current market value for such risk.

5. INSURANCE MARKET INPUTS AND RISK DISTRIBUTIONS

This section describes a basis for incorporating insurance market inputs into the process of estimating risk margins. The objective of using market data is to find a basis for the value of a liability with uncertain outcomes that reflects the economic value of the obligations underlying the liability. While the outcomes of the relevant obligations are uncertain, they can generally be described by probability distributions that are tractable. The question of the value of insurance obligations is typically considered in the context of the pricing of insurance. Also, some would consider the value question to be related to the cost of satisfying or being relieved of the obligations. Whether economic value is considered to be the cost or the price of a set of cash flows, the primary element to be considered is the appropriate value adjustment to the insurance liability for the uncertainty of the cash flows.

5.1 Use of Industry Profitability Data to Indicate Market Pricing Levels

Market pricing data provides relevant information about the value of the obligations under an insurance contract, including consideration of the uncertainty of the cash flows. The premiums charged by insurers will include compensation for the expected expenses, the expected losses (or benefits) to be paid to, or on behalf of, the policyholders, and the expected profit for the risk taken by the insurers, including the cost of capital committed to support the solvency of the insurer in the event that the uncertain losses and expenses might exceed the premiums charged. In a stable market, the premiums will not be significantly greater than the minimum that the market requires as compensation to take on the risk of insuring policyholders for their claims (and benefits) provided by a particular type of insurance. However, insurance markets are not always stable and there can be underwriting cycles where the premiums may fall, leading to lower profits (or losses), or where premiums may rise, leading to higher profits.

Market changes can be attributable to many factors, such as the number of competitors in the market, changes in the measurable or perceived risks covered by the type of insurance policy, inflationary changes affecting the expenses or claims (benefits) covered by the type of insurance policy, changes in the market cost of capital, changes in market investment yields, etc. Consequently, it would be quite challenging to develop market inputs to estimating appropriate risk margins if one were to attempt to determine the individual drivers of market changes.

For the purpose of this paper, the market input for expected profit is defined as the aggregate level of profitability for a line of insurance based on aggregate industry (U.S.) statistics. This approach does not attempt to adjust for the desired level of profitability, or a particular cost of capital, but rather reported aggregate industry insurance data by line of insurance are used to determine the most recent level of profitability available in the broad market for common lines of insurance. This approach should be fairly robust in most insurance market cycles, but may need to be modified when insurance market cycles are clearly inconsistent with the general economy.

5.2 Determining the Market Level of Profitability

The proposed approach for determining the market level of profit uses the following basic equation:

$$Profit = \frac{(1 - Expense\ Ratio)}{(1 + ULAE\ Factor)} - PV\ Factor \cdot Ultimate\ Loss\ \&\ ALAE\ Ratio \qquad (2)$$

where,

Expense Ratio = all expenses except loss adjustment expenses, a ratio to premium

ULAE Factor = Unallocated Loss Adjustment Expenses, a factor on Loss & ALAE

Ultimate Loss & ALAE Ratio = Losses and Allocated Loss Adjustment Expenses, a ratio to premium (sometimes simply referred to as the Ultimate Loss Ratio)

PV (Present Value) Factor = discounting factor that reflects the time value of money, the cash flows associated with the payment of Loss & ALAE, and the current applicable discount rate(s), a factor on Loss & ALAE

Profit = a ratio to premium representing the present value of the aggregate profit on a portfolio of transactions.

Under this depiction of profit from insurance contracts, the variable with the most significant uncertainty is the Ultimate Loss & ALAE Ratio. Therefore, given the linear relationship between Profit and the Ultimate Loss & ALAE Ratio, the Profit variable is also subject to a similar level of uncertainty. There may be additional uncertainty in the Profit due to uncertainty in the other variables. However, the typical situation for major lines of insurance would indicate that such additional uncertainty is de minimus.

The R-K method provides estimated parameters for the probability distribution of the Ultimate Loss & ALAE Ratio. However, the R-K method starts with an estimated Ultimate Loss & ALAE Ratio as of a certain maturity. The earliest maturity considered would be the end of the accident period, 12 months in the typical case of an accident year. This does not take into consideration the variability of results between the inception of the accident period and 12 months later. Additional uncertainty exists as a result of this variability not being captured in methodologies that use data commencing 12 months after the inception of the accident period. Consequently, the probability distribution of the Profit variable should also consider the distribution of the estimated Ultimate Loss & ALAE Ratio as of 12 months. If we consider the lognormal distribution for the estimated ultimate loss & ALAE ratio as of 12 months, then the R-K method can be combined with this loss ratio distribution to produce a lognormal distribution of the Ultimate Loss & ALAE Ratio variable, which then produces the probability distribution of the Profit variable.

Using data from annual reports filed with U.S. insurance supervisors/regulators (NAIC Annual Statements), the profitability of each of the five lines of insurance considered in this paper for each accident year was estimated. The data for each accident year includes premiums, estimated ultimate losses and allocated loss adjustment expenses, expense ratio, estimated ultimate loss and loss adjustment expense ratio, paid loss development history, and estimated ultimate loss development history. All data elements were on a net basis after reinsurance. While gross data would have been preferable, the available data sources only provided all needed data elements on a net basis.

After adjusting the historical data for significant systematic trends in loss ratios (see Exhibits), the log of the estimated ultimate loss & ALAE ratios as of 12 months by accident year are analyzed and then used to estimate the parameters of a probability distribution for those loss ratios. Next, the

parameters from the R-K method for the distribution of errors in the 12 months to ultimate link ratios were used to develop a revised loss ratio distribution. Since the loss ratios and the errors in link ratios are both estimated using lognormal distributions, the result of combining the two distributions is also lognormal. However, in order to get the total variance of the product of these two lognormal variables, the needed covariance of the two variables is estimated from the historical loss & ALAE ratio data and the results of the R-K method.

$$Cov(X,Y) = \sum_{i=1}^{n} \frac{(X_i - \hat{\mu}_X)(Y_i - \hat{\mu}_Y)}{(n-1)} \tag{3}$$

where,

$X =$ logarithm of accident year loss & ALAE ratio, estimated ultimate as of 12 months

$Y =$ logarithm of ultimate loss development factor (R-K method), from 12 months to ultimate

$\hat{\mu}_X =$ sample mean of X

$\hat{\mu}_Y =$ sample mean of Y

Based on the combined loss ratio distribution, the latest accident year loss ratio distribution can be expressed as:

$$Loss\ Ratio \sim Lognormal\ (\mu_{AY}, \sigma_{AY}) \tag{4}$$

where,

μ_{AY} = mean of the probability distribution for the logarithm of the accident year loss ratio

$\mu_{AY} = \mu_X + \mu_Y$

σ_{AY}^2 = variance of the probability distribution for the logarithm of the accident year loss ratio

$\sigma_{AY}^2 = \sigma_X^2 + \sigma_Y^2 + 2 \cdot Cov(X,Y)$

The Profit variable has the form,

$$Profit = \frac{(1 - ER)}{(1 + ULAE)} - PV \cdot LR \tag{5}$$

This formulation can then be used to represent the market level of profitability, i.e. the pricing factor, for the most recent period. Since the loss ratio distribution represents a basis for measuring risk and uncertainty, the current average pricing factor in the market can be used to represent the

current insurance market value of risk, and to calibrate the value parameter associated with a measure of risk and uncertainty.

5.3 Summary

In this paper, a pricing factor based on estimated industry profitability is explored as the basis for estimating risk margins for the risk and uncertainty associated with the total unpaid losses, based on the probability distribution of the total unpaid losses. In section 7, the profit formula will be used with a risk transform function, applied to a probability distribution function, to calibrate an insurance market value of risk parameter, λ, that can be applied to the unpaid loss risk model and compute risk margins for a portfolio of unpaid losses.

The next section explores how the cost of capital can be considered in the determination of risk margins. The cost of capital has emerged as the preferred approach to determining risk margins. This next section explores some of the issues involved with the cost of capital and how risk margins are related to an entity's economic capital and cost of capital.

6. RISK MARGINS AND THE COST OF CAPITAL

A basic economic premise of market pricing behavior is that capital providers require a return on the capital they provide, and this return is expected to be commensurate with the level of risk. Cost of capital is a well-accepted concept and is commonly used as a conceptual framework in both non-life and life insurance pricing applications. In the context of the IASB's three building block approach for the measurement of insurance liabilities, the third building block, a risk margin, reflects the economic impact of the uncertainty in the estimates. Consequently, there appears to be a strong preference to use cost of capital methods to estimate market-consistent risk margins for insurance contracts under IFRS. Conceptually at least, an appropriate risk margin can be based on the present value of the insurer's cost of the capital attributable to supporting the insurance liabilities of the insurer (IASB, 2007 pp. 63-67).

6.1 Challenges of the Cost of Capital Approach

Using a cost of capital approach to risk margins for the measurement of insurance liabilities presents several practical problems:

(1) To start with, the cost of capital is typically developed from two main components: (a) the amount of capital needed, and (b) the rate of return "cost" for the commitment of the capital (IASB, 2007 p. 79). However, neither of these two components is readily observable for a given set of insurance liabilities.

(2) The amount of regulatory capital needed is typically not the real economic capital needed to support the relevant obligations.

(3) The capital evaluation by rating agencies relates to the total operations, which can include other businesses unrelated to insurance operations, at the parent or group level, and consequently the use of rating agency capital does not provide a realistic market assessment of capital needed to support the risk associated with the insurance liabilities.

(4) If the overall capital for an insurer could be determined or calibrated based on market data, such overall capital would need to be decomposed and allocated in order to develop

risk margins for the appropriate groupings of insurance liabilities, such as line of insurance. A recent paper (Bodoff, 2009) suggests a method for the allocation of capital based on a percentile approach.

(5) Using a single rate of return on economic capital would seem to be an over-simplification in terms of economic impact since rates of return should vary depending on the risk associated with the potential amounts that the capital providers could gain or lose. Also, if each entity were able to determine their own specific capital needs and target rate of return on capital, this might produce an entity specific cost of capital with little or no market input and little, if any, calibration to market inputs.

These problems suggest the need for a more robust economic capital model and a more thorough evaluation of the applicable loss distributions in order to evaluate the probability distribution of returns on capital. Such a capital model would require some market basis for the validation of the model assumptions and parameters.

Another approach to resolving these issues about the cost of capital approach to risk margins is to consider the answers to three key questions:

1. How much capital is required to support the liabilities?
2. How is the capital released over time?
3. What is the cost of providing capital over the period that the capital is needed?

6.2 Basic Example of Cost of Capital Approach to Risk Margins

Several examples of the cost of capital method are given in (IAA, 2009) *Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins*. The assumptions used to derive the risk margin for a notional non-life insurance product, motor third party liability, are as follows:

IAA RISK MARGINS PAPER (IAA, 2009 p. 83)

MOTOR COST OF CAPITAL ASSUMPTIONS

Initial Current Estimate of Liabilities	100
Cost of Capital (Target Rate of Return)	6.0%
Initial Capital Requirement (% of Liabilities)	39%
Annual Increase to Capital % Requirement	10%

Discounted Unpaid % (using 4% discount rate)	
End of Period	
1	58%
2	27%
3	6%
4	2%
5	0%

Note that the capital requirement is related to the discounted current estimate and is assumed to increase as a percentage of the remaining liabilities as the liabilities mature. This assumption will be discussed in more detail later in this section. For questions 1 and 2, this example uses the initial capital requirement assumption (39%) and the annual increase to this capital assumption (10%). For question 3, the cost of capital rate of return is assumed to be 6.0% in this example.

With these assumptions in place, the risk margin at the beginning of the period can be illustrated using this cost of capital methodology as follows:

TABLE 1

RISK MARGIN USING COST OF CAPITAL METHODOLOGY - TIME 0

Period	Current Liability Estimate	Capital Requirement	Required Capital	Cost of Capital	Discounted Cost of Capital
0	100	39%	39	2.3	2.3
1	58	43%	25	1.5	1.4
2	27	47%	13	0.8	0.7
3	6	52%	3	0.2	0.2
4	2	57%	1	0.1	0.1
5	0	63%	0	0.0	0.0
Total (Risk Margin, Time 0)					**4.5**
% of Current Estimate					**4.5%**

Note that the cost of capital rate of return is selected to be 6.0% of the required capital in each period and the resulting cost of capital amount at the end of each period is discounted to time 0 at the same 6.0% rate to determine the discounted amount of the cost of capital, which is the value used as the risk margin in this example.

For illustrative purposes, Table 2 below displays the computation of the risk margin at the end of the first period given no changes to the assumptions shown above. In practice, companies will update assumptions at the end of each period based on information available at that time, and therefore those assumptions would not be "locked-in" at the outset.

TABLE 2

RISK MARGIN USING COST OF CAPITAL METHODOLOGY - TIME 1

Period	Current Liability Estimate	Capital Requirement	Required Capital	Cost of Capital	Discounted Cost of Capital
1	58	43%	25	1.5	1.5
2	27	47%	13	0.8	0.7
3	6	52%	3	0.2	0.2
4	2	57%	1	0.1	0.1
5	0	63%	0	0.0	0.0
Total (Risk Margin, Time 1)					**2.4**
% of Current Estimate					**4.1%**

The figures in Table 2 are identical to those in Table 1 for periods 1-5 with one exception, the discounted amount of the cost of capital. This is due to the fact that at time 1, the cost of capital amount is discounted back to the beginning of time 1 rather than time 0. The resulting margin of 2.4 is stated as a percentage of the current estimate at the beginning of time 1 (58 in this example), resulting in the margin of 4.1% shown above.

This process will be repeated in each successive period. A summary of the indicated risk margins using this cost of capital approach, and holding all assumptions constant, is shown below in Table 3, taken from the IAA Risk Margins paper:

TABLE 3

COST OF CAPITAL RISK MARGINS - MOTOR LIABILITY

Period since reporting date	Liability	Capital %	Capital	Cost of capital	Risk margin	Risk margin as % of liability
0	100	39.1%	39.1	2.3	4.5	4.5%
1	58	43.0%	25.0	1.5	2.4	4.1%
2	27	47.3%	12.8	0.8	1.0	3.6%
3	6	52.1%	3.1	0.2	0.2	4.1%
4	2	57.3%	1.1	0.1	0.1	3.3%
5	0	63.0%	0.0	0.0	0.0	0.0%

6.3 Discussion of the Key Assumptions in Using Cost of Capital Approaches to Risk Margins

The three key assumptions required for cost of capital methods are discussed further below:

Question 1: How much capital is required to support the liabilities?

The initial capital requirement in the example provided above in the IAA Risk Margins paper is based on a targeted amount of capital such that the sum of the capital and the current estimate of the liabilities will be sufficient to absorb the actual losses at the 99.5% confidence level. This is a percentile approach applied to the aggregate amount committed to support the insurance liabilities, the discounted value of the current estimate plus the amount of capital needed in addition to the current estimate in order to have sufficient funds in all cases up to the 99.5% aggregate probability of the outcomes from the liabilities. The capital needed to meet this requirement can be determined given the probability distribution of the liabilities. This is sometimes referred to as the Value at Risk (VaR) approach. Similar approaches include the "Tail Value at Risk" or "Conditional Tail Expectation" which provides some additional consideration in the capital measurement for the impact of extreme scenarios. Such approaches require a selected percentile which is not directly based on market behavior.

It is important to note that the IAA does not advocate this specific methodology for determining the answer to question 1. Instead, the 99.5% confidence level is used as an example of the VaR cost of capital methodology.

This paper presents another approach for consideration in determining capital requirements based on an economic capital approach that does not target a specific confidence level or VaR. Consider the concept of economic capital as the measurement of the amount of capital required to support the insurance liabilities, given the risk profile, i.e., the probability distribution, of those liabilities, as determined by a market participant. This concept is not based on targeted confidence levels or regulatory capital requirements, though those factors may enter into the market participant's judgment. Rather this concept of economic capital is based on the capital consideration, and the rate of return on that capital, which is consistent with how market participants would price a contract or group of contracts, with similar risk characteristics.

Question 2: How is the capital released over time?

To the extent the liabilities develop as expected, and capital is not required to absorb increases in the estimate of the liabilities, the capital supporting the liabilities may be released. The release of capital should theoretically mirror the reduction in aggregate risk of the liabilities. Thus, as claims are paid and the remaining liabilities are reduced over time, so too should the capital required to support those remaining liabilities be reduced (to the extent capital remains available given the current estimate). However, it is generally not the case that the capital release is directly proportional to the liability reduction. This is due to the fact that the relative risk of the remaining liabilities at different points in time can (and will) vary.

The assumption in the IAA Risk Margins example above is that the relative risk of the remaining liabilities is likely to increase over time; this is the reason for the assumption in the example of a 10% increase in the capital requirement as a percentage of remaining liabilities in each successive period. This assumption is based on the premise that relatively straightforward claims are settled in early periods and the remaining unpaid claims are more complex and the uncertainty in the value of those claims increases, albeit on a decreasing amount of the remaining liabilities. The 10% increase in the

capital requirement was shown only to illustrate its impact on risk margins, given the other assumptions made for the example.

Question 3: What is the cost of capital?

The IAA Risk Margins paper uses 6% as the rate of return for the cost of capital in its example, but makes it clear that it does not advocate this or any other fixed assumption. In *Market Value Margins for Insurance Liabilities in Financial Reporting and Solvency Application* (Ernst & Young, 2007), the point is made that the cost of capital should be inversely related to the capital requirement. This is consistent with the premise that there is a unique market risk margin given the risk profile of the liabilities, i.e., the probability distribution of the ultimate value of those liabilities. Thus, the key determinants of the appropriate risk margin in a cost of capital approach, the amount of capital needed and the rate of return on that capital, as required by market participants, should yield one answer. That one answer to risk margins based on the cost of capital represents the discounted present value of the product of the capital required and the rate of return on the capital.

Note that changing either the amount of capital needed or the rate of return required will result in a change in the opposite direction of the other variable. This is the reason why it has been suggested (IAA, 2009 p. 79) that benchmarks for cost of capital might include 6% at the 99.5th percentile or 4% at the 99.95th percentile, where the rate of return on capital assumption decreases as the percentile assumption increases.

Unfortunately, there is not a straightforward approach to estimate the cost of capital assumptions, and this is the reason why fixed assumptions, such as a 6% rate of return for a 99.5th percentile have been used in both the financial and actuarial literature as well as in solvency regulation such as the Swiss Solvency Test. While these are useful benchmarks, what is lacking is a market basis for the determination of the cost of capital, particularly the rate of return, which reflects the risk of the liabilities, as might be measured by a probability distribution. Cost of capital can be viewed from multiple perspectives. From the point of view of the capital provider, a return on capital reflecting the risk of the endeavor is required in order to make the investment attractive. From the point of view of the insurer, this return must be provided, on average, in order to attract capital from investors. These two perspectives in theory should yield the same result.

6.4 Economic Capital

The amount of capital needed to support insurance liabilities is a major component of a cost of capital approach. However, economic value is usually defined in VaR terms, i.e., a certain percentile to provide a sufficient provision (i.e., financial resources such as investments in financial instruments) to minimize the solvency risk associated with the uncertain final cash flows needed to satisfy the obligations underlying the liabilities. This definition of economic capital therefore depends on the selected percentile (or similar criteria) which are defined in terms of insolvency risk, rather than market value. Hence, for purposes of using a cost of capital approach for risk margins, a different definition is needed to recognize that capital providers (investors) are at risk to losing their capital if the final cost of the unpaid claims exceeds the value provided for in the liabilities. For example, the value of the liabilities on a discounted basis will "provide for" a present value amount for the specific expected cash flows associated with the cost of claims. However, the investors may also receive a higher return on their capital if the final cost of the unpaid claims is less than the value provided for in the liabilities.

In other words, economic capital is not simply an amount borrowed at an interest rate which may or may not be repaid in full. Such a static view of capital as a sort of standby guarantee, increasing

for new risks and being released as risk declines, is based on the concept of solvency or stress scenarios used by rating agencies. While there is an element of market input to what level of capital is acceptable in the market, such an approach is significantly lacking because there is little, if any, reflection of the market pricing of risk and return. Consequently, risk margins that are based on this broader concept of economic capital should be derived from the probability distribution of gains and losses which emerge as the uncertain value of the unpaid claims liabilities matures and the uncertainty is resolved through the payment of these claims. Risk margins should not only reflect the expected value of the cost of the economic capital, but also the probability distribution of gains and losses.

This expanded view of risk margins, economic capital and the cost of capital suggests considering the determination of risk margins based on how the market prices insurance contracts. The pricing of insurance contracts involves the combinations of some costs that are known or can be estimated with reasonable certainty, and other costs, primarily the cost of claims, which are uncertain. This pricing also considers the amount of capital needed to support those insurance contracts until the cost of the claims is known. However, the usual approach for such pricing is to consider the profitability of the business, i.e., the rate of return which is available based on competitive prices in the marketplace. Thus, the participants in a competitive insurance market are assumed to understand the probability risk of the cost of claims (insurance losses) from the insurance policies sold in the marketplace, and the insurers price their policies accordingly. If the expected losses increase (or decrease), then the market prices will increase (or decrease). However, if the expected losses do not change, but there is a change in the risk distribution of losses being higher or lower than expected, then the prices should also respond accordingly.

This expanded view of economic capital describes the relationship between market profitability and the cost of capital in general terms. An additional consideration is the identification of situations where market pricing is not in equilibrium. In such cases, the question is whether the market pricing levels can be adjusted to estimate what the market variables would be in equilibrium. For example, because of underwriting cycles, competition, changes in perceptions of good and bad business, etc., there can be large fluctuations in profitability with little or no change in risk. In such situations, the estimate of the market value of risk should be adjusted, if possible, to reflect current expectations about what the level of profitability would be if the market were in equilibrium.

When there is evidence of a fairly stable market in equilibrium, or if market data were calibrated in some way to adjust for market equilibrium, then the objective is to use the market data to estimate the current market value of risk parameter. Based on recent industry average pricing for new or renewal insurance contracts, as reflected in estimates of profitability for recent accident years, the market value of risk parameter derived from the market data can be applied to the cash flow estimates for unpaid claims to calculate risk margins that are calibrated to the market.

6.5 Summary

Cost of capital approaches to risk margins have gained favor in the context of financial reporting and solvency monitoring due to their apparent consistency with pricing and because such approaches typically reflect a disciplined consideration of risk. This section has discussed the fundamental assumptions to consider when using a cost of capital methodology as well as some of the issues with finding practical approaches to applying a cost of capital approach to risk margins. In the next section, we will examine a methodology for determining risk margins based on a model for the quantification of a market value of risk parameter that is based on aggregate market data which is indicative of the estimated industry profit and risk, as reflected in insurance pricing.

7. VALUATION OF INSURANCE MARKET RISK USING A RISK TRANSFORM

Various methods and models have been discussed in the literature for the price of risk or the cost of risk. The terms "price of risk" and "cost of risk" may have different implications as a basis for valuing risk. The questions about the impact that risk has on value include what amount would willing buyers and sellers require to transfer such uncertain liabilities; what would be the settlement value of such liabilities; what is the maximum reasonable amount the holder of such liabilities would rationally pay to be relieved of such liabilities, etc. Consequently, the term "market value of risk" is adopted in this paper to address the question of the valuation of an uncertain quantity, unpaid claims, and to calibrate such valuation to a market basis that approximates how holders of such uncertain liabilities would value them. Since there is not a relevant reference market for insurance liabilities from unpaid losses, the current profit level for a large market of insurance can be utilized as the principal basis for calibration to a market basis, i.e., to determine a market value of risk parameter, λ.

7.1 The Wang Transform

Shaun Wang has written several papers (Wang, 1997) (Wang, 2002) on the application of a proportional hazard (PH) transform function to a probability distribution of outcomes. The resultant transformed probability distribution provides a mathematical representation, in probability terms, of the preferences associated with the various uncertain outcomes. The use of a probability distribution risk transform function allows for the computation of probability weighted expected values where the probabilities have been calibrated to risk preferences, such as the risk-based cost of capital. A particularly useful probability transform, the Wang Transform (Wang, 2002), has been developed based on a theoretical framework that connects the research from several other papers on the pricing of risk.

The Wang Transform has the following form for a liability variable (unpaid claims):

$$S^*(x) = \Phi\left(\Phi^{-1}(b \cdot S(x) + \lambda)\right) \tag{6}$$

where,

$S(x) = 1 - F(x)$ for the original probability distribution function, $F(x)$

$S^*(x) = 1 - F^*(x)$ for the transformed probability distribution function, $F^*(x)$

$\Phi(x)$ = the standard normal probability distribution function

$\Phi^{-1}(x)$ = the inverse function of $\Phi(x)$

λ = transform parameter for risk preference adjustment (market value of risk)

b = transform parameter for parameter risk adjustment

Wang describes the *b* parameter of the Wang Transform as a means for including parameter uncertainty in the measurement of risk. This may be useful in applying the approach presented in this paper to situations where an insurer's data or processes have significantly changed or where there is insufficient data available and the use of assumptions based on industry sources would certainly introduce parameter risk. The selection of the *b* parameter would seem to be dependent on judgment. For this paper, we have used $b = 1$ for the analyses of individual company data.

7.2 Market Value of Risk Parameter

By applying the Wang Transform (parameters $\lambda > 0$ and $b = 1$) to the profit probability distribution discussed in Section 5, it is possible to calibrate the market value of risk parameter (λ) to the average market profit level based on industry data. The calibration is accomplished by using the transformed probability distribution, which includes the value of risk in the transformed probabilities. The transformed probabilities incorporate the average profit related to the average risk. Consequently, the expected value of profit using the transformed probability distribution would be equal to zero.

Wang shows that when the Wang transform is applied to the lognormal, the resultant expected value has the form,

$$E^*[x] = e^{\mu + \frac{1}{2}\sigma^2 + \lambda \cdot \sigma} \tag{7}$$

Several of the authors referenced in this paper have selected a lognormal distribution. Rehman-Klugman and Underwood-Zhu have reported good fits to actual insurance data. The industry data used for the results presented in this paper also produced good fits to the lines of insurance studied.

Hence, by using the lognormal distribution, the market value of risk parameter (λ) can be obtained by solving the following equation for λ, assuming a lognormal distribution for the loss ratio (LR),

$$E^*[Profit] = 0 = \frac{(1 - ER)}{(1 + ULAE)} - PV \cdot E^*[LR] \tag{8}$$

$$\frac{(1 - ER)}{(1 + ULAE)} = PV \cdot e^{(\mu + \frac{1}{2}\sigma^2 + \lambda \cdot \sigma)} \tag{9}$$

$$\lambda = \frac{\{ ln(1 - ER) - ln(1 + ULAE) - ln(PV) - \mu - \frac{1}{2} \cdot \sigma^2 \}}{\sigma} \tag{10}$$

where,

$Profit$ ER, ULAE, PV, μ, and σ are defined in Section 5

$E^*[Profit] =$ probability weighted expected value of the profit using a transformed probability distribution function

The application of this formula to the U.S. industry data, including the input data, is provided in the Exhibits included in this paper for each line of insurance.

7.3 Summary

This section has provided the framework and a function for computing a value of risk parameter. Using this approach, the probability distribution of the outcomes from a portfolio of insurance contracts can be used to derive the risk parameter. The next section shows the possible application of the risk transform function to determine risk margins for insurance liabilities associated with a portfolio of unpaid claims.

8. APPLICATION OF A RISK TRANSFORM FOR RISK MARGINS

The major advantage of using a risk transform function, such as the Wang Transform, in the valuation of risk is that it provides a means for consideration of the entire probability distribution, i.e., reflecting the range of outcomes. Additionally, when used to determine risk margins, a risk transform can be described as a risk preference function which implicitly reflects the cost of capital. The economic capital component of cost of capital is considered because the transform uses the full probability distribution and therefore the moments of the distribution, VaR, and similar measures are reflected. The rate of return on the capital component of cost of capital is also considered by the market value of risk parameter. This approach essentially aggregates these two components of cost of capital, without the need to separately develop each component (the capital amount and the rate of return). Consequently, the risk transform can be expressed in terms of various levels of capital (including the corresponding VaR and other measures) and the implied rates of return.

Wang suggests that the cost of capital is proportional to the "systematic" risk of the underlying business, and in theory, market insurance prices already reflect the probability of insolvency. This leads to the conclusion that the capital underlying market prices would be much lower than regulators and rating agencies typically require. However, to the extent the capital is required by regulators and rating agencies, the costs associated with holding higher levels of capital is a cost of doing business. If there is a higher cost of doing business due to regulatory or rating agency requirements and if the market pricing does not reflect that higher cost, then the insurers' expected rates of return on capital would be lower than other industries with similar risk profiles. However, market prices should reflect the regulatory cost or the cost of meeting rating agency requirements in a market where such costs for insurers are similar.

8.1 Risk Transform Considerations

In order to apply this risk transform approach to the problem of estimating risk margins for insurance liabilities, there are a few important considerations. First, the risk and uncertainty in the insurance liabilities should be expressed in terms of a probability distribution. Section 4 of this paper describes one method for estimating a probability distribution for the insurance liabilities associated with unpaid claim obligations from insurance contracts.

The type of probability distribution can be selected by fitting a distribution to a set of data, by simulation, or by assumption. Since the liabilities discussed in this paper are primarily related to unpaid claims, or other amounts that are a function of unpaid claims, an aggregate probability distribution may be needed to estimate the risk margins using a risk transform. In practice, creating

such an aggregate probability distribution might involve some component variables, such as frequency and severity, individual accident years or policy years, and other divisions that might be used to better represent the underlying random processes. In such cases, other techniques could be used to develop the aggregate distribution, such as convolutions, simulations, copulas or other numerical techniques.

Second, the market value of risk parameter, λ, should be adjusted to reflect the average duration of the outcomes, such as the duration of the cash flows associated with the payment of the unpaid claims. Wang provides a solution for the duration adjustment that can be used for the Wang Transform. The applicable formula for duration, *D*, is:

$$D = \int_0^T R(t)dt \tag{11}$$

where

$R(t) =$ portion of losses that remain unpaid at time t

T = length of time until unpaid losses equal zero.

From the method described in Section 7, the selected current market value of risk parameter, λ_{AY}, for a single accident year is estimated. This accident year parameter is adjusted for duration to produce the one year duration parameter, λ_1. The adjustment suggested by Wang is:

$$\lambda_1 = \frac{\lambda_{AY}}{\sqrt{D}} \tag{12}$$

This adjustment is based on Wang's assumption of geometric Brownian motion to derive the relationship of the volatility and the length of time associated with the volatility. This assumption reflects an expected increase in volatility for longer periods of time between when the estimate is made and when the results can be observed. Hence, unpaid claims with longer payment duration will have higher volatility. The approach suggested by Wang is to compute an average adjustment to the market value of risk parameter, λ, which is proportional to the square root of the duration. Wang suggests that further refinement of this relationship may be appropriate if the underlying process exhibits volatility over time that is higher than the square root of the duration.

Third, the market value of risk parameter, λ_1, which is estimated from the recent or projected levels of industry profitability, is suggested as being representative of the current market value of risk for a portfolio of unpaid claims from previous transactions. In other words, if the level of profit for a certain level of risk is estimated based on current industry data (a large portfolio of recent insurance transactions), then the relationship between profit and risk derived from that data can be applied to the level of risk measured on a portfolio of claims which are currently unpaid.

The relationship between risk and profit is contained in the market value of risk parameter, λ_1, and the value equation is given by the Wang Transform applied to the probability distribution

estimated for the unpaid claims. The duration adjustment reflects the difference in the duration of the claims payment used for the market profitability analysis (expected cash flows from claims for a single accident year as the beginning of that accident year) and the duration of the portfolio of unpaid claims (claims from multiple accident years each with different expected cash flows related to the unpaid amounts).

8.2 Estimate of Risk Margins

The risk margin is estimated as the difference between the probability weighted expected value of the unpaid claims using the original probability distribution and using the transformed probability distribution, as expressed by the following equation:

$$Risk\ Margin = E^*[unpaid\ claims] - E[unpaid\ claims] \quad (13)$$

where,

$E^*[unpaid\ claims]$ = probability weighted expected value of the unpaid claims using the transformed probability distribution function for the unpaid claims

$E[unpaid\ claims]$ = probability weighted expected value of the unpaid claims using the estimated probability distribution function for the unpaid claims

8.3 Summary

By using the relationships described in each section, the proposed approach to estimating risk margins is summarized in the following table:

Summary of Proposed Approach by Section	**Parameters Estimated**
Section 4	
Reserve Risk Distributions The estimation of a probability distribution of the unpaid claims by applying the Rehman-Klugman methodology.	*by line of insurance* *by insurer* μ σ D (duration)
Section 5	
Insurance Market Inputs and Risk Distributions The analysis of industry data to estimate the level of profitability associated with recent market transactions for new and renewal policies. The analysis of industry loss development data to derive a risk distribution for the probability distribution of the most recent accident year loss ratio. This was accomplished by applying the Rehman-Klugman methodology to the industry aggregate loss development history.	*industry aggregate* *by line of insurance* *by accident year* Expense Ratio ULAE Factor Loss Ratio PV Factor Average Profit μ σ *D* (duration)
Section 7	
Valuation of Insurance Market Risk using a Risk Transform The estimation of a market value of risk parameter, λ, for the industry by line which reflects the current value of risk, calibrated to the level of industry profitability associated with recent market transactions. The Wang Transform approach was applied to the risk distribution and the industry profit level estimated in Section 5.	*industry aggregate* *by line of insurance* λ
Section 10	
Estimated Risk Margins Risk margins were estimated by insurer for each of the five selected lines of insurance for unpaid claims as of December 2008. The market value of risk parameter, λ, was applied to the $F(x: \mu, \sigma)$ after adjustment for the *D* associated with each insurer's reserves.	*Largest 100 insurers* *by insurer* *by line of insurance* Risk Margins as of December 2008

9. TESTING OF APPROACH ON DATA FROM LARGEST 100 U.S. INSURERS

A validation of any model or method requires thorough testing of the results of using the model or method with actual data. Some of the methods used in this paper are relatively new and have not been in common usage by actuaries or others in estimating risk distributions for unpaid claims or for the pricing of risk in insurance. Consequently, the research for this paper included testing the methodology with a very large dataset of publicly available insurer data.

9.1 Data Used for Testing

The underlying data was taken from annual statutory financial reports filed with U.S. regulators, known as the Annual Statement. Each insurance company that has a license to write non-life insurance in one or more states is required to file its Annual Statement in March of each year. The detailed schedules and exhibits required for these reports include extensive data that is useful for testing this methodology. In addition, consolidated data from the reports are available on a combined basis for all subsidiaries and affiliated insurance companies within an insurance group. This data permitted the testing to be done at the group level. The final IFRS 4 guidelines will address the level of aggregation that is acceptable for purposes of estimating risk margins.

The data consisted of reported values from 1996 to 2008 for individual accident years 1987 through 2008 by insurer by line of insurance. The following schedules from U.S. Annual Statements were used:

Schedule P, Part 1B, 1C, 1D, 1E, 1H-1

Schedule P, Part 2B, 2C, 2D, 2E, 2H-1

Schedule P, Part 3B, 3C, 3D, 3E, 3H-1

In addition, aggregate industry expense ratios by line of insurance were used from the figures published by the AM Best Company in their book (AM Best Company, 2008), *Aggregates and Averages, 2008 edition.*

Data values were excluded where abnormalities were suspected (such as negative claim amounts) or where the values were not relevant to the analysis. In general, the reported data was used without testing or validation since this data comes directly from regulatory reports. Consequently, there may be some results for individual insurers that are outliers due to additional data abnormalities.

The largest 100 insurers for each of the selected lines of insurance were chosen based on recent premium volume. For a few insurers the historical data might not be relevant for that particular insurer due to mergers and acquisitions, significant expansion or contraction of volume in a particular line of insurance, or other changes which were not discernable from the data. Such insurers could not be readily identified for exclusion from the study. Since this research was principally used to test the methodology for reasonableness of the approach, the results do not represent an assessment of the reserve levels, reserve risk or risk margins of the individual insurers used in the study. Therefore, the results for a specific individual insurer may not be indicative of appropriate risk margins for that insurer. Consequently, the names of the insurers were not included in the summaries of the results.

9.2 Steps in Testing Process

In order to estimate risk margins for the largest 100 insurers for each of the five lines of insurance included in the dataset, the following process was performed for each line of insurance:

1. The aggregate industry data was used to develop a market value of risk parameter (λ), adjusted for a period of duration of one year;
2. An aggregate industry loss payout pattern was developed to estimate cash flows for each insurer based on each insurer's distribution of unpaid claims according to the maturity of the unpaid claim estimates for each accident year;
3. For each insurer in the database, the development pattern of estimated ultimate losses was run through the R-K methodology to estimate the parameters of the risk distribution of each insurer's portfolio of unpaid claims as of December 31, 2008;
4. The duration of each insurer's portfolio of unpaid claims as of December 31, 2008 was determined;
5. The present value factors for each insurer's portfolio of unpaid claims by accident year as of December 31, 2008 were determined;
6. Using the lognormal probability risk distribution with each insurer's parameters, μ and σ, developed from the R-K methodology through 120 months maturity, ultimate losses were simulated for each accident year and the unpaid losses & ALAE were calculated by subtracting the paid losses & ALAE as of December 31, 2008;
7. From the 500 simulations of each insurer's value of unpaid claims for each accident year, 1997 through 2008, the results were compiled and totaled for the unpaid losses & ALAE for all accident years;
8. The sample mean $(\hat{\mu})$ and sample standard deviation $(\hat{\sigma})$ from the 500 simulations were computed, for the logarithm of the total (all accident years) of the simulated unpaid losses & ALAE;
9. Using the simulated sample mean $(\hat{\mu})$ and sample standard deviation $(\hat{\sigma})$ for each insurer, from step (8), the expected value of the unpaid losses & ALAE was computed using the formula for the mean of the lognormal distribution, $e^{\hat{\mu}+½\cdot\hat{\sigma}^2}$;
10. The risk adjusted expected value of the unpaid losses & ALAE was computed using the industry market value of risk parameter (λ_1) and the formula for the mean of the lognormal distribution after application of the Wang Transform, $e^{\hat{\mu}+½\cdot\hat{\sigma}^2+\lambda_1\cdot\hat{\sigma}\cdot\sqrt{D}}$;
11. The risk margin for each insurer was computed as the difference between the risk adjusted expected value from step (10) and the unadjusted expected value of the unpaid losses & ALAE from step (9); and
12. The risks margins for the largest 100 insurers were totaled for all 100 insurers and expressed as a ratio of the total risk margins to the total unadjusted expected value of unpaid losses and ALAE for those insurers. The risk margins ratios were also computed individually for each of the 100 insurers.

The results are summarized in a series of exhibits which provide insights into the range of results and the levels of the risk margins by line of insurance.

10. RESULTS, CONCLUSIONS AND AREAS FOR FUTURE STUDY

The application of the approach discussed in this paper to real insurer data produces some very interesting results. Also, there are several areas where this research has indicated the need for further testing and live applications.

10.1 Results

The results of the methodology described in this paper are shown in Table 4 below:

TABLE 4

RISK MARGINS RESULTS FROM APPLICATION OF METHODOLOGY

Largest 100 U.S. Insurance Groups Accident Years 1997-2008 as of December 31, 2008					
Line of Insurance	**Booked Unpaid Loss & ALAE**	**Expected Unpaid Loss & ALAE** (R-K Method)	**Average Indicated Risk Margins***	**Present Value Discount****	**Net Impact of Risk Margins and Discount vs. Booked*****
Commercial Auto Liability	$22.2 billion	$21.8 billion	10.1%	(1.7%)	6.3%
Commercial Multiple Peril	$32.3 billion	$32.0 billion	13.3%	(3.0%)	8.8%
Personal Auto Liability	$75.2 billion	$66.8 billion	9.2%	(1.4%)	(4.3)%
Workers Compensation	$83.1 billion	$87.0 billion	7.7%	(8.9%)	2.7%
Other Liability	$60.7 billion	$61.0 billion	13.6%	(3.8%)	9.8%

** Percent of the estimated unpaid loss & ALAE (Exhibit 13 of each section A – E) (Total of 100 Insurers)*

*** Total present value of the estimated unpaid loss & ALAE minus Total estimated unpaid loss & ALAE (percent of total estimated unpaid loss & ALAE) (Total of 100 Insurers)*

***** Total estimated unpaid loss & ALAE x (Average Risk Margin + Present Value Discount) (percent of booked estimated unpaid loss & ALAE) (Total of 100 Insurers)*

Source: Exhibit 16 for each line of insurance

These results were compiled with only minor adjustment to the data where needed to eliminate invalid computations. These results were also tested for the sensitivity of the inputs. There was

significant sensitivity to the values used for the industry profitability of the line of insurance for the current estimates. The profitability level has a significant impact on the indicated risk margins. This illustrates the potential for inconsistencies between the market value of risk for different lines of insurance, due to differences in the market profitability levels for each line. For purposes of this research, the profitability indicators were based on long term historical loss ratios after adjustment to normalize the historical series of loss ratios for major differences in the ratio levels over long time periods. Table 5 below illustrates the difference in the 2008 accident year loss ratios versus the long term averages by line of insurance. Note that the market value of risk parameter is quite sensitive to the differences in loss ratios, as well as to the target loss ratio by line of insurance.

TABLE 5

SENSITIVITY OF RISK MARGINS RESULTS

	Booked 2008 *Accident Year Net Ultimate Loss Ratio*	*Adjusted Long Term Accident Year Net Ultimate Loss Ratio*	*Target Loss Ratio* $*$	2008 *Market Value of Risk* λ_1 [*Risk Margin*]	*Long Term Market Value of Risk* λ_1 [*Risk Margin*]
Commercial Auto Liability	62.3%	58.3%	64.6%	0.230 [3.3%]	0.671 [10.1%]
Commercial Multiple Peril	69.1%	55.2%	61.3%	See note **	0.603 [13.3%]
Personal Auto Liability	69.3%	65.3%	66.0%	0.028 [0.3%]	0.899 [9.2%]
Workers Compensation	70.6%	63.9%	71.3%	0.020 [0.4%]	0.385 [7.7%]
Other Liability	67.0%	61.2%	71.4%	0.253 [6.4%]	0.503 [13.6%]

$* \; Target\ Loss\ Ratio = \frac{(1-Expense\ Ratio)}{(1+ULAE)} \Big/ Present\ Value\ Factor$

*** The industry average estimated ultimate loss ratio for accident year 2008 is much higher than the long term average loss ratio and even higher than the target loss ratio. This result indicates that market prices are expected to produce an operating loss on the business (underwriting results adjusted for discounted present value of the losses). Consequently, the market value of risk parameter would not be negative, but rather some minimum level. No basis for a minimum value was determined or selected.*

Source: 11, 12A, 12B, 13A, 13B for each line of insurance

The two key variables that drive the profitability are as follows:

1. The portion of the premiums that are expected to be needed to pay the expenses of the insurer, and

2. The current estimate of the ultimate loss ratio for the recent accident year(s).

These two input variables were estimated from industry average loss ratios and expense ratios for all insurers reporting results in the U.S. and were used as a proxy for the level of profitability that the holder of the insurance liabilities would rationally pay (maximum value) to be relieved of the obligations underlying those liabilities. This implicitly assumes that the holder of the liabilities would not accept a lower level of profitability than the industry average, and conversely that the holder would not be able to obtain a higher level of profitability than the industry average. The industry average is used as an indication of the level of profitability that is generally available for new contracts (policies) in the marketplace.

The methodology adjusts the market value of risk parameter (λ) for the difference in the risk distribution of the unpaid claim liabilities as compared to the risk distribution of a portfolio of new insurance contracts. Also, the adjustment reflects the difference in the duration of the liabilities from unpaid claims as compared to the duration of liabilities from new contracts. The profit levels indicated by the industry averages for the key variables can, however, vary from year to year. Such variations in expected profits can result in significant differences in the market value of risk parameter, and therefore there can be sensitivity in the risk margins produced from that parameter.

The results in Table 6 illustrate the differences in risk margins resulting from using the profit indicators for the total of the largest 25 or 50 largest companies versus the industry average in the Commercial Auto Liability line of insurance:

TABLE 6

COMPARISON OF RISK MARGIN RESULTS

Sensitivity Analysis: Profit vs. Risk Margins **Line of Insurance: Commercial Auto Liability**				
	Adjusted Long Term Accident Year Ultimate Loss Ratio	*Breakeven Loss Ratio* *	*Profit***	*Risk Margins****
Industry Average	58.3%	62.8%	6.2%	10.1%
Largest 25 Insurers	60.2%	64.5%	5.9%	8.5%
Largest 50 Insurers	59.3%	63.4%	5.8%	9.1%

$* \; Breakeven\ Loss\ Ratio = \frac{(1 - Expense\ Ratio)}{(1 + ULAE)}$

$** \; Profit = Breakeven\ Loss\ Ratio - Present\ Value\ Factor \cdot Ultimate\ Loss\ Ratio$

*** *Industry Average equal to Largest* 100 *Insurers*

The small differences in these risk margins results from the small differences in the estimated profit level. To the extent that the risk margins reflect the value of being relieved of the obligations, an insurer who expects to earn higher profits from new contracts should rationally pay a higher

amount that is consistent with what that insurer can earn on new contracts with similar risk characteristics of existing contracts. Consequently, the risk margins could vary by insurer, even with similar risk distribution and duration.

10.2 Conclusions

The IASB and FASB had extensive discussions from July 2009 through January 2010 concerning liability measurement; the IASB released the IAS 37 Exposure Draft in January 2010; and there were further discussions concerning Phase II of the insurance contracts project during this period. These developments resulted in a description of the measurement of the amount that the entity would rationally pay to be relieved of the present obligation as equal to the lowest of:

a) The present value of the resources required to fulfill the obligation;

b) The amount the entity would have to pay to cancel the obligation; and

c) The amount the entity would have to pay to transfer the obligation to a third party.

The methodology described in this paper could be applied to the above liability measurement principles by estimating the key input variables (risk distribution, payment duration, etc.) and selecting a profit factor that reflects the market value of risk (market prices and the cost of capital implied by those prices) appropriate to (a) and (c). For example, item (c) above could be addressed by considering a third party market participant who would theoretically accept a profit level that is in line with industry averages. Since item (b) would be specific to particular counterparties individually and would be subject to applicable regulatory constraints, this methodology does not seem to apply to the determination of such values.

By using the methodology described in this paper, one can quantify the impact on estimated risk margins according to the values described based on a selected profit level, or the corresponding selected rate of return from other cost of capital calculations. This paper does not provide specific criteria for selecting a profit level that meets the requirements of (a) and (c) described above. Such criteria would need to meet the final guidance under IFRS. However, this methodology can provide a useful technical approach to the actuary in meeting the objectives of the IFRS guidance on risk margins.

10.3 Areas for Additional Research

There are several areas where the methodology described in this paper can be further refined to address specific implementation issues. The following list provides suggestions for further study.

- **Underwriting Cycles:** The profit levels in several competitive market situations have historically followed a pattern of hard markets (higher profits) followed by soft markets (lower profits) of a series of years. The use of time series analysis, such as described by Underwood and Zhu (Underwood, et al., 2009), can be studied further to assist in the selection of appropriate profit levels for determining risk margins.
- **Market Profit Level Input to Risk Margins:** The use of risk margins in the financial reporting of insurance liabilities has raised some issues about how to consider current profit levels that are driven by underwriting cycles. In particular, what are the implications of periods of very high or very low profit levels? What is the appropriate current market input assumption when markets are not in equilibrium and market prices produce very low or negative levels of profit? A study of historical market profit levels by line of insurance may

provide some useful insights, particularly with respect to the relationship of profit levels to risk margins. Also, it may be very useful to further explore the impact of market cycles on financial reporting values which use market inputs, including comparisons to risk margins that would have been reported based on historical underwriting cycles.

- **Cash Flow Risk:** The variability of the cash flows associated with the insurance liabilities can be improved by including a model that reflects the probabilities of different cash flows by year. The methodology as described in this paper only reflects the variability in the total cash flows, and therefore implicitly assumes that there is no significant additional variability in the cash flows by year. Since there can be correlations between the cash flows and the estimate of ultimate value of unpaid claims, it may be useful to expand the approach to incorporate the paid loss development history and the correlations to the estimates of ultimate values.
- **Risk Distributions:** The R-K methodology is a new methodology that has not been in general use as practical method for determining the probability distributions for unpaid claims. Further research would be quite valuable to understand how this method performs in various situations and in comparison to other approaches to estimating such distributions. Also, the further study of correlation within loss development patterns by accident year and by calendar year may prove useful, particularly as they may impact the estimation of risk margins. Additionally, since the R-K methodology is applied to estimates of ultimate losses including losses that have been paid, which are fixed (except for recoveries, such as from salvage and subrogation), there may be some concern that the R-K method may understate the risk in the unpaid claims. Further research into the application of the R-K methodology may be useful in better understanding this method of estimating risk distributions.
- **Insufficient Data:** Applying the R-K method to actual company data depends on the number of years and volume of relevant data available for the computation of risk margins for that company. Where a company has a limited history to analyze, or has made material changes to its business or it reserving process, such situations need practical solutions. Further study is needed to test the credibility of historical data and evaluate different approaches to selecting benchmark data for purposes of developing risk distributions for estimating risk margins.
- **Low Frequency, Extreme Severity Risk and Reinsurance:** For those lines of insurance that are significantly exposed to very low frequency or extreme severity claims, the approach described in this paper would need to be expanded. Also, further study is needed to address incoming (assumed) or outgoing (ceded) reinsurance which is material to an entity's insurance liabilities (or reinsurance assets), particularly for non-proportional (excess of loss) reinsurance. The risk distributions would need to be developed based on the specific types of claims and structure of the reinsurance cover. The R-K methodology is not well suited for such claims. The Wang Transform parameter would need to be calibrated to market data that is more specific to the insurance or reinsurance liabilities (or reinsurance assets), rather than to aggregate market profit levels. Further research is needed to adapt the key elements of the risk margin methodology developed in this paper to more difficult risks measurement problems associated with low frequency or extreme severity product types and reinsurance.
- **Interest Rate Risk:** It appears that interest rate risk, that is the rate used to discount the cash flows to produce a present value, is not included in the risk margins under IRFS. Consequently, changes in interest rates between financial reporting periods can result in

changes in reported financial results, simply due to the change in interest rates. The sensitivity of reported financial values due to interest rate changes would be a meaningful area for further study.

- **Inflation Risk:** The reflection of risk due to unanticipated inflationary changes to the cost of claims is limited to the period of time included in the historical data. Since the use of the R-K methodology only includes risks that have been reflected in the past history (or in the recalculated estimation based on improved calculations of ultimate values applied retroactively), the measurement of risk may need to be modified where the inflationary environment is changing. Also, some lines of insurance are more susceptible to inflation risk, or certain components of inflation such as medical costs. Further research of risk measurement techniques to address changing inflationary situations would be very useful.
- **Correlation between Inflation and Interest Rates:** Inflation and interest rates are typically highly correlated. Consequently, it may be important to consider the mitigation of inflation risk due to coincident changes in interest rates. Further research into the relationship between inflation risk and interest rate risk could be important to the consideration of these risks.
- **Historical Back-Testing:** The method described in this paper was applied to a large dataset of historical data. Further testing of the method by applying it to past periods and estimating what the historical risk margins would have been could provide some valuable insights such as quantifying the variation in risk margins over time and identifying refinements of the method.
- **Field Testing:** Additional research that applies this method to actual internal data from individual companies can be useful in refining the method and in devising a guide for its use in practice.
- **Economic Capital, Return on Capital and Cost of Capital:** While the concepts of economic capital, return on capital, and cost of capital are addressed in this paper in so far as risk margins are concerned, the analysis of the individual components and their relationship to regulatory capital are not fully addressed. Also, the allocation of capital based on risk has been a significant area of interest (Bodoff, 2009). Since the method developed in this paper is a function of the measurement of risk and the market level of profit, there is not a dependency on specific cost of capital assumptions involving a model of economic capital or the selection of a target return on capital. Further research on the relationships between the risk margins and the cost of capital would be a valuable addition to the literature.

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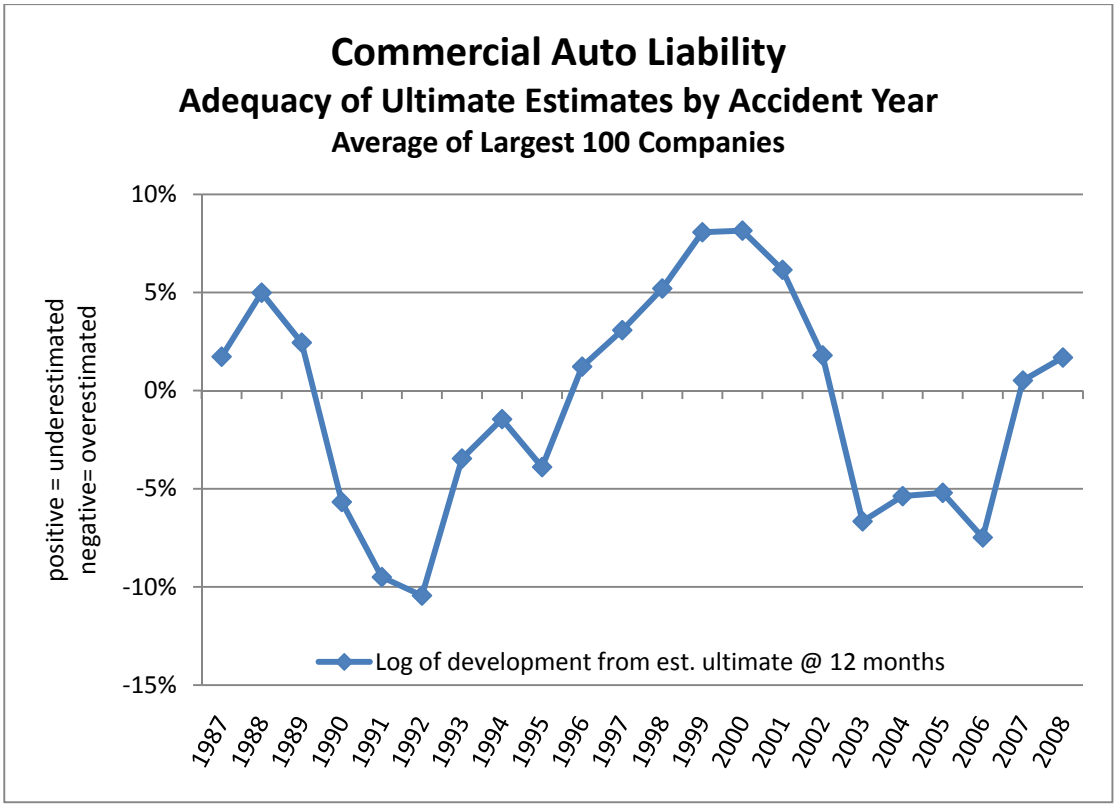
APPENDIX

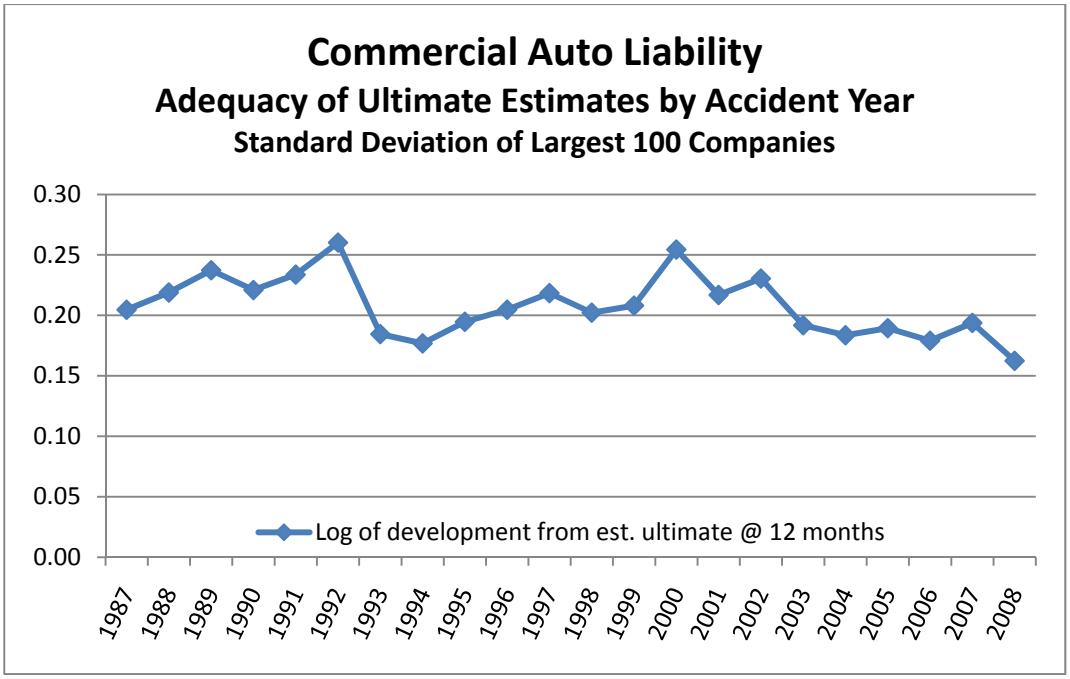
In Section 4 of the paper, the issue of changes in variables between accident years, and other changes over time is mentioned. The research for this paper included a few tests of changes in the underlying processes that may impact risk margins over time. Based on the dataset compiled for this paper, there were some interesting results produce by analyzing the adequacy of the estimates of ultimate losses across the largest 100 insurers. The graphs below show the results of analyzing the underestimation or overestimation of ultimate losses for Commercial Auto Liability by accident year. Graph A charts the average adequacy of ultimate loss estimates (log of development from 12 months to current) using the R-K methodology. Graph B charts the standard deviation of adequacy of ultimate loss estimates (log of development) among the 100 insurers.

These graphs provide some insight about the adequacy of the estimated ultimate losses, which seems to follow a predictable cycle. By using the times series analysis, it would be possible to forecast the cycle for one or two years. The standard deviation results indicate that the differences in adequacy among insurers do not change appreciably over time.

GRAPH A

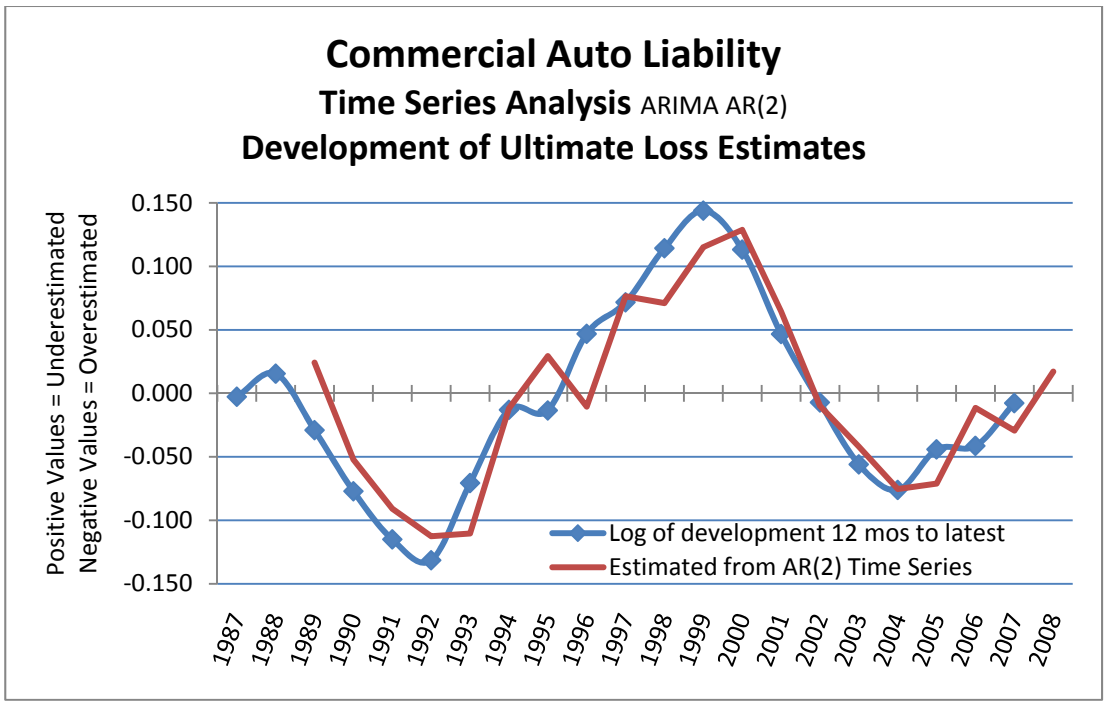


GRAPH B



In addition, the approach used by Underwood and Zhu was applied to the Commercial Auto Liability dataset and the results shown in Graph C are quite similar to what those researchers found for a different line of insurance (Other Liability) over a longer time period.

GRAPH C



EXHIBITS

The following exhibits for each line of insurance are provided at the end of this paper:

Exhibit 1	Industry Net Booked Ultimate Loss & ALAE
Exhibit 2	Industry Net Booked Ultimate Loss & ALAE - Link Ratios
Exhibit 3	Cumulative Development in Ultimate Loss Estimates Based on Log of Link Ratios
Exhibit 4	Variance-Covariance Matrix of Log of Incremental Link Ratios
Exhibit 5	Selection of Loss & ALAE Ratio, ULAE Factor, and Loss & LAE Ratio
Exhibit 6	Industry Payout Pattern (Paid Loss & ALAE)
Exhibit 7	U.S. Treasury Yield Curves
Exhibit 8	Present Value Factors
Exhibit 9	Duration of Payout of Accident Year Losses
Exhibit 10	Developed Industry Ultimate Loss & ALAE
Exhibit 11	Industry Historical Ultimate Loss & ALAE Ratios
Exhibit 12A	Derivation of Industry Market Value of Risk Parameter (2008 λ)
Exhibit 12B	Derivation of Industry Market Value of Risk Parameter (Long Term λ)
Exhibit 13A	Risk Margin Results for Industry and Largest 100 U.S. Insurers (2008 λ)
Exhibit 13B	Risk Margin Results for Industry and Largest 100 U.S. Insurers (Long Term λ)
Exhibit 14	Payout of Expected Unpaid Loss & ALAE for Largest 100 U.S. Insurers
Exhibit 15	Discounted Payout of Expected Unpaid Loss & ALAE for Largest 100 U.S. Insurers
Exhibit 16	Net Impact of Margins and Discount for Largest 100 U.S. Insurers (Long Term λ)

SECTIONS

The Exhibits are organized by following Sections for each line of insurance:

Section A	Commercial Auto Liability
Section B	Commercial Multiple Peril
Section C	Personal Auto Liability
Section D	Workers Compensation
Section E	Other Liability

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 1**
Dollars in Thousands

	Months of Maturity										Latest
Accident Year	12	24	36	48	60	72	84	96	108	120	Evaluation
1987	8,195,868	8,093,702	8,083,907	8,104,034	8,091,634	8,078,034	8,092,658	8,068,131	8,042,289	8,034,872	8,034,872
1988	8,546,503	8,526,611	8,704,877	8,640,221	8,604,829	8,640,454	8,615,483	8,585,459	8,569,110	8,543,928	8,543,928
1989	9,420,085	9,246,724	9,279,795	9,287,502	9,281,584	9,229,632	9,176,851	9,148,599	9,120,928	9,101,236	9,101,236
1990	9,479,650	9,309,099	9,157,573	9,091,177	9,048,280	8,968,213	8,928,567	8,880,305	8,848,278	8,818,434	8,818,434
1991	9,031,017	8,853,171	8,575,945	8,381,188	8,289,001	8,216,473	8,154,828	8,123,474	8,060,272	8,016,358	8,016,358
1992	8,961,355	8,611,372	8,452,185	8,287,988	8,214,002	8,115,928	8,044,178	7,995,733	7,933,280	7,956,577	7,956,577
1993	8,747,317	8,633,221	8,606,389	8,523,034	8,455,054	8,390,747	8,334,471	8,285,543	8,269,077	8,284,094	8,284,094
1994	8,916,700	8,989,530	9,043,590	8,996,625	8,999,628	8,963,009	8,918,034	8,903,041	8,907,712	8,904,679	8,904,679
1995	9,057,286	9,029,922	9,028,225	9,086,186	9,082,557	9,084,951	9,057,872	9,044,750	9,040,049	9,031,717	9,031,717
1996	9,237,853	9,301,506	9,526,504	9,640,014	9,704,147	9,739,643	9,739,177	9,719,047	9,726,167	9,743,683	9,743,683
1997	9,485,776	9,537,708	9,741,479	9,974,342	10,180,228	10,225,662	10,221,048	10,198,180	10,214,647	10,205,685	10,205,685
1998	9,314,608	9,515,038	9,893,894	10,301,757	10,454,597	10,500,268	10,459,277	10,448,868	10,414,728	10,418,275	10,418,275
1999	9,408,335	10,043,371	10,549,185	10,945,497	11,101,670	11,091,395	11,123,348	11,099,762	11,078,047	11,075,835	11,075,835
2000	9,937,589	10,371,444	10,806,917	11,113,678	11,291,016	11,406,325	11,376,726	11,359,384	11,362,381		11,362,381
2001	10,290,153	10,277,719	10,632,589	10,891,786	11,051,340	10,993,292	10,953,987	10,943,423			10,943,423
2002	10,561,049	10,267,872	10,529,484	10,607,142	10,615,790	10,598,778	10,555,623				10,555,623
2003	11,210,956	10,801,169	10,753,873	10,779,804	10,708,701	10,659,927					10,659,927
2004	11,556,476	11,009,047	10,947,095	10,882,503	10,786,513						10,786,513
2005	11,717,674	11,407,000	11,258,547	11,239,808							11,239,808
2006	11,908,448	11,531,946	11,419,000								11,419,000
2007	11,944,741	11,819,461									11,819,461
2008	11,444,660										11,444,660

Notes
Data from SNL Financial LC
1996-2008 Annual Statements
Industry Total Commercial Auto Liability
Schedule P, Part 2C

COMMERCIAL AUTO LIABILITY **SECTION A**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 2**

LINK RATIOS

	Months of Maturity								
Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1987	0.988	0.999	1.002	0.998	0.998	1.002	0.997	0.997	0.999
1988	0.998	1.021	0.993	0.996	1.004	0.997	0.997	0.998	0.997
1989	0.982	1.004	1.001	0.999	0.994	0.994	0.997	0.997	0.998
1990	0.982	0.984	0.993	0.995	0.991	0.996	0.995	0.996	0.997
1991	0.980	0.969	0.977	0.989	0.991	0.992	0.996	0.992	0.995
1992	0.961	0.982	0.981	0.991	0.988	0.991	0.994	0.992	1.003
1993	0.987	0.997	0.990	0.992	0.992	0.993	0.994	0.998	1.002
1994	1.008	1.006	0.995	1.000	0.996	0.995	0.998	1.001	1.000
1995	0.997	1.000	1.006	1.000	1.000	0.997	0.999	0.999	0.999
1996	1.007	1.024	1.012	1.007	1.004	1.000	0.998	1.001	1.002
1997	1.005	1.021	1.024	1.021	1.004	1.000	0.998	1.002	0.999
1998	1.022	1.040	1.041	1.015	1.004	0.996	0.999	0.997	1.000
1999	1.067	1.050	1.038	1.014	0.999	1.003	0.998	0.998	1.000
2000	1.044	1.042	1.028	1.016	1.010	0.997	0.998	1.000	
2001	0.999	1.035	1.024	1.015	0.995	0.996	0.999		
2002	0.972	1.025	1.007	1.001	0.998	0.996			
2003	0.963	0.996	1.002	0.993	0.995				
2004	0.953	0.994	0.994	0.991					
2005	0.973	0.987	0.998						
2006	0.968	0.990							
2007	0.990								

Notes

From Exhibit 1, ratio of successive ultimate loss estimates by accident year

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 3**
CUMULATIVE DEVELOPMENT IN ULTIMATE LOSS ESTIMATES BASED ON LOG OF LINK RATIOS

Months of Maturity

Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1987	-1.254%	-0.121%	0.249%	-0.153%	-0.168%	0.181%	-0.304%	-0.321%	-0.092%
1988	-0.233%	2.069%	-0.746%	-0.410%	0.413%	-0.289%	-0.349%	-0.191%	-0.294%
1989	-1.857%	0.357%	0.083%	-0.064%	-0.561%	-0.574%	-0.308%	-0.303%	-0.216%
1990	-1.816%	-1.641%	-0.728%	-0.473%	-0.889%	-0.443%	-0.542%	-0.361%	-0.338%
1991	-1.989%	-3.181%	-2.297%	-1.106%	-0.879%	-0.753%	-0.385%	-0.781%	-0.546%
1992	-3.984%	-1.866%	-1.962%	-0.897%	-1.201%	-0.888%	-0.604%	-0.784%	0.293%
1993	-1.313%	-0.311%	-0.973%	-0.801%	-0.763%	-0.673%	-0.589%	-0.199%	0.181%
1994	0.813%	0.600%	-0.521%	0.033%	-0.408%	-0.503%	-0.168%	0.052%	-0.034%
1995	-0.303%	-0.019%	0.640%	-0.040%	0.026%	-0.299%	-0.145%	-0.052%	-0.092%
1996	0.687%	2.390%	1.184%	0.663%	0.365%	-0.005%	-0.207%	0.073%	0.180%
1997	0.546%	2.114%	2.362%	2.043%	0.445%	-0.045%	-0.224%	0.161%	-0.088%
1998	2.129%	3.904%	4.040%	1.473%	0.436%	-0.391%	-0.100%	-0.327%	0.034%
1999	6.532%	4.914%	3.688%	1.417%	-0.093%	0.288%	-0.212%	-0.196%	-0.020%
2000	4.273%	4.113%	2.799%	1.583%	1.016%	-0.260%	-0.153%	0.026%	
2001	-0.121%	3.395%	2.409%	1.454%	-0.527%	-0.358%	-0.096%		
2002	-2.815%	2.516%	0.735%	0.081%	-0.160%	-0.408%			
2003	-3.724%	-0.439%	0.241%	-0.662%	-0.457%				
2004	-4.853%	-0.564%	-0.592%	-0.886%					
2005	-2.687%	-1.310%	-0.167%						
2006	-3.213%	-0.984%							
2007	-1.054%								
Average	-0.773%	0.797%	0.550%	0.181%	-0.200%	-0.339%	-0.292%	-0.229%	-0.079%

	12-108	24-108	36-108	48-108	60-108	72-108	84-108	96-108	108-108
Cumulative Average	-0.385%	0.388%	-0.409%	-0.959%	-1.139%	-0.939%	-0.600%	-0.308%	-0.079%

Notes
From Exhibit 2, natural log of ratio of successive ultimate loss estimates by accident year

COMMERCIAL AUTO LIABILITY **SECTION A**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 4**

VARIANCE-COVARIANCE MATRIX OF LOG OF INCREMENTAL LINK RATIOS

Months of Maturity	12-108	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-Ultimate
12-108	**0.071%**	0.047%	0.036%	0.020%	0.010%	0.005%	0.003%	0.004%	0.001%	0.000%
24-36	0.047%	**0.048%**	0.034%	0.018%	0.010%	0.004%	0.003%	0.004%	0.002%	0.000%
36-48	0.036%	0.034%	**0.030%**	0.016%	0.007%	0.004%	0.002%	0.003%	0.001%	0.000%
48-60	0.020%	0.018%	0.016%	**0.010%**	0.004%	0.002%	0.001%	0.002%	0.000%	0.000%
60-72	0.010%	0.010%	0.007%	0.004%	**0.003%**	0.001%	0.001%	0.001%	0.000%	0.000%
72-84	0.005%	0.004%	0.004%	0.002%	0.001%	**0.001%**	0.000%	0.001%	0.000%	0.000%
84-96	0.003%	0.003%	0.002%	0.001%	0.001%	0.000%	**0.000%**	0.000%	0.000%	0.000%
96-108	0.004%	0.004%	0.003%	0.002%	0.001%	0.001%	0.000%	**0.001%**	0.000%	0.000%
108-120	0.001%	0.002%	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%	**0.000%**	0.000%
120-Ultimate	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	**0.000%**
Variance (σ^2)	**0.656%**	**0.336%**	**0.139%**	**0.042%**	**0.014%**	**0.005%**	**0.002%**	**0.002%**	**0.000%**	**0.000%**

Notes

From Exhibit 3, covariance of errors at given maturity with errors at all other maturities

Covariances above diagonal are symmetric with those below

Variance is sum of matrix for all maturities greater than or equal to maturity shown in column

COMMERCIAL AUTO LIABILITY **SECTION A**

INDUSTRY NET RESULTS **EXHIBIT 5**

SELECTION OF LOSS & ALAE RATIO, ULAE FACTOR, AND LOSS & LAE RATIO

Dollars in Thousands

Accident Year	Net Earned Premium (1)	Net Ultimate Loss & LAE (2)	Net Ultimate Loss & ALAE (3)	Net Paid Loss & ALAE (4)	Net Unpaid Loss & ALAE (5)	Net Ultimate Loss & LAE Ratio (6)	Net Ultimate Loss & ALAE Ratio (7)	ULAE Factor (8)	Underwriting Expense Ratio (9)	100% - Expense Ratio (10)
1987	11,303,497	8,421,138	8,034,872	7,798,508	236,364	74.5%	71.1%	1.048	26.3%	73.7%
1988	11,137,272	8,925,276	8,543,928	8,270,462	273,466	80.1%	76.7%	1.045	28.1%	71.9%
1989	11,640,663	9,601,129	9,101,236	8,914,519	186,717	82.5%	78.2%	1.055	29.0%	71.0%
1990	11,885,710	9,359,215	8,818,434	8,673,421	145,013	78.7%	74.2%	1.061	29.5%	70.5%
1991	11,400,334	8,552,810	8,016,358	7,917,278	99,080	75.0%	70.3%	1.067	30.0%	70.0%
1992	11,487,315	8,522,527	7,956,577	7,823,914	132,663	74.2%	69.3%	1.071	30.6%	69.4%
1993	11,349,838	8,872,940	8,284,094	8,194,228	89,866	78.2%	73.0%	1.071	30.5%	69.5%
1994	11,391,025	9,556,415	8,904,679	8,813,471	91,208	83.9%	78.2%	1.073	30.7%	69.3%
1995	11,545,377	9,712,995	9,031,717	8,950,911	80,806	84.1%	78.2%	1.075	30.5%	69.5%
1996	12,038,793	10,484,408	9,743,683	9,630,426	113,257	87.1%	80.9%	1.076	30.6%	69.4%
1997	12,188,203	11,031,192	10,205,685	10,097,558	108,127	90.5%	83.7%	1.081	30.2%	69.8%
1998	12,093,751	11,329,093	10,418,275	10,300,393	117,882	93.7%	86.1%	1.087	30.1%	69.9%
1999	11,992,416	12,003,662	11,075,835	10,943,805	132,030	100.1%	92.4%	1.084	31.7%	68.3%
2000	12,844,883	12,325,072	11,362,381	11,176,545	185,836	96.0%	88.5%	1.085	30.2%	69.8%
2001	14,023,859	11,892,234	10,943,423	10,673,375	270,048	84.8%	78.0%	1.087	29.6%	70.4%
2002	15,846,301	11,590,418	10,555,623	10,191,909	363,714	73.1%	66.6%	1.098	28.2%	71.8%
2003	17,595,042	11,723,903	10,659,927	10,039,271	620,656	66.6%	60.6%	1.100	26.6%	73.4%
2004	18,772,204	11,909,100	10,786,513	9,682,114	1,104,399	63.4%	57.5%	1.104	27.7%	72.3%
2005	19,257,834	12,385,157	11,239,808	9,057,583	2,182,225	64.3%	58.4%	1.102	27.4%	72.6%
2006	19,338,884	12,647,829	11,419,000	7,543,503	3,875,497	65.4%	59.0%	1.108	28.5%	71.5%
2007	19,171,676	13,090,247	11,819,461	5,487,654	6,331,807	68.3%	61.7%	1.108	30.6%	69.4%
2008	18,367,084	12,820,906	11,444,660	2,553,063	8,891,597	69.8%	62.3%	1.120	30.5%	69.5%
Selected					**25,632,258**		**62.3%**	**1.106**		**69.5%**

Notes

(1), (2) Data from SNL Financial LC, 1996-2008 Annual Statements, Industry Total, Schedule P, Part 1C

(3) Exhibit 1, Latest Evaluation

(4) Data from SNL Financial LC, 1996-2008 Annual Statements, Industry Total, Schedule P, Part 1C

(5) = (3) - (4)

(6) = (2) / (1)

(7) = (3) / (1); Selected from 2008

(8) = (6) / (7); Selected from 2005-2007 Average

(9) From AM Best Aggregates and Averages, includes policyholder dividends

(10) = 1 - (9); Selected from 2008

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY PAYOUT PATTERN (PAID LOSS & ALAE) **EXHIBIT 6**
Dollars in Thousands

Months of Maturity

Accident Year	12	24	36	48	60	72	84	96	108	120
1987	1,447,237	3,489,508	5,084,540	6,268,576	6,963,171	7,361,317	7,584,783	7,707,037	7,766,047	7,798,508
1988	1,609,269	3,773,198	5,522,054	6,736,621	7,471,781	7,866,904	8,098,678	8,205,310	8,248,977	8,270,462
1989	1,827,370	4,184,777	6,065,400	7,348,204	8,118,836	8,529,581	8,742,474	8,839,331	8,885,748	8,914,519
1990	2,491,964	4,092,486	5,953,821	7,200,500	7,923,189	8,298,416	8,491,994	8,581,804	8,637,563	8,673,421
1991	1,814,961	3,799,444	5,523,652	6,597,918	7,251,003	7,588,443	7,768,695	7,854,993	7,900,517	7,917,278
1992	1,669,374	3,716,814	5,396,263	6,510,282	7,179,532	7,514,176	7,662,979	7,759,309	7,788,174	7,823,914
1993	1,740,569	3,931,270	5,688,755	6,835,986	7,489,501	7,836,187	8,031,994	8,112,630	8,163,656	8,194,228
1994	1,991,344	4,313,471	6,088,493	7,350,223	8,050,404	8,456,835	8,634,242	8,722,056	8,778,287	8,813,471
1995	2,109,110	4,464,486	6,274,090	7,502,818	8,199,718	8,585,628	8,780,948	8,867,067	8,920,363	8,950,911
1996	2,310,732	4,689,420	6,676,411	8,005,956	8,853,362	9,260,146	9,474,024	9,538,219	9,596,752	9,630,426
1997	2,332,509	4,846,563	6,952,542	8,406,628	9,260,247	9,716,429	9,911,821	9,999,390	10,080,766	10,097,558
1998	2,325,407	4,926,252	7,049,841	8,579,147	9,480,661	9,922,709	10,116,501	10,218,362	10,258,386	10,300,393
1999	2,473,596	5,302,486	7,634,504	9,286,785	10,185,551	10,516,398	10,758,893	10,834,888	10,896,887	10,943,805
2000	2,626,282	5,502,154	7,807,475	9,358,543	10,263,874	10,773,057	10,982,977	11,100,380	11,176,545	
2001	2,555,847	5,267,400	7,505,311	9,027,482	9,891,524	10,335,557	10,552,355	10,673,375		
2002	2,246,248	4,687,722	6,956,645	8,532,378	9,475,351	9,963,747	10,191,909			
2003	2,235,298	4,764,047	6,942,024	8,560,515	9,562,530	10,039,271				
2004	2,385,037	4,863,666	7,019,567	8,682,679	9,682,114					
2005	2,394,118	5,133,485	7,390,225	9,057,583						
2006	2,545,051	5,237,326	7,543,503							
2007	2,608,213	5,487,654								
2008	2,553,063									

Age-to-Age Paid Loss Development

Accident Year	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120
1987	2.411	1.457	1.233	1.111	1.057	1.030	1.016	1.008	1.004
1988	2.345	1.463	1.220	1.109	1.053	1.029	1.013	1.005	1.003
1989	2.290	1.449	1.211	1.105	1.051	1.025	1.011	1.005	1.003
1990	1.642	1.455	1.209	1.100	1.047	1.023	1.011	1.006	1.004
1991	2.093	1.454	1.194	1.099	1.047	1.024	1.011	1.006	1.002
1992	2.226	1.452	1.206	1.103	1.047	1.020	1.013	1.004	1.005
1993	2.259	1.447	1.202	1.096	1.046	1.025	1.010	1.006	1.004
1994	2.166	1.412	1.207	1.095	1.050	1.021	1.010	1.006	1.004
1995	2.117	1.405	1.196	1.093	1.047	1.023	1.010	1.006	1.003
1996	2.029	1.424	1.199	1.106	1.046	1.023	1.007	1.006	1.004
1997	2.078	1.435	1.209	1.102	1.049	1.020	1.009	1.008	1.002
1998	2.118	1.431	1.217	1.105	1.047	1.020	1.010	1.004	1.004
1999	2.144	1.440	1.216	1.097	1.032	1.023	1.007	1.006	1.004
2000	2.095	1.419	1.199	1.097	1.050	1.019	1.011	1.007	
2001	2.061	1.425	1.203	1.096	1.045	1.021	1.011		
2002	2.087	1.484	1.227	1.111	1.052	1.023			
2003	2.131	1.457	1.233	1.117	1.050				
2004	2.039	1.443	1.237	1.115					
2005	2.144	1.440	1.226						
2006	2.058	1.440							
2007	2.104								
Averages									
10-Yr Weighted	2.098	1.441	1.216	1.104	1.047	1.022	1.010	1.006	1.004
10-Yr Straight	2.098	1.441	1.217	1.104	1.047	1.022	1.010	1.006	1.004
Selected	2.098	1.441	1.216	1.104	1.047	1.022	1.010	1.006	1.004

Fitted Age-to-Ultimate

Curve Fits:	R-squared	120	132	144	156	168	180	192	204	216	228	240	252	264
Weibull	99.6%	1.004	1.002	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Power Curve	99.7%	1.003	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Inverse Power Curve	93.6%	1.028	1.023	1.019	1.016	1.014	1.012	1.010	1.009	1.008	1.007	1.006	1.005	1.005

Selected Pattern	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264
Age-to-Age	**2.098**	**1.441**	**1.216**	**1.104**	**1.047**	**1.022**	**1.010**	**1.006**	**1.004**	**1.001**	**1.001**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	
Age-to-Ultimate	**4.436**	**2.115**	**1.468**	**1.207**	**1.093**	**1.045**	**1.022**	**1.013**	**1.007**	**1.003**	**1.002**	**1.001**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**
Cumulative % Paid	22.5%	47.3%	68.1%	82.9%	91.5%	95.7%	97.8%	98.8%	99.3%	99.7%	99.8%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Incremental % Paid	22.5%	24.7%	20.8%	14.7%	8.6%	4.3%	2.1%	0.9%	0.6%	0.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Notes
Data from SNL Financial LC
1996-2008 Annual Statements
Industry Total Commercial Auto Liability
Schedule P, Part 3C

	12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
Duration	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1 month	0.11%	2.76%	4.75%	4.01%	1.89%	0.90%	1.20%	1.68%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3 months	0.11%	3.36%	5.02%	4.08%	2.22%	0.95%	1.22%	1.74%	5.89%	5.33%	4.48%	5.36%	5.21%	5.10%	5.68%	3.07%	3.15%	3.96%	6.63%
6 months	0.27%	3.49%	5.09%	4.37%	2.59%	1.02%	1.23%	1.83%	5.70%	5.74%	4.55%	5.45%	5.33%	5.17%	6.51%	3.30%	3.38%	4.00%	6.73%
1 year	0.37%	3.34%	5.00%	4.38%	2.75%	1.26%	1.32%	2.17%	5.32%	5.98%	4.53%	5.51%	5.51%	5.18%	7.20%	3.63%	3.61%	4.12%	6.82%
2 years	0.76%	3.05%	4.82%	4.41%	3.08%	1.84%	1.61%	3.07%	5.11%	6.24%	4.54%	5.66%	5.88%	5.18%	7.69%	4.25%	4.56%	4.77%	7.15%
3 years	1.00%	3.07%	4.74%	4.37%	3.25%	2.37%	1.99%	3.59%	5.06%	6.29%	4.55%	5.68%	6.04%	5.25%	7.80%	4.58%	5.12%	5.11%	7.40%
5 years	1.55%	3.45%	4.70%	4.35%	3.63%	3.25%	2.78%	4.38%	4.99%	6.36%	4.56%	5.71%	6.21%	5.38%	7.83%	5.21%	6.04%	5.93%	7.68%
7 years	1.87%	3.70%	4.70%	4.36%	3.94%	3.77%	3.36%	4.84%	5.16%	6.55%	4.73%	5.77%	6.34%	5.49%	7.84%	5.53%	6.43%	6.38%	8.00%
10 years	2.25%	4.04%	4.71%	4.39%	4.24%	4.27%	3.83%	5.07%	5.12%	6.45%	4.65%	5.75%	6.43%	5.58%	7.84%	5.83%	6.70%	6.71%	8.08%
20 years	3.05%	4.50%	4.91%	4.61%	4.85%	5.10%	4.83%	5.74%	5.59%	6.83%	5.39%	6.02%	6.73%	6.01%	8.02%	6.48%	7.05%	7.06%	8.17%
30 years	2.69%	4.45%	4.81%	4.61%	4.85%	5.10%	4.83%	5.48%	5.46%	6.48%	5.09%	5.93%	6.65%	5.96%	7.89%	6.35%	7.40%	7.41%	8.26%

Discount Factor	12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
(months)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
6	0.999	0.983	0.975	0.979	0.987	0.995	0.994	0.991	0.973	0.972	0.978	0.974	0.974	0.975	0.969	0.984	0.984	0.981	0.968
18	0.992	0.954	0.931	0.938	0.958	0.977	0.978	0.962	0.927	0.915	0.936	0.922	0.920	0.927	0.898	0.944	0.942	0.937	0.904
30	0.978	0.927	0.890	0.898	0.925	0.949	0.956	0.921	0.883	0.859	0.895	0.871	0.865	0.881	0.830	0.898	0.889	0.886	0.839
42	0.961	0.897	0.851	0.861	0.891	0.914	0.927	0.878	0.842	0.807	0.856	0.824	0.813	0.835	0.769	0.850	0.833	0.834	0.777
54	0.939	0.862	0.813	0.825	0.855	0.874	0.892	0.832	0.803	0.758	0.818	0.779	0.764	0.791	0.713	0.801	0.776	0.778	0.719
66	0.915	0.827	0.777	0.791	0.819	0.833	0.853	0.785	0.763	0.711	0.781	0.736	0.717	0.749	0.661	0.753	0.721	0.724	0.663
78	0.891	0.793	0.742	0.758	0.782	0.793	0.814	0.741	0.723	0.664	0.742	0.695	0.672	0.708	0.612	0.708	0.671	0.674	0.609
90	0.866	0.758	0.709	0.726	0.746	0.753	0.776	0.700	0.686	0.622	0.708	0.657	0.630	0.669	0.568	0.665	0.625	0.626	0.561
102	0.841	0.724	0.677	0.695	0.711	0.715	0.741	0.663	0.653	0.586	0.677	0.621	0.591	0.633	0.526	0.625	0.582	0.583	0.518
114	0.814	0.690	0.646	0.665	0.677	0.677	0.705	0.627	0.622	0.551	0.649	0.588	0.554	0.598	0.488	0.586	0.542	0.542	0.479
126	0.788	0.658	0.616	0.636	0.645	0.642	0.671	0.593	0.591	0.518	0.618	0.555	0.519	0.564	0.452	0.550	0.505	0.505	0.442
138	0.764	0.629	0.587	0.608	0.614	0.610	0.638	0.560	0.559	0.484	0.586	0.523	0.486	0.532	0.419	0.516	0.472	0.471	0.409
150	0.739	0.601	0.559	0.581	0.584	0.578	0.607	0.528	0.528	0.453	0.554	0.493	0.455	0.501	0.387	0.483	0.440	0.440	0.378
162	0.714	0.574	0.532	0.554	0.555	0.548	0.575	0.498	0.499	0.423	0.524	0.464	0.425	0.471	0.358	0.452	0.410	0.410	0.349
174	0.688	0.547	0.507	0.529	0.527	0.518	0.545	0.468	0.471	0.395	0.494	0.437	0.398	0.443	0.331	0.422	0.382	0.382	0.322
186	0.663	0.521	0.482	0.505	0.500	0.489	0.515	0.440	0.444	0.368	0.465	0.411	0.372	0.416	0.306	0.394	0.356	0.355	0.298
198	0.637	0.496	0.458	0.481	0.473	0.461	0.485	0.413	0.418	0.343	0.438	0.387	0.347	0.391	0.283	0.368	0.331	0.331	0.275
210	0.612	0.472	0.436	0.459	0.448	0.433	0.457	0.387	0.394	0.320	0.411	0.364	0.324	0.367	0.261	0.342	0.308	0.307	0.254
222	0.586	0.448	0.414	0.437	0.423	0.407	0.429	0.362	0.370	0.297	0.386	0.342	0.302	0.344	0.241	0.318	0.286	0.286	0.234
234	0.561	0.426	0.393	0.416	0.399	0.382	0.402	0.339	0.348	0.277	0.362	0.321	0.282	0.322	0.223	0.296	0.266	0.265	0.216
246	0.542	0.406	0.375	0.397	0.379	0.361	0.380	0.319	0.328	0.259	0.342	0.302	0.263	0.302	0.206	0.276	0.247	0.246	0.200
258	0.530	0.389	0.358	0.379	0.361	0.343	0.363	0.304	0.312	0.244	0.326	0.285	0.247	0.286	0.191	0.260	0.229	0.228	0.184

Notes

(1)-(19) Data from U.S. Treasury
http://www.treasury.gov/offices/domestic-finance/debt-management/interest-rate/yield_historical_main.shtml

(20)-(38) Computed from (1)-(19), by interpolation of rates, compounded for number of months indicated

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET RESULTS **EXHIBIT 8**
PRESENT VALUE FACTORS

Accident Year Age (Months)	Cumulative Paid Development Factor	Cumulative Percent Paid	Incremental Percent Paid	*DISCOUNT FACTORS*																	
				12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
12	4.436	22.5%	22.5%	22.5%	22.2%	22.0%	22.1%	22.3%	22.4%	22.4%	22.3%	21.9%	21.9%	22.0%	22.0%	22.0%	22.0%	21.8%	22.2%	22.2%	22.1%	21.8%
24	2.115	47.3%	24.7%	24.5%	23.6%	23.0%	23.2%	23.7%	24.2%	24.2%	23.8%	22.9%	22.6%	23.2%	22.8%	22.8%	22.9%	22.2%	23.4%	23.3%	23.2%	22.4%
36	1.468	68.1%	20.8%	20.4%	19.3%	18.5%	18.7%	19.3%	19.8%	19.9%	19.2%	18.4%	17.9%	18.7%	18.2%	18.0%	18.4%	17.3%	18.7%	18.5%	18.5%	17.5%
48	1.207	82.9%	14.7%	14.2%	13.2%	12.5%	12.7%	13.1%	13.5%	13.7%	12.9%	12.4%	11.9%	12.6%	12.1%	12.0%	12.3%	11.3%	12.5%	12.3%	12.3%	11.5%
60	1.093	91.5%	8.6%	8.1%	7.4%	7.0%	7.1%	7.4%	7.5%	7.7%	7.1%	6.9%	6.5%	7.0%	6.7%	6.6%	6.8%	6.1%	6.9%	6.7%	6.7%	6.2%
72	1.045	95.7%	4.3%	3.9%	3.5%	3.3%	3.4%	3.5%	3.6%	3.6%	3.3%	3.3%	3.0%	3.3%	3.1%	3.1%	3.2%	2.8%	3.2%	3.1%	3.1%	2.8%
84	1.022	97.8%	2.1%	1.9%	1.6%	1.5%	1.6%	1.6%	1.6%	1.7%	1.5%	1.5%	1.4%	1.5%	1.4%	1.4%	1.5%	1.3%	1.5%	1.4%	1.4%	1.3%
96	1.013	98.8%	0.9%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.6%	0.6%	0.7%	0.6%	0.6%	0.6%	0.5%	0.6%	0.6%	0.6%	0.5%
108	1.007	99.3%	0.6%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.3%	0.4%	0.4%	0.3%	0.4%	0.3%	0.4%	0.3%	0.3%	0.3%
120	1.003	99.7%	0.4%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
132	1.002	99.8%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
144	1.001	99.9%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
156	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
168	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
180	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
192	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
204	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
216	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
228	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
240	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
252	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
264	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total			100.0%	97.3%	92.5%	89.4%	90.2%	92.4%	94.1%	94.8%	91.8%	88.8%	86.6%	89.8%	87.7%	87.1%	88.4%	84.1%	89.7%	88.7%	88.5%	84.5%
Present Value Factor				**0.973**	**0.925**	**0.894**	**0.902**	**0.924**	**0.941**	**0.948**	**0.918**	**0.888**	**0.866**	**0.898**	**0.877**	**0.871**	**0.884**	**0.841**	**0.897**	**0.887**	**0.885**	**0.845**

Notes

(1) From Exhibit 6

(2) = 1 / (1)

(3) From (2)

(4) - (22) Product of (3) and Exhibit 7, Columns (20) - (38)

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET RESULTS **EXHIBIT 9**
DURATION OF PAYOUT OF ACCIDENT YEAR LOSSES

Accident Year Age (Months)	Cumulative Paid Development Factor	Cumulative Percent Paid	Incremental Percent Paid	Duration
(1)	(2)	(3)	(4)	(5)
12	4.436	22.5%	22.5%	0.11
24	2.115	47.3%	24.7%	0.37
36	1.468	68.1%	20.8%	0.52
48	1.207	82.9%	14.7%	0.52
60	1.093	91.5%	8.6%	0.39
72	1.045	95.7%	4.3%	0.23
84	1.022	97.8%	2.1%	0.14
96	1.013	98.8%	0.9%	0.07
108	1.007	99.3%	0.6%	0.05
120	1.003	99.7%	0.4%	0.03
132	1.002	99.8%	0.1%	0.02
144	1.001	99.9%	0.1%	0.01
156	1.000	100.0%	0.0%	0.00
168	1.000	100.0%	0.0%	0.00
180	1.000	100.0%	0.0%	0.00
192	1.000	100.0%	0.0%	0.00
204	1.000	100.0%	0.0%	0.00
216	1.000	100.0%	0.0%	0.00
228	1.000	100.0%	0.0%	0.00
240	1.000	100.0%	0.0%	0.00
252	1.000	100.0%	0.0%	0.00
264	1.000	100.0%	0.0%	0.00
Total			100.0%	246.6%

Duration (years)	**2.4663**

Notes
(2) From Exhibit 6
(3) = 1 / (2)
(4) From (2)
(5) = (4) * [(1) / 12 - 0.5]

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET RESULTS **EXHIBIT 10**
DEVELOPED INDUSTRY ULTIMATE LOSS & ALAE
Dollars in Thousands

Accident Year	Net Booked Ultimate Loss & ALAE (1)	Average Development Parameter μ (2)	Variance Development Parameter σ^2 (3)	Net Developed Ultimate Loss & ALAE (4)	Developed vs Booked Ultimate Loss & ALAE (5)	Paid Loss & ALAE (6)	Developed Unpaid Loss & ALAE (7)
1987	8,034,872	0.000%	0.000%	8,034,872	-	7,798,508	236,364
1988	8,543,928	0.000%	0.000%	8,543,928	-	8,270,462	273,466
1989	9,101,236	0.000%	0.000%	9,101,236	-	8,914,519	186,717
1990	8,818,434	0.000%	0.000%	8,818,434	-	8,673,421	145,013
1991	8,016,358	0.000%	0.000%	8,016,358	-	7,917,278	99,080
1992	7,956,577	0.000%	0.000%	7,956,577	-	7,823,914	132,663
1993	8,284,094	0.000%	0.000%	8,284,094	-	8,194,228	89,866
1994	8,904,679	0.000%	0.000%	8,904,679	-	8,813,471	91,208
1995	9,031,717	0.000%	0.000%	9,031,717	-	8,950,911	80,806
1996	9,743,683	0.000%	0.000%	9,743,683	-	9,630,426	113,257
1997	10,205,685	0.000%	0.000%	10,205,685	-	10,097,558	108,127
1998	10,418,275	0.000%	0.000%	10,418,275	-	10,300,393	117,882
1999	11,075,835	0.000%	0.000%	11,075,835	-	10,943,805	132,030
2000	11,362,381	-0.079%	0.000%	11,353,391	(8,990)	11,176,545	176,846
2001	10,943,423	-0.308%	0.002%	10,909,844	(33,579)	10,673,375	236,469
2002	10,555,623	-0.600%	0.002%	10,492,550	(63,073)	10,191,909	300,641
2003	10,659,927	-0.939%	0.005%	10,560,536	(99,391)	10,039,271	521,265
2004	10,786,513	-1.139%	0.014%	10,665,074	(121,439)	9,682,114	982,960
2005	11,239,808	-0.959%	0.042%	11,134,937	(104,871)	9,057,583	2,077,354
2006	11,419,000	-0.409%	0.139%	11,380,317	(38,683)	7,543,503	3,836,814
2007	11,819,461	0.388%	0.336%	11,885,368	65,907	5,487,654	6,397,714
2008	11,444,660	-0.385%	0.656%	11,438,105	(6,555)	2,553,063	8,885,042
Total	218,366,169			217,955,495	(410,674)	192,733,911	25,221,584

Notes

(1) From Exhibit 5, Column 3
(2) From Exhibit 3, Cumulative Average
(3) From Exhibit 4, Variance
(4) = (1) * exp[(2) + (3) / 2]
(5) = (4) - (1)
(6) From Exhibit 5, Column 4
(7) = (4) - (6)

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET RESULTS **EXHIBIT 11**
INDUSTRY HISTORICAL ULTIMATE LOSS & ALAE RATIOS
Dollars in Thousands

Accident Year	12 month Booked Ultimate Loss & ALAE Ratio (1)	PV Factor (2)	1 - Exp Ratio (3)	Loss Ratio Prior to Adjustment (4)	Loss Ratio Adjustment (5)	Adjusted Loss Ratio (6)	Log of Adjusted Loss Ratio (7)	12 Month Booked Ultimate Loss (8)	Latest Evaluation Ultimate Loss (9)	Ratio Latest to 12 Month Booked (10)	Log of Ratio (11)
1987	72.5%	0.845	73.7%	59.4%	0.846	50.3%	-68.8%	8,195,868	8,034,872	0.980	-0.020
1988	76.7%	0.845	71.9%	64.5%	0.846	54.5%	-60.6%	8,546,503	8,543,928	1.000	0.000
1989	80.9%	0.845	71.0%	68.8%	0.846	58.2%	-54.0%	9,420,085	9,101,236	0.966	-0.034
1990	79.8%	0.845	70.5%	68.3%	0.846	57.8%	-54.8%	9,479,650	8,818,434	0.930	-0.072
1991	79.2%	0.885	70.0%	71.6%	0.846	60.6%	-50.2%	9,031,017	8,016,358	0.888	-0.119
1992	78.0%	0.887	69.4%	71.2%	0.846	60.3%	-50.6%	8,961,355	7,956,577	0.888	-0.119
1993	77.1%	0.897	69.5%	71.1%	0.846	60.1%	-50.8%	8,747,317	8,284,094	0.947	-0.054
1994	78.3%	0.841	69.3%	67.8%	0.846	57.4%	-55.5%	8,916,700	8,904,679	0.999	-0.001
1995	78.4%	0.884	69.5%	71.3%	0.846	60.3%	-50.5%	9,057,286	9,031,717	0.997	-0.003
1996	76.7%	0.871	69.4%	68.8%	0.846	58.2%	-54.1%	9,237,853	9,743,683	1.055	0.053
1997	77.8%	0.877	69.8%	69.9%	0.846	59.1%	-52.5%	9,485,776	10,205,685	1.076	0.073
1998	77.0%	0.898	69.9%	70.8%	0.846	59.9%	-51.3%	9,314,608	10,418,275	1.118	0.112
1999	78.5%	0.866	68.3%	71.1%	0.846	60.1%	-50.8%	9,408,335	11,075,835	1.177	0.163
2000	77.4%	0.888	69.8%	70.3%	0.846	59.5%	-51.9%	9,937,589	11,362,381	1.143	0.133
2001	73.4%	0.918	70.4%	68.3%	0.846	57.8%	-54.8%	10,290,153	10,943,423	1.063	0.058
2002	66.6%	0.948	71.8%	62.9%	1.000	62.9%	-46.4%	10,561,049	10,555,623	0.999	-0.007
2003	63.7%	0.941	73.4%	58.4%	1.000	58.4%	-53.9%	11,210,956	10,659,927	0.951	-0.060
2004	61.6%	0.924	72.3%	56.2%	1.000	56.2%	-57.7%	11,556,476	10,786,513	0.933	-0.080
2005	60.8%	0.902	72.6%	54.0%	1.000	54.0%	-61.6%	11,717,674	11,239,808	0.959	-0.051
2006	61.6%	0.894	71.5%	55.0%	1.000	55.0%	-59.8%	11,908,448	11,419,000	0.959	-0.045
2007	62.3%	0.925	69.4%	59.3%	1.000	59.3%	-52.3%	11,944,741	11,819,461	0.990	-0.005
2008	62.3%	0.973	69.5%	62.3%	1.000	62.3%	-47.3%	11,444,660	11,444,660	1.000	-0.001
(12) Average						58.3%	-54.1%				
(13) Variance							0.261%				0.577%
(14) Covariance (log of Adjusted Loss Ratio, log of Ratio of Latest to 12 month Booked)							0.061%				
(15) Total Variance of Adjusted Loss Ratio (log) and Ratio of Latest to 12 month Booked (log)							0.960%				

Notes

(1) Exhibit 1 @ 12 Months / Exhibit 5, Column 1
(2) 1995-2008 from Exhibit 8, Columns 4-17; 1994 and prior selectec
(3) = 100% - Exhibit 5, Column 9
(4) = (1) * $(2)_{AYxxxx}/(2)_{AY2008}$ * $(3)_{AY2008}/(3)_{AYXXXX}$
(5) Adjustment of historical loss ratios to normalize for major differences in levels across multi-year periods
AY 1987-2001: AY 2002-2008 Average / AY 1987-2001 Average; 1.000 for AY 2002-200
(6) = (4) * (5)
(7) = LN(6)
(8) Exhibit 1 @ 12 Months
(9) Exhibit 1 @ 12 Current Evaluation
(10) = (9) / (8)
(11) = LN (10) + Exhibit 10, Column 2 + (Exhibit 10, Column 3) / 2
(12) Average of Column 7
(13) Variance of Column 7 and Column 11
(14) Covariance(Column 7, Column 11)
(15) = Row 13, Column 7 + Row 13, Column 7 + 2 * Row 14

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET RESULTS **EXHIBIT 12A**
DERIVATION OF INDUSTRY 2008 MARKET VALUE OF RISK PARAMETER (λ)
Dollars in Thousands

MARKET VALUE OF RISK (λ)

		Notes	
1 - ER	69.5%	100% - Expense Ratio	From Exhibit 5, Column 10 Selected
1 + ULAE	1.106	1 + ULAE Factor	From Exhibit 5, Column 8 Selected
PV	0.973	Present Value Factor	From Exhibit 8, Column 4 Total
Target Loss Ratio	64.6%	= (1 - ER) / (1 + ULAE) / PV	
ULR12	62.3%	Estimated Ultimate Loss Ratio (at 12 months) of Latest Accident Year	From Exhibit 5, Column 7 Selected
μ	-0.385%	Sample mean of development of estimated ultimate losses	From Exhibit 10, Column 2, 2008
σ^2	0.656%	Variance of development of estimated ultimate losses	From Exhibit 10, Column 3, 2008
σ	8.099%	Standard deviation of development of estimated ultimate losses	= square root of σ^2
D	2.466	Duration	From Exhibit 9, Total Duration
λ	0.290	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - ln (ULR12) - μ - ½σ^2] / [σ·√(D)]	
$\mu_{AY\ ULR}$	-47.3%	Sample mean of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 12, 2008 Accident Year
Combined μ	-47.7%	= μ + $\mu_{AY\ ULR}$	
$\sigma^2_{AY\ ULR}$	0.261%	Sample variance of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 13, Variance of Column 7
$\sigma^2_{12\text{-ult}}$	0.577%	Sample variance of logarithm of developed accident year ultimate	From Exhibit 11, Row 13, Variance of Column 11
Cov(AY ULR, 12-ult)	0.061%	Covariance of Accident Year Loss Ratio and Development	From Exhibit 11, Row 14, Covariance
Combined σ^2	0.960%	= $\sigma^2_{AY\ ULR}$ + $\sigma^2_{12\text{-ult}}$ + 2 · Cov(AY ULR, 12-ult)	From Exhibit 11, Row 15
λ adj for pricing risk (2008 market value of risk)	0.230	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - $\mu_{AY\ ULR}$ - ½ · combined σ^2] / [combined σ · √(D)]	

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET RESULTS **EXHIBIT 12B**
DERIVATION OF INDUSTRY LONG-TERM MARKET VALUE OF RISK PARAMETER (λ)
Dollars in Thousands

MARKET VALUE OF RISK (λ)

		Notes	
1 - ER	69.5%	100% - Expense Ratio	From Exhibit 5, Column 10 Selected
1 + ULAE	1.106	1 + ULAE Factor	From Exhibit 5, Column 8 Selected
PV	0.973	Present Value Factor	From Exhibit 8, Column 4 Total
Target Loss Ratio	64.6%	= (1 - ER) / (1 + ULAE) / PV	
ULR12	62.3%	Estimated Ultimate Loss Ratio (at 12 months) of Latest Accident Year	From Exhibit 5, Column 7 Selected
μ	-0.385%	Sample mean of development of estimated ultimate losses	From Exhibit 10, Column 2, 2008
σ^2	0.656%	Variance of development of estimated ultimate losses	From Exhibit 10, Column 3, 2008
σ	8.099%	Standard deviation of development of estimated ultimate losses	= square root of σ^2
D	2.466	Duration	From Exhibit 9, Total Duration
λ	0.290	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - ln (ULR12) - μ - ½σ^2] / [σ·√(D)]	
$\mu_{AY\ ULR}$	-54.1%	Sample mean of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 12, Average
Combined μ	-54.5%	= μ + $\mu_{AY\ ULR}$	
$\sigma^2_{AY\ ULR}$	0.261%	Sample variance of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 13, Variance of Column 7
$\sigma^2_{12\text{-ult}}$	0.577%	Sample variance of logarithm of developed accident year ultimate	From Exhibit 11, Row 13, Variance of Column 11
Cov(AY ULR, 12-ult)	0.061%	Covariance of Accident Year Loss Ratio and Development	From Exhibit 11, Row 14, Covariance
Combined σ^2	0.960%	= $\sigma^2_{AY\ ULR}$ + $\sigma^2_{12\text{-ult}}$ + 2 · Cov(AY ULR, 12-ult)	From Exhibit 11, Row 15
λ adj for pricing risk (long-term market value of risk)	0.671	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - $\mu_{AY\ ULR}$ - ½ · combined σ^2] / [combined σ · √(D)]	

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET RESULTS **EXHIBIT 13A**
RISK MARGIN RESULTS FOR INDUSTRY AND LARGEST 100 U.S. INSURERS BASED ON 2008 MARKET VALUE OF RISK
Dollars in Thousands

	Simulated 1997-2008 Unpaid Claims	Industry Aggregate	Company A	Company B	Company C	Company D	. . .	Total Largest 100 Companies
(1)	25th Percentile	22,907,649	2,011,722	1,711,198	772,647	196,974		
(2)	50th Percentile	23,681,474	2,094,278	1,853,721	844,922	206,468		
(3)	75th Percentile	24,574,559	2,169,446	1,984,969	919,666	216,956		
(4)	Average	23,749,611	2,097,979	1,860,372	849,217	206,773		
(5)	Standard Deviation	1,308,386	117,066	206,560	105,276	14,753		
(6)	Simulated Sample μ = Average[log(simulated unpaid claims)]	16.982	14.555	14.431	13.645	12.237		
(7)	Simulated Sample σ = Standard Deviation[log(simulated unpaid claims)]	0.0546	0.055	0.110	0.124	0.071		
(8)	Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2)$	23,757,283	2,098,698	1,861,442	850,040	206,870		21,802,469
(9)	Industry Market Value of Risk (λ_1)	0.230	0.230	0.230	0.230	0.230		
(10)	Duration of Unpaid Claims (D)	1.793	1.785	1.818	1.846	1.807		
(11)	Risk Adjusted Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2 + \lambda_1\cdot\sigma\cdot\sqrt{D})$	24,159,174	2,134,490	1,925,892	883,459	211,422		22,521,456
(12)	Risk Margin = (11) - (8)	401,891	35,792	64,451	33,419	4,552		718,987
(13)	Risk Margin % of Expected Unpaid Claims = (11) / (8)	1.7%	1.7%	3.5%	3.9%	2.2%		3.3%

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET RESULTS **EXHIBIT 13B**
RISK MARGIN RESULTS FOR INDUSTRY AND LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK
Dollars in Thousands

	Simulated 1997-2008 Unpaid Claims	Industry Aggregate	Company A	Company B	Company C	Company D	. . .	Total Largest 100 Companies
(1)	25th Percentile	22,907,649	2,011,722	1,711,198	772,647	196,974		
(2)	50th Percentile	23,681,474	2,094,278	1,853,721	844,922	206,468		
(3)	75th Percentile	24,574,559	2,169,446	1,984,969	919,666	216,956		
(4)	Average	23,749,611	2,097,979	1,860,372	849,217	206,773		
(5)	Standard Deviation	1,308,386	117,066	206,560	105,276	14,753		
(6)	Simulated Sample μ = Average[log(simulated unpaid claims)]	16.982	14.555	14.431	13.645	12.237		
(7)	Simulated Sample σ = Standard Deviation[log(simulated unpaid claims)]	0.0546	0.055	0.110	0.124	0.071		
(8)	Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2)$	23,757,283	2,098,698	1,861,442	850,040	206,870		21,802,469
(9)	Industry Market Value of Risk (λ_1)	0.671	0.671	0.671	0.671	0.671		
(10)	Duration of Unpaid Claims (D)	1.793	1.785	1.818	1.846	1.807		
(11)	Risk Adjusted Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2 + \lambda_1\cdot\sigma\cdot\sqrt{D})$	24,951,314	2,205,051	2,056,186	951,469	220,460		23,997,086
(12)	Risk Margin = (11) - (8)	1,194,031	106,353	194,744	101,430	13,590		2,194,617
(13)	Risk Margin % of Expected Unpaid Claims = (11) / (8)	5.0%	5.1%	10.5%	11.9%	6.6%		10.1%

COMMERCIAL AUTO LIABILITY **SECTION A**

INDUSTRY NET RESULTS **EXHIBIT 14**

PAYOUT OF EXPECTED UNPAID LOSS & ALAE FOR LARGEST 100 U.S. INSURERS

Dollars in Thousands

Payout of 12/31/2008 Expected Unpaid Loss & ALAE

	Total Accident Years 1997-2008	Accident Year 2008	Accident Year 2007	Accident Year 2006	Accident Year 2005	Accident Year 2004	Accident Year 2003	Accident Year 2002	Accident Year 2001	Accident Year 2000	Accident Year 1999	Accident Year 1998	Accident Year 1997
Paid in	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Year 1	8,643,182	2,630,986	2,343,308	1,616,590	938,012	443,807	223,326	119,825	92,202	77,970	60,258	51,417	45,482
Year 2	5,840,959	2,215,956	1,657,295	942,462	465,494	216,133	101,834	74,299	55,533	32,900	30,324	25,860	22,869
Year 3	3,514,004	1,567,226	966,193	467,703	226,695	98,554	63,143	44,750	23,432	16,556	15,251	13,003	11,497
Year 4	1,882,431	913,683	479,479	227,771	103,370	61,109	38,031	18,882	11,792	8,327	7,669	6,537	5,780
Year 5	937,403	453,421	233,506	103,861	64,096	36,806	16,047	9,502	5,931	4,187	3,855	3,286	2,905
Year 6	468,819	220,815	106,476	64,400	38,605	15,530	8,076	4,779	2,982	2,105	1,938	1,652	1,460
Year 7	241,164	100,689	66,021	38,788	16,289	7,815	4,062	2,403	1,499	1,058	974	830	734
Year 8	136,505	62,433	39,764	16,367	8,197	3,931	2,042	1,208	754	532	490	417	369
Year 9	71,639	37,603	16,779	8,236	4,123	1,976	1,027	607	379	267	246	210	185
Year 10	33,083	15,867	8,444	4,142	2,073	994	516	305	190	134	124	105	187
Year 11	16,601	7,985	4,247	2,083	1,042	500	259	153	96	68	62	107	-
Year 12	8,326	4,016	2,135	1,047	524	251	130	77	48	34	63	-	-
Year 13	4,172	2,019	1,074	526	263	126	66	39	24	34	-	-	-
Year 14	2,092	1,015	540	265	132	63	33	19	24	-	-	-	-
Year 15	1,049	510	271	133	67	32	17	20	-	-	-	-	-
Year 16	526	257	136	67	33	16	17	-	-	-	-	-	-
Year 17	264	129	69	34	17	16	-	-	-	-	-	-	-
Year 18	133	65	34	17	17	-	-	-	-	-	-	-	-
Year 19	67	33	17	17	-	-	-	-	-	-	-	-	-
Year 20	34	16	18	-	-	-	-	-	-	-	-	-	-
Year 21	17	17	-	-	-	-	-	-	-	-	-	-	-
Year 22	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	21,802,469	8,234,742	5,925,807	3,494,508	1,869,050	887,661	458,625	276,870	194,887	144,173	121,254	103,424	91,469

Notes

Total equals expected unpaid by accident year

(2) - (13) Based on expected unpaid by accident year and payout pattern from Exhibit 8

COMMERCIAL AUTO LIABILITY **SECTION A**
INDUSTRY NET RESULTS **EXHIBIT 15**
DISCOUNTED PAYOUT OF EXPECTED UNPAID LOSS & ALAE FOR LARGEST 100 U.S. INSURERS
Dollars in Thousands

Discounted Payout of 12/31/2008 Expected Unpaid Loss & ALAE

	Discount	Total Accident Years	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year
	Factor	1997-2008	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997
Paid in	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Year 1	0.999	8,631,538	2,627,442	2,340,151	1,614,412	936,748	443,209	223,025	119,664	92,078	77,865	60,177	51,347	45,421
Year 2	0.992	5,791,804	2,197,307	1,643,348	934,531	461,577	214,314	100,977	73,673	55,066	32,623	30,069	25,642	22,676
Year 3	0.978	3,437,871	1,533,271	945,260	457,570	221,784	96,419	61,775	43,780	22,925	16,198	14,921	12,721	11,248
Year 4	0.961	1,809,365	878,219	460,869	218,930	99,358	58,738	36,555	18,149	11,334	8,004	7,371	6,283	5,555
Year 5	0.939	880,065	425,686	219,223	97,508	60,175	34,555	15,066	8,921	5,568	3,931	3,619	3,085	2,728
Year 6	0.915	428,928	202,027	97,416	58,920	35,320	14,209	7,388	4,373	2,728	1,926	1,773	1,511	1,336
Year 7	0.891	214,897	89,722	58,830	34,563	14,515	6,964	3,619	2,141	1,336	943	868	740	654
Year 8	0.866	118,243	54,081	34,445	14,177	7,101	3,405	1,769	1,046	653	461	424	362	320
Year 9	0.841	60,239	31,619	14,109	6,926	3,467	1,662	863	511	319	225	207	176	156
Year 10	0.814	26,937	12,920	6,875	3,373	1,688	809	420	249	155	109	101	86	153
Year 11	0.788	13,088	6,295	3,348	1,642	822	394	205	121	75	53	49	84	-
Year 12	0.764	6,360	3,068	1,631	800	400	192	100	59	37	26	48	-	-
Year 13	0.739	3,082	1,492	793	389	195	93	48	29	18	25	-	-	-
Year 14	0.714	1,493	725	385	189	94	45	24	14	17	-	-	-	-
Year 15	0.688	722	351	187	92	46	22	11	14	-	-	-	-	-
Year 16	0.663	349	170	90	44	22	11	11	-	-	-	-	-	-
Year 17	0.637	168	82	44	21	11	10	-	-	-	-	-	-	-
Year 18	0.612	81	40	21	10	10	-	-	-	-	-	-	-	-
Year 19	0.586	39	19	10	10	-	-	-	-	-	-	-	-	-
Year 20	0.561	19	9	10	-	-	-	-	-	-	-	-	-	-
Year 21	0.542	9	9	-	-	-	-	-	-	-	-	-	-	-
Year 22	0.530	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		21,425,299	8,064,554	5,827,046	3,444,107	1,843,333	875,051	451,856	272,743	192,309	142,388	119,627	102,038	90,246

Notes

(1) From Exhibit 7, Column 20

(2) Sum of Columns 3-14

(3) - (14) Product of Column 1 and Exhibit 14, Columns 2-13

COMMERCIAL AUTO LIABILITY **SECTION A**

INDUSTRY NET RESULTS **EXHIBIT 16**

NET IMPACT OF RISK MARGINS AND DISCOUNT FOR LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK

Dollars in Thousands

Accident Year	31-Dec-08 Booked Unpaid Loss & ALAE (1)	31-Dec-08 Expected Unpaid Loss & ALAE (2)	Average Indicated Risk Margin (3)	Present Value Expected Unpaid Loss & ALAE (4)	Present Value Discount (5)	Risk-Adjusted Discounted Expected Unpaid Loss & ALAE (6)	Net Impact of Risk Margins and Discount vs. Booked (7)
1997	91,469	91,469	N/A	90,246	-1.3%	N/A	N/A
1998	103,424	103,424	N/A	102,038	-1.3%	N/A	N/A
1999	121,254	121,254	N/A	119,627	-1.3%	N/A	N/A
2000	149,144	144,173	N/A	142,388	-1.2%	N/A	N/A
2001	208,650	194,887	N/A	192,309	-1.3%	N/A	N/A
2002	297,171	276,870	N/A	272,743	-1.5%	N/A	N/A
2003	527,014	458,625	N/A	451,856	-1.5%	N/A	N/A
2004	992,002	887,661	N/A	875,051	-1.4%	N/A	N/A
2005	1,979,038	1,869,050	N/A	1,843,333	-1.4%	N/A	N/A
2006	3,581,827	3,494,508	N/A	3,444,107	-1.4%	N/A	N/A
2007	5,893,242	5,925,807	N/A	5,827,046	-1.7%	N/A	N/A
2008	8,242,349	8,234,742	N/A	8,064,554	-2.1%	N/A	N/A
Total 1997-2008	22,186,584	21,802,469	10.1%	21,425,299	-1.7%	23,581,950	6.3%

Notes

(3) From Exhibit 13B, Row 13, Total Largest 100 U.S. Insurers

(4) From Exhibit 15, Total by Accident Year

(5) = (4) / (2) - 1

(6) = (2) Total * [1 + (3) Total] * [1 + (5) Total]

(7) = (6) Total / (1) Total - 1

COMMERCIAL MULTIPLE PERIL **SECTION B**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 1**

Dollars in Thousands

	Months of Maturity										
Accident Year	12	24	36	48	60	72	84	96	108	120	Latest Evaluation
1987	8,277,207	7,966,088	7,955,398	7,950,411	7,954,522	7,952,914	7,934,667	7,922,340	7,893,492	7,935,340	7,935,340
1988	9,170,947	8,816,998	8,840,651	8,881,708	8,878,454	8,893,565	8,864,653	8,804,488	8,842,985	8,842,450	8,842,450
1989	10,830,290	10,951,877	10,978,664	11,003,974	11,013,922	10,986,587	10,932,566	10,962,659	10,956,062	10,950,486	10,950,486
1990	11,042,654	10,942,906	10,978,026	10,963,756	10,922,899	10,807,135	10,786,184	10,749,109	10,727,156	10,715,386	10,715,386
1991	11,224,333	11,045,534	11,006,969	10,903,018	10,823,456	10,722,686	10,701,751	10,681,624	10,644,493	10,654,254	10,654,254
1992	13,195,825	13,061,701	12,976,357	12,956,151	12,876,174	12,825,097	12,816,166	12,813,238	12,779,024	12,803,656	12,803,656
1993	11,859,305	11,649,773	11,687,180	11,662,260	11,602,493	11,599,115	11,562,504	11,517,046	11,551,976	11,605,537	11,605,537
1994	13,033,952	13,038,143	13,060,351	13,146,901	13,144,914	13,227,673	13,132,537	13,161,275	13,219,929	13,318,381	13,318,381
1995	12,388,985	12,281,447	12,183,409	12,259,760	12,229,157	12,247,747	12,239,631	12,322,719	12,439,427	12,477,097	12,477,097
1996	13,439,227	13,487,621	13,611,916	13,608,753	13,659,735	13,663,365	13,711,531	13,850,156	13,914,964	13,915,552	13,915,552
1997	12,491,912	12,440,590	12,397,181	12,484,893	12,537,096	12,578,605	12,760,841	12,841,478	12,844,775	12,898,050	12,898,050
1998	13,523,977	13,659,337	13,818,464	14,070,552	14,173,893	14,414,330	14,625,848	14,665,238	14,695,169	14,716,147	14,716,147
1999	13,769,366	13,971,979	14,155,966	14,509,802	14,867,336	15,042,732	15,053,224	15,165,656	15,130,562	15,128,644	15,128,644
2000	13,628,215	13,956,176	14,559,989	14,929,935	15,230,576	15,347,279	15,329,530	15,388,151	15,399,096		15,399,096
2001	15,615,731	15,552,860	15,700,111	15,943,122	15,779,052	15,900,765	15,992,656	15,992,975			15,992,975
2002	14,137,617	13,474,713	13,704,491	13,792,532	13,760,812	13,758,620	13,711,005				13,711,005
2003	14,751,482	14,005,959	13,806,266	13,776,230	13,664,366	13,590,079					13,590,079
2004	16,675,054	15,817,215	15,688,563	15,393,921	15,090,905						15,090,905
2005	17,761,767	17,510,282	17,080,086	16,643,679							16,643,679
2006	16,299,833	15,774,766	15,264,573								15,264,573
2007	17,306,437	16,828,126									16,828,126
2008	21,309,040										21,309,040

Notes

Data from SNL Financial LC

1996-2008 Annual Statements

Industry Total Commercial Multiple Peril

Schedule P, Part 2E

COMMERCIAL MULTIPLE PERIL **SECTION B**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 2**

LINK RATIOS

	Months of Maturity								
Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1987	0.962	0.999	0.999	1.001	1.000	0.998	0.998	0.996	1.005
1988	0.961	1.003	1.005	1.000	1.002	0.997	0.993	1.004	1.000
1989	1.011	1.002	1.002	1.001	0.998	0.995	1.003	0.999	0.999
1990	0.991	1.003	0.999	0.996	0.989	0.998	0.997	0.998	0.999
1991	0.984	0.997	0.991	0.993	0.991	0.998	0.998	0.997	1.001
1992	0.990	0.993	0.998	0.994	0.996	0.999	1.000	0.997	1.002
1993	0.982	1.003	0.998	0.995	1.000	0.997	0.996	1.003	1.005
1994	1.000	1.002	1.007	1.000	1.006	0.993	1.002	1.004	1.007
1995	0.991	0.992	1.006	0.998	1.002	0.999	1.007	1.009	1.003
1996	1.004	1.009	1.000	1.004	1.000	1.004	1.010	1.005	1.000
1997	0.996	0.997	1.007	1.004	1.003	1.014	1.006	1.000	1.004
1998	1.010	1.012	1.018	1.007	1.017	1.015	1.003	1.002	1.001
1999	1.015	1.013	1.025	1.025	1.012	1.001	1.007	0.998	1.000
2000	1.024	1.043	1.025	1.020	1.008	0.999	1.004	1.001	
2001	0.996	1.009	1.015	0.990	1.008	1.006	1.000		
2002	0.953	1.017	1.006	0.998	1.000	0.997			
2003	0.949	0.986	0.998	0.992	0.995				
2004	0.949	0.992	0.981	0.980					
2005	0.986	0.975	0.974						
2006	0.968	0.968							
2007	0.972								

Notes

From Exhibit 1, ratio of successive ultimate loss estimates by accident year

COMMERCIAL MULTIPLE PERIL **SECTION B**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 3**

CUMULATIVE DEVELOPMENT IN ULTIMATE LOSS ESTIMATES BASED ON LOG OF LINK RATIOS

	Months of Maturity								
Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1987	-3.831%	-0.134%	-0.063%	0.052%	-0.020%	-0.230%	-0.155%	-0.365%	0.529%
1988	-3.936%	0.268%	0.463%	-0.037%	0.170%	-0.326%	-0.681%	0.436%	-0.006%
1989	1.116%	0.244%	0.230%	0.090%	-0.248%	-0.493%	0.275%	-0.060%	-0.051%
1990	-0.907%	0.320%	-0.130%	-0.373%	-1.065%	-0.194%	-0.344%	-0.204%	-0.110%
1991	-1.606%	-0.350%	-0.949%	-0.732%	-0.935%	-0.195%	-0.188%	-0.348%	0.092%
1992	-1.022%	-0.656%	-0.156%	-0.619%	-0.397%	-0.070%	-0.023%	-0.267%	0.193%
1993	-1.783%	0.321%	-0.213%	-0.514%	-0.029%	-0.316%	-0.394%	0.303%	0.463%
1994	0.032%	0.170%	0.661%	-0.015%	0.628%	-0.722%	0.219%	0.445%	0.742%
1995	-0.872%	-0.801%	0.625%	-0.250%	0.152%	-0.066%	0.677%	0.943%	0.302%
1996	0.359%	0.917%	-0.023%	0.374%	0.027%	0.352%	1.006%	0.467%	0.004%
1997	-0.412%	-0.350%	0.705%	0.417%	0.331%	1.438%	0.630%	0.026%	0.414%
1998	0.996%	1.158%	1.808%	0.732%	1.682%	1.457%	0.269%	0.204%	0.143%
1999	1.461%	1.308%	2.469%	2.434%	1.173%	0.070%	0.744%	-0.232%	-0.013%
2000	2.378%	4.236%	2.509%	1.994%	0.763%	-0.116%	0.382%	0.071%	
2001	-0.403%	0.942%	1.536%	-1.034%	0.768%	0.576%	0.002%		
2002	-4.802%	1.691%	0.640%	-0.230%	-0.016%	-0.347%			
2003	-5.186%	-1.436%	-0.218%	-0.815%	-0.545%				
2004	-5.281%	-0.817%	-1.896%	-1.988%					
2005	-1.426%	-2.488%	-2.588%						
2006	-3.274%	-3.288%							
2007	-2.803%								
Average	-1.486%	0.063%	0.285%	-0.029%	0.143%	0.051%	0.161%	0.101%	0.208%
	12-108	24-108	36-108	48-108	60-108	72-108	84-108	96-108	108-108
Cumulative Average	-0.502%	0.984%	0.921%	0.636%	0.665%	0.521%	0.470%	0.309%	0.208%

Notes

From Exhibit 2, natural log of ratio of successive ultimate loss estimates by accident year

COMMERCIAL MULTIPLE PERIL **SECTION B**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 4**

VARIANCE-COVARIANCE MATRIX OF LOG OF INCREMENTAL LINK RATIOS

Months of Maturity	12-108	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-Ultimate
12-108	**0.048%**	0.017%	0.016%	0.015%	0.007%	0.004%	0.005%	0.000%	-0.001%	0.000%
24-36	0.017%	**0.023%**	0.013%	0.008%	0.004%	0.000%	0.001%	0.000%	-0.001%	0.000%
36-48	0.016%	0.013%	**0.016%**	0.009%	0.006%	0.002%	0.002%	0.000%	0.000%	0.000%
48-60	0.015%	0.008%	0.009%	**0.010%**	0.004%	0.001%	0.002%	0.000%	0.000%	0.000%
60-72	0.007%	0.004%	0.006%	0.004%	**0.005%**	0.002%	0.001%	0.001%	0.000%	0.000%
72-84	0.004%	0.000%	0.002%	0.001%	0.002%	**0.004%**	0.001%	0.000%	0.000%	0.000%
84-96	0.005%	0.001%	0.002%	0.002%	0.001%	0.001%	**0.002%**	0.000%	0.000%	0.000%
96-108	0.000%	0.000%	0.000%	0.000%	0.001%	0.000%	0.000%	**0.001%**	0.000%	0.000%
108-120	-0.001%	-0.001%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	**0.001%**	0.000%
120-Ultimate	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	**0.000%**
Variance (σ^2)	**0.352%**	**0.177%**	**0.100%**	**0.047%**	**0.025%**	**0.011%**	**0.005%**	**0.002%**	**0.001%**	**0.000%**

Notes

From Exhibit 3, covariance of errors at given maturity with errors at all other maturities

Covariances above diagonal are symmetric with those below

Variance is sum of matrix for all maturities greater than or equal to maturity shown in column

COMMERCIAL MULTIPLE PERIL **SECTION B**

INDUSTRY NET RESULTS **EXHIBIT 5**

SELECTION OF LOSS & ALAE RATIO, ULAE FACTOR, AND LOSS & LAE RATIO

Dollars in Thousands

Accident Year	Net Earned Premium (1)	Net Ultimate Loss & LAE (2)	Net Ultimate Loss & ALAE (3)	Net Paid Loss & ALAE (4)	Net Unpaid Loss & ALAE (5)	Net Ultimate Loss & LAE Ratio (6)	Net Ultimate Loss & ALAE Ratio (7)	ULAE Factor (8)	Underwriting Expense Ratio (9)	100% - Expense Ratio (10)
1987	16,409,943	8,420,937	7,935,340	7,640,931	294,409	51.3%	48.4%	1.061	34.1%	65.9%
1988	16,923,216	9,392,633	8,842,450	8,514,284	328,166	55.5%	52.3%	1.062	35.8%	64.2%
1989	16,827,295	11,586,017	10,950,486	10,574,151	376,335	68.9%	65.1%	1.058	36.7%	63.3%
1990	17,034,141	11,372,467	10,715,386	10,361,568	353,818	66.8%	62.9%	1.061	36.5%	63.5%
1991	16,515,610	11,357,259	10,654,254	10,297,937	356,317	68.8%	64.5%	1.066	37.6%	62.4%
1992	16,070,527	13,682,164	12,803,656	12,491,828	311,828	85.1%	79.7%	1.069	37.3%	62.7%
1993	16,273,849	12,422,779	11,605,537	11,235,210	370,327	76.3%	71.3%	1.070	36.5%	63.5%
1994	16,710,429	14,211,317	13,318,381	12,896,222	422,159	85.0%	79.7%	1.067	36.4%	63.6%
1995	17,558,782	13,447,154	12,477,097	12,082,205	394,892	76.6%	71.1%	1.078	35.7%	64.3%
1996	18,091,013	14,998,085	13,915,552	13,482,635	432,917	82.9%	76.9%	1.078	35.9%	64.1%
1997	18,371,092	14,028,079	12,898,050	12,422,696	475,354	76.4%	70.2%	1.088	36.5%	63.5%
1998	18,322,956	16,086,971	14,716,147	14,206,482	509,665	87.8%	80.3%	1.093	36.4%	63.6%
1999	18,699,440	16,434,336	15,128,644	14,593,734	534,910	87.9%	80.9%	1.086	36.7%	63.3%
2000	19,125,249	16,690,877	15,399,096	14,723,792	675,304	87.3%	80.5%	1.084	35.2%	64.8%
2001	20,904,316	17,439,196	15,992,975	15,193,486	799,489	83.4%	76.5%	1.090	33.1%	66.9%
2002	23,449,876	14,975,652	13,711,005	12,711,446	999,559	63.9%	58.5%	1.092	32.9%	67.1%
2003	26,301,855	14,918,540	13,590,079	12,255,864	1,334,215	56.7%	51.7%	1.098	32.7%	67.3%
2004	28,383,051	16,530,949	15,090,905	13,264,033	1,826,872	58.2%	53.2%	1.095	32.9%	67.1%
2005	28,945,274	18,244,278	16,643,679	13,524,309	3,119,370	63.0%	57.5%	1.096	33.0%	67.0%
2006	30,895,464	16,772,299	15,264,573	10,468,406	4,796,167	54.3%	49.4%	1.099	33.9%	66.1%
2007	31,551,713	18,398,731	16,828,126	9,851,336	6,976,790	58.3%	53.3%	1.093	35.4%	64.6%
2008	30,825,227	23,172,939	21,309,040	8,553,203	12,755,837	75.2%	69.1%	1.087	34.7%	65.3%
Selected					**38,444,700**		**69.1%**	**1.096**		**65.3%**

Notes

(1), (2) Data from SNL Financial LC, 1996-2008 Annual Statements, Industry Total, Schedule P, Part 1E

(3) Exhibit 1, Latest Evaluation

(4) Data from SNL Financial LC, 1996-2008 Annual Statements, Industry Total, Schedule P, Part 1E

(5) = (3) - (4)

(6) = (2) / (1)

(7) = (3) / (1); Selected from 2008

(8) = (6) / (7); Selected from 2005-2007 Average

(9) From AM Best Aggregates and Averages, includes policyholder dividends

(10) = 1 - (9); Selected from 2008

COMMERCIAL MULTIPLE PERIL **SECTION B**

INDUSTRY PAYOUT PATTERN (PAID LOSS & ALAE) **EXHIBIT 6**

Dollars in Thousands

Months of Maturity

Accident Year	12	24	36	48	60	72	84	96	108	120
1987	2,494,978	4,290,176	5,197,518	5,973,622	6,589,871	7,016,429	7,287,059	7,458,807	7,563,284	7,640,931
1988	2,943,493	4,879,269	5,901,903	6,746,263	7,385,911	7,834,460	8,154,885	8,335,295	8,446,706	8,514,284
1989	3,614,761	6,421,141	7,603,112	8,579,066	9,307,370	9,803,762	10,151,943	10,366,266	10,476,119	10,574,151
1990	4,102,163	5,990,842	7,217,096	8,257,259	9,011,159	9,538,637	9,890,261	10,100,301	10,228,847	10,361,568
1991	3,935,305	6,013,629	7,268,247	8,319,251	9,040,993	9,528,242	9,845,680	10,057,435	10,200,199	10,297,937
1992	4,949,919	7,918,499	9,305,971	10,401,238	11,166,620	11,646,319	11,999,589	12,217,028	12,368,013	12,491,828
1993	4,043,394	6,610,710	8,015,057	9,096,561	9,879,357	10,387,363	10,714,538	10,920,173	11,103,079	11,235,210
1994	4,908,047	7,860,072	9,482,885	10,746,234	11,374,283	11,959,814	12,331,058	12,571,504	12,768,418	12,896,222
1995	4,427,743	7,170,671	8,626,682	9,782,412	10,547,571	11,150,901	11,533,886	11,781,313	11,945,778	12,082,205
1996	5,215,826	8,359,044	9,814,405	11,086,306	11,930,321	12,590,957	12,990,855	13,194,499	13,385,407	13,482,635
1997	4,525,879	7,240,188	8,708,830	9,994,201	10,939,689	11,543,345	11,875,463	12,132,509	12,293,297	12,422,696
1998	5,383,265	8,572,830	10,267,432	11,494,768	12,505,288	13,162,617	13,620,149	13,873,593	14,068,363	14,206,482
1999	5,650,566	9,006,646	10,767,906	12,187,259	13,089,107	13,693,876	13,998,073	14,267,636	14,467,661	14,593,734
2000	5,562,885	9,096,042	10,956,951	12,352,732	13,422,483	13,812,295	14,252,312	14,527,532	14,723,792	
2001	6,137,525	9,467,177	11,455,361	12,975,959	13,740,021	14,471,400	14,899,288	15,193,486		
2002	4,829,016	7,843,613	9,501,275	10,777,738	11,716,263	12,331,548	12,711,446			
2003	5,082,670	7,989,483	9,373,040	10,691,325	11,624,205	12,255,864				
2004	5,873,536	9,407,503	10,963,767	12,283,675	13,264,033					
2005	5,651,168	10,513,108	12,041,288	13,524,309						
2006	5,508,085	8,892,225	10,468,406							
2007	6,236,478	9,851,336								
2008	8,553,203									

Age-to-Age Paid Loss Development

Accident Year	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120
1987	1.720	1.211	1.149	1.103	1.065	1.039	1.024	1.014	1.010
1988	1.658	1.210	1.143	1.095	1.061	1.041	1.022	1.013	1.008
1989	1.776	1.184	1.128	1.085	1.053	1.036	1.021	1.011	1.009
1990	1.460	1.205	1.144	1.091	1.059	1.037	1.021	1.013	1.013
1991	1.528	1.209	1.145	1.087	1.054	1.033	1.022	1.014	1.010
1992	1.600	1.175	1.118	1.074	1.043	1.030	1.018	1.012	1.010
1993	1.635	1.212	1.135	1.086	1.051	1.031	1.019	1.017	1.012
1994	1.601	1.206	1.133	1.058	1.051	1.031	1.019	1.016	1.010
1995	1.619	1.203	1.134	1.078	1.057	1.034	1.021	1.014	1.011
1996	1.603	1.174	1.130	1.076	1.055	1.032	1.016	1.014	1.007
1997	1.600	1.203	1.148	1.095	1.055	1.029	1.022	1.013	1.011
1998	1.592	1.198	1.120	1.088	1.053	1.035	1.019	1.014	1.010
1999	1.594	1.196	1.132	1.074	1.046	1.022	1.019	1.014	1.009
2000	1.635	1.205	1.127	1.087	1.029	1.032	1.019	1.014	
2001	1.543	1.210	1.133	1.059	1.053	1.030	1.020		
2002	1.624	1.211	1.134	1.087	1.053	1.031			
2003	1.572	1.173	1.141	1.087	1.054				
2004	1.602	1.165	1.120	1.080					
2005	1.860	1.145	1.123						
2006	1.614	1.177							
2007	1.580								
Averages									
10-Yr Weighted	1.621	1.187	1.130	1.081	1.050	1.031	1.019	1.014	1.010
10-Yr Straight	1.622	1.188	1.131	1.081	1.051	1.031	1.019	1.014	1.010
Selected	1.621	1.187	1.130	1.081	1.050	1.031	1.019	1.014	1.010

Fitted Age-to-Ultimate

Curve Fits:	R-squared	120	132	144	156	168	180	192	204	216	228	240	252	264
Weibull	99.1%	1.025	1.018	1.013	1.010	1.007	1.005	1.004	1.003	1.002	1.002	1.001	1.001	1.001
Power Curve	98.0%	1.014	1.009	1.006	1.004	1.002	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000
Inverse Power Curve	97.3%	1.096	1.084	1.074	1.066	1.059	1.052	1.047	1.042	1.038	1.034	1.030	1.027	1.024

Selected Pattern	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264
Age-to-Age	**1.621**	**1.187**	**1.130**	**1.081**	**1.050**	**1.031**	**1.019**	**1.014**	**1.010**	**1.005**	**1.003**	**1.002**	**1.001**	**1.001**	**1.001**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	
Age-to-Ultimate	**2.694**	**1.662**	**1.400**	**1.239**	**1.146**	**1.091**	**1.059**	**1.039**	**1.025**	**1.014**	**1.009**	**1.006**	**1.004**	**1.002**	**1.001**	**1.001**	**1.001**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**
Cumulative % Paid	37.1%	60.2%	71.4%	80.7%	87.2%	91.6%	94.4%	96.2%	97.6%	98.6%	99.1%	99.4%	99.6%	99.8%	99.9%	99.9%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%
Incremental % Paid	37.1%	23.1%	11.3%	9.3%	6.5%	4.4%	2.8%	1.8%	1.4%	1.0%	0.5%	0.3%	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Notes

Data from SNL Financial LC

1996-2008 Annual Statements

Industry Total Commercial Multiple Peril

Schedule P, Part 3E

	12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
Duration	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1 month	0.11%	2.76%	4.75%	4.01%	1.89%	0.90%	1.20%	1.68%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3 months	0.11%	3.36%	5.02%	4.08%	2.22%	0.95%	1.22%	1.74%	5.89%	5.33%	4.48%	5.36%	5.21%	5.10%	5.68%	3.07%	3.15%	3.96%	6.63%
6 months	0.27%	3.49%	5.09%	4.37%	2.59%	1.02%	1.23%	1.83%	5.70%	5.74%	4.55%	5.45%	5.33%	5.17%	6.51%	3.30%	3.38%	4.00%	6.73%
1 year	0.37%	3.34%	5.00%	4.38%	2.75%	1.26%	1.32%	2.17%	5.32%	5.98%	4.53%	5.51%	5.51%	5.18%	7.20%	3.63%	3.61%	4.12%	6.82%
2 years	0.76%	3.05%	4.82%	4.41%	3.08%	1.84%	1.61%	3.07%	5.11%	6.24%	4.54%	5.66%	5.88%	5.18%	7.69%	4.25%	4.56%	4.77%	7.15%
3 years	1.00%	3.07%	4.74%	4.37%	3.25%	2.37%	1.99%	3.59%	5.06%	6.29%	4.55%	5.68%	6.04%	5.25%	7.80%	4.58%	5.12%	5.11%	7.40%
5 years	1.55%	3.45%	4.70%	4.35%	3.63%	3.25%	2.78%	4.38%	4.99%	6.36%	4.56%	5.71%	6.21%	5.38%	7.83%	5.21%	6.04%	5.93%	7.68%
7 years	1.87%	3.70%	4.70%	4.36%	3.94%	3.77%	3.36%	4.84%	5.16%	6.55%	4.73%	5.77%	6.34%	5.49%	7.84%	5.53%	6.43%	6.38%	8.00%
10 years	2.25%	4.04%	4.71%	4.39%	4.24%	4.27%	3.83%	5.07%	5.12%	6.45%	4.65%	5.75%	6.43%	5.58%	7.84%	5.83%	6.70%	6.71%	8.08%
20 years	3.05%	4.50%	4.91%	4.61%	4.85%	5.10%	4.83%	5.74%	5.59%	6.83%	5.39%	6.02%	6.73%	6.01%	8.02%	6.48%	7.05%	7.06%	8.17%
30 years	2.69%	4.45%	4.81%	4.61%	4.85%	5.10%	4.83%	5.48%	5.46%	6.48%	5.09%	5.93%	6.65%	5.96%	7.89%	6.35%	7.40%	7.41%	8.26%

Discount Factor	12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
(months)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
6	0.999	0.983	0.975	0.979	0.987	0.995	0.994	0.991	0.973	0.972	0.978	0.974	0.974	0.975	0.969	0.984	0.984	0.981	0.968
18	0.992	0.954	0.931	0.938	0.958	0.977	0.978	0.962	0.927	0.915	0.936	0.922	0.920	0.927	0.898	0.944	0.942	0.937	0.904
30	0.978	0.927	0.890	0.898	0.925	0.949	0.956	0.921	0.883	0.859	0.895	0.871	0.865	0.881	0.830	0.898	0.889	0.886	0.839
42	0.961	0.897	0.851	0.861	0.891	0.914	0.927	0.878	0.842	0.807	0.856	0.824	0.813	0.835	0.769	0.850	0.833	0.834	0.777
54	0.939	0.862	0.813	0.825	0.855	0.874	0.892	0.832	0.803	0.758	0.818	0.779	0.764	0.791	0.713	0.801	0.776	0.778	0.719
66	0.915	0.827	0.777	0.791	0.819	0.833	0.853	0.785	0.763	0.711	0.781	0.736	0.717	0.749	0.661	0.753	0.721	0.724	0.663
78	0.891	0.793	0.742	0.758	0.782	0.793	0.814	0.741	0.723	0.664	0.742	0.695	0.672	0.708	0.612	0.708	0.671	0.674	0.609
90	0.866	0.758	0.709	0.726	0.746	0.753	0.776	0.700	0.686	0.622	0.708	0.657	0.630	0.669	0.568	0.665	0.625	0.626	0.561
102	0.841	0.724	0.677	0.695	0.711	0.715	0.741	0.663	0.653	0.586	0.677	0.621	0.591	0.633	0.526	0.625	0.582	0.583	0.518
114	0.814	0.690	0.646	0.665	0.677	0.677	0.705	0.627	0.622	0.551	0.649	0.588	0.554	0.598	0.488	0.586	0.542	0.542	0.479
126	0.788	0.658	0.616	0.636	0.645	0.642	0.671	0.593	0.591	0.518	0.618	0.555	0.519	0.564	0.452	0.550	0.505	0.505	0.442
138	0.764	0.629	0.587	0.608	0.614	0.610	0.638	0.560	0.559	0.484	0.586	0.523	0.486	0.532	0.419	0.516	0.472	0.471	0.409
150	0.739	0.601	0.559	0.581	0.584	0.578	0.607	0.528	0.528	0.453	0.554	0.493	0.455	0.501	0.387	0.483	0.440	0.440	0.378
162	0.714	0.574	0.532	0.554	0.555	0.548	0.575	0.498	0.499	0.423	0.524	0.464	0.425	0.471	0.358	0.452	0.410	0.410	0.349
174	0.688	0.547	0.507	0.529	0.527	0.518	0.545	0.468	0.471	0.395	0.494	0.437	0.398	0.443	0.331	0.422	0.382	0.382	0.322
186	0.663	0.521	0.482	0.505	0.500	0.489	0.515	0.440	0.444	0.368	0.465	0.411	0.372	0.416	0.306	0.394	0.356	0.355	0.298
198	0.637	0.496	0.458	0.481	0.473	0.461	0.485	0.413	0.418	0.343	0.438	0.387	0.347	0.391	0.283	0.368	0.331	0.331	0.275
210	0.612	0.472	0.436	0.459	0.448	0.433	0.457	0.387	0.394	0.320	0.411	0.364	0.324	0.367	0.261	0.342	0.308	0.307	0.254
222	0.586	0.448	0.414	0.437	0.423	0.407	0.429	0.362	0.370	0.297	0.386	0.342	0.302	0.344	0.241	0.318	0.286	0.286	0.234
234	0.561	0.426	0.393	0.416	0.399	0.382	0.402	0.339	0.348	0.277	0.362	0.321	0.282	0.322	0.223	0.296	0.266	0.265	0.216
246	0.542	0.406	0.375	0.397	0.379	0.361	0.380	0.319	0.328	0.259	0.342	0.302	0.263	0.302	0.206	0.276	0.247	0.246	0.200
258	0.530	0.389	0.358	0.379	0.361	0.343	0.363	0.304	0.312	0.244	0.326	0.285	0.247	0.286	0.191	0.260	0.229	0.228	0.184

Notes

(1)-(19) Data from U.S. Treasury
http://www.treasury.gov/offices/domestic-finance/debt-management/interest-rate/yield_historical_main.shtml

(20)-(38) Computed from (1)-(19), by interpolation of rates, compounded for number of months indicated

COMMERCIAL MULTIPLE PERIL **SECTION B**
INDUSTRY NET RESULTS **EXHIBIT 8**
PRESENT VALUE FACTORS

Accident Year Age (Months)	Cumulative Paid Development Factor	Cumulative Percent Paid	Incremental Percent Paid	DISCOUNT FACTORS																	
				12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
12	2.694	37.1%	37.1%	37.1%	36.5%	36.2%	36.3%	36.6%	36.9%	36.9%	36.8%	36.1%	36.1%	36.3%	36.1%	36.2%	36.2%	36.0%	36.5%	36.5%	36.4%	35.9%
24	1.662	60.2%	23.1%	22.9%	22.0%	21.5%	21.6%	22.1%	22.5%	22.6%	22.2%	21.4%	21.1%	21.6%	21.2%	21.2%	21.4%	20.7%	21.8%	21.7%	21.6%	20.8%
36	1.400	71.4%	11.3%	11.0%	10.4%	10.0%	10.1%	10.4%	10.7%	10.8%	10.4%	9.9%	9.7%	10.1%	9.8%	9.7%	9.9%	9.3%	10.1%	10.0%	10.0%	9.4%
48	1.239	80.7%	9.3%	8.9%	8.3%	7.9%	8.0%	8.3%	8.5%	8.6%	8.2%	7.8%	7.5%	8.0%	7.7%	7.6%	7.8%	7.1%	7.9%	7.7%	7.8%	7.2%
60	1.146	87.2%	6.5%	6.1%	5.6%	5.3%	5.4%	5.6%	5.7%	5.8%	5.4%	5.2%	4.9%	5.3%	5.1%	5.0%	5.1%	4.6%	5.2%	5.0%	5.1%	4.7%
72	1.091	91.6%	4.4%	4.0%	3.6%	3.4%	3.5%	3.6%	3.7%	3.7%	3.4%	3.4%	3.1%	3.4%	3.2%	3.1%	3.3%	2.9%	3.3%	3.2%	3.2%	2.9%
84	1.059	94.4%	2.8%	2.5%	2.2%	2.1%	2.1%	2.2%	2.2%	2.3%	2.1%	2.0%	1.9%	2.1%	1.9%	1.9%	2.0%	1.7%	2.0%	1.9%	1.9%	1.7%
96	1.039	96.2%	1.8%	1.6%	1.4%	1.3%	1.3%	1.4%	1.4%	1.4%	1.3%	1.2%	1.1%	1.3%	1.2%	1.1%	1.2%	1.0%	1.2%	1.1%	1.1%	1.0%
108	1.025	97.6%	1.4%	1.1%	1.0%	0.9%	0.9%	1.0%	1.0%	1.0%	0.9%	0.9%	0.8%	0.9%	0.8%	0.8%	0.9%	0.7%	0.9%	0.8%	0.8%	0.7%
120	1.014	98.6%	1.0%	0.8%	0.7%	0.6%	0.7%	0.7%	0.7%	0.7%	0.6%	0.6%	0.5%	0.6%	0.6%	0.5%	0.6%	0.5%	0.6%	0.5%	0.5%	0.5%
132	1.009	99.1%	0.5%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%	0.3%	0.3%	0.3%	0.2%
144	1.006	99.4%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.2%	0.2%	0.2%	0.1%
156	1.004	99.6%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
168	1.002	99.8%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.0%
180	1.001	99.9%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
192	1.001	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
204	1.001	99.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
216	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
228	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
240	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
252	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
264	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total			100.0%	97.1%	92.6%	90.0%	90.8%	92.6%	94.1%	94.6%	92.0%	89.3%	87.4%	90.4%	88.4%	87.8%	89.0%	85.2%	90.1%	89.2%	89.0%	85.5%
Present Value Factor				**0.971**	**0.926**	**0.900**	**0.908**	**0.926**	**0.941**	**0.946**	**0.920**	**0.893**	**0.874**	**0.904**	**0.884**	**0.878**	**0.890**	**0.852**	**0.901**	**0.892**	**0.890**	**0.855**

Notes

(1) From Exhibit 6

(2) = 1 / (1)

(3) From (2)

(4) - (22) Product of (3) and Exhibit 7, Columns (20) - (38)

COMMERCIAL MULTIPLE PERIL **SECTION B**
INDUSTRY NET RESULTS **EXHIBIT 9**
DURATION OF PAYOUT OF ACCIDENT YEAR LOSSES

Accident Year Age (Months)	Cumulative Paid Development Factor	Cumulative Percent Paid	Incremental Percent Paid	Duration
(1)	(2)	(3)	(4)	(5)
12	2.694	37.1%	37.1%	0.19
24	1.662	60.2%	23.1%	0.35
36	1.400	71.4%	11.3%	0.28
48	1.239	80.7%	9.3%	0.33
60	1.146	87.2%	6.5%	0.29
72	1.091	91.6%	4.4%	0.24
84	1.059	94.4%	2.8%	0.18
96	1.039	96.2%	1.8%	0.14
108	1.025	97.6%	1.4%	0.12
120	1.014	98.6%	1.0%	0.09
132	1.009	99.1%	0.5%	0.05
144	1.006	99.4%	0.3%	0.04
156	1.004	99.6%	0.2%	0.03
168	1.002	99.8%	0.1%	0.02
180	1.001	99.9%	0.1%	0.01
192	1.001	99.9%	0.1%	0.01
204	1.001	99.9%	0.0%	0.01
216	1.000	100.0%	0.0%	0.00
228	1.000	100.0%	0.0%	0.00
240	1.000	100.0%	0.0%	0.00
252	1.000	100.0%	0.0%	0.00
264	1.000	100.0%	0.0%	0.00
Total			100.0%	237.3%

Duration (years)	**2.3728**

Notes
(2) From Exhibit 6
(3) = 1 / (2)
(4) From (2)
(5) = (4) * [(1) / 12 - 0.5]

COMMERCIAL MULTIPLE PERIL **SECTION B**
INDUSTRY NET RESULTS **EXHIBIT 10**
DEVELOPED INDUSTRY ULTIMATE LOSS & ALAE
Dollars in Thousands

Accident Year	Net Booked Ultimate Loss & ALAE (1)	Average Development Parameter μ (2)	Variance Development Parameter σ^2 (3)	Net Developed Ultimate Loss & ALAE (4)	Developed vs Booked Ultimate Loss & ALAE (5)	Paid Loss & ALAE (6)	Developed Unpaid Loss & ALAE (7)
1987	7,935,340	0.000%	0.000%	7,935,340	-	7,640,931	294,409
1988	8,842,450	0.000%	0.000%	8,842,450	-	8,514,284	328,166
1989	10,950,486	0.000%	0.000%	10,950,486	-	10,574,151	376,335
1990	10,715,386	0.000%	0.000%	10,715,386	-	10,361,568	353,818
1991	10,654,254	0.000%	0.000%	10,654,254	-	10,297,937	356,317
1992	12,803,656	0.000%	0.000%	12,803,656	-	12,491,828	311,828
1993	11,605,537	0.000%	0.000%	11,605,537	-	11,235,210	370,327
1994	13,318,381	0.000%	0.000%	13,318,381	-	12,896,222	422,159
1995	12,477,097	0.000%	0.000%	12,477,097	-	12,082,205	394,892
1996	13,915,552	0.000%	0.000%	13,915,552	-	13,482,635	432,917
1997	12,898,050	0.000%	0.000%	12,898,050	-	12,422,696	475,354
1998	14,716,147	0.000%	0.000%	14,716,147	-	14,206,482	509,665
1999	15,128,644	0.000%	0.000%	15,128,644	-	14,593,734	534,910
2000	15,399,096	0.208%	0.001%	15,431,176	32,080	14,723,792	707,384
2001	15,992,975	0.309%	0.002%	16,042,666	49,691	15,193,486	849,180
2002	13,711,005	0.470%	0.005%	13,775,991	64,986	12,711,446	1,064,545
2003	13,590,079	0.521%	0.011%	13,661,868	71,789	12,255,864	1,406,004
2004	15,090,905	0.665%	0.025%	15,193,428	102,523	13,264,033	1,929,395
2005	16,643,679	0.636%	0.047%	16,753,839	110,160	13,524,309	3,229,530
2006	15,264,573	0.921%	0.100%	15,413,494	148,921	10,468,406	4,945,088
2007	16,828,126	0.984%	0.177%	17,009,468	181,342	9,851,336	7,158,132
2008	21,309,040	-0.502%	0.352%	21,239,585	(69,455)	8,553,203	12,686,382
Total	299,790,458			300,482,497	692,039	261,345,758	39,136,739

Notes

(1) From Exhibit 5, Column 3
(2) From Exhibit 3, Cumulative Average
(3) From Exhibit 4, Variance
(4) = (1) * exp[(2) + (3) / 2]
(5) = (4) - (1)
(6) From Exhibit 5, Column 4
(7) = (4) - (6)

COMMERCIAL MULTIPLE PERIL **SECTION B**
INDUSTRY NET RESULTS **EXHIBIT 11**
INDUSTRY HISTORICAL ULTIMATE LOSS & ALAE RATIOS
Dollars in Thousands

Accident Year	12 month Booked Ultimate Loss & ALAE Ratio (1)	PV Factor (2)	1 - Exp Ratio (3)	Loss Ratio Prior to Adjustment (4)	Loss Ratio Adjustment (5)	Adjusted Loss Ratio (6)	Log of Adjusted Loss Ratio (7)	12 Month Booked Ultimate Loss (8)	Latest Evaluation Ultimate Loss (9)	Ratio Latest to 12 Month Booked (10)	Log of Ratio (11)
1987	50.4%	0.855	65.9%	44.0%	1.000	44.0%	-82.1%	8,277,207	7,935,340	0.959	-0.042
1988	54.2%	0.855	64.2%	48.5%	1.000	48.5%	-72.3%	9,170,947	8,842,450	0.964	-0.036
1989	64.4%	0.855	63.3%	58.4%	1.000	58.4%	-53.7%	10,830,290	10,950,486	1.011	0.011
1990	64.8%	0.855	63.5%	58.7%	1.000	58.7%	-53.3%	11,042,654	10,715,386	0.970	-0.030
1991	68.0%	0.890	62.4%	65.1%	0.813	53.0%	-63.5%	11,224,333	10,654,254	0.949	-0.052
1992	82.1%	0.892	62.7%	78.5%	0.813	63.8%	-44.9%	13,195,825	12,803,656	0.970	-0.030
1993	72.9%	0.901	63.5%	69.5%	0.813	56.5%	-57.0%	11,859,305	11,605,537	0.979	-0.022
1994	78.0%	0.852	63.6%	70.2%	0.813	57.1%	-56.0%	13,033,952	13,318,381	1.022	0.022
1995	70.6%	0.890	64.3%	65.7%	0.813	53.4%	-62.7%	12,388,985	12,477,097	1.007	0.007
1996	74.3%	0.878	64.1%	68.4%	0.813	55.6%	-58.7%	13,439,227	13,915,552	1.035	0.035
1997	68.0%	0.884	63.5%	63.6%	0.813	51.8%	-65.9%	12,491,912	12,898,050	1.033	0.032
1998	73.8%	0.904	63.6%	70.5%	0.813	57.3%	-55.7%	13,523,977	14,716,147	1.088	0.084
1999	73.6%	0.874	63.3%	68.4%	0.813	55.6%	-58.7%	13,769,366	15,128,644	1.099	0.094
2000	71.3%	0.893	64.8%	66.0%	0.813	53.7%	-62.2%	13,628,215	15,399,096	1.130	0.124
2001	74.7%	0.920	66.9%	69.1%	0.813	56.2%	-57.7%	15,615,731	15,992,975	1.024	0.027
2002	60.3%	0.946	67.1%	57.2%	1.000	57.2%	-55.9%	14,137,617	13,711,005	0.970	-0.026
2003	56.1%	0.941	67.3%	52.7%	1.000	52.7%	-64.1%	14,751,482	13,590,079	0.921	-0.077
2004	58.8%	0.926	67.1%	54.6%	1.000	54.6%	-60.6%	16,675,054	15,090,905	0.905	-0.093
2005	61.4%	0.908	67.0%	55.9%	1.000	55.9%	-58.1%	17,761,767	16,643,679	0.937	-0.058
2006	52.8%	0.900	66.1%	48.3%	1.000	48.3%	-72.7%	16,299,833	15,264,573	0.936	-0.056
2007	54.9%	0.926	64.6%	52.9%	1.000	52.9%	-63.7%	17,306,437	16,828,126	0.972	-0.017
2008	69.1%	0.971	65.3%	69.1%	1.000	69.1%	-36.9%	21,309,040	21,309,040	1.000	-0.003
(12) Average						55.2%	-59.8%				
(13) Variance							0.862%				0.308%
(14) Covariance (log of Adjusted Loss Ratio, log of Ratio of Latest to 12 month Booked)							0.090%				
(15) Total Variance of Adjusted Loss Ratio (log) and Ratio of Latest to 12 month Booked (log)							1.351%				

Notes

(1) Exhibit 1 @ 12 Months / Exhibit 5, Column 1
(2) 1995-2008 from Exhibit 8, Columns 4-17; 1994 and prior selectec
(3) = 100% - Exhibit 5, Column 9
(4) = (1) * $(2)_{AYxxxx}/(2)_{AY2008}$ * $(3)_{AY2008}/(3)_{AYXXXX}$
(5) Adjustment of historical loss ratios to normalize for major differences in levels across multi-year periods
AY 1991-2001: AY 2002-2008 Average / AY 1991-2001 Average; 1.000 for AY 1987-1990 and AY 2002-200
(6) = (4) * (5)
(7) = LN(6)
(8) Exhibit 1 @ 12 Months
(9) Exhibit 1 @ 12 Current Evaluation
(10) = (9) / (8)
(11) = LN (10) + Exhibit 10, Column 2 + (Exhibit 10, Column 3) / 2
(12) Average of Column 7
(13) Variance of Column 7 and Column 11
(14) Covariance(Column 7, Column 11)
(15) = Row 13, Column 7 + Row 13, Column 7 + 2 * Row 14

COMMERCIAL MULTIPLE PERIL **SECTION B**
INDUSTRY NET RESULTS **EXHIBIT 12A**
DERIVATION OF INDUSTRY 2008 MARKET VALUE OF RISK PARAMETER (λ)
Dollars in Thousands

MARKET VALUE OF RISK (λ)

		Notes	
1 - ER	65.3%	100% - Expense Ratio	From Exhibit 5, Column 10 Selected
1 + ULAE	1.096	1 + ULAE Factor	From Exhibit 5, Column 8 Selected
PV	0.971	Present Value Factor	From Exhibit 8, Column 4 Total
Target Loss Ratio	61.3%	= (1 - ER) / (1 + ULAE) / PV	
ULR12	69.1%	Estimated Ultimate Loss Ratio (at 12 months) of Latest Accident Year	From Exhibit 5, Column 7 Selected
μ	-0.502%	Sample mean of development of estimated ultimate losses	From Exhibit 10, Column 2, 2008
σ^2	0.352%	Variance of development of estimated ultimate losses	From Exhibit 10, Column 3, 2008
σ	5.929%	Standard deviation of development of estimated ultimate losses	= square root of σ^2
D	2.373	Duration	From Exhibit 9, Total Duration
λ	-1.274	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - ln (ULR12) - μ - ½σ^2] / [σ·√(D)]	
$\mu_{AY\ ULR}$	-36.9%	Sample mean of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 12, 2008 Accident Year
Combined μ	-37.4%	= μ + $\mu_{AY\ ULR}$	
$\sigma^2_{AY\ ULR}$	0.862%	Sample variance of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 13, Variance of Column 7
$\sigma^2_{12\text{-ult}}$	0.308%	Sample variance of logarithm of developed accident year ultimate	From Exhibit 11, Row 13, Variance of Column 11
Cov(AY ULR, 12-ult)	0.090%	Covariance of Accident Year Loss Ratio and Development	From Exhibit 11, Row 14, Covariance
Combined σ^2	1.351%	= $\sigma^2_{AY\ ULR}$ + $\sigma^2_{12\text{-ult}}$ + 2 · Cov(AY ULR, 12-ult)	From Exhibit 11, Row 15
λ adj for pricing risk (2008 market value of risk)	-0.678	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - $\mu_{AY\ ULR}$ - ½ · combined σ^2] / [combined σ · √(D)]	

COMMERCIAL MULTIPLE PERIL **SECTION B**
INDUSTRY NET RESULTS **EXHIBIT 12B**
DERIVATION OF INDUSTRY LONG-TERM MARKET VALUE OF RISK PARAMETER (λ)
Dollars in Thousands

MARKET VALUE OF RISK (λ)

		Notes	
1 - ER	65.3%	100% - Expense Ratio	From Exhibit 5, Column 10 Selected
1 + ULAE	1.096	1 + ULAE Factor	From Exhibit 5, Column 8 Selected
PV	0.971	Present Value Factor	From Exhibit 8, Column 4 Total
Target Loss Ratio	61.3%	= (1 - ER) / (1 + ULAE) / PV	
ULR12	69.1%	Estimated Ultimate Loss Ratio (at 12 months) of Latest Accident Year	From Exhibit 5, Column 7 Selected
μ	-0.502%	Sample mean of development of estimated ultimate losses	From Exhibit 10, Column 2, 2008
σ^2	0.352%	Variance of development of estimated ultimate losses	From Exhibit 10, Column 3, 2008
σ	5.929%	Standard deviation of development of estimated ultimate losses	= square root of σ^2
D	2.373	Duration	From Exhibit 9, Total Duration
λ	-1.274	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - ln (ULR12) - μ - ½σ^2] / [σ·√(D)]	
$\mu_{AY\ ULR}$	-59.8%	Sample mean of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 12, Average
Combined μ	-60.3%	= μ + $\mu_{AY\ ULR}$	
$\sigma^2_{AY\ ULR}$	0.862%	Sample variance of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 13, Variance of Column 7
$\sigma^2_{12\text{-ult}}$	0.308%	Sample variance of logarithm of developed accident year ultimate	From Exhibit 11, Row 13, Variance of Column 11
Cov(AY ULR, 12-ult)	0.090%	Covariance of Accident Year Loss Ratio and Development	From Exhibit 11, Row 14, Covariance
Combined σ^2	1.351%	= $\sigma^2_{AY\ ULR}$ + $\sigma^2_{12\text{-ult}}$ + 2 · Cov(AY ULR, 12-ult)	From Exhibit 11, Row 15
λ adj for pricing risk (long-term market value of risk)	0.603	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - $\mu_{AY\ ULR}$ - ½ · combined σ^2] / [combined σ · √(D)]	

COMMERCIAL MULTIPLE PERIL **SECTION B**
INDUSTRY NET RESULTS **EXHIBIT 13A**
RISK MARGIN RESULTS FOR INDUSTRY AND LARGEST 100 U.S. INSURERS BASED ON 2008 MARKET VALUE OF RISK
Dollars in Thousands

	Simulated 1997-2008 Unpaid Claims	Industry Aggregate	Company A	Company B	Company C	Company D	...	Total Largest 100 Companies
(1)	25th Percentile	34,389,881	2,349,275	1,154,756	1,015,512	314,395		
(2)	50th Percentile	35,356,510	2,497,183	1,267,359	1,126,345	395,619		
(3)	75th Percentile	36,542,121	2,634,274	1,366,300	1,230,940	474,338		
(4)	Average	35,465,626	2,504,659	1,263,990	1,131,559	400,216		
(5)	Standard Deviation	1,654,241	213,345	154,390	169,931	117,777		
(6)	Simulated Sample μ = Average[log(simulated unpaid claims)]	17.383	14.731	14.043	13.929	12.855		
(7)	Simulated Sample σ = Standard Deviation[log(simulated unpaid claims)]	0.046	0.084	0.123	0.148	0.313		
(8)	Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2)$	35,474,978	2,505,925	1,265,066	1,132,475	402,061		32,002,837
(9)	Industry Market Value of Risk (λ_1)	(0.678)	(0.678)	(0.678)	(0.678)	(0.678)		
(10)	Duration of Unpaid Claims (D)	2.457	2.438	2.469	2.435	2.496		
(11)	Risk Adjusted Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2 + \lambda_1\cdot\sigma\cdot\sqrt{D})$	33,776,700	2,292,050	1,110,054	968,126	287,622		28,154,389
(12)	Risk Margin = (11) - (8)	(1,698,279)	(213,875)	(155,012)	(164,349)	(114,439)		(3,848,448)
(13)	Risk Margin % of Expected Unpaid Claims = (11) / (8)	-4.8%	-8.5%	-12.3%	-14.5%	-28.5%		-12.0%

COMMERCIAL MULTIPLE PERIL **SECTION B**

INDUSTRY NET RESULTS **EXHIBIT 13B**

RISK MARGIN RESULTS FOR INDUSTRY AND LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK

Dollars in Thousands

	Simulated 1997-2008 Unpaid Claims	Industry Aggregate	Company A	Company B	Company C	Company D	...	Total Largest 100 Companies
(1)	25th Percentile	34,389,881	2,349,275	1,154,756	1,015,512	314,395		
(2)	50th Percentile	35,356,510	2,497,183	1,267,359	1,126,345	395,619		
(3)	75th Percentile	36,542,121	2,634,274	1,366,300	1,230,940	474,338		
(4)	Average	35,465,626	2,504,659	1,263,990	1,131,559	400,216		
(5)	Standard Deviation	1,654,241	213,345	154,390	169,931	117,777		
(6)	Simulated Sample μ = Average[log(simulated unpaid claims)]	17.383	14.731	14.043	13.929	12.855		
(7)	Simulated Sample σ = Standard Deviation[log(simulated unpaid claims)]	0.046	0.084	0.123	0.148	0.313		
(8)	Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2)$	35,474,978	2,505,925	1,265,066	1,132,475	402,061		32,002,837
(9)	Industry Market Value of Risk (λ_1)	0.603	0.603	0.603	0.603	0.603		
(10)	Duration of Unpaid Claims (D)	2.457	2.438	2.469	2.435	2.496		
(11)	Risk Adjusted Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2 + \lambda_1\cdot\sigma\cdot\sqrt{D})$	37,057,519	2,712,920	1,421,079	1,302,002	541,641		36,261,741
(12)	Risk Margin = (11) - (8)	1,582,540	206,996	156,014	169,527	139,580		4,258,904
(13)	Risk Margin % of Expected Unpaid Claims = (11) / (8)	4.5%	8.3%	12.3%	15.0%	34.7%		13.3%

COMMERCIAL MULTIPLE PERIL **SECTION B**

INDUSTRY NET RESULTS **EXHIBIT 14**

PAYOUT OF EXPECTED UNPAID LOSS & ALAE FOR LARGEST 100 U.S. INSURERS

Dollars in Thousands

Payout of 12/31/2008 Expected Unpaid Loss & ALAE

	Total Accident Years 1997-2008	Accident Year 2008	Accident Year 2007	Accident Year 2006	Accident Year 2005	Accident Year 2004	Accident Year 2003	Accident Year 2002	Accident Year 2001	Accident Year 2000	Accident Year 1999	Accident Year 1998	Accident Year 1997
Paid in	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Year 1	10,830,207	4,208,051	1,817,162	1,433,073	942,364	581,066	510,671	308,829	266,947	265,595	182,276	160,655	153,518
Year 2	6,775,343	2,055,765	1,500,362	1,002,240	636,145	370,610	330,978	232,322	192,910	139,960	115,458	101,602	96,991
Year 3	4,874,805	1,697,368	1,049,299	676,564	405,740	240,201	248,984	167,888	101,657	88,654	73,019	64,192	61,240
Year 4	3,284,768	1,187,078	708,331	431,520	262,969	180,696	179,929	88,472	64,392	56,067	46,133	40,530	38,651
Year 5	2,167,302	801,339	451,781	279,678	197,824	130,580	94,817	56,040	40,723	35,423	29,128	25,580	24,388
Year 6	1,419,581	511,103	292,810	210,393	142,958	68,812	60,059	35,441	25,729	22,366	18,384	16,141	15,386
Year 7	944,716	331,257	220,272	152,041	75,334	43,587	37,983	22,391	16,245	14,116	11,600	10,183	9,706
Year 8	640,939	249,195	159,180	80,121	47,719	27,565	23,997	14,138	10,253	8,907	7,318	6,424	6,122
Year 9	411,002	180,081	83,883	50,751	30,178	17,416	15,152	8,923	6,469	5,619	4,617	4,052	3,862
Year 10	245,067	94,897	53,133	32,096	19,066	10,996	9,563	5,630	4,081	3,545	2,912	2,556	6,591
Year 11	153,565	60,110	33,603	20,278	12,038	6,940	6,034	3,552	2,575	2,236	1,837	4,362	-
Year 12	96,243	38,015	21,230	12,803	7,598	4,379	3,807	2,241	1,624	1,410	3,135	-	-
Year 13	60,306	24,018	13,405	8,081	4,794	2,763	2,401	1,413	1,024	2,407	-	-	-
Year 14	37,646	15,165	8,460	5,099	3,025	1,743	1,515	892	1,748	-	-	-	-
Year 15	23,610	9,571	5,338	3,217	1,908	1,099	955	1,522	-	-	-	-	-
Year 16	14,964	6,039	3,368	2,029	1,204	693	1,631	-	-	-	-	-	-
Year 17	9,157	3,810	2,125	1,280	759	1,183	-	-	-	-	-	-	-
Year 18	5,847	2,403	1,340	807	1,296	-	-	-	-	-	-	-	-
Year 19	3,739	1,516	845	1,378	-	-	-	-	-	-	-	-	-
Year 20	2,399	956	1,443	-	-	-	-	-	-	-	-	-	-
Year 21	1,632	1,632	-	-	-	-	-	-	-	-	-	-	-
Year 22	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	32,002,837	11,479,369	6,427,369	4,403,447	2,792,918	1,690,329	1,528,476	949,695	736,379	646,305	495,816	436,277	416,456

Notes

Total equals expected unpaid by accident year

(2) - (13) Based on expected unpaid by accident year and payout pattern from Exhibit 8

COMMERCIAL MULTIPLE PERIL **SECTION B**

INDUSTRY NET RESULTS **EXHIBIT 15**

DISCOUNTED PAYOUT OF EXPECTED UNPAID LOSS & ALAE FOR LARGEST 100 U.S. INSURERS

Dollars in Thousands

Discounted Payout of 12/31/2008 Expected Unpaid Loss & ALAE

	Discount Factor	Total Accident Years 1997-2008	Accident Year 2008	Accident Year 2007	Accident Year 2006	Accident Year 2005	Accident Year 2004	Accident Year 2003	Accident Year 2002	Accident Year 2001	Accident Year 2000	Accident Year 1999	Accident Year 1998	Accident Year 1997
Paid in	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Year 1	0.999	10,815,616	4,202,382	1,814,714	1,431,142	941,095	580,283	509,983	308,413	266,588	265,237	182,031	160,439	153,311
Year 2	0.992	6,718,325	2,038,465	1,487,735	993,805	630,791	367,491	328,192	230,367	191,286	138,782	114,487	100,747	96,175
Year 3	0.978	4,769,190	1,660,593	1,026,565	661,905	396,949	234,997	243,590	164,251	99,455	86,734	71,437	62,801	59,913
Year 4	0.961	3,157,272	1,141,002	680,838	414,770	252,762	173,682	172,945	85,038	61,893	53,891	44,342	38,957	37,151
Year 5	0.939	2,034,734	752,323	424,147	262,571	185,723	122,593	89,017	52,612	38,232	33,256	27,346	24,016	22,897
Year 6	0.915	1,298,792	467,614	267,895	192,491	130,794	62,957	54,949	32,426	23,539	20,463	16,820	14,767	14,077
Year 7	0.891	841,817	295,177	196,280	135,480	67,129	38,840	33,846	19,953	14,476	12,578	10,337	9,074	8,649
Year 8	0.866	555,194	215,857	137,885	69,402	41,335	23,878	20,787	12,247	8,881	7,715	6,339	5,564	5,303
Year 9	0.841	345,598	151,424	70,534	42,674	25,376	14,644	12,741	7,503	5,440	4,725	3,882	3,407	3,247
Year 10	0.814	199,545	77,269	43,264	26,134	15,525	8,954	7,787	4,584	3,323	2,886	2,371	2,081	5,367
Year 11	0.788	121,072	47,391	26,493	15,987	9,491	5,472	4,757	2,800	2,030	1,763	1,448	3,439	-
Year 12	0.764	73,516	29,038	16,217	9,780	5,804	3,345	2,908	1,712	1,241	1,077	2,395	-	-
Year 13	0.739	44,562	17,747	9,905	5,971	3,543	2,041	1,774	1,044	757	1,779	-	-	-
Year 14	0.714	26,868	10,823	6,038	3,639	2,159	1,244	1,081	636	1,248	-	-	-	-
Year 15	0.688	16,250	6,587	3,674	2,214	1,313	757	658	1,047	-	-	-	-	-
Year 16	0.663	9,916	4,002	2,232	1,345	798	460	1,081	-	-	-	-	-	-
Year 17	0.637	5,834	2,427	1,354	815	484	754	-	-	-	-	-	-	-
Year 18	0.612	3,575	1,470	820	494	792	-	-	-	-	-	-	-	-
Year 19	0.586	2,192	889	495	808	-	-	-	-	-	-	-	-	-
Year 20	0.561	1,345	536	809	-	-	-	-	-	-	-	-	-	-
Year 21	0.542	885	885	-	-	-	-	-	-	-	-	-	-	-
Year 22	0.530	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		31,042,097	11,123,904	6,217,893	4,271,429	2,711,862	1,642,389	1,486,095	924,633	718,389	630,886	483,233	425,293	406,090

Notes

(1) From Exhibit 7, Column 20

(2) Sum of Columns 3-14

(3) - (14) Product of Column 1 and Exhibit 14, Columns 2-13

COMMERCIAL MULTIPLE PERIL **SECTION B**

INDUSTRY NET RESULTS **EXHIBIT 16**

NET IMPACT OF RISK MARGINS AND DISCOUNT FOR LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK

Dollars in Thousands

Accident Year	31-Dec-08 Booked Unpaid Loss & ALAE (1)	31-Dec-08 Expected Unpaid Loss & ALAE (2)	Average Indicated Risk Margin (3)	Present Value Expected Unpaid Loss & ALAE (4)	Present Value Discount (5)	Risk-Adjusted Discounted Expected Unpaid Loss & ALAE (6)	Net Impact of Risk Margins and Discount vs. Booked (7)
1997	416,456	416,456	N/A	406,090	-2.5%	N/A	N/A
1998	436,277	436,277	N/A	425,293	-2.5%	N/A	N/A
1999	495,816	495,816	N/A	483,233	-2.5%	N/A	N/A
2000	627,457	646,305	N/A	630,886	-2.4%	N/A	N/A
2001	726,889	736,379	N/A	718,389	-2.4%	N/A	N/A
2002	907,166	949,695	N/A	924,633	-2.6%	N/A	N/A
2003	1,206,356	1,528,476	N/A	1,486,095	-2.8%	N/A	N/A
2004	1,687,831	1,690,329	N/A	1,642,389	-2.8%	N/A	N/A
2005	2,905,123	2,792,918	N/A	2,711,862	-2.9%	N/A	N/A
2006	4,490,012	4,403,447	N/A	4,271,429	-3.0%	N/A	N/A
2007	6,509,657	6,427,369	N/A	6,217,893	-3.3%	N/A	N/A
2008	11,921,893	11,479,369	N/A	11,123,904	-3.1%	N/A	N/A
Total 1997-2008	32,330,933	32,002,837	13.3%	31,042,097	-3.0%	35,173,146	8.8%

Notes

(3) From Exhibit 13B, Row 13, Total Largest 100 U.S. Insurers

(4) From Exhibit 15, Total by Accident Year

(5) = (4) / (2) - 1

(6) = (2) Total * [1 + (3) Total] * [1 + (5) Total]

(7) = (6) Total / (1) Total - 1

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 1**
Dollars in Thousands

	Months of Maturity										
Accident Year	12	24	36	48	60	72	84	96	108	120	Latest Evaluation
1987	30,073,940	30,014,097	29,916,731	29,869,664	29,837,370	29,776,950	29,739,293	29,711,894	29,666,018	29,639,489	29,639,489
1988	33,876,530	33,607,912	33,388,007	33,240,654	33,026,121	32,917,166	32,801,787	32,715,383	32,685,033	32,654,526	32,654,526
1989	37,233,839	37,032,098	36,850,477	36,511,610	36,361,849	36,191,650	36,035,671	35,952,437	35,908,659	35,904,083	35,904,083
1990	40,624,863	40,002,856	39,272,320	38,929,128	38,578,887	38,309,133	38,122,001	38,061,930	38,036,542	38,001,440	38,001,440
1991	41,349,440	40,070,087	39,181,888	38,439,672	38,000,435	37,641,671	37,464,409	37,417,385	37,367,059	37,358,272	37,358,272
1992	44,368,312	42,559,695	41,335,520	40,481,851	39,870,465	39,558,371	39,401,256	39,342,494	39,311,949	39,284,461	39,284,461
1993	46,768,470	44,955,497	43,828,900	42,796,950	42,267,365	42,017,981	41,909,422	41,821,767	41,802,336	41,791,971	41,791,971
1994	48,881,084	47,227,469	45,876,145	45,184,300	44,786,877	44,569,087	44,433,838	44,376,155	44,367,434	44,368,818	44,368,818
1995	49,635,063	47,910,101	46,766,699	46,265,087	45,904,532	45,737,876	45,684,266	45,647,254	45,649,510	45,677,291	45,677,291
1996	50,317,796	48,397,933	47,597,839	47,106,148	46,980,288	46,942,173	46,941,775	46,932,367	46,961,724	46,968,387	46,968,387
1997	49,765,419	48,076,614	47,429,358	47,173,733	47,029,570	46,981,100	46,964,622	46,961,281	46,964,675	46,961,444	46,961,444
1998	49,240,853	48,443,399	48,273,854	48,125,090	48,130,877	48,079,675	48,096,070	48,060,546	48,076,015	48,069,447	48,069,447
1999	51,632,511	51,529,797	51,474,323	51,573,936	51,482,579	51,491,473	51,526,727	51,548,383	51,520,753	51,518,156	51,518,156
2000	54,557,893	54,876,830	55,032,600	55,109,558	55,123,996	55,163,934	55,198,693	55,204,511	55,254,295		55,254,295
2001	56,991,221	56,747,179	56,645,139	56,684,994	56,817,224	56,782,670	56,747,660	56,734,057			56,734,057
2002	60,398,169	59,687,868	59,417,844	59,436,712	59,369,961	59,282,630	59,256,413				59,256,413
2003	61,633,969	59,698,968	58,946,020	58,740,482	58,568,183	58,526,059					58,526,059
2004	62,276,716	59,981,303	59,128,221	58,732,132	58,523,896						58,523,896
2005	63,227,347	61,118,622	60,420,357	60,144,772							60,144,772
2006	62,825,209	62,008,666	61,588,607								61,588,607
2007	65,552,945	65,218,021									65,218,021
2008	65,469,504										65,469,504

Notes
Data from SNL Financial LC
1996-2008 Annual Statements
Industry Total Private Passenger Auto Liability
Schedule P, Part 2B

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 2**
LINK RATIOS

	Months of Maturity								
Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1987	0.998	0.997	0.998	0.999	0.998	0.999	0.999	0.998	0.999
1988	0.992	0.993	0.996	0.994	0.997	0.996	0.997	0.999	0.999
1989	0.995	0.995	0.991	0.996	0.995	0.996	0.998	0.999	1.000
1990	0.985	0.982	0.991	0.991	0.993	0.995	0.998	0.999	0.999
1991	0.969	0.978	0.981	0.989	0.991	0.995	0.999	0.999	1.000
1992	0.959	0.971	0.979	0.985	0.992	0.996	0.999	0.999	0.999
1993	0.961	0.975	0.976	0.988	0.994	0.997	0.998	1.000	1.000
1994	0.966	0.971	0.985	0.991	0.995	0.997	0.999	1.000	1.000
1995	0.965	0.976	0.989	0.992	0.996	0.999	0.999	1.000	1.001
1996	0.962	0.983	0.990	0.997	0.999	1.000	1.000	1.001	1.000
1997	0.966	0.987	0.995	0.997	0.999	1.000	1.000	1.000	1.000
1998	0.984	0.997	0.997	1.000	0.999	1.000	0.999	1.000	1.000
1999	0.998	0.999	1.002	0.998	1.000	1.001	1.000	0.999	1.000
2000	1.006	1.003	1.001	1.000	1.001	1.001	1.000	1.001	
2001	0.996	0.998	1.001	1.002	0.999	0.999	1.000		
2002	0.988	0.995	1.000	0.999	0.999	1.000			
2003	0.969	0.987	0.997	0.997	0.999				
2004	0.963	0.986	0.993	0.996					
2005	0.967	0.989	0.995						
2006	0.987	0.993							
2007	0.995								

Notes
From Exhibit 1, ratio of successive ultimate loss estimates by accident year

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 3**
CUMULATIVE DEVELOPMENT IN ULTIMATE LOSS ESTIMATES BASED ON LOG OF LINK RATIOS

	Months of Maturity								
Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1987	-0.199%	-0.325%	-0.157%	-0.108%	-0.203%	-0.127%	-0.092%	-0.155%	-0.089%
1988	-0.796%	-0.656%	-0.442%	-0.647%	-0.330%	-0.351%	-0.264%	-0.093%	-0.093%
1989	-0.543%	-0.492%	-0.924%	-0.411%	-0.469%	-0.432%	-0.231%	-0.122%	-0.013%
1990	-1.543%	-1.843%	-0.878%	-0.904%	-0.702%	-0.490%	-0.158%	-0.067%	-0.092%
1991	-3.143%	-2.242%	-1.912%	-1.149%	-0.949%	-0.472%	-0.126%	-0.135%	-0.024%
1992	-4.162%	-2.919%	-2.087%	-1.522%	-0.786%	-0.398%	-0.149%	-0.078%	-0.070%
1993	-3.954%	-2.538%	-2.383%	-1.245%	-0.592%	-0.259%	-0.209%	-0.046%	-0.025%
1994	-3.441%	-2.903%	-1.520%	-0.883%	-0.487%	-0.304%	-0.130%	-0.020%	0.003%
1995	-3.537%	-2.415%	-1.078%	-0.782%	-0.364%	-0.117%	-0.081%	0.005%	0.061%
1996	-3.890%	-1.667%	-1.038%	-0.268%	-0.081%	-0.001%	-0.020%	0.063%	0.014%
1997	-3.452%	-1.355%	-0.540%	-0.306%	-0.103%	-0.035%	-0.007%	0.007%	-0.007%
1998	-1.633%	-0.351%	-0.309%	0.012%	-0.106%	0.034%	-0.074%	0.032%	-0.014%
1999	-0.199%	-0.108%	0.193%	-0.177%	0.017%	0.068%	0.042%	-0.054%	-0.005%
2000	0.583%	0.283%	0.140%	0.026%	0.072%	0.063%	0.011%	0.090%	
2001	-0.429%	-0.180%	0.070%	0.233%	-0.061%	-0.062%	-0.024%		
2002	-1.183%	-0.453%	0.032%	-0.112%	-0.147%	-0.044%			
2003	-3.190%	-1.269%	-0.349%	-0.294%	-0.072%				
2004	-3.755%	-1.432%	-0.672%	-0.355%					
2005	-3.392%	-1.149%	-0.457%						
2006	-1.308%	-0.680%							
2007	-0.512%								
Average	-2.080%	-1.235%	-0.753%	-0.494%	-0.315%	-0.183%	-0.101%	-0.041%	-0.027%

	12-108	24-108	36-108	48-108	60-108	72-108	84-108	96-108	108-108
Cumulative Average	-5.229%	-3.149%	-1.914%	-1.161%	-0.667%	-0.352%	-0.169%	-0.068%	-0.027%

Notes
From Exhibit 2, natural log of ratio of successive ultimate loss estimates by accident year

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 4**

VARIANCE-COVARIANCE MATRIX OF LOG OF INCREMENTAL LINK RATIOS

Months of Maturity	12-108	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-Ultimate
12-108	**0.023%**	0.012%	0.008%	0.005%	0.002%	0.001%	0.000%	0.000%	0.000%	0.000%
24-36	0.012%	**0.009%**	0.006%	0.004%	0.002%	0.001%	0.000%	0.000%	0.000%	0.000%
36-48	0.008%	0.006%	**0.006%**	0.003%	0.002%	0.001%	0.000%	0.000%	0.000%	0.000%
48-60	0.005%	0.004%	0.003%	**0.002%**	0.001%	0.001%	0.000%	0.000%	0.000%	0.000%
60-72	0.002%	0.002%	0.002%	0.001%	**0.001%**	0.001%	0.000%	0.000%	0.000%	0.000%
72-84	0.001%	0.001%	0.001%	0.001%	0.001%	**0.000%**	0.000%	0.000%	0.000%	0.000%
84-96	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	**0.000%**	0.000%	0.000%	0.000%
96-108	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	**0.000%**	0.000%	0.000%
108-120	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	**0.000%**	0.000%
120-Ultimate	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	**0.000%**
Variance (σ^2)	**0.147%**	**0.068%**	**0.030%**	**0.011%**	**0.004%**	**0.001%**	**0.000%**	**0.000%**	**0.000%**	**0.000%**

Notes

From Exhibit 3, covariance of errors at given maturity with errors at all other maturities

Covariances above diagonal are symmetric with those below

Variance is sum of matrix for all maturities greater than or equal to maturity shown in column

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**

INDUSTRY NET RESULTS **EXHIBIT 5**

SELECTION OF LOSS & ALAE RATIO, ULAE FACTOR, AND LOSS & LAE RATIO

Dollars in Thousands

Accident Year	Net Earned Premium (1)	Net Ultimate Loss & LAE (2)	Net Ultimate Loss & ALAE (3)	Net Paid Loss & ALAE (4)	Net Unpaid Loss & ALAE (5)	Net Ultimate Loss & LAE Ratio (6)	Net Ultimate Loss & ALAE Ratio (7)	ULAE Factor (8)	Underwriting Expense Ratio (9)	100% - Expense Ratio (10)
1987	35,637,196	32,232,745	29,639,489	29,467,912	171,577	90.4%	83.2%	1.087	23.8%	76.2%
1988	39,418,843	35,605,154	32,654,526	32,484,806	169,720	90.3%	82.8%	1.090	23.5%	76.5%
1989	42,875,769	39,220,045	35,904,083	35,725,452	178,631	91.5%	83.7%	1.092	23.4%	76.6%
1990	46,362,866	41,664,283	38,001,440	37,836,187	165,253	89.9%	82.0%	1.096	23.4%	76.6%
1991	49,395,069	41,213,658	37,358,272	37,202,829	155,443	83.4%	75.6%	1.103	24.1%	75.9%
1992	53,365,666	43,469,020	39,284,461	39,159,559	124,902	81.5%	73.6%	1.107	23.7%	76.3%
1993	56,764,444	46,298,123	41,791,971	41,635,331	156,640	81.6%	73.6%	1.108	23.3%	76.7%
1994	59,548,633	49,282,166	44,368,818	44,215,159	153,659	82.8%	74.5%	1.111	22.6%	77.4%
1995	63,098,900	50,983,872	45,677,291	45,494,007	183,284	80.8%	72.4%	1.116	23.2%	76.8%
1996	65,880,165	52,841,192	46,968,387	46,793,738	174,649	80.2%	71.3%	1.125	22.8%	77.2%
1997	68,245,961	53,304,349	46,961,444	46,777,820	183,624	78.1%	68.8%	1.135	24.9%	75.1%
1998	68,908,363	54,576,482	48,069,447	47,895,384	174,063	79.2%	69.8%	1.135	25.6%	74.4%
1999	68,840,314	58,218,992	51,518,156	51,324,356	193,800	84.6%	74.8%	1.130	25.3%	74.7%
2000	69,161,761	62,307,261	55,254,295	54,907,512	346,783	90.1%	79.9%	1.128	25.6%	74.4%
2001	72,739,653	64,002,047	56,734,057	56,329,466	404,591	88.0%	78.0%	1.128	23.9%	76.1%
2002	79,500,987	67,054,498	59,256,413	58,516,357	740,056	84.3%	74.5%	1.132	24.0%	76.0%
2003	86,900,392	66,568,042	58,526,059	57,213,665	1,312,394	76.6%	67.3%	1.137	23.6%	76.4%
2004	91,955,540	66,831,479	58,523,896	56,213,701	2,310,195	72.7%	63.6%	1.142	24.2%	75.8%
2005	94,297,862	68,778,198	60,144,772	55,278,660	4,866,112	72.9%	63.8%	1.144	24.0%	76.0%
2006	95,452,865	70,777,290	61,588,607	51,754,053	9,834,554	74.1%	64.5%	1.149	26.1%	73.9%
2007	95,291,384	74,453,427	65,218,021	46,324,452	18,893,569	78.1%	68.4%	1.142	25.5%	74.5%
2008	94,407,183	75,626,083	65,469,504	26,975,954	38,493,550	80.1%	69.3%	1.155	25.6%	74.4%
Selected					**79,387,049**		**69.3%**	**1.145**		**74.4%**

Notes

(1), (2) Data from SNL Financial LC, 1996-2008 Annual Statements, Industry Total, Schedule P, Part 1B

(3) Exhibit 1, Latest Evaluation

(4) Data from SNL Financial LC, 1996-2008 Annual Statements, Industry Total, Schedule P, Part 1B

(5) = (3) - (4)

(6) = (2) / (1)

(7) = (3) / (1); Selected from 2008

(8) = (6) / (7); Selected from 2005-2007 Average

(9) From AM Best Aggregates and Averages, includes policyholder dividends

(10) = 1 - (9); Selected from 2008

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY PAYOUT PATTERN (PAID LOSS & ALAE) **EXHIBIT 6**
Dollars in Thousands

Months of Maturity

Accident Year	12	24	36	48	60	72	84	96	108	120
1987	9,658,497	19,318,464	24,038,309	26,690,758	28,101,880	28,783,163	29,173,632	29,336,847	29,422,572	29,467,912
1988	10,873,656	21,635,057	26,831,475	29,651,943	31,124,304	31,865,587	32,207,603	32,359,231	32,446,625	32,484,806
1989	12,004,659	23,992,278	29,680,672	32,720,538	34,337,598	35,096,048	35,442,678	35,599,376	35,683,403	35,725,452
1990	14,120,097	25,759,347	31,727,815	34,899,711	36,462,526	37,159,648	37,510,768	37,703,195	37,794,465	37,836,187
1991	13,293,742	25,493,017	31,433,607	34,396,585	35,853,367	36,537,604	36,895,200	37,062,482	37,150,010	37,202,829
1992	14,158,861	27,310,345	33,191,025	36,177,290	37,665,012	38,452,797	38,835,271	39,019,123	39,109,836	39,159,559
1993	15,368,357	29,156,353	35,326,349	38,392,018	40,123,235	40,886,522	41,281,568	41,485,558	41,581,648	41,635,331
1994	16,862,676	31,200,605	37,394,214	40,850,255	42,605,518	43,463,275	43,873,913	44,071,074	44,163,169	44,215,159
1995	17,536,898	31,821,521	38,356,673	41,921,813	43,783,515	44,674,157	45,114,483	45,326,906	45,434,234	45,494,007
1996	18,176,518	32,601,081	39,198,785	42,923,623	44,935,027	45,900,948	46,374,657	46,581,205	46,733,443	46,793,738
1997	18,410,476	32,658,649	39,341,147	43,093,106	45,098,487	46,021,317	46,344,813	46,582,560	46,711,153	46,777,820
1998	18,629,549	33,400,762	40,263,636	44,111,211	46,125,340	46,999,294	47,456,823	47,684,387	47,807,009	47,895,384
1999	20,502,021	36,257,924	43,449,299	47,363,018	49,419,510	50,375,462	50,839,850	51,110,961	51,233,241	51,324,356
2000	22,205,424	39,123,717	46,565,810	50,753,425	52,931,787	53,937,820	54,500,293	54,750,780	54,907,512	
2001	23,058,024	40,216,210	47,917,099	52,246,221	54,519,854	55,560,959	56,062,671	56,329,466		
2002	24,160,456	41,933,490	50,065,765	54,524,454	56,943,368	58,000,593	58,516,357			
2003	24,144,542	41,508,167	49,195,851	53,722,672	56,076,242	57,213,665				
2004	24,419,285	41,570,311	49,328,811	53,874,477	56,213,701					
2005	25,150,116	42,788,623	50,738,434	55,278,660						
2006	25,677,672	43,684,175	51,754,053							
2007	27,249,654	46,324,452								
2008	26,975,954									

Age-to-Age Paid Loss Development

Accident Year	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120
1987	2.000	1.244	1.110	1.053	1.024	1.014	1.006	1.003	1.002
1988	1.990	1.240	1.105	1.050	1.024	1.011	1.005	1.003	1.001
1989	1.999	1.237	1.102	1.049	1.022	1.010	1.004	1.002	1.001
1990	1.824	1.232	1.100	1.045	1.019	1.009	1.005	1.002	1.001
1991	1.918	1.233	1.094	1.042	1.019	1.010	1.005	1.002	1.001
1992	1.929	1.215	1.090	1.041	1.021	1.010	1.005	1.002	1.001
1993	1.897	1.212	1.087	1.045	1.019	1.010	1.005	1.002	1.001
1994	1.850	1.199	1.092	1.043	1.020	1.009	1.004	1.002	1.001
1995	1.815	1.205	1.093	1.044	1.020	1.010	1.005	1.002	1.001
1996	1.794	1.202	1.095	1.047	1.021	1.010	1.004	1.003	1.001
1997	1.774	1.205	1.095	1.047	1.020	1.007	1.005	1.003	1.001
1998	1.793	1.205	1.096	1.046	1.019	1.010	1.005	1.003	1.002
1999	1.769	1.198	1.090	1.043	1.019	1.009	1.005	1.002	1.002
2000	1.762	1.190	1.090	1.043	1.019	1.010	1.005	1.003	
2001	1.744	1.191	1.090	1.044	1.019	1.009	1.005		
2002	1.736	1.194	1.089	1.044	1.019	1.009			
2003	1.719	1.185	1.092	1.044	1.020				
2004	1.702	1.187	1.092	1.043					
2005	1.701	1.186	1.089						
2006	1.701	1.185							
2007	1.700								
Averages									
10-Yr Weighted	1.730	1.192	1.092	1.044	1.020	1.009	1.005	1.003	1.001
10-Yr Straight	1.733	1.193	1.092	1.044	1.020	1.009	1.005	1.003	1.001
Selected	1.730	1.192	1.092	1.044	1.020	1.009	1.005	1.003	1.001

Fitted Age-to-Ultimate

Curve Fits:	R-squared	120	132	144	156	168	180	192	204	216	228	240	252	264
Weibull	99.8%	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Power Curve	99.5%	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Inverse Power Curve	95.7%	1.010	1.008	1.007	1.006	1.005	1.004	1.004	1.003	1.003	1.002	1.002	1.002	1.002

Selected Pattern	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264
Age-to-Age	**1.730**	**1.192**	**1.092**	**1.044**	**1.020**	**1.009**	**1.005**	**1.003**	**1.001**	**1.001**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	
Age-to-Ultimate	**2.443**	**1.413**	**1.185**	**1.086**	**1.039**	**1.019**	**1.010**	**1.005**	**1.002**	**1.001**	**1.001**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**
Cumulative % Paid	40.9%	70.8%	84.4%	92.1%	96.2%	98.1%	99.0%	99.5%	99.8%	99.9%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Incremental % Paid	40.9%	29.9%	13.6%	7.7%	4.1%	1.9%	0.9%	0.5%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Notes
Data from SNL Financial LC
1996-2008 Annual Statements
Industry Total Private Passenger Auto Liability
Schedule P, Part 3B

	12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
Duration	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1 month	0.11%	2.76%	4.75%	4.01%	1.89%	0.90%	1.20%	1.68%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3 months	0.11%	3.36%	5.02%	4.08%	2.22%	0.95%	1.22%	1.74%	5.89%	5.33%	4.48%	5.36%	5.21%	5.10%	5.68%	3.07%	3.15%	3.96%	6.63%
6 months	0.27%	3.49%	5.09%	4.37%	2.59%	1.02%	1.23%	1.83%	5.70%	5.74%	4.55%	5.45%	5.33%	5.17%	6.51%	3.30%	3.38%	4.00%	6.73%
1 year	0.37%	3.34%	5.00%	4.38%	2.75%	1.26%	1.32%	2.17%	5.32%	5.98%	4.53%	5.51%	5.51%	5.18%	7.20%	3.63%	3.61%	4.12%	6.82%
2 years	0.76%	3.05%	4.82%	4.41%	3.08%	1.84%	1.61%	3.07%	5.11%	6.24%	4.54%	5.66%	5.88%	5.18%	7.69%	4.25%	4.56%	4.77%	7.15%
3 years	1.00%	3.07%	4.74%	4.37%	3.25%	2.37%	1.99%	3.59%	5.06%	6.29%	4.55%	5.68%	6.04%	5.25%	7.80%	4.58%	5.12%	5.11%	7.40%
5 years	1.55%	3.45%	4.70%	4.35%	3.63%	3.25%	2.78%	4.38%	4.99%	6.36%	4.56%	5.71%	6.21%	5.38%	7.83%	5.21%	6.04%	5.93%	7.68%
7 years	1.87%	3.70%	4.70%	4.36%	3.94%	3.77%	3.36%	4.84%	5.16%	6.55%	4.73%	5.77%	6.34%	5.49%	7.84%	5.53%	6.43%	6.38%	8.00%
10 years	2.25%	4.04%	4.71%	4.39%	4.24%	4.27%	3.83%	5.07%	5.12%	6.45%	4.65%	5.75%	6.43%	5.58%	7.84%	5.83%	6.70%	6.71%	8.08%
20 years	3.05%	4.50%	4.91%	4.61%	4.85%	5.10%	4.83%	5.74%	5.59%	6.83%	5.39%	6.02%	6.73%	6.01%	8.02%	6.48%	7.05%	7.06%	8.17%
30 years	2.69%	4.45%	4.81%	4.61%	4.85%	5.10%	4.83%	5.48%	5.46%	6.48%	5.09%	5.93%	6.65%	5.96%	7.89%	6.35%	7.40%	7.41%	8.26%

Discount Factor	12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
(months)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
6	0.999	0.983	0.975	0.979	0.987	0.995	0.994	0.991	0.973	0.972	0.978	0.974	0.974	0.975	0.969	0.984	0.984	0.981	0.968
18	0.992	0.954	0.931	0.938	0.958	0.977	0.978	0.962	0.927	0.915	0.936	0.922	0.920	0.927	0.898	0.944	0.942	0.937	0.904
30	0.978	0.927	0.890	0.898	0.925	0.949	0.956	0.921	0.883	0.859	0.895	0.871	0.865	0.881	0.830	0.898	0.889	0.886	0.839
42	0.961	0.897	0.851	0.861	0.891	0.914	0.927	0.878	0.842	0.807	0.856	0.824	0.813	0.835	0.769	0.850	0.833	0.834	0.777
54	0.939	0.862	0.813	0.825	0.855	0.874	0.892	0.832	0.803	0.758	0.818	0.779	0.764	0.791	0.713	0.801	0.776	0.778	0.719
66	0.915	0.827	0.777	0.791	0.819	0.833	0.853	0.785	0.763	0.711	0.781	0.736	0.717	0.749	0.661	0.753	0.721	0.724	0.663
78	0.891	0.793	0.742	0.758	0.782	0.793	0.814	0.741	0.723	0.664	0.742	0.695	0.672	0.708	0.612	0.708	0.671	0.674	0.609
90	0.866	0.758	0.709	0.726	0.746	0.753	0.776	0.700	0.686	0.622	0.708	0.657	0.630	0.669	0.568	0.665	0.625	0.626	0.561
102	0.841	0.724	0.677	0.695	0.711	0.715	0.741	0.663	0.653	0.586	0.677	0.621	0.591	0.633	0.526	0.625	0.582	0.583	0.518
114	0.814	0.690	0.646	0.665	0.677	0.677	0.705	0.627	0.622	0.551	0.649	0.588	0.554	0.598	0.488	0.586	0.542	0.542	0.479
126	0.788	0.658	0.616	0.636	0.645	0.642	0.671	0.593	0.591	0.518	0.618	0.555	0.519	0.564	0.452	0.550	0.505	0.505	0.442
138	0.764	0.629	0.587	0.608	0.614	0.610	0.638	0.560	0.559	0.484	0.586	0.523	0.486	0.532	0.419	0.516	0.472	0.471	0.409
150	0.739	0.601	0.559	0.581	0.584	0.578	0.607	0.528	0.528	0.453	0.554	0.493	0.455	0.501	0.387	0.483	0.440	0.440	0.378
162	0.714	0.574	0.532	0.554	0.555	0.548	0.575	0.498	0.499	0.423	0.524	0.464	0.425	0.471	0.358	0.452	0.410	0.410	0.349
174	0.688	0.547	0.507	0.529	0.527	0.518	0.545	0.468	0.471	0.395	0.494	0.437	0.398	0.443	0.331	0.422	0.382	0.382	0.322
186	0.663	0.521	0.482	0.505	0.500	0.489	0.515	0.440	0.444	0.368	0.465	0.411	0.372	0.416	0.306	0.394	0.356	0.355	0.298
198	0.637	0.496	0.458	0.481	0.473	0.461	0.485	0.413	0.418	0.343	0.438	0.387	0.347	0.391	0.283	0.368	0.331	0.331	0.275
210	0.612	0.472	0.436	0.459	0.448	0.433	0.457	0.387	0.394	0.320	0.411	0.364	0.324	0.367	0.261	0.342	0.308	0.307	0.254
222	0.586	0.448	0.414	0.437	0.423	0.407	0.429	0.362	0.370	0.297	0.386	0.342	0.302	0.344	0.241	0.318	0.286	0.286	0.234
234	0.561	0.426	0.393	0.416	0.399	0.382	0.402	0.339	0.348	0.277	0.362	0.321	0.282	0.322	0.223	0.296	0.266	0.265	0.216
246	0.542	0.406	0.375	0.397	0.379	0.361	0.380	0.319	0.328	0.259	0.342	0.302	0.263	0.302	0.206	0.276	0.247	0.246	0.200
258	0.530	0.389	0.358	0.379	0.361	0.343	0.363	0.304	0.312	0.244	0.326	0.285	0.247	0.286	0.191	0.260	0.229	0.228	0.184

Notes

(1)-(19) Data from U.S. Treasury
http://www.treasury.gov/offices/domestic-finance/debt-management/interest-rate/yield_historical_main.shtml

(20)-(38) Computed from (1)-(19), by interpolation of rates, compounded for number of months indicated

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET RESULTS **EXHIBIT 8**
PRESENT VALUE FACTORS

Accident Year Age (Months)	Cumulative Paid Development Factor	Cumulative Percent Paid	Incremental Percent Paid	*DISCOUNT FACTORS*																	
				12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
12	2.443	40.9%	40.9%	40.9%	40.2%	39.9%	40.1%	40.4%	40.7%	40.7%	40.6%	39.8%	39.8%	40.0%	39.9%	39.9%	39.9%	39.7%	40.3%	40.3%	40.1%	39.6%
24	1.413	70.8%	29.9%	29.6%	28.5%	27.8%	28.0%	28.6%	29.2%	29.2%	28.7%	27.7%	27.3%	27.9%	27.5%	27.5%	27.7%	26.8%	28.2%	28.1%	28.0%	27.0%
36	1.185	84.4%	13.6%	13.3%	12.6%	12.1%	12.2%	12.6%	12.9%	13.0%	12.5%	12.0%	11.7%	12.2%	11.8%	11.8%	12.0%	11.3%	12.2%	12.1%	12.0%	11.4%
48	1.086	92.1%	7.7%	7.4%	6.9%	6.6%	6.7%	6.9%	7.1%	7.2%	6.8%	6.5%	6.2%	6.6%	6.4%	6.3%	6.5%	5.9%	6.6%	6.4%	6.5%	6.0%
60	1.039	96.2%	4.1%	3.8%	3.5%	3.3%	3.4%	3.5%	3.6%	3.6%	3.4%	3.3%	3.1%	3.3%	3.2%	3.1%	3.2%	2.9%	3.3%	3.2%	3.2%	2.9%
72	1.019	98.1%	1.9%	1.7%	1.6%	1.5%	1.5%	1.6%	1.6%	1.6%	1.5%	1.4%	1.3%	1.5%	1.4%	1.4%	1.4%	1.3%	1.4%	1.4%	1.4%	1.3%
84	1.010	99.0%	0.9%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.6%	0.7%	0.6%	0.6%	0.6%	0.6%	0.7%	0.6%	0.6%	0.6%
96	1.005	99.5%	0.5%	0.4%	0.4%	0.3%	0.3%	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
108	1.002	99.8%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.2%	0.2%	0.1%	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%
120	1.001	99.9%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
132	1.001	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
144	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
156	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
168	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
180	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
192	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
204	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
216	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
228	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
240	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
252	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
264	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total			100.0%	98.4%	94.8%	92.5%	93.2%	94.9%	96.5%	96.8%	94.8%	92.0%	90.7%	92.9%	91.4%	91.1%	91.9%	88.9%	93.2%	92.6%	92.4%	89.3%
Present Value Factor				**0.984**	**0.948**	**0.925**	**0.932**	**0.949**	**0.965**	**0.968**	**0.948**	**0.920**	**0.907**	**0.929**	**0.914**	**0.911**	**0.919**	**0.889**	**0.932**	**0.926**	**0.924**	**0.893**

Notes

(1) From Exhibit 6

(2) = 1 / (1)

(3) From (2)

(4) - (22) Product of (3) and Exhibit 7, Columns (20) - (38)

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET RESULTS **EXHIBIT 9**
DURATION OF PAYOUT OF ACCIDENT YEAR LOSSES

Accident Year Age (Months)	Cumulative Paid Development Factor	Cumulative Percent Paid	Incremental Percent Paid	Duration
(1)	(2)	(3)	(4)	(5)
12	2.443	40.9%	40.9%	0.20
24	1.413	70.8%	29.9%	0.45
36	1.185	84.4%	13.6%	0.34
48	1.086	92.1%	7.7%	0.27
60	1.039	96.2%	4.1%	0.18
72	1.019	98.1%	1.9%	0.10
84	1.010	99.0%	0.9%	0.06
96	1.005	99.5%	0.5%	0.04
108	1.002	99.8%	0.3%	0.02
120	1.001	99.9%	0.1%	0.01
132	1.001	99.9%	0.1%	0.01
144	1.000	100.0%	0.0%	0.00
156	1.000	100.0%	0.0%	0.00
168	1.000	100.0%	0.0%	0.00
180	1.000	100.0%	0.0%	0.00
192	1.000	100.0%	0.0%	0.00
204	1.000	100.0%	0.0%	0.00
216	1.000	100.0%	0.0%	0.00
228	1.000	100.0%	0.0%	0.00
240	1.000	100.0%	0.0%	0.00
252	1.000	100.0%	0.0%	0.00
264	1.000	100.0%	0.0%	0.00
Total			100.0%	169.4%

Duration (years)	**1.6941**

Notes
(2) From Exhibit 6
(3) = 1 / (2)
(4) From (2)
(5) = (4) * [(1) / 12 - 0.5]

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET RESULTS **EXHIBIT 10**
DEVELOPED INDUSTRY ULTIMATE LOSS & ALAE
Dollars in Thousands

Accident Year	Net Booked Ultimate Loss & ALAE (1)	Average Development Parameter μ (2)	Variance Development Parameter σ^2 (3)	Net Developed Ultimate Loss & ALAE (4)	Developed vs Booked Ultimate Loss & ALAE (5)	Paid Loss & ALAE (6)	Developed Unpaid Loss & ALAE (7)
1987	29,639,489	0.000%	0.000%	29,639,489	-	29,467,912	171,577
1988	32,654,526	0.000%	0.000%	32,654,526	-	32,484,806	169,720
1989	35,904,083	0.000%	0.000%	35,904,083	-	35,725,452	178,631
1990	38,001,440	0.000%	0.000%	38,001,440	-	37,836,187	165,253
1991	37,358,272	0.000%	0.000%	37,358,272	-	37,202,829	155,443
1992	39,284,461	0.000%	0.000%	39,284,461	-	39,159,559	124,902
1993	41,791,971	0.000%	0.000%	41,791,971	-	41,635,331	156,640
1994	44,368,818	0.000%	0.000%	44,368,818	-	44,215,159	153,659
1995	45,677,291	0.000%	0.000%	45,677,291	-	45,494,007	183,284
1996	46,968,387	0.000%	0.000%	46,968,387	-	46,793,738	174,649
1997	46,961,444	0.000%	0.000%	46,961,444	-	46,777,820	183,624
1998	48,069,447	0.000%	0.000%	48,069,447	-	47,895,384	174,063
1999	51,518,156	0.000%	0.000%	51,518,156	-	51,324,356	193,800
2000	55,254,295	-0.027%	0.000%	55,239,273	(15,022)	54,907,512	331,761
2001	56,734,057	-0.068%	0.000%	56,695,533	(38,524)	56,329,466	366,067
2002	59,256,413	-0.169%	0.000%	59,156,553	(99,860)	58,516,357	640,196
2003	58,526,059	-0.352%	0.001%	58,320,972	(205,087)	57,213,665	1,107,307
2004	58,523,896	-0.667%	0.004%	58,135,908	(387,988)	56,213,701	1,922,207
2005	60,144,772	-1.161%	0.011%	59,453,704	(691,068)	55,278,660	4,175,044
2006	61,588,607	-1.914%	0.030%	60,429,809	(1,158,798)	51,754,053	8,675,756
2007	65,218,021	-3.149%	0.068%	63,217,625	(2,000,396)	46,324,452	16,893,173
2008	65,469,504	-5.229%	0.147%	62,179,641	(3,289,863)	26,975,954	35,203,687
Total	1,078,913,409			1,071,026,802	(7,886,607)	999,526,360	71,500,442

Notes

(1) From Exhibit 5, Column 3
(2) From Exhibit 3, Cumulative Average
(3) From Exhibit 4, Variance
(4) = (1) * exp[(2) + (3) / 2]
(5) = (4) - (1)
(6) From Exhibit 5, Column 4
(7) = (4) - (6)

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET RESULTS **EXHIBIT 11**
INDUSTRY HISTORICAL ULTIMATE LOSS & ALAE RATIOS
Dollars in Thousands

Accident Year	12 month Booked Ultimate Loss & ALAE Ratio (1)	PV Factor (2)	1 - Exp Ratio (3)	Loss Ratio Prior to Adjustment (4)	Loss Ratio Adjustment (5)	Adjusted Loss Ratio (6)	Log of Adjusted Loss Ratio (7)	12 Month Booked Ultimate Loss (8)	Latest Evaluation Ultimate Loss (9)	Ratio Latest to 12 Month Booked (10)	Log of Ratio (11)
1987	84.4%	0.893	76.2%	74.8%	0.894	66.9%	-40.3%	30,073,940	29,639,489	0.986	-0.015
1988	85.9%	0.893	76.5%	75.8%	0.894	67.8%	-38.8%	33,876,530	32,654,526	0.964	-0.037
1989	86.8%	0.893	76.6%	76.5%	0.894	68.4%	-37.9%	37,233,839	35,904,083	0.964	-0.036
1990	87.6%	0.893	76.6%	77.2%	0.894	69.1%	-37.0%	40,624,863	38,001,440	0.935	-0.067
1991	83.7%	0.924	75.9%	77.0%	0.894	68.9%	-37.3%	41,349,440	37,358,272	0.903	-0.102
1992	83.1%	0.926	76.3%	76.3%	0.894	68.2%	-38.2%	44,368,312	39,284,461	0.885	-0.122
1993	82.4%	0.932	76.7%	75.7%	0.894	67.7%	-39.0%	46,768,470	41,791,971	0.894	-0.113
1994	82.1%	0.889	77.4%	71.3%	0.894	63.8%	-45.0%	48,881,084	44,368,818	0.908	-0.097
1995	78.7%	0.919	76.8%	71.2%	0.894	63.7%	-45.1%	49,635,063	45,677,291	0.920	-0.083
1996	76.4%	0.911	77.2%	68.2%	0.894	61.0%	-49.5%	50,317,796	46,968,387	0.933	-0.069
1997	72.9%	0.914	75.1%	67.1%	0.894	60.0%	-51.1%	49,765,419	46,961,444	0.944	-0.058
1998	71.5%	0.929	74.4%	67.5%	0.894	60.3%	-50.5%	49,240,853	48,069,447	0.976	-0.024
1999	75.0%	0.907	74.7%	68.8%	0.894	61.6%	-48.5%	51,632,511	51,518,156	0.998	-0.002
2000	78.9%	0.920	74.4%	73.7%	0.894	65.9%	-41.6%	54,557,893	55,254,295	1.013	0.012
2001	78.3%	0.948	76.1%	73.8%	0.894	66.0%	-41.6%	56,991,221	56,734,057	0.995	-0.005
2002	76.0%	0.968	76.0%	73.2%	0.894	65.4%	-42.4%	60,398,169	59,256,413	0.981	-0.021
2003	70.9%	0.965	76.4%	67.7%	1.000	67.7%	-39.0%	61,633,969	58,526,059	0.950	-0.055
2004	67.7%	0.949	75.8%	64.1%	1.000	64.1%	-44.5%	62,276,716	58,523,896	0.940	-0.069
2005	67.1%	0.932	76.0%	62.1%	1.000	62.1%	-47.6%	63,227,347	60,144,772	0.951	-0.062
2006	65.8%	0.925	73.9%	62.3%	1.000	62.3%	-47.3%	62,825,209	61,588,607	0.980	-0.039
2007	68.8%	0.948	74.5%	66.2%	1.000	66.2%	-41.3%	65,552,945	65,218,021	0.995	-0.036
2008	69.3%	0.984	74.4%	69.3%	1.000	69.3%	-36.6%	65,469,504	65,469,504	1.000	-0.052
(12) Average						65.3%	-42.7%				
(13) Variance							0.221%				0.132%
(14) Covariance (log of Adjusted Loss Ratio, log of Ratio of Latest to 12 month Booked)							-0.030%				
(15) Total Variance of Adjusted Loss Ratio (log) and Ratio of Latest to 12 month Booked (log)							0.292%				

Notes

(1) Exhibit 1 @ 12 Months / Exhibit 5, Column 1
(2) 1995-2008 from Exhibit 8, Columns 4-17; 1994 and prior selectec
(3) = 100% - Exhibit 5, Column 9
(4) = (1) * $(2)_{AYxxxx}/(2)_{AY2008}$ * $(3)_{AY2008}/(3)_{AYXXXX}$
(5) Adjustment of historical loss ratios to normalize for major differences in levels across multi-year periods
AY 1987-2002: AY 2003-2008 Average / AY 1987-2002 Average; 1.000 for AY 2003-200
(6) = (4) * (5)
(7) = LN(6)
(8) Exhibit 1 @ 12 Months
(9) Exhibit 1 @ 12 Current Evaluation
(10) = (9) / (8)
(11) = LN (10) + Exhibit 10, Column 2 + (Exhibit 10, Column 3) / 2
(12) Average of Column 7
(13) Variance of Column 7 and Column 11
(14) Covariance(Column 7, Column 11)
(15) = Row 13, Column 7 + Row 13, Column 7 + 2 · Row 14

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET RESULTS **EXHIBIT 12A**
DERIVATION OF INDUSTRY 2008 MARKET VALUE OF RISK PARAMETER (λ)
Dollars in Thousands

MARKET VALUE OF RISK (λ)

		Notes	
1 - ER	74.4%	100% - Expense Ratio	From Exhibit 5, Column 10 Selected
1 + ULAE	1.145	1 + ULAE Factor	From Exhibit 5, Column 8 Selected
PV	0.984	Present Value Factor	From Exhibit 8, Column 4 Total
Target Loss Ratio	66.0%	= (1 - ER) / (1 + ULAE) / PV	
ULR12	69.3%	Estimated Ultimate Loss Ratio (at 12 months) of Latest Accident Year	From Exhibit 5, Column 7 Selected
μ	-5.229%	Sample mean of development of estimated ultimate losses	From Exhibit 10, Column 2, 2008
σ^2	0.147%	Variance of development of estimated ultimate losses	From Exhibit 10, Column 3, 2008
σ	3.833%	Standard deviation of development of estimated ultimate losses	= square root of σ^2
D	1.694	Duration	From Exhibit 9, Total Duration
λ	0.054	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - ln (ULR12) - μ - ½σ^2] / [σ·√(D)]	
$\mu_{AY\ ULR}$	-36.6%	Sample mean of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 12, 2008 Accident Year
Combined μ	-41.8%	= μ + $\mu_{AY\ ULR}$	
$\sigma^2_{AY\ ULR}$	0.221%	Sample variance of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 13, Variance of Column 7
$\sigma^2_{12\text{-ult}}$	0.132%	Sample variance of logarithm of developed accident year ultimate	From Exhibit 11, Row 13, Variance of Column 11
Cov(AY ULR, 12-ult)	-0.030%	Covariance of Accident Year Loss Ratio and Development	From Exhibit 11, Row 14, Covariance
Combined σ^2	0.292%	= $\sigma^2_{AY\ ULR}$ + $\sigma^2_{12\text{-ult}}$ + 2 · Cov(AY ULR, 12-ult)	From Exhibit 11, Row 15
λ adj for pricing risk (2008 market value of risk)	0.028	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - $\mu_{AY\ ULR}$ - ½ · combined σ^2] / [combined σ · √(D)]	

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET RESULTS **EXHIBIT 12B**
DERIVATION OF INDUSTRY LONG-TERM MARKET VALUE OF RISK PARAMETER (λ)
Dollars in Thousands

MARKET VALUE OF RISK (λ)

		Notes	
1 - ER	74.4%	100% - Expense Ratio	From Exhibit 5, Column 10 Selected
1 + ULAE	1.145	1 + ULAE Factor	From Exhibit 5, Column 8 Selected
PV	0.984	Present Value Factor	From Exhibit 8, Column 4 Total
Target Loss Ratio	66.0%	= (1 - ER) / (1 + ULAE) / PV	
ULR12	69.3%	Estimated Ultimate Loss Ratio (at 12 months) of Latest Accident Year	From Exhibit 5, Column 7 Selected
μ	-5.229%	Sample mean of development of estimated ultimate losses	From Exhibit 10, Column 2, 2008
σ^2	0.147%	Variance of development of estimated ultimate losses	From Exhibit 10, Column 3, 2008
σ	3.833%	Standard deviation of development of estimated ultimate losses	= square root of σ^2
D	1.694	Duration	From Exhibit 9, Total Duration
λ	0.054	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - ln (ULR12) - μ - ½σ^2] / [σ·√(D)]	
$\mu_{AY\ ULR}$	-42.7%	Sample mean of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 12, Average
Combined μ	-48.0%	= μ + $\mu_{AY\ ULR}$	
$\sigma^2_{AY\ ULR}$	0.221%	Sample variance of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 13, Variance of Column 7
$\sigma^2_{12\text{-ult}}$	0.132%	Sample variance of logarithm of developed accident year ultimate	From Exhibit 11, Row 13, Variance of Column 11
Cov(AY ULR, 12-ult)	-0.030%	Covariance of Accident Year Loss Ratio and Development	From Exhibit 11, Row 14, Covariance
Combined σ^2	0.292%	= $\sigma^2_{AY\ ULR}$ + $\sigma^2_{12\text{-ult}}$ + 2 · Cov(AY ULR, 12-ult)	From Exhibit 11, Row 15
λ adj for pricing risk (long-term market value of risk)	0.899	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - $\mu_{AY\ ULR}$ - ½ · combined σ^2] / [combined σ · √(D)]	

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET RESULTS **EXHIBIT 13A**
RISK MARGIN RESULTS FOR INDUSTRY AND LARGEST 100 U.S. INSURERS BASED ON 2008 MARKET VALUE OF RISK
Dollars in Thousands

	Simulated 1997-2008 Unpaid Claims	Industry Aggregate	Company A	Company B	Company C	Company D	...	Total Largest 100 Companies
(1)	25th Percentile	67,752,753	5,054,184	3,215,080	2,760,737	1,415,485		
(2)	50th Percentile	69,656,233	5,181,725	3,441,110	2,969,409	1,471,962		
(3)	75th Percentile	71,950,777	5,320,588	3,642,303	3,185,073	1,527,469		
(4)	Average	69,809,588	5,181,427	3,429,387	2,982,952	1,471,132		
(5)	Standard Deviation	3,285,611	207,864	310,479	334,987	83,228		
(6)	Simulated Sample μ = Average[log(simulated unpaid claims)]	18.060	15.460	15.044	14.903	14.200		
(7)	Simulated Sample σ = Standard Deviation[log(simulated unpaid claims)]	0.047	0.040	0.091	0.112	0.056		
(8)	Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2)$	69,829,093	5,182,698	3,431,420	2,984,903	1,471,612		66,803,283
(9)	Industry Market Value of Risk (λ_1)	0.028	0.028	0.028	0.028	0.028		
(10)	Duration of Unpaid Claims (D)	1.522	1.524	1.525	1.522	1.525		
(11)	Risk Adjusted Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2 + \lambda_1\cdot\sigma\cdot\sqrt{D})$	69,940,418	5,189,794	3,442,081	2,996,308	1,474,448		66,980,222
(12)	Risk Margin = (11) - (8)	111,324	7,096	10,661	11,405	2,836		176,939
(13)	Risk Margin % of Expected Unpaid Claims = (11) / (8)	0.2%	0.1%	0.3%	0.4%	0.2%		0.3%

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET RESULTS **EXHIBIT 13B**
RISK MARGIN RESULTS FOR INDUSTRY AND LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK
Dollars in Thousands

	Simulated 1997-2008 Unpaid Claims	Industry Aggregate	Company A	Company B	Company C	Company D	...	Total Largest 100 Companies
(1)	25th Percentile	67,752,753	5,054,184	3,215,080	2,760,737	1,415,485		
(2)	50th Percentile	69,656,233	5,181,725	3,441,110	2,969,409	1,471,962		
(3)	75th Percentile	71,950,777	5,320,588	3,642,303	3,185,073	1,527,469		
(4)	Average	69,809,588	5,181,427	3,429,387	2,982,952	1,471,132		
(5)	Standard Deviation	3,285,611	207,864	310,479	334,987	83,228		
(6)	Simulated Sample μ = Average[log(simulated unpaid claims)]	18.060	15.460	15.044	14.903	14.200		
(7)	Simulated Sample σ = Standard Deviation[log(simulated unpaid claims)]	0.047	0.040	0.091	0.112	0.056		
(8)	Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2)$	69,829,093	5,182,698	3,431,420	2,984,903	1,471,612		66,803,283
(9)	Industry Market Value of Risk (λ_1)	0.899	0.899	0.899	0.899	0.899		
(10)	Duration of Unpaid Claims (D)	1.522	1.524	1.525	1.522	1.525		
(11)	Risk Adjusted Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2 + \lambda_1\cdot\sigma\cdot\sqrt{D})$	73,537,462	5,418,243	3,795,195	3,378,544	1,566,576		72,978,485
(12)	Risk Margin = (11) - (8)	3,708,369	235,545	363,775	393,641	94,964		6,175,202
(13)	Risk Margin % of Expected Unpaid Claims = (11) / (8)	5.3%	4.5%	10.6%	13.2%	6.5%		9.2%

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET RESULTS **EXHIBIT 14**
PAYOUT OF EXPECTED UNPAID LOSS & ALAE FOR LARGEST 100 U.S. INSURERS
Dollars in Thousands

Payout of 12/31/2008 Expected Unpaid Loss & ALAE

	Total Accident Years 1997-2008	Accident Year 2008	Accident Year 2007	Accident Year 2006	Accident Year 2005	Accident Year 2004	Accident Year 2003	Accident Year 2002	Accident Year 2001	Accident Year 2000	Accident Year 1999	Accident Year 1998	Accident Year 1997
Paid in	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Year 1	33,070,948	17,070,668	7,510,225	4,128,791	2,066,515	896,116	493,989	276,360	196,641	166,381	87,758	93,396	84,108
Year 2	16,325,808	7,768,992	4,276,380	2,182,133	958,401	433,605	255,639	147,542	108,889	66,618	42,224	44,928	40,456
Year 3	8,739,228	4,423,724	2,260,136	1,012,022	463,743	224,390	136,480	81,701	43,598	32,053	20,312	21,610	19,458
Year 4	4,409,887	2,338,010	1,048,198	489,688	239,987	119,797	75,575	32,712	20,977	15,419	9,770	10,394	9,358
Year 5	2,117,087	1,084,314	507,193	253,414	128,123	66,337	30,260	15,740	10,091	7,416	4,699	4,999	4,501
Year 6	1,057,322	524,669	262,472	135,292	70,948	26,561	14,559	7,571	4,854	3,567	2,260	2,404	2,165
Year 7	545,728	271,516	140,128	74,917	28,407	12,780	7,004	3,642	2,334	1,716	1,087	1,156	1,041
Year 8	281,011	144,956	77,595	29,996	13,668	6,148	3,369	1,752	1,123	825	523	556	501
Year 9	139,461	80,269	31,069	14,433	6,575	2,957	1,620	842	540	397	251	267	241
Year 10	60,723	32,139	14,949	6,943	3,162	1,422	779	405	260	191	121	129	223
Year 11	29,163	15,464	7,191	3,339	1,521	684	375	195	125	92	58	119	-
Year 12	13,996	7,439	3,459	1,606	732	329	180	94	60	44	54	-	-
Year 13	6,726	3,578	1,664	772	352	158	87	45	29	41	-	-	-
Year 14	3,228	1,721	800	372	169	76	42	22	27	-	-	-	-
Year 15	1,549	828	385	179	81	37	20	20	-	-	-	-	-
Year 16	744	398	185	86	39	18	19	-	-	-	-	-	-
Year 17	357	191	89	41	19	16	-	-	-	-	-	-	-
Year 18	172	92	43	20	17	-	-	-	-	-	-	-	-
Year 19	83	44	21	18	-	-	-	-	-	-	-	-	-
Year 20	40	21	19	-	-	-	-	-	-	-	-	-	-
Year 21	20	20	-	-	-	-	-	-	-	-	-	-	-
Year 22	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	66,803,283	33,769,053	16,142,201	8,334,064	3,982,460	1,791,430	1,019,997	568,643	389,549	294,759	169,117	179,959	162,052

Notes

Total equals expected unpaid by accident year

(2) - (13) Based on expected unpaid by accident year and payout pattern from Exhibit 8

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**
INDUSTRY NET RESULTS **EXHIBIT 15**
DISCOUNTED PAYOUT OF EXPECTED UNPAID LOSS & ALAE FOR LARGEST 100 U.S. INSURERS
Dollars in Thousands

Discounted Payout of 12/31/2008 Expected Unpaid Loss & ALAE

	Discount	Total Accident Years	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year	Accident Year
	Factor	1997-2008	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997
Paid in	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Year 1	0.999	33,026,393	17,047,669	7,500,107	4,123,229	2,063,731	894,908	493,324	275,988	196,376	166,157	87,639	93,271	83,995
Year 2	0.992	16,188,417	7,703,612	4,240,392	2,163,769	950,336	429,956	253,488	146,301	107,973	66,057	41,869	44,550	40,115
Year 3	0.978	8,549,888	4,327,882	2,211,169	990,096	453,695	219,529	133,523	79,931	42,654	31,358	19,872	21,142	19,036
Year 4	0.961	4,238,720	2,247,262	1,007,513	470,682	230,672	115,147	72,642	31,443	20,163	14,820	9,391	9,990	8,995
Year 5	0.939	1,987,591	1,017,990	476,170	237,913	120,287	62,279	28,409	14,777	9,474	6,963	4,412	4,693	4,226
Year 6	0.915	967,357	480,026	240,139	123,780	64,911	24,301	13,321	6,927	4,441	3,264	2,068	2,200	1,981
Year 7	0.891	486,287	241,943	124,865	66,757	25,313	11,388	6,241	3,245	2,080	1,529	969	1,030	928
Year 8	0.866	243,418	125,564	67,215	25,983	11,839	5,325	2,918	1,517	973	715	453	482	434
Year 9	0.841	117,268	67,495	26,125	12,136	5,529	2,486	1,362	708	454	334	211	225	203
Year 10	0.814	49,443	26,169	12,172	5,653	2,575	1,158	635	330	211	155	98	105	182
Year 11	0.788	22,992	12,192	5,669	2,633	1,199	539	295	154	98	72	46	94	-
Year 12	0.764	10,691	5,682	2,642	1,227	559	251	138	72	46	34	41	-	-
Year 13	0.739	4,970	2,644	1,229	571	260	117	64	33	21	30	-	-	-
Year 14	0.714	2,304	1,228	571	265	121	54	30	15	19	-	-	-	-
Year 15	0.688	1,066	570	265	123	56	25	14	14	-	-	-	-	-
Year 16	0.663	493	264	123	57	26	12	12	-	-	-	-	-	-
Year 17	0.637	227	122	57	26	12	10	-	-	-	-	-	-	-
Year 18	0.612	105	56	26	12	11	-	-	-	-	-	-	-	-
Year 19	0.586	49	26	12	11	-	-	-	-	-	-	-	-	-
Year 20	0.561	23	12	11	-	-	-	-	-	-	-	-	-	-
Year 21	0.542	11	11	-	-	-	-	-	-	-	-	-	-	-
Year 22	0.530	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		65,897,714	33,308,417	15,916,472	8,224,924	3,931,131	1,767,486	1,006,415	561,454	384,984	291,488	167,069	177,781	160,094

Notes

(1) From Exhibit 7, Column 20

(2) Sum of Columns 3-14

(3) - (14) Product of Column 1 and Exhibit 14, Columns 2-13

PRIVATE PASSENGER AUTO LIABILITY **SECTION C**

INDUSTRY NET RESULTS **EXHIBIT 16**

NET IMPACT OF RISK MARGINS AND DISCOUNT FOR LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK

Dollars in Thousands

Accident Year	31-Dec-08 Booked Unpaid Loss & ALAE (1)	31-Dec-08 Expected Unpaid Loss & ALAE (2)	Average Indicated Risk Margin (3)	Present Value Expected Unpaid Loss & ALAE (4)	Present Value Discount (5)	Risk-Adjusted Discounted Expected Unpaid Loss & ALAE (6)	Net Impact of Risk Margins and Discount vs. Booked (7)
1997	162,052	162,052	N/A	160,094	-1.2%	N/A	N/A
1998	179,959	179,959	N/A	177,781	-1.2%	N/A	N/A
1999	169,117	169,117	N/A	167,069	-1.2%	N/A	N/A
2000	331,209	294,759	N/A	291,488	-1.1%	N/A	N/A
2001	392,521	389,549	N/A	384,984	-1.2%	N/A	N/A
2002	700,457	568,643	N/A	561,454	-1.3%	N/A	N/A
2003	1,240,770	1,019,997	N/A	1,006,415	-1.3%	N/A	N/A
2004	2,207,814	1,791,430	N/A	1,767,486	-1.3%	N/A	N/A
2005	4,690,524	3,982,460	N/A	3,931,131	-1.3%	N/A	N/A
2006	9,527,210	8,334,064	N/A	8,224,924	-1.3%	N/A	N/A
2007	18,297,404	16,142,201	N/A	15,916,472	-1.4%	N/A	N/A
2008	37,311,800	33,769,053	N/A	33,308,417	-1.4%	N/A	N/A
Total 1997-2008	75,210,837	66,803,283	9.2%	65,897,714	-1.4%	71,989,206	-4.3%

Notes

(3) From Exhibit 13B, Row 13, Total Largest 100 U.S. Insurers

(4) From Exhibit 15, Total by Accident Year

(5) = (4) / (2) - 1

(6) = (2) Total * [1 + (3) Total] * [1 + (5) Total]

(7) = (6) Total / (1) Total - 1

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 1**
Dollars in Thousands

	Months of Maturity										Latest
Accident Year	12	24	36	48	60	72	84	96	108	120	Evaluation
1987	18,853,888	19,087,054	19,329,160	19,502,087	19,792,206	20,030,409	20,132,671	20,225,164	20,286,468	20,397,951	20,397,951
1988	22,332,320	22,948,838	23,372,882	23,721,134	24,062,676	24,184,279	24,258,535	24,437,818	24,530,927	24,381,050	24,381,050
1989	24,953,996	25,825,033	26,456,047	26,808,930	26,988,832	26,935,631	27,094,477	27,240,219	27,185,528	27,150,337	27,150,337
1990	28,450,870	29,563,265	29,992,847	30,025,205	30,064,289	29,922,710	30,047,878	29,996,785	29,970,887	29,864,671	29,864,671
1991	29,031,028	29,212,562	28,699,910	28,059,798	27,861,655	27,785,389	27,715,876	27,628,435	27,554,704	27,425,492	27,425,492
1992	26,796,917	26,262,212	24,776,767	23,585,140	23,167,410	23,026,442	22,900,911	22,806,656	22,692,992	22,585,089	22,585,089
1993	23,939,453	22,970,958	22,025,554	20,752,341	20,396,412	20,112,227	19,791,025	19,569,099	19,486,121	19,456,020	19,456,020
1994	21,099,133	20,186,890	19,370,064	18,161,918	17,685,405	17,473,604	17,204,461	17,178,058	17,084,436	17,193,950	17,193,950
1995	18,843,899	18,103,283	17,508,237	16,783,486	16,663,646	16,539,999	16,463,610	16,342,536	16,399,297	16,448,810	16,448,810
1996	17,964,604	17,493,100	17,417,916	16,911,534	16,780,732	16,720,093	16,791,009	16,928,398	16,994,525	17,219,810	17,219,810
1997	17,030,758	17,551,423	17,693,768	17,691,552	17,766,107	18,016,908	18,090,702	18,306,595	18,566,413	18,665,040	18,665,040
1998	17,559,397	17,970,787	18,483,719	18,841,241	19,266,201	19,610,287	19,875,751	20,210,952	20,387,316	20,543,308	20,543,308
1999	16,670,037	17,473,886	18,241,412	19,060,169	19,474,490	19,671,784	20,208,225	20,393,044	20,673,919	20,650,698	20,650,698
2000	17,840,887	18,651,301	19,470,210	20,093,812	20,651,184	21,247,494	21,538,207	21,805,792	21,784,432		21,784,432
2001	19,250,955	19,616,076	19,838,296	20,056,456	20,842,815	21,038,663	21,368,541	21,514,904			21,514,904
2002	19,709,488	19,698,570	19,888,416	20,159,085	20,326,427	20,420,674	20,513,706				20,513,706
2003	22,696,915	21,388,821	20,967,614	21,028,239	21,005,314	21,123,786					21,123,786
2004	24,857,632	23,142,269	22,298,729	21,548,198	21,318,142						21,318,142
2005	25,951,454	24,192,316	22,749,720	22,200,172							22,200,172
2006	27,815,601	26,202,207	25,554,253								25,554,253
2007	27,234,231	26,730,744									26,730,744
2008	26,279,616										26,279,616

Notes
Data from SNL Financial LC
1996-2008 Annual Statements
Industry Total Workers Compensation
Schedule P, Part 2D

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 2**
LINK RATIOS

	Months of Maturity								
Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1987	1.012	1.013	1.009	1.015	1.012	1.005	1.005	1.003	1.005
1988	1.028	1.018	1.015	1.014	1.005	1.003	1.007	1.004	0.994
1989	1.035	1.024	1.013	1.007	0.998	1.006	1.005	0.998	0.999
1990	1.039	1.015	1.001	1.001	0.995	1.004	0.998	0.999	0.996
1991	1.006	0.982	0.978	0.993	0.997	0.997	0.997	0.997	0.995
1992	0.980	0.943	0.952	0.982	0.994	0.995	0.996	0.995	0.995
1993	0.960	0.959	0.942	0.983	0.986	0.984	0.989	0.996	0.998
1994	0.957	0.960	0.938	0.974	0.988	0.985	0.998	0.995	1.006
1995	0.961	0.967	0.959	0.993	0.993	0.995	0.993	1.003	1.003
1996	0.974	0.996	0.971	0.992	0.996	1.004	1.008	1.004	1.013
1997	1.031	1.008	1.000	1.004	1.014	1.004	1.012	1.014	1.005
1998	1.023	1.029	1.019	1.023	1.018	1.014	1.017	1.009	1.008
1999	1.048	1.044	1.045	1.022	1.010	1.027	1.009	1.014	0.999
2000	1.045	1.044	1.032	1.028	1.029	1.014	1.012	0.999	
2001	1.019	1.011	1.011	1.039	1.009	1.016	1.007		
2002	0.999	1.010	1.014	1.008	1.005	1.005			
2003	0.942	0.980	1.003	0.999	1.006				
2004	0.931	0.964	0.966	0.989					
2005	0.932	0.940	0.976						
2006	0.942	0.975							
2007	0.982								

Notes

From Exhibit 1, ratio of successive ultimate loss estimates by accident year

WORKERS COMPENSATION **SECTION D**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 3**

CUMULATIVE DEVELOPMENT IN ULTIMATE LOSS ESTIMATES BASED ON LOG OF LINK RATIOS

	Months of Maturity								
Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1987	1.229%	1.260%	0.891%	1.477%	1.196%	0.509%	0.458%	0.303%	0.548%
1988	2.723%	1.831%	1.479%	1.430%	0.504%	0.307%	0.736%	0.380%	-0.613%
1989	3.431%	2.414%	1.325%	0.669%	-0.197%	0.588%	0.536%	-0.201%	-0.130%
1990	3.835%	1.443%	0.108%	0.130%	-0.472%	0.417%	-0.170%	-0.086%	-0.355%
1991	0.623%	-1.770%	-2.256%	-0.709%	-0.274%	-0.250%	-0.316%	-0.267%	-0.470%
1992	-2.016%	-5.822%	-4.929%	-1.787%	-0.610%	-0.547%	-0.412%	-0.500%	-0.477%
1993	-4.130%	-4.203%	-5.954%	-1.730%	-1.403%	-1.610%	-1.128%	-0.425%	-0.155%
1994	-4.420%	-4.130%	-6.440%	-2.659%	-1.205%	-1.552%	-0.154%	-0.546%	0.639%
1995	-4.010%	-3.342%	-4.228%	-0.717%	-0.745%	-0.463%	-0.738%	0.347%	0.301%
1996	-2.660%	-0.431%	-2.950%	-0.776%	-0.362%	0.423%	0.815%	0.390%	1.317%
1997	3.011%	0.808%	-0.013%	0.421%	1.402%	0.409%	1.186%	1.409%	0.530%
1998	2.316%	2.814%	1.916%	2.230%	1.770%	1.345%	1.672%	0.869%	0.762%
1999	4.709%	4.299%	4.391%	2.150%	1.008%	2.690%	0.910%	1.368%	-0.112%
2000	4.442%	4.297%	3.153%	2.736%	2.847%	1.359%	1.235%	-0.098%	
2001	1.879%	1.126%	1.094%	3.846%	0.935%	1.556%	0.683%		
2002	-0.055%	0.959%	1.352%	0.827%	0.463%	0.455%			
2003	-5.936%	-1.989%	0.289%	-0.109%	0.562%				
2004	-7.150%	-3.713%	-3.424%	-1.073%					
2005	-7.019%	-6.148%	-2.445%						
2006	-5.975%	-2.504%							
2007	-1.866%								
Average	-0.811%	-0.640%	-0.876%	0.353%	0.319%	0.352%	0.354%	0.210%	0.137%

	12-108	24-108	36-108	48-108	60-108	72-108	84-108	96-108	108-108
Cumulative Average	-0.601%	0.210%	0.850%	1.726%	1.373%	1.054%	0.702%	0.348%	0.137%

Notes

From Exhibit 2, natural log of ratio of successive ultimate loss estimates by accident year

WORKERS COMPENSATION **SECTION D**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 4**

VARIANCE-COVARIANCE MATRIX OF LOG OF INCREMENTAL LINK RATIOS

Months of Maturity	12-108	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-Ultimate
12-108	**0.153%**	0.109%	0.089%	0.045%	0.023%	0.026%	0.017%	0.010%	-0.005%	0.000%
24-36	0.109%	**0.099%**	0.087%	0.043%	0.025%	0.028%	0.019%	0.011%	0.001%	0.000%
36-48	0.089%	0.087%	**0.093%**	0.047%	0.028%	0.031%	0.020%	0.012%	-0.002%	0.000%
48-60	0.045%	0.043%	0.047%	**0.028%**	0.015%	0.016%	0.010%	0.006%	0.000%	0.000%
60-72	0.023%	0.025%	0.028%	0.015%	**0.012%**	0.009%	0.008%	0.004%	0.001%	0.000%
72-84	0.026%	0.028%	0.031%	0.016%	0.009%	**0.011%**	0.007%	0.005%	0.000%	0.000%
84-96	0.017%	0.019%	0.020%	0.010%	0.008%	0.007%	**0.006%**	0.003%	0.002%	0.000%
96-108	0.010%	0.011%	0.012%	0.006%	0.004%	0.005%	0.003%	**0.004%**	0.001%	0.000%
108-120	-0.005%	0.001%	-0.002%	0.000%	0.001%	0.000%	0.002%	0.001%	**0.003%**	0.000%
120-Ultimate	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	**0.000%**
Variance (σ^2)	**1.912%**	**1.132%**	**0.605%**	**0.240%**	**0.116%**	**0.060%**	**0.025%**	**0.009%**	**0.003%**	**0.000%**

Notes

From Exhibit 3, covariance of errors at given maturity with errors at all other maturities

Covariances above diagonal are symmetric with those below

Variance is sum of matrix for all maturities greater than or equal to maturity shown in column

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET RESULTS **EXHIBIT 5**
SELECTION OF LOSS & ALAE RATIO, ULAE FACTOR, AND LOSS & LAE RATIO
Dollars in Thousands

Accident Year	Net Earned Premium (1)	Net Ultimate Loss & LAE (2)	Net Ultimate Loss & ALAE (3)	Net Paid Loss & ALAE (4)	Net Unpaid Loss & ALAE (5)	Net Ultimate Loss & LAE Ratio (6)	Net Ultimate Loss & ALAE Ratio (7)	ULAE Factor (8)	Underwriting Expense Ratio (9)	100% - Expense Ratio (10)
1987	22,943,227	21,303,668	20,397,951	17,858,804	2,539,147	92.9%	88.9%	1.044	24.4%	75.6%
1988	26,609,598	25,433,972	24,381,050	21,756,428	2,624,622	95.6%	91.6%	1.043	24.2%	75.8%
1989	29,386,638	28,422,089	27,150,337	24,332,493	2,817,844	96.7%	92.4%	1.047	23.5%	76.5%
1990	33,394,865	31,296,427	29,864,671	26,902,429	2,962,242	93.7%	89.4%	1.048	22.7%	77.3%
1991	34,203,477	28,975,268	27,425,492	24,762,776	2,662,716	84.7%	80.2%	1.057	23.4%	76.6%
1992	33,052,386	24,090,547	22,585,089	20,204,109	2,380,980	72.9%	68.3%	1.067	24.4%	75.6%
1993	31,341,767	20,869,805	19,456,020	17,331,393	2,124,627	66.6%	62.1%	1.073	25.1%	74.9%
1994	28,101,444	18,560,558	17,193,950	15,148,767	2,045,183	66.0%	61.2%	1.079	28.0%	72.0%
1995	25,949,262	17,952,050	16,448,810	14,390,813	2,057,997	69.2%	63.4%	1.091	29.6%	70.4%
1996	25,443,406	18,880,422	17,219,810	14,983,956	2,235,854	74.2%	67.7%	1.096	30.0%	70.0%
1997	23,732,368	20,413,443	18,665,040	16,102,359	2,562,681	86.0%	78.6%	1.094	31.5%	68.5%
1998	22,961,874	22,396,051	20,543,308	17,570,425	2,972,883	97.5%	89.5%	1.090	33.0%	67.0%
1999	21,246,093	22,441,898	20,650,698	17,762,207	2,888,491	105.6%	97.2%	1.087	34.1%	65.9%
2000	23,150,128	23,717,866	21,784,432	18,528,864	3,255,568	102.5%	94.1%	1.089	31.5%	68.5%
2001	25,445,547	23,525,229	21,514,904	17,595,713	3,919,191	92.5%	84.6%	1.093	29.7%	70.3%
2002	28,612,523	22,375,942	20,513,706	16,314,355	4,199,351	78.2%	71.7%	1.091	26.1%	73.9%
2003	31,747,597	23,093,386	21,123,786	15,929,976	5,193,810	72.7%	66.5%	1.093	24.2%	75.8%
2004	35,768,867	23,242,992	21,318,142	15,081,378	6,236,764	65.0%	59.6%	1.090	23.6%	76.4%
2005	38,350,984	24,294,075	22,200,172	14,358,206	7,841,966	63.3%	57.9%	1.094	23.8%	76.2%
2006	41,244,380	27,900,594	25,554,253	13,950,057	11,604,196	67.6%	62.0%	1.092	22.4%	77.6%
2007	39,408,672	29,008,693	26,730,744	11,208,806	15,521,938	73.6%	67.8%	1.085	26.3%	73.7%
2008	37,234,381	28,574,906	26,279,616	5,279,866	20,999,750	76.7%	70.6%	1.087	26.8%	73.2%
Selected					**111,647,801**		**70.6%**	**1.090**		**73.2%**

Notes

(1), (2) Data from SNL Financial LC, 1996-2008 Annual Statements, Industry Total, Schedule P, Part 1D
(3) Exhibit 1, Latest Evaluation
(4) Data from SNL Financial LC, 1996-2008 Annual Statements, Industry Total, Schedule P, Part 1D
(5) = (3) - (4)
(6) = (2) / (1)
(7) = (3) / (1); Selected from 2008
(8) = (6) / (7); Selected from 2005-2007 Average
(9) From AM Best Aggregates and Averages, includes policyholder dividends
(10) = 1 - (9); Selected from 2008

WORKERS COMPENSATION **SECTION D**
INDUSTRY PAYOUT PATTERN (PAID LOSS & ALAE) **EXHIBIT 6**
Dollars in Thousands

Months of Maturity

Accident Year	12	24	36	48	60	72	84	96	108	120
1987	3,865,976	9,032,011	12,182,735	14,167,299	15,435,289	16,277,995	16,829,543	17,265,641	17,589,233	17,858,804
1988	4,738,763	11,179,357	15,161,669	17,558,150	19,076,745	19,969,016	20,638,374	21,131,041	21,493,323	21,756,428
1989	5,235,092	12,731,407	17,154,640	19,829,938	21,428,676	22,457,441	23,161,402	23,684,057	23,984,280	24,332,493
1990	6,406,012	14,284,323	19,331,250	22,157,618	23,872,598	24,923,921	25,645,844	26,152,293	26,583,831	26,902,429
1991	6,086,295	13,437,683	17,736,344	20,245,595	21,869,449	22,894,887	23,560,588	24,034,965	24,406,190	24,762,776
1992	4,898,291	10,880,812	14,245,249	16,400,474	17,708,678	18,504,574	19,149,035	19,559,351	19,967,130	20,204,109
1993	4,205,226	9,316,058	12,274,624	13,999,975	15,052,508	15,862,574	16,351,673	16,854,234	17,122,457	17,331,393
1994	3,812,136	8,390,954	10,897,006	12,291,720	13,312,164	13,905,012	14,375,145	14,714,513	14,935,877	15,148,767
1995	3,708,840	7,875,419	10,070,979	11,701,820	12,547,686	13,209,186	13,636,154	13,918,277	14,172,756	14,390,813
1996	3,840,629	8,063,842	10,686,916	12,112,941	13,136,986	13,721,405	14,188,955	14,475,691	14,729,742	14,983,956
1997	3,965,710	8,903,551	11,444,836	13,059,441	13,994,805	14,687,505	15,154,108	15,586,375	15,871,486	16,102,359
1998	4,595,612	9,445,280	12,441,897	13,950,942	15,118,141	15,901,372	16,490,632	16,926,673	17,258,363	17,570,425
1999	4,161,594	9,546,201	12,645,144	14,498,776	15,494,237	16,058,725	16,579,802	17,007,555	17,344,727	17,762,207
2000	4,463,586	10,230,573	13,554,516	15,370,902	16,496,638	17,120,449	17,702,947	18,152,366	18,528,864	
2001	4,464,626	10,156,947	13,538,659	15,373,199	16,095,388	16,576,364	17,041,825	17,595,713		
2002	4,161,055	9,381,797	12,357,244	13,982,937	15,085,995	15,678,751	16,314,355			
2003	4,199,742	9,309,273	12,220,442	13,944,587	15,070,877	15,929,976				
2004	4,534,769	9,642,587	12,278,263	13,920,769	15,081,378					
2005	4,770,668	9,746,848	12,562,596	14,358,206						
2006	5,001,579	10,519,615	13,950,057							
2007	5,109,809	11,208,806								
2008	5,279,866									

Age-to-Age Paid Loss Development

Accident Year	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120
1987	2.336	1.349	1.163	1.090	1.055	1.034	1.026	1.019	1.015
1988	2.359	1.356	1.158	1.086	1.047	1.034	1.024	1.017	1.012
1989	2.432	1.347	1.156	1.081	1.048	1.031	1.023	1.013	1.015
1990	2.230	1.353	1.146	1.077	1.044	1.029	1.020	1.017	1.012
1991	2.208	1.320	1.141	1.080	1.047	1.029	1.020	1.015	1.015
1992	2.221	1.309	1.151	1.080	1.045	1.035	1.021	1.021	1.012
1993	2.215	1.318	1.141	1.075	1.054	1.031	1.031	1.016	1.012
1994	2.201	1.299	1.128	1.083	1.045	1.034	1.024	1.015	1.014
1995	2.123	1.279	1.162	1.072	1.053	1.032	1.021	1.018	1.015
1996	2.100	1.325	1.133	1.085	1.044	1.034	1.020	1.018	1.017
1997	2.245	1.285	1.141	1.072	1.049	1.032	1.029	1.018	1.015
1998	2.055	1.317	1.121	1.084	1.052	1.037	1.026	1.020	1.018
1999	2.294	1.325	1.147	1.069	1.036	1.032	1.026	1.020	1.024
2000	2.292	1.325	1.134	1.073	1.038	1.034	1.025	1.021	
2001	2.275	1.333	1.136	1.047	1.030	1.028	1.033		
2002	2.255	1.317	1.132	1.079	1.039	1.041			
2003	2.217	1.313	1.141	1.081	1.057				
2004	2.126	1.273	1.134	1.083					
2005	2.043	1.289	1.143						
2006	2.103	1.326							
2007	2.194								
Averages									
10-Yr Weighted	2.182	1.311	1.136	1.074	1.044	1.033	1.026	1.018	1.015
10-Yr Straight	2.185	1.310	1.136	1.074	1.044	1.033	1.026	1.018	1.015
Selected	2.182	1.311	1.136	1.074	1.044	1.033	1.026	1.018	1.015

Fitted Age-to-Ultimate

Curve Fits:	R-squared	120	132	144	156	168	180	192	204	216	228	240	252	264
Weibull	96.8%	1.015	1.010	1.006	1.004	1.003	1.002	1.001	1.001	1.001	1.000	1.000	1.000	1.000
Power Curve	93.0%	1.017	1.011	1.007	1.004	1.003	1.002	1.001	1.001	1.000	1.000	1.000	1.000	1.000
Inverse Power Curve	99.9%	1.097	1.084	1.073	1.064	1.057	1.050	1.045	1.040	1.036	1.032	1.028	1.025	1.023

Selected Pattern	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264
Age-to-Age	**2.182**	**1.311**	**1.136**	**1.074**	**1.044**	**1.033**	**1.026**	**1.018**	**1.015**	**1.012**	**1.010**	**1.008**	**1.007**	**1.006**	**1.005**	**1.005**	**1.004**	**1.004**	**1.003**	**1.003**	**1.025**	
Age-to-Ultimate	**4.377**	**2.006**	**1.531**	**1.347**	**1.254**	**1.202**	**1.163**	**1.134**	**1.113**	**1.097**	**1.084**	**1.073**	**1.064**	**1.057**	**1.050**	**1.045**	**1.040**	**1.036**	**1.032**	**1.028**	**1.025**	**1.000**
Cumulative % Paid	22.8%	49.8%	65.3%	74.2%	79.7%	83.2%	86.0%	88.2%	89.8%	91.2%	92.3%	93.2%	94.0%	94.6%	95.2%	95.7%	96.2%	96.6%	96.9%	97.2%	97.5%	100.0%
Incremental % Paid	22.8%	27.0%	15.5%	8.9%	5.5%	3.5%	2.8%	2.2%	1.6%	1.4%	1.1%	0.9%	0.8%	0.7%	0.6%	0.5%	0.4%	0.4%	0.4%	0.3%	0.3%	2.5%

Notes
Data from SNL Financial LC
1996-2008 Annual Statements
Industry Total Workers Compensation
Schedule P, Part 3D

	12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
Duration	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1 month	0.11%	2.76%	4.75%	4.01%	1.89%	0.90%	1.20%	1.68%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3 months	0.11%	3.36%	5.02%	4.08%	2.22%	0.95%	1.22%	1.74%	5.89%	5.33%	4.48%	5.36%	5.21%	5.10%	5.68%	3.07%	3.15%	3.96%	6.63%
6 months	0.27%	3.49%	5.09%	4.37%	2.59%	1.02%	1.23%	1.83%	5.70%	5.74%	4.55%	5.45%	5.33%	5.17%	6.51%	3.30%	3.38%	4.00%	6.73%
1 year	0.37%	3.34%	5.00%	4.38%	2.75%	1.26%	1.32%	2.17%	5.32%	5.98%	4.53%	5.51%	5.51%	5.18%	7.20%	3.63%	3.61%	4.12%	6.82%
2 years	0.76%	3.05%	4.82%	4.41%	3.08%	1.84%	1.61%	3.07%	5.11%	6.24%	4.54%	5.66%	5.88%	5.18%	7.69%	4.25%	4.56%	4.77%	7.15%
3 years	1.00%	3.07%	4.74%	4.37%	3.25%	2.37%	1.99%	3.59%	5.06%	6.29%	4.55%	5.68%	6.04%	5.25%	7.80%	4.58%	5.12%	5.11%	7.40%
5 years	1.55%	3.45%	4.70%	4.35%	3.63%	3.25%	2.78%	4.38%	4.99%	6.36%	4.56%	5.71%	6.21%	5.38%	7.83%	5.21%	6.04%	5.93%	7.68%
7 years	1.87%	3.70%	4.70%	4.36%	3.94%	3.77%	3.36%	4.84%	5.16%	6.55%	4.73%	5.77%	6.34%	5.49%	7.84%	5.53%	6.43%	6.38%	8.00%
10 years	2.25%	4.04%	4.71%	4.39%	4.24%	4.27%	3.83%	5.07%	5.12%	6.45%	4.65%	5.75%	6.43%	5.58%	7.84%	5.83%	6.70%	6.71%	8.08%
20 years	3.05%	4.50%	4.91%	4.61%	4.85%	5.10%	4.83%	5.74%	5.59%	6.83%	5.39%	6.02%	6.73%	6.01%	8.02%	6.48%	7.05%	7.06%	8.17%
30 years	2.69%	4.45%	4.81%	4.61%	4.85%	5.10%	4.83%	5.48%	5.46%	6.48%	5.09%	5.93%	6.65%	5.96%	7.89%	6.35%	7.40%	7.41%	8.26%

Discount Factor	12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
(months)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
6	0.999	0.983	0.975	0.979	0.987	0.995	0.994	0.991	0.973	0.972	0.978	0.974	0.974	0.975	0.969	0.984	0.984	0.981	0.968
18	0.992	0.954	0.931	0.938	0.958	0.977	0.978	0.962	0.927	0.915	0.936	0.922	0.920	0.927	0.898	0.944	0.942	0.937	0.904
30	0.978	0.927	0.890	0.898	0.925	0.949	0.956	0.921	0.883	0.859	0.895	0.871	0.865	0.881	0.830	0.898	0.889	0.886	0.839
42	0.961	0.897	0.851	0.861	0.891	0.914	0.927	0.878	0.842	0.807	0.856	0.824	0.813	0.835	0.769	0.850	0.833	0.834	0.777
54	0.939	0.862	0.813	0.825	0.855	0.874	0.892	0.832	0.803	0.758	0.818	0.779	0.764	0.791	0.713	0.801	0.776	0.778	0.719
66	0.915	0.827	0.777	0.791	0.819	0.833	0.853	0.785	0.763	0.711	0.781	0.736	0.717	0.749	0.661	0.753	0.721	0.724	0.663
78	0.891	0.793	0.742	0.758	0.782	0.793	0.814	0.741	0.723	0.664	0.742	0.695	0.672	0.708	0.612	0.708	0.671	0.674	0.609
90	0.866	0.758	0.709	0.726	0.746	0.753	0.776	0.700	0.686	0.622	0.708	0.657	0.630	0.669	0.568	0.665	0.625	0.626	0.561
102	0.841	0.724	0.677	0.695	0.711	0.715	0.741	0.663	0.653	0.586	0.677	0.621	0.591	0.633	0.526	0.625	0.582	0.583	0.518
114	0.814	0.690	0.646	0.665	0.677	0.677	0.705	0.627	0.622	0.551	0.649	0.588	0.554	0.598	0.488	0.586	0.542	0.542	0.479
126	0.788	0.658	0.616	0.636	0.645	0.642	0.671	0.593	0.591	0.518	0.618	0.555	0.519	0.564	0.452	0.550	0.505	0.505	0.442
138	0.764	0.629	0.587	0.608	0.614	0.610	0.638	0.560	0.559	0.484	0.586	0.523	0.486	0.532	0.419	0.516	0.472	0.471	0.409
150	0.739	0.601	0.559	0.581	0.584	0.578	0.607	0.528	0.528	0.453	0.554	0.493	0.455	0.501	0.387	0.483	0.440	0.440	0.378
162	0.714	0.574	0.532	0.554	0.555	0.548	0.575	0.498	0.499	0.423	0.524	0.464	0.425	0.471	0.358	0.452	0.410	0.410	0.349
174	0.688	0.547	0.507	0.529	0.527	0.518	0.545	0.468	0.471	0.395	0.494	0.437	0.398	0.443	0.331	0.422	0.382	0.382	0.322
186	0.663	0.521	0.482	0.505	0.500	0.489	0.515	0.440	0.444	0.368	0.465	0.411	0.372	0.416	0.306	0.394	0.356	0.355	0.298
198	0.637	0.496	0.458	0.481	0.473	0.461	0.485	0.413	0.418	0.343	0.438	0.387	0.347	0.391	0.283	0.368	0.331	0.331	0.275
210	0.612	0.472	0.436	0.459	0.448	0.433	0.457	0.387	0.394	0.320	0.411	0.364	0.324	0.367	0.261	0.342	0.308	0.307	0.254
222	0.586	0.448	0.414	0.437	0.423	0.407	0.429	0.362	0.370	0.297	0.386	0.342	0.302	0.344	0.241	0.318	0.286	0.286	0.234
234	0.561	0.426	0.393	0.416	0.399	0.382	0.402	0.339	0.348	0.277	0.362	0.321	0.282	0.322	0.223	0.296	0.266	0.265	0.216
246	0.542	0.406	0.375	0.397	0.379	0.361	0.380	0.319	0.328	0.259	0.342	0.302	0.263	0.302	0.206	0.276	0.247	0.246	0.200
258	0.530	0.389	0.358	0.379	0.361	0.343	0.363	0.304	0.312	0.244	0.326	0.285	0.247	0.286	0.191	0.260	0.229	0.228	0.184

Notes

(1)-(19) Data from U.S. Treasury
http://www.treasury.gov/offices/domestic-finance/debt-management/interest-rate/yield_historical_main.shtml

(20)-(38) Computed from (1)-(19), by interpolation of rates, compounded for number of months indicated

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET RESULTS **EXHIBIT 8**
PRESENT VALUE FACTORS

Accident Year Age (Months)	Cumulative Paid Development Factor	Cumulative Percent Paid	Incremental Percent Paid	*DISCOUNT FACTORS*																	
				12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
12	4.377	22.8%	22.8%	22.8%	22.5%	22.3%	22.4%	22.6%	22.7%	22.7%	22.6%	22.2%	22.2%	22.3%	22.2%	22.3%	22.3%	22.1%	22.5%	22.5%	22.4%	22.1%
24	2.006	49.8%	27.0%	26.8%	25.8%	25.1%	25.3%	25.9%	26.4%	26.4%	26.0%	25.0%	24.7%	25.3%	24.9%	24.8%	25.0%	24.2%	25.5%	25.4%	25.3%	24.4%
36	1.531	65.3%	15.5%	15.2%	14.4%	13.8%	13.9%	14.3%	14.7%	14.8%	14.3%	13.7%	13.3%	13.9%	13.5%	13.4%	13.6%	12.9%	13.9%	13.8%	13.7%	13.0%
48	1.347	74.2%	8.9%	8.5%	8.0%	7.6%	7.7%	7.9%	8.1%	8.2%	7.8%	7.5%	7.2%	7.6%	7.3%	7.2%	7.4%	6.8%	7.6%	7.4%	7.4%	6.9%
60	1.254	79.7%	5.5%	5.2%	4.7%	4.5%	4.5%	4.7%	4.8%	4.9%	4.6%	4.4%	4.2%	4.5%	4.3%	4.2%	4.3%	3.9%	4.4%	4.3%	4.3%	3.9%
72	1.202	83.2%	3.5%	3.2%	2.9%	2.7%	2.8%	2.9%	2.9%	3.0%	2.8%	2.7%	2.5%	2.7%	2.6%	2.5%	2.6%	2.3%	2.6%	2.5%	2.5%	2.3%
84	1.163	86.0%	2.8%	2.5%	2.2%	2.1%	2.1%	2.2%	2.2%	2.3%	2.1%	2.0%	1.9%	2.1%	1.9%	1.9%	2.0%	1.7%	2.0%	1.9%	1.9%	1.7%
96	1.134	88.2%	2.2%	1.9%	1.7%	1.6%	1.6%	1.6%	1.7%	1.7%	1.5%	1.5%	1.4%	1.6%	1.4%	1.4%	1.5%	1.3%	1.5%	1.4%	1.4%	1.2%
108	1.113	89.8%	1.6%	1.3%	1.2%	1.1%	1.1%	1.1%	1.1%	1.2%	1.1%	1.0%	0.9%	1.1%	1.0%	0.9%	1.0%	0.8%	1.0%	0.9%	0.9%	0.8%
120	1.097	91.2%	1.4%	1.1%	0.9%	0.9%	0.9%	0.9%	0.9%	1.0%	0.9%	0.8%	0.8%	0.9%	0.8%	0.8%	0.8%	0.7%	0.8%	0.7%	0.7%	0.7%
132	1.084	92.3%	1.1%	0.9%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.6%	0.6%	0.6%	0.7%	0.6%	0.6%	0.6%	0.5%	0.6%	0.6%	0.6%	0.5%
144	1.073	93.2%	0.9%	0.7%	0.6%	0.5%	0.6%	0.6%	0.6%	0.6%	0.5%	0.5%	0.4%	0.5%	0.5%	0.4%	0.5%	0.4%	0.5%	0.4%	0.4%	0.4%
156	1.064	94.0%	0.8%	0.6%	0.5%	0.4%	0.4%	0.5%	0.4%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.3%	0.4%	0.3%	0.3%	0.3%
168	1.057	94.6%	0.7%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%	0.3%	0.3%	0.3%	0.2%
180	1.050	95.2%	0.6%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%	0.3%	0.3%	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%
192	1.045	95.7%	0.5%	0.3%	0.3%	0.2%	0.3%	0.3%	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
204	1.040	96.2%	0.4%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%
216	1.036	96.6%	0.4%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
228	1.032	96.9%	0.4%	0.2%	0.2%	0.1%	0.2%	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
240	1.028	97.2%	0.3%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
252	1.025	97.5%	0.3%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
264	1.000	100.0%	2.5%	1.3%	1.0%	0.9%	0.9%	0.9%	0.8%	0.9%	0.8%	0.8%	0.6%	0.8%	0.7%	0.6%	0.7%	0.5%	0.6%	0.6%	0.6%	0.5%
Total			100.0%	94.2%	88.7%	85.7%	86.7%	88.4%	89.8%	90.6%	87.3%	84.8%	82.2%	85.9%	83.6%	82.6%	84.2%	79.4%	85.1%	83.9%	83.7%	79.7%
Present Value Factor				**0.942**	**0.887**	**0.857**	**0.867**	**0.884**	**0.898**	**0.906**	**0.873**	**0.848**	**0.822**	**0.859**	**0.836**	**0.826**	**0.842**	**0.794**	**0.851**	**0.839**	**0.837**	**0.797**

Notes

(1) From Exhibit 6

(2) = 1 / (1)

(3) From (2)

(4) - (22) Product of (3) and Exhibit 7, Columns (20) - (38)

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET RESULTS **EXHIBIT 9**
DURATION OF PAYOUT OF ACCIDENT YEAR LOSSES

Accident Year Age (Months)	Cumulative Paid Development Factor	Cumulative Percent Paid	Incremental Percent Paid	Duration
(1)	(2)	(3)	(4)	(5)
12	4.377	22.8%	22.8%	0.11
24	2.006	49.8%	27.0%	0.40
36	1.531	65.3%	15.5%	0.39
48	1.347	74.2%	8.9%	0.31
60	1.254	79.7%	5.5%	0.25
72	1.202	83.2%	3.5%	0.19
84	1.163	86.0%	2.8%	0.18
96	1.134	88.2%	2.2%	0.17
108	1.113	89.8%	1.6%	0.14
120	1.097	91.2%	1.4%	0.13
132	1.084	92.3%	1.1%	0.11
144	1.073	93.2%	0.9%	0.10
156	1.064	94.0%	0.8%	0.10
168	1.057	94.6%	0.7%	0.09
180	1.050	95.2%	0.6%	0.08
192	1.045	95.7%	0.5%	0.08
204	1.040	96.2%	0.4%	0.07
216	1.036	96.6%	0.4%	0.07
228	1.032	96.9%	0.4%	0.07
240	1.028	97.2%	0.3%	0.06
252	1.025	97.5%	0.3%	0.06
264	1.000	100.0%	2.5%	0.53
Total			100.0%	370.2%

Duration (years)	**3.7020**

Notes
(2) From Exhibit 6
(3) = 1 / (2)
(4) From (2)
(5) = (4) * [(1) / 12 - 0.5]

WORKERS COMPENSATION **SECTION D**

INDUSTRY NET RESULTS **EXHIBIT 10**

DEVELOPED INDUSTRY ULTIMATE LOSS & ALAE

Dollars in Thousands

Accident Year	Net Booked Ultimate Loss & ALAE (1)	Average Development Parameter μ (2)	Variance Development Parameter σ^2 (3)	Net Developed Ultimate Loss & ALAE (4)	Developed vs Booked Ultimate Loss & ALAE (5)	Paid Loss & ALAE (6)	Developed Unpaid Loss & ALAE (7)
1987	20,397,951	0.000%	0.000%	20,397,951	-	17,858,804	2,539,147
1988	24,381,050	0.000%	0.000%	24,381,050	-	21,756,428	2,624,622
1989	27,150,337	0.000%	0.000%	27,150,337	-	24,332,493	2,817,844
1990	29,864,671	0.000%	0.000%	29,864,671	-	26,902,429	2,962,242
1991	27,425,492	0.000%	0.000%	27,425,492	-	24,762,776	2,662,716
1992	22,585,089	0.000%	0.000%	22,585,089	-	20,204,109	2,380,980
1993	19,456,020	0.000%	0.000%	19,456,020	-	17,331,393	2,124,627
1994	17,193,950	0.000%	0.000%	17,193,950	-	15,148,767	2,045,183
1995	16,448,810	0.000%	0.000%	16,448,810	-	14,390,813	2,057,997
1996	17,219,810	0.000%	0.000%	17,219,810	-	14,983,956	2,235,854
1997	18,665,040	0.000%	0.000%	18,665,040	-	16,102,359	2,562,681
1998	20,543,308	0.000%	0.000%	20,543,308	-	17,570,425	2,972,883
1999	20,650,698	0.000%	0.000%	20,650,698	-	17,762,207	2,888,491
2000	21,784,432	0.137%	0.003%	21,814,736	30,304	18,528,864	3,285,872
2001	21,514,904	0.348%	0.009%	21,590,821	75,917	17,595,713	3,995,108
2002	20,513,706	0.702%	0.025%	20,660,823	147,117	16,314,355	4,346,468
2003	21,123,786	1.054%	0.060%	21,354,051	230,265	15,929,976	5,424,075
2004	21,318,142	1.373%	0.116%	21,625,404	307,262	15,081,378	6,544,026
2005	22,200,172	1.726%	0.240%	22,613,757	413,585	14,358,206	8,255,551
2006	25,554,253	0.850%	0.605%	25,850,466	296,213	13,950,057	11,900,409
2007	26,730,744	0.210%	1.132%	26,938,968	208,224	11,208,806	15,730,162
2008	26,279,616	-0.601%	1.912%	26,372,918	93,302	5,279,866	21,093,052
Total	489,001,981			490,804,172	1,802,191	377,354,180	113,449,992

Notes

(1) From Exhibit 5, Column 3

(2) From Exhibit 3, Cumulative Average

(3) From Exhibit 4, Variance

(4) = (1) * exp[(2) + (3) / 2]

(5) = (4) - (1)

(6) From Exhibit 5, Column 4

(7) = (4) - (6)

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET RESULTS **EXHIBIT 11**
INDUSTRY HISTORICAL ULTIMATE LOSS & ALAE RATIOS
Dollars in Thousands

Accident Year	12 month Booked Ultimate Loss & ALAE Ratio (1)	PV Factor (2)	1 - Exp Ratio (3)	Loss Ratio Prior to Adjustment (4)	Loss Ratio Adjustment (5)	Adjusted Loss Ratio (6)	Log of Adjusted Loss Ratio (7)	12 Month Booked Ultimate Loss (8)	Latest Evaluation Ultimate Loss (9)	Ratio Latest to 12 Month Booked (10)	Log of Ratio (11)
1987	82.2%	0.797	75.6%	67.4%	0.940	63.3%	-45.7%	18,853,888	20,397,951	1.082	0.079
1988	83.9%	0.797	75.8%	68.6%	0.940	64.5%	-43.9%	22,332,320	24,381,050	1.092	0.088
1989	84.9%	0.797	76.5%	68.8%	0.940	64.7%	-43.6%	24,953,996	27,150,337	1.088	0.084
1990	85.2%	0.797	77.3%	68.3%	0.940	64.2%	-44.3%	28,450,870	29,864,671	1.050	0.048
1991	84.9%	0.837	76.6%	72.1%	0.940	67.8%	-38.9%	29,031,028	27,425,492	0.945	-0.057
1992	81.1%	0.839	75.6%	69.9%	0.940	65.7%	-42.0%	26,796,917	22,585,089	0.843	-0.171
1993	76.4%	0.851	74.9%	67.5%	0.940	63.4%	-45.5%	23,939,453	19,456,020	0.813	-0.207
1994	75.1%	0.794	72.0%	64.4%	0.940	60.5%	-50.2%	21,099,133	17,193,950	0.815	-0.205
1995	72.6%	0.842	70.4%	67.5%	0.940	63.5%	-45.4%	18,843,899	16,448,810	0.873	-0.136
1996	70.6%	0.826	70.0%	64.8%	0.940	60.9%	-49.6%	17,964,604	17,219,810	0.959	-0.042
1997	71.8%	0.836	68.5%	68.0%	0.940	63.9%	-44.7%	17,030,758	18,665,040	1.096	0.092
1998	76.5%	0.859	67.0%	76.2%	0.853	65.0%	-43.1%	17,559,397	20,543,308	1.170	0.157
1999	78.5%	0.822	65.9%	76.1%	0.853	64.9%	-43.3%	16,670,037	20,650,698	1.239	0.214
2000	77.1%	0.848	68.5%	74.2%	0.853	63.3%	-45.8%	17,840,887	21,784,432	1.221	0.201
2001	75.7%	0.873	70.3%	73.1%	0.853	62.3%	-47.3%	19,250,955	21,514,904	1.118	0.115
2002	68.9%	0.906	73.9%	65.6%	1.000	65.6%	-42.1%	19,709,488	20,513,706	1.041	0.047
2003	71.5%	0.898	75.8%	65.9%	1.000	65.9%	-41.7%	22,696,915	21,123,786	0.931	-0.061
2004	69.5%	0.884	76.4%	62.5%	1.000	62.5%	-47.0%	24,857,632	21,318,142	0.858	-0.139
2005	67.7%	0.867	76.2%	59.8%	1.000	59.8%	-51.4%	25,951,454	22,200,172	0.855	-0.138
2006	67.4%	0.857	77.6%	57.9%	1.000	57.9%	-54.7%	27,815,601	25,554,253	0.919	-0.073
2007	69.1%	0.887	73.7%	64.7%	1.000	64.7%	-43.6%	27,234,231	26,730,744	0.982	-0.011
2008	70.6%	0.942	73.2%	70.6%	1.000	70.6%	-34.8%	26,279,616	26,279,616	1.000	0.004
(12) Average						63.9%	-44.9%				
(13) Variance							0.178%				1.632%
(14) Covariance (log of Adjusted Loss Ratio, log of Ratio of Latest to 12 month Booked)							0.130%				
(15) Total Variance of Adjusted Loss Ratio (log) and Ratio of Latest to 12 month Booked (log)							2.070%				

Notes

(1) Exhibit 1 @ 12 Months / Exhibit 5, Column 1
(2) 1995-2008 from Exhibit 8, Columns 4-17; 1994 and prior selectec
(3) = 100% - Exhibit 5, Column 9
(4) = (1) * $(2)_{AYxxxx}/(2)_{AY2008}$ * $(3)_{AY2008}/(3)_{AYXXXX}$
(5) Adjustment of historical loss ratios to normalize for major differences in levels across multi-year periods
AY 1987-1997: AY 2002-2008 Average / AY 1987-1997 Average; AY 1998-2001: AY 2002-2008 Average / AY 1998-2001 Average; 1.000 for AY 2002-200
(6) = (4) * (5)
(7) = LN(6)
(8) Exhibit 1 @ 12 Months
(9) Exhibit 1 @ 12 Current Evaluation
(10) = (9) / (8)
(11) = LN (10) + Exhibit 10, Column 2 + (Exhibit 10, Column 3) / 2
(12) Average of Column 7
(13) Variance of Column 7 and Column 11
(14) Covariance(Column 7, Column 11)
(15) = Row 13, Column 7 + Row 13, Column 7 + 2 * Row 14

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET RESULTS **EXHIBIT 12A**
DERIVATION OF INDUSTRY 2008 MARKET VALUE OF RISK PARAMETER (λ)
Dollars in Thousands

MARKET VALUE OF RISK (λ)

		Notes	
1 - ER	73.2%	100% - Expense Ratio	From Exhibit 5, Column 10 Selected
1 + ULAE	1.090	1 + ULAE Factor	From Exhibit 5, Column 8 Selected
PV	0.942	Present Value Factor	From Exhibit 8, Column 4 Total
Target Loss Ratio	71.3%	= (1 - ER) / (1 + ULAE) / PV	
ULR12	70.6%	Estimated Ultimate Loss Ratio (at 12 months) of Latest Accident Year	From Exhibit 5, Column 7 Selected
μ	-0.601%	Sample mean of development of estimated ultimate losses	From Exhibit 10, Column 2, 2008
σ^2	1.912%	Variance of development of estimated ultimate losses	From Exhibit 10, Column 3, 2008
σ	13.826%	Standard deviation of development of estimated ultimate losses	= square root of σ^2
D	3.702	Duration	From Exhibit 9, Total Duration
λ	0.024	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - ln (ULR12) - μ - ½σ^2] / [σ·√(D)]	
$\mu_{AY\ ULR}$	-34.8%	Sample mean of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 12, 2008 Accident Year
Combined μ	-35.4%	= μ + $\mu_{AY\ ULR}$	
$\sigma^2_{AY\ ULR}$	0.178%	Sample variance of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 13, Variance of Column 7
$\sigma^2_{12\text{-ult}}$	1.632%	Sample variance of logarithm of developed accident year ultimate	From Exhibit 11, Row 13, Variance of Column 11
Cov(AY ULR, 12-ult)	0.130%	Covariance of Accident Year Loss Ratio and Development	From Exhibit 11, Row 14, Covariance
Combined σ^2	2.070%	= $\sigma^2_{AY\ ULR}$ + $\sigma^2_{12\text{-ult}}$ + 2 · Cov(AY ULR, 12-ult)	From Exhibit 11, Row 15
λ adj for pricing risk (2008 market value of risk)	0.020	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - $\mu_{AY\ ULR}$ - ½ · combined σ^2] / [combined σ · √(D)]	

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET RESULTS **EXHIBIT 12B**
DERIVATION OF INDUSTRY LONG-TERM MARKET VALUE OF RISK PARAMETER (λ)
Dollars in Thousands

MARKET VALUE OF RISK (λ)

		Notes	
1 - ER	73.2%	100% - Expense Ratio	From Exhibit 5, Column 10 Selected
1 + ULAE	1.090	1 + ULAE Factor	From Exhibit 5, Column 8 Selected
PV	0.942	Present Value Factor	From Exhibit 8, Column 4 Total
Target Loss Ratio	71.3%	= (1 - ER) / (1 + ULAE) / PV	
ULR12	70.6%	Estimated Ultimate Loss Ratio (at 12 months) of Latest Accident Year	From Exhibit 5, Column 7 Selected
μ	-0.601%	Sample mean of development of estimated ultimate losses	From Exhibit 10, Column 2, 2008
σ^2	1.912%	Variance of development of estimated ultimate losses	From Exhibit 10, Column 3, 2008
σ	13.826%	Standard deviation of development of estimated ultimate losses	= square root of σ^2
D	3.702	Duration	From Exhibit 9, Total Duration
λ	0.024	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - ln (ULR12) - μ - ½σ^2] / [σ·√(D)]	
$\mu_{AY\ ULR}$	-44.9%	Sample mean of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 12, Average
Combined μ	-45.5%	= μ + $\mu_{AY\ ULR}$	
$\sigma^2_{AY\ ULR}$	0.178%	Sample variance of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 13, Variance of Column 7
$\sigma^2_{12\text{-ult}}$	1.632%	Sample variance of logarithm of developed accident year ultimate	From Exhibit 11, Row 13, Variance of Column 11
Cov(AY ULR, 12-ult)	0.130%	Covariance of Accident Year Loss Ratio and Development	From Exhibit 11, Row 14, Covariance
Combined σ^2	2.070%	= $\sigma^2_{AY\ ULR}$ + $\sigma^2_{12\text{-ult}}$ + 2 · Cov(AY ULR, 12-ult)	From Exhibit 11, Row 15
λ adj for pricing risk (long-term market value of risk)	0.385	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - $\mu_{AY\ ULR}$ - ½ · combined σ^2] / [combined σ · √(D)]	

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET RESULTS **EXHIBIT 13A**
RISK MARGIN RESULTS FOR INDUSTRY AND LARGEST 100 U.S. INSURERS BASED ON 2008 MARKET VALUE OF RISK
Dollars in Thousands

	Simulated 1997-2008 Unpaid Claims	Industry Aggregate	Company A	Company B	Company C	Company D	...	Total Largest 100 Companies
(1)	25th Percentile	85,303,832	11,576,429	5,256,076	825,071	731,258		
(2)	50th Percentile	88,478,220	12,170,372	5,488,173	897,580	780,276		
(3)	75th Percentile	92,267,170	12,761,428	5,734,445	969,459	834,179		
(4)	Average	88,933,785	12,204,053	5,491,951	900,073	780,689		
(5)	Standard Deviation	5,488,342	867,568	354,146	107,805	75,149		
(6)	Simulated Sample μ = Average[log(simulated unpaid claims)]	18.302	16.315	15.517	13.704	13.564		
(7)	Simulated Sample σ = Standard Deviation[log(simulated unpaid claims)]	0.061	0.070	0.064	0.120	0.096		
(8)	Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2)$	88,965,498	12,209,292	5,494,144	900,711	781,146		87,000,919
(9)	Industry Market Value of Risk (λ_1)	0.020	0.020	0.020	0.020	0.020		
(10)	Duration of Unpaid Claims (D)	5.043	4.947	5.038	4.488	4.912		
(11)	Risk Adjusted Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2 + \lambda_1\cdot\sigma\cdot\sqrt{D})$	89,214,391	12,248,204	5,510,327	905,383	784,547		87,330,667
(12)	Risk Margin = (11) - (8)	248,893	38,913	16,183	4,673	3,401		329,749
(13)	Risk Margin % of Expected Unpaid Claims = (11) / (8)	0.3%	0.3%	0.3%	0.5%	0.4%		0.4%

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET RESULTS **EXHIBIT 13B**
RISK MARGIN RESULTS FOR INDUSTRY AND LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK
Dollars in Thousands

	Simulated 1997-2008 Unpaid Claims	Industry Aggregate	Company A	Company B	Company C	Company D	...	Total Largest 100 Companies
(1)	25th Percentile	85,303,832	11,576,429	5,256,076	825,071	731,258		
(2)	50th Percentile	88,478,220	12,170,372	5,488,173	897,580	780,276		
(3)	75th Percentile	92,267,170	12,761,428	5,734,445	969,459	834,179		
(4)	Average	88,933,785	12,204,053	5,491,951	900,073	780,689		
(5)	Standard Deviation	5,488,342	867,568	354,146	107,805	75,149		
(6)	Simulated Sample μ = Average[log(simulated unpaid claims)]	18.302	16.315	15.517	13.704	13.564		
(7)	Simulated Sample σ = Standard Deviation[log(simulated unpaid claims)]	0.061	0.070	0.064	0.120	0.096		
(8)	Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2)$	88,965,498	12,209,292	5,494,144	900,711	781,146		87,000,919
(9)	Industry Market Value of Risk (λ_1)	0.385	0.385	0.385	0.385	0.385		
(10)	Duration of Unpaid Claims (D)	5.043	4.947	5.038	4.488	4.912		
(11)	Risk Adjusted Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2 + \lambda_1\cdot\sigma\cdot\sqrt{D})$	93,780,662	12,964,751	5,807,647	993,078	847,870		93,743,249
(12)	Risk Margin = (11) - (8)	4,815,164	755,460	313,503	92,367	66,724		6,742,330
(13)	Risk Margin % of Expected Unpaid Claims = (11) / (8)	5.4%	6.2%	5.7%	10.3%	8.5%		7.7%

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET RESULTS **EXHIBIT 14**
PAYOUT OF EXPECTED UNPAID LOSS & ALAE FOR LARGEST 100 U.S. INSURERS
Dollars in Thousands

Payout of 12/31/2008 Expected Unpaid Loss & ALAE

	Total Accident Years 1997-2008	Accident Year 2008	Accident Year 2007	Accident Year 2006	Accident Year 2005	Accident Year 2004	Accident Year 2003	Accident Year 2002	Accident Year 2001	Accident Year 2000	Accident Year 1999	Accident Year 1998	Accident Year 1997
Paid in	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Year 1	21,351,338	7,172,177	4,817,354	3,079,430	1,767,089	1,141,922	872,274	656,942	506,783	412,921	337,870	325,082	261,494
Year 2	13,530,766	4,115,410	2,765,587	1,901,976	1,127,804	907,833	690,378	476,823	431,261	330,663	282,548	275,838	224,646
Year 3	9,100,266	2,362,609	1,708,134	1,213,892	896,609	718,522	501,092	405,766	345,349	276,521	239,747	236,968	195,057
Year 4	6,603,072	1,459,239	1,090,177	965,050	709,639	521,519	426,418	324,933	288,802	234,633	205,963	205,757	170,943
Year 5	5,090,711	931,326	866,696	763,807	515,071	443,801	341,471	271,729	245,054	201,570	178,836	180,319	151,032
Year 6	4,126,580	740,408	685,963	554,388	438,314	355,391	285,559	230,567	210,522	175,021	156,726	159,317	134,404
Year 7	3,381,045	586,010	497,887	471,772	350,997	297,200	242,302	198,077	182,794	153,383	138,472	141,776	120,375
Year 8	2,807,018	425,339	423,691	377,790	293,525	252,179	208,158	171,988	160,196	135,518	123,226	126,978	108,430
Year 9	2,399,399	361,954	339,287	315,931	249,062	216,644	180,741	150,725	141,537	120,598	110,364	114,378	98,178
Year 10	2,808,464	289,849	283,733	268,073	213,965	188,109	158,397	133,170	125,954	108,010	99,413	103,563	836,229
Year 11	2,504,744	242,390	240,752	230,298	185,784	164,854	139,947	118,508	112,807	97,292	90,013	882,099	-
Year 12	2,108,001	205,672	206,827	199,965	162,816	145,652	124,539	106,138	101,613	88,093	766,685	-	-
Year 13	1,854,469	176,690	179,586	175,244	143,852	129,616	111,540	95,606	92,006	750,330	-	-	-
Year 14	1,680,429	153,418	157,384	154,832	128,014	116,087	100,472	86,566	783,656	-	-	-	-
Year 15	1,458,809	134,451	139,052	137,786	114,652	104,568	90,972	737,328	-	-	-	-	-
Year 16	1,338,749	118,791	123,743	123,403	103,275	94,681	774,855	-	-	-	-	-	-
Year 17	1,227,650	105,712	110,827	111,159	93,510	806,442	-	-	-	-	-	-	-
Year 18	1,091,628	94,678	99,830	100,648	796,472	-	-	-	-	-	-	-	-
Year 19	1,032,943	85,283	90,391	857,269	-	-	-	-	-	-	-	-	-
Year 20	847,119	77,220	769,900	-	-	-	-	-	-	-	-	-	-
Year 21	657,717	657,717	-	-	-	-	-	-	-	-	-	-	-
Year 22	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	87,000,919	20,496,344	15,596,799	12,002,714	8,290,450	6,605,020	5,249,116	4,164,866	3,728,333	3,084,552	2,729,864	2,752,075	2,300,787

Notes

Total equals expected unpaid by accident year

(2) - (13) Based on expected unpaid by accident year and payout pattern from Exhibit 8

WORKERS COMPENSATION **SECTION D**
INDUSTRY NET RESULTS **EXHIBIT 15**
DISCOUNTED PAYOUT OF EXPECTED UNPAID LOSS & ALAE FOR LARGEST 100 U.S. INSURERS
Dollars in Thousands

Discounted Payout of 12/31/2008 Expected Unpaid Loss & ALAE

	Discount Factor	Total Accident Years 1997-2008	Accident Year 2008	Accident Year 2007	Accident Year 2006	Accident Year 2005	Accident Year 2004	Accident Year 2003	Accident Year 2002	Accident Year 2001	Accident Year 2000	Accident Year 1999	Accident Year 1998	Accident Year 1997
Paid in	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Year 1	0.999	21,322,572	7,162,514	4,810,864	3,075,281	1,764,708	1,140,383	871,099	656,057	506,100	412,365	337,415	324,644	261,141
Year 2	0.992	13,416,897	4,080,777	2,742,313	1,885,970	1,118,313	900,193	684,568	472,810	427,631	327,880	280,170	273,516	222,755
Year 3	0.978	8,903,103	2,311,422	1,671,126	1,187,593	877,183	702,955	490,235	396,975	337,867	270,530	234,553	231,834	190,831
Year 4	0.961	6,346,778	1,402,600	1,047,863	927,592	682,094	501,276	409,866	312,321	277,592	225,526	197,969	197,771	164,308
Year 5	0.939	4,779,327	874,360	813,682	717,087	483,566	416,655	320,584	255,108	230,065	189,240	167,897	169,290	141,794
Year 6	0.915	3,775,458	677,408	627,596	507,216	401,019	325,152	261,261	210,948	192,609	160,129	143,391	145,761	122,968
Year 7	0.891	3,012,782	522,182	443,657	420,386	312,767	264,829	215,910	176,502	162,884	136,677	123,390	126,334	107,263
Year 8	0.866	2,431,496	368,437	367,009	327,249	254,258	218,443	180,311	148,979	138,765	117,388	106,741	109,991	93,925
Year 9	0.841	2,017,577	304,355	285,296	265,656	209,428	182,169	151,980	126,740	119,014	101,407	92,801	96,177	82,555
Year 10	0.814	2,286,777	236,008	231,028	218,277	174,220	153,167	128,974	108,433	102,557	87,946	80,946	84,326	680,895
Year 11	0.788	1,974,763	191,102	189,811	181,569	146,474	129,972	110,336	93,433	88,938	76,706	70,967	695,455	-
Year 12	0.764	1,610,218	157,105	157,987	152,745	124,368	111,258	95,131	81,075	77,618	67,291	585,640	-	-
Year 13	0.739	1,370,314	130,561	132,700	129,492	106,296	95,777	82,420	70,646	67,985	554,438	-	-	-
Year 14	0.714	1,199,312	109,493	112,324	110,503	91,363	82,851	71,707	61,782	559,290	-	-	-	-
Year 15	0.688	1,004,033	92,537	95,704	94,832	78,910	71,970	62,612	507,470	-	-	-	-	-
Year 16	0.663	887,182	78,722	82,004	81,779	68,440	62,745	513,492	-	-	-	-	-	-
Year 17	0.637	782,131	67,349	70,607	70,819	59,575	513,781	-	-	-	-	-	-	-
Year 18	0.612	667,574	57,899	61,050	61,550	487,075	-	-	-	-	-	-	-	-
Year 19	0.586	605,410	49,985	52,978	502,448	-	-	-	-	-	-	-	-	-
Year 20	0.561	475,113	43,309	431,803	-	-	-	-	-	-	-	-	-	-
Year 21	0.542	356,541	356,541	-	-	-	-	-	-	-	-	-	-	-
Year 22	0.530	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		79,225,360	19,274,667	14,427,403	10,918,045	7,440,056	5,873,574	4,650,486	3,679,279	3,288,917	2,727,522	2,421,881	2,455,098	2,068,434

Notes

(1) From Exhibit 7, Column 20

(2) Sum of Columns 3-14

(3) - (14) Product of Column 1 and Exhibit 14, Columns 2-13

WORKERS COMPENSATION **SECTION D**

INDUSTRY NET RESULTS **EXHIBIT 16**

NET IMPACT OF RISK MARGINS AND DISCOUNT FOR LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK

Dollars in Thousands

Accident Year	31-Dec-08 Booked Unpaid Loss & ALAE (1)	31-Dec-08 Expected Unpaid Loss & ALAE (2)	Average Indicated Risk Margin (3)	Present Value Expected Unpaid Loss & ALAE (4)	Present Value Discount (5)	Risk-Adjusted Discounted Expected Unpaid Loss & ALAE (6)	Net Impact of Risk Margins and Discount vs. Booked (7)
1997	2,300,787	2,300,787	N/A	2,068,434	-10.1%	N/A	N/A
1998	2,752,075	2,752,075	N/A	2,455,098	-10.8%	N/A	N/A
1999	2,729,864	2,729,864	N/A	2,421,881	-11.3%	N/A	N/A
2000	3,064,481	3,084,552	N/A	2,727,522	-11.6%	N/A	N/A
2001	3,638,616	3,728,333	N/A	3,288,917	-11.8%	N/A	N/A
2002	3,938,110	4,164,866	N/A	3,679,279	-11.7%	N/A	N/A
2003	4,963,490	5,249,116	N/A	4,650,486	-11.4%	N/A	N/A
2004	6,045,419	6,605,020	N/A	5,873,574	-11.1%	N/A	N/A
2005	7,603,741	8,290,450	N/A	7,440,056	-10.3%	N/A	N/A
2006	11,221,393	12,002,714	N/A	10,918,045	-9.0%	N/A	N/A
2007	14,901,020	15,596,799	N/A	14,427,403	-7.5%	N/A	N/A
2008	19,981,328	20,496,344	N/A	19,274,667	-6.0%	N/A	N/A
Total 1997-2008	83,140,324	87,000,919	7.7%	79,225,360	-8.9%	85,365,106	2.7%

Notes

(3) From Exhibit 13B, Row 13, Total Largest 100 U.S. Insurers

(4) From Exhibit 15, Total by Accident Year

(5) = (4) / (2) - 1

(6) = (2) Total * [1 + (3) Total] * [1 + (5) Total]

(7) = (6) Total / (1) Total - 1

OTHER LIABILITY OCCURRENCE **SECTION E**
INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 1**
Dollars in Thousands

	Months of Maturity										
Accident Year	12	24	36	48	60	72	84	96	108	120	Latest Evaluation
1987	10,715,088	10,524,540	9,837,162	9,196,223	8,815,916	8,384,500	8,110,195	8,090,341	7,848,168	7,803,623	7,803,623
1988	10,073,805	9,688,397	9,456,362	8,959,028	8,653,537	8,475,500	8,370,337	8,164,276	8,161,523	8,080,501	8,080,501
1989	9,643,663	9,422,893	9,075,254	8,860,896	8,635,586	8,586,319	8,463,208	8,415,211	8,397,764	8,283,756	8,283,756
1990	9,537,734	9,329,769	9,222,109	8,933,850	8,809,155	8,693,410	8,597,218	8,635,194	8,479,377	8,392,058	8,392,058
1991	8,805,106	8,701,279	8,774,605	8,601,465	8,430,468	8,272,286	8,219,507	8,060,161	8,017,665	7,902,927	7,902,927
1992	8,657,249	8,709,414	8,535,967	8,254,500	8,065,343	8,071,067	7,910,783	7,803,085	7,688,487	7,604,931	7,604,931
1993	8,711,506	8,701,406	8,729,189	8,529,414	8,483,222	8,264,345	8,031,116	7,911,150	7,770,920	7,670,083	7,670,083
1994	8,877,242	8,884,276	8,911,710	8,860,874	8,757,641	8,663,479	8,400,987	8,220,135	8,146,441	8,106,941	8,106,941
1995	9,042,828	8,963,182	9,035,420	8,920,113	8,948,289	8,758,129	8,682,010	8,587,648	8,587,501	8,604,084	8,604,084
1996	9,342,998	9,300,819	9,388,051	9,267,012	9,193,089	9,041,813	9,019,986	8,929,207	9,122,552	9,262,316	9,262,316
1997	10,028,801	10,105,779	10,224,417	10,060,443	10,166,764	10,385,293	10,326,095	10,506,716	10,700,450	10,843,992	10,843,992
1998	10,841,918	10,938,158	11,274,314	11,667,655	12,065,956	12,017,293	12,557,126	12,906,016	13,011,988	13,048,118	13,048,118
1999	9,714,700	9,938,708	10,164,081	10,926,011	11,258,512	11,721,408	12,256,819	12,511,231	12,504,492	12,936,281	12,936,281
2000	9,755,953	9,765,154	10,323,078	11,065,972	11,828,949	12,048,323	12,154,975	12,321,009	12,364,579		12,364,579
2001	11,666,056	11,886,716	12,000,451	12,400,605	12,920,644	13,217,208	13,408,643	13,325,195			13,325,195
2002	12,600,530	12,552,758	12,947,646	13,524,415	13,813,623	13,900,469	13,945,357				13,945,357
2003	15,247,263	14,569,640	14,533,990	14,384,767	14,065,082	13,937,881					13,937,881
2004	17,438,909	15,465,420	14,744,641	14,228,037	13,935,832						13,935,832
2005	16,690,750	15,641,990	15,137,033	14,378,626							14,378,626
2006	18,183,265	17,529,078	16,612,206								16,612,206
2007	18,735,570	18,021,362									18,021,362
2008	17,908,920										17,908,920

Notes
Data from SNL Financial LC
1996-2008 Annual Statements
Industry Total Other Liability Occurrence
Schedule P, Part 2H-1

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 2**

LINK RATIOS

	Months of Maturity								
Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1987	0.982	0.935	0.935	0.959	0.951	0.967	0.998	0.970	0.994
1988	0.962	0.976	0.947	0.966	0.979	0.988	0.975	1.000	0.990
1989	0.977	0.963	0.976	0.975	0.994	0.986	0.994	0.998	0.986
1990	0.978	0.988	0.969	0.986	0.987	0.989	1.004	0.982	0.990
1991	0.988	1.008	0.980	0.980	0.981	0.994	0.981	0.995	0.986
1992	1.006	0.980	0.967	0.977	1.001	0.980	0.986	0.985	0.989
1993	0.999	1.003	0.977	0.995	0.974	0.972	0.985	0.982	0.987
1994	1.001	1.003	0.994	0.988	0.989	0.970	0.978	0.991	0.995
1995	0.991	1.008	0.987	1.003	0.979	0.991	0.989	1.000	1.002
1996	0.995	1.009	0.987	0.992	0.984	0.998	0.990	1.022	1.015
1997	1.008	1.012	0.984	1.011	1.021	0.994	1.017	1.018	1.013
1998	1.009	1.031	1.035	1.034	0.996	1.045	1.028	1.008	1.003
1999	1.023	1.023	1.075	1.030	1.041	1.046	1.021	0.999	1.035
2000	1.001	1.057	1.072	1.069	1.019	1.009	1.014	1.004	
2001	1.019	1.010	1.033	1.042	1.023	1.014	0.994		
2002	0.996	1.031	1.045	1.021	1.006	1.003			
2003	0.956	0.998	0.990	0.978	0.991				
2004	0.887	0.953	0.965	0.979					
2005	0.937	0.968	0.950						
2006	0.964	0.948							
2007	0.962								

Notes

From Exhibit 1, ratio of successive ultimate loss estimates by accident year

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 3**

CUMULATIVE DEVELOPMENT IN ULTIMATE LOSS ESTIMATES BASED ON LOG OF LINK RATIOS

	Months of Maturity								
Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120
1987	-1.794%	-6.754%	-6.737%	-4.223%	-5.017%	-3.326%	-0.245%	-3.039%	-0.569%
1988	-3.901%	-2.424%	-5.403%	-3.469%	-2.079%	-1.249%	-2.493%	-0.034%	-0.998%
1989	-2.316%	-3.759%	-2.390%	-2.576%	-0.572%	-1.444%	-0.569%	-0.208%	-1.367%
1990	-2.205%	-1.161%	-3.176%	-1.406%	-1.323%	-1.113%	0.441%	-1.821%	-1.035%
1991	-1.186%	0.839%	-1.993%	-2.008%	-1.894%	-0.640%	-1.958%	-0.529%	-1.441%
1992	0.601%	-2.012%	-3.353%	-2.318%	0.071%	-2.006%	-1.371%	-1.480%	-1.093%
1993	-0.116%	0.319%	-2.315%	-0.543%	-2.614%	-2.863%	-1.505%	-1.788%	-1.306%
1994	0.079%	0.308%	-0.572%	-1.172%	-1.081%	-3.077%	-2.176%	-0.901%	-0.486%
1995	-0.885%	0.803%	-1.284%	0.315%	-2.148%	-0.873%	-1.093%	-0.002%	0.193%
1996	-0.452%	0.934%	-1.298%	-0.801%	-1.659%	-0.242%	-1.012%	2.142%	1.520%
1997	0.765%	1.167%	-1.617%	1.051%	2.127%	-0.572%	1.734%	1.827%	1.333%
1998	0.884%	3.027%	3.429%	3.357%	-0.404%	4.394%	2.741%	0.818%	0.277%
1999	2.280%	2.242%	7.229%	2.998%	4.029%	4.467%	2.054%	-0.054%	3.395%
2000	0.094%	5.556%	6.949%	6.668%	1.838%	0.881%	1.357%	0.353%	
2001	1.874%	0.952%	3.280%	4.108%	2.269%	1.438%	-0.624%		
2002	-0.380%	3.097%	4.358%	2.116%	0.627%	0.322%			
2003	-4.546%	-0.245%	-1.032%	-2.247%	-0.908%				
2004	-12.010%	-4.773%	-3.567%	-2.075%					
2005	-6.490%	-3.281%	-5.140%						
2006	-3.664%	-5.372%							
2007	-3.887%								
Average	-1.774%	-0.527%	-0.770%	-0.124%	-0.514%	-0.369%	-0.315%	-0.337%	-0.121%
	12-108	24-108	36-108	48-108	60-108	72-108	84-108	96-108	108-108
Cumulative Average	-4.850%	-3.076%	-2.549%	-1.779%	-1.655%	-1.141%	-0.773%	-0.458%	-0.121%

Notes

From Exhibit 2, natural log of ratio of successive ultimate loss estimates by accident year

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY NET BOOKED ULTIMATE LOSS & ALAE **EXHIBIT 4**

VARIANCE-COVARIANCE MATRIX OF LOG OF INCREMENTAL LINK RATIOS

Months of Maturity	12-108	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-Ultimate
12-108	**0.101%**	0.061%	0.068%	0.045%	0.023%	0.019%	0.013%	0.006%	0.014%	0.000%
24-36	0.061%	**0.094%**	0.096%	0.070%	0.037%	0.040%	0.020%	0.024%	0.018%	0.000%
36-48	0.068%	0.096%	**0.152%**	0.101%	0.065%	0.070%	0.038%	0.023%	0.034%	0.000%
48-60	0.045%	0.070%	0.101%	**0.081%**	0.045%	0.047%	0.030%	0.019%	0.021%	0.000%
60-72	0.023%	0.037%	0.065%	0.045%	**0.045%**	0.033%	0.020%	0.015%	0.020%	0.000%
72-84	0.019%	0.040%	0.070%	0.047%	0.033%	**0.050%**	0.026%	0.017%	0.022%	0.000%
84-96	0.013%	0.020%	0.038%	0.030%	0.020%	0.026%	**0.025%**	0.007%	0.014%	0.000%
96-108	0.006%	0.024%	0.023%	0.019%	0.015%	0.017%	0.007%	**0.019%**	0.011%	0.000%
108-120	0.014%	0.018%	0.034%	0.021%	0.020%	0.022%	0.014%	0.011%	**0.019%**	0.000%
120-Ultimate	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	**0.000%**
Variance (σ^2)	**3.050%**	**2.450%**	**1.746%**	**0.932%**	**0.526%**	**0.305%**	**0.127%**	**0.060%**	**0.019%**	**0.000%**

Notes

From Exhibit 3, covariance of errors at given maturity with errors at all other maturities

Covariances above diagonal are symmetric with those below

Variance is sum of matrix for all maturities greater than or equal to maturity shown in column

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY NET RESULTS **EXHIBIT 5**

SELECTION OF LOSS & ALAE RATIO, ULAE FACTOR, AND LOSS & LAE RATIO

Dollars in Thousands

Accident Year	Net Earned Premium (1)	Net Ultimate Loss & LAE (2)	Net Ultimate Loss & ALAE (3)	Net Paid Loss & ALAE (4)	Net Unpaid Loss & ALAE (5)	Net Ultimate Loss & LAE Ratio (6)	Net Ultimate Loss & ALAE Ratio (7)	ULAE Factor (8)	Underwriting Expense Ratio (9)	100% - Expense Ratio (10)
1987	14,291,671	8,245,541	7,803,623	6,683,895	1,119,728	57.7%	54.6%	1.057	22.6%	77.4%
1988	13,564,797	8,520,718	8,080,501	7,137,308	943,193	62.8%	59.6%	1.054	24.5%	75.5%
1989	12,386,042	8,742,917	8,283,756	7,364,261	919,495	70.6%	66.9%	1.055	26.0%	74.0%
1990	12,411,178	8,938,207	8,392,058	7,478,012	914,046	72.0%	67.6%	1.065	26.7%	73.3%
1991	11,520,825	8,476,299	7,902,927	7,077,850	825,077	73.6%	68.6%	1.073	28.3%	71.7%
1992	11,344,293	8,177,522	7,604,931	6,904,651	700,280	72.1%	67.0%	1.075	27.9%	72.1%
1993	10,900,968	8,276,302	7,670,083	7,085,431	584,652	75.9%	70.4%	1.079	27.8%	72.2%
1994	11,080,131	8,734,738	8,106,941	7,595,110	511,831	78.8%	73.2%	1.077	27.0%	73.0%
1995	11,403,009	9,291,483	8,604,084	7,937,811	666,273	81.5%	75.5%	1.080	28.3%	71.7%
1996	11,680,096	10,016,969	9,262,316	8,410,530	851,786	85.8%	79.3%	1.081	26.6%	73.4%
1997	12,399,909	11,633,294	10,843,992	9,753,103	1,090,889	93.8%	87.5%	1.073	27.1%	72.9%
1998	13,177,772	13,955,806	13,048,118	11,305,671	1,742,447	105.9%	99.0%	1.070	29.5%	70.5%
1999	12,274,900	13,793,567	12,936,281	11,207,812	1,728,469	112.4%	105.4%	1.066	30.9%	69.1%
2000	12,328,944	13,221,613	12,364,579	10,817,577	1,547,002	107.2%	100.3%	1.069	29.5%	70.5%
2001	13,103,263	14,314,992	13,325,195	11,139,425	2,185,770	109.2%	101.7%	1.074	28.6%	71.4%
2002	17,548,879	14,786,490	13,945,357	11,253,888	2,691,469	84.3%	79.5%	1.060	25.4%	74.6%
2003	21,776,064	14,961,194	13,937,881	10,621,280	3,316,601	68.7%	64.0%	1.073	22.8%	77.2%
2004	25,499,752	14,900,390	13,935,832	9,206,140	4,729,692	58.4%	54.7%	1.069	25.4%	74.6%
2005	25,653,043	15,419,386	14,378,626	7,748,686	6,629,940	60.1%	56.1%	1.072	25.4%	74.6%
2006	28,520,199	17,768,275	16,612,206	6,469,418	10,142,788	62.3%	58.2%	1.070	25.5%	74.5%
2007	28,550,977	19,214,123	18,021,362	4,443,315	13,578,047	67.3%	63.1%	1.066	26.4%	73.6%
2008	26,731,149	19,128,358	17,908,920	1,678,871	16,230,049	71.6%	67.0%	1.068	27.9%	72.1%
Selected					**73,649,524**		**67.0%**	**1.069**		**72.1%**

Notes

(1), (2) Data from SNL Financial LC, 1996-2008 Annual Statements, Industry Total, Schedule P, Part 1H-1

(3) Exhibit 1, Latest Evaluation

(4) Data from SNL Financial LC, 1996-2008 Annual Statements, Industry Total, Schedule P, Part 1H-1

(5) = (3) - (4)

(6) = (2) / (1)

(7) = (3) / (1); Selected from 2008

(8) = (6) / (7); Selected from 2005-2007 Average

(9) From AM Best Aggregates and Averages, includes policyholder dividends

(10) = 1 - (9); Selected from 2008

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY PAYOUT PATTERN (PAID LOSS & ALAE) **EXHIBIT 6**

Dollars in Thousands

Months of Maturity

Accident Year	12	24	36	48	60	72	84	96	108	120
1987	539,328	1,556,961	2,673,397	3,800,613	4,800,405	5,517,892	6,053,023	6,405,363	6,570,948	6,683,895
1988	959,076	1,904,412	3,121,034	4,396,712	5,337,418	6,046,903	6,541,614	6,824,942	7,017,356	7,137,308
1989	999,938	2,043,505	3,329,789	4,594,674	5,542,622	6,319,100	6,770,714	7,077,793	7,281,415	7,364,261
1990	1,469,766	2,020,695	3,344,513	4,615,497	5,635,764	6,922,801	6,802,379	7,129,194	7,304,642	7,478,012
1991	981,915	1,881,997	3,246,969	4,486,006	5,388,761	5,970,889	6,426,686	6,676,421	6,895,646	7,077,850
1992	809,655	1,904,184	3,222,764	4,402,457	5,200,068	5,883,646	6,310,691	6,579,060	6,809,279	6,904,651
1993	832,294	2,034,096	3,314,309	4,604,116	5,469,513	5,986,369	6,373,138	6,657,735	6,880,548	7,085,431
1994	897,948	2,114,522	3,569,250	4,775,790	5,685,176	6,397,278	6,894,879	7,184,362	7,433,002	7,595,110
1995	998,874	2,306,297	3,761,851	4,897,240	5,771,311	6,535,177	7,115,873	7,482,085	7,743,799	7,937,811
1996	1,031,079	2,330,423	3,848,052	5,355,401	6,393,906	7,111,288	7,683,278	7,905,586	8,200,561	8,410,530
1997	1,107,399	2,581,997	4,492,981	6,104,803	7,480,770	8,399,171	8,845,383	9,252,423	9,446,321	9,753,103
1998	1,395,386	3,248,148	5,380,542	7,334,567	8,625,616	9,684,715	10,290,981	10,662,747	11,018,271	11,305,671
1999	1,571,650	3,426,380	5,808,632	7,515,166	8,806,146	9,500,278	10,203,329	10,623,155	10,922,828	11,207,812
2000	1,718,409	3,736,120	5,790,499	7,499,102	8,660,215	9,282,859	9,912,388	10,476,035	10,817,577	
2001	1,863,360	3,901,104	6,069,016	7,647,345	8,784,261	9,826,543	10,665,878	11,139,425		
2002	1,994,171	3,666,805	5,793,758	7,687,085	9,326,401	10,289,055	11,253,888			
2003	1,793,072	3,695,577	5,805,277	7,679,899	9,197,443	10,621,280				
2004	1,968,910	3,592,377	5,544,136	7,487,781	9,206,140					
2005	2,111,707	3,782,031	5,643,607	7,748,686						
2006	2,056,885	3,967,470	6,469,418							
2007	2,162,645	4,443,315								
2008	1,678,871									

Age-to-Age Paid Loss Development

Accident Year	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120
1987	2.887	1.717	1.422	1.263	1.149	1.097	1.058	1.026	1.017
1988	1.986	1.639	1.409	1.214	1.133	1.082	1.043	1.028	1.017
1989	2.044	1.629	1.380	1.206	1.140	1.071	1.045	1.029	1.011
1990	1.375	1.655	1.380	1.221	1.228	0.983	1.048	1.025	1.024
1991	1.917	1.725	1.382	1.201	1.108	1.076	1.039	1.033	1.026
1992	2.352	1.692	1.366	1.181	1.131	1.073	1.043	1.035	1.014
1993	2.444	1.629	1.389	1.188	1.094	1.065	1.045	1.033	1.030
1994	2.355	1.688	1.338	1.190	1.125	1.078	1.042	1.035	1.022
1995	2.309	1.631	1.302	1.178	1.132	1.089	1.051	1.035	1.025
1996	2.260	1.651	1.392	1.194	1.112	1.080	1.029	1.037	1.026
1997	2.332	1.740	1.359	1.225	1.123	1.053	1.046	1.021	1.032
1998	2.328	1.656	1.363	1.176	1.123	1.063	1.036	1.033	1.026
1999	2.180	1.695	1.294	1.172	1.079	1.074	1.041	1.028	1.026
2000	2.174	1.550	1.295	1.155	1.072	1.068	1.057	1.033	
2001	2.094	1.556	1.260	1.149	1.119	1.085	1.044		
2002	1.839	1.580	1.327	1.213	1.103	1.094			
2003	2.061	1.571	1.323	1.198	1.155				
2004	1.825	1.543	1.351	1.229					
2005	1.791	1.492	1.373						
2006	1.929	1.631							
2007	2.055								
Averages									
10-Yr Weighted	2.010	1.596	1.330	1.188	1.113	1.075	1.043	1.032	1.025
10-Yr Straight	2.027	1.601	1.334	1.189	1.114	1.075	1.043	1.032	1.025
Selected	2.010	1.596	1.330	1.188	1.113	1.075	1.043	1.032	1.025

Fitted Age-to-Ultimate

Curve Fits:	R-squared	120	132	144	156	168	180	192	204	216	228	240	252	264
Weibull	98.8%	1.070	1.051	1.037	1.027	1.020	1.015	1.011	1.008	1.006	1.005	1.004	1.003	1.002
Power Curve	99.3%	1.039	1.025	1.016	1.010	1.007	1.004	1.003	1.002	1.001	1.001	1.000	1.000	1.000
Inverse Power Curve	94.9%	1.267	1.233	1.205	1.181	1.161	1.144	1.129	1.115	1.104	1.093	1.083	1.075	1.067

Selected Pattern	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264
Age-to-Age	**2.010**	**1.596**	**1.330**	**1.188**	**1.113**	**1.075**	**1.043**	**1.032**	**1.025**	**1.013**	**1.009**	**1.006**	**1.004**	**1.002**	**1.002**	**1.001**	**1.001**	**1.000**	**1.000**	**1.000**	**1.000**	
Age-to-Ultimate	**6.958**	**3.462**	**2.170**	**1.631**	**1.373**	**1.233**	**1.147**	**1.099**	**1.065**	**1.039**	**1.025**	**1.016**	**1.010**	**1.007**	**1.004**	**1.003**	**1.002**	**1.001**	**1.001**	**1.000**	**1.000**	**1.000**
Cumulative % Paid	14.4%	28.9%	46.1%	61.3%	72.9%	81.1%	87.2%	91.0%	93.9%	96.3%	97.6%	98.4%	99.0%	99.3%	99.6%	99.7%	99.8%	99.9%	99.9%	100.0%	100.0%	100.0%
Incremental % Paid	14.4%	14.5%	17.2%	15.2%	11.6%	8.3%	6.1%	3.8%	2.9%	2.4%	1.3%	0.8%	0.6%	0.4%	0.2%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%

Notes

Data from SNL Financial LC

1996-2008 Annual Statements

Industry Total Other Liability Occurrence

Schedule P, Part 3H-1

	12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
Duration	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1 month	0.11%	2.76%	4.75%	4.01%	1.89%	0.90%	1.20%	1.68%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3 months	0.11%	3.36%	5.02%	4.08%	2.22%	0.95%	1.22%	1.74%	5.89%	5.33%	4.48%	5.36%	5.21%	5.10%	5.68%	3.07%	3.15%	3.96%	6.63%
6 months	0.27%	3.49%	5.09%	4.37%	2.59%	1.02%	1.23%	1.83%	5.70%	5.74%	4.55%	5.45%	5.33%	5.17%	6.51%	3.30%	3.38%	4.00%	6.73%
1 year	0.37%	3.34%	5.00%	4.38%	2.75%	1.26%	1.32%	2.17%	5.32%	5.98%	4.53%	5.51%	5.51%	5.18%	7.20%	3.63%	3.61%	4.12%	6.82%
2 years	0.76%	3.05%	4.82%	4.41%	3.08%	1.84%	1.61%	3.07%	5.11%	6.24%	4.54%	5.66%	5.88%	5.18%	7.69%	4.25%	4.56%	4.77%	7.15%
3 years	1.00%	3.07%	4.74%	4.37%	3.25%	2.37%	1.99%	3.59%	5.06%	6.29%	4.55%	5.68%	6.04%	5.25%	7.80%	4.58%	5.12%	5.11%	7.40%
5 years	1.55%	3.45%	4.70%	4.35%	3.63%	3.25%	2.78%	4.38%	4.99%	6.36%	4.56%	5.71%	6.21%	5.38%	7.83%	5.21%	6.04%	5.93%	7.68%
7 years	1.87%	3.70%	4.70%	4.36%	3.94%	3.77%	3.36%	4.84%	5.16%	6.55%	4.73%	5.77%	6.34%	5.49%	7.84%	5.53%	6.43%	6.38%	8.00%
10 years	2.25%	4.04%	4.71%	4.39%	4.24%	4.27%	3.83%	5.07%	5.12%	6.45%	4.65%	5.75%	6.43%	5.58%	7.84%	5.83%	6.70%	6.71%	8.08%
20 years	3.05%	4.50%	4.91%	4.61%	4.85%	5.10%	4.83%	5.74%	5.59%	6.83%	5.39%	6.02%	6.73%	6.01%	8.02%	6.48%	7.05%	7.06%	8.17%
30 years	2.69%	4.45%	4.81%	4.61%	4.85%	5.10%	4.83%	5.48%	5.46%	6.48%	5.09%	5.93%	6.65%	5.96%	7.89%	6.35%	7.40%	7.41%	8.26%

Discount Factor	12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
(months)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
6	0.999	0.983	0.975	0.979	0.987	0.995	0.994	0.991	0.973	0.972	0.978	0.974	0.974	0.975	0.969	0.984	0.984	0.981	0.968
18	0.992	0.954	0.931	0.938	0.958	0.977	0.978	0.962	0.927	0.915	0.936	0.922	0.920	0.927	0.898	0.944	0.942	0.937	0.904
30	0.978	0.927	0.890	0.898	0.925	0.949	0.956	0.921	0.883	0.859	0.895	0.871	0.865	0.881	0.830	0.898	0.889	0.886	0.839
42	0.961	0.897	0.851	0.861	0.891	0.914	0.927	0.878	0.842	0.807	0.856	0.824	0.813	0.835	0.769	0.850	0.833	0.834	0.777
54	0.939	0.862	0.813	0.825	0.855	0.874	0.892	0.832	0.803	0.758	0.818	0.779	0.764	0.791	0.713	0.801	0.776	0.778	0.719
66	0.915	0.827	0.777	0.791	0.819	0.833	0.853	0.785	0.763	0.711	0.781	0.736	0.717	0.749	0.661	0.753	0.721	0.724	0.663
78	0.891	0.793	0.742	0.758	0.782	0.793	0.814	0.741	0.723	0.664	0.742	0.695	0.672	0.708	0.612	0.708	0.671	0.674	0.609
90	0.866	0.758	0.709	0.726	0.746	0.753	0.776	0.700	0.686	0.622	0.708	0.657	0.630	0.669	0.568	0.665	0.625	0.626	0.561
102	0.841	0.724	0.677	0.695	0.711	0.715	0.741	0.663	0.653	0.586	0.677	0.621	0.591	0.633	0.526	0.625	0.582	0.583	0.518
114	0.814	0.690	0.646	0.665	0.677	0.677	0.705	0.627	0.622	0.551	0.649	0.588	0.554	0.598	0.488	0.586	0.542	0.542	0.479
126	0.788	0.658	0.616	0.636	0.645	0.642	0.671	0.593	0.591	0.518	0.618	0.555	0.519	0.564	0.452	0.550	0.505	0.505	0.442
138	0.764	0.629	0.587	0.608	0.614	0.610	0.638	0.560	0.559	0.484	0.586	0.523	0.486	0.532	0.419	0.516	0.472	0.471	0.409
150	0.739	0.601	0.559	0.581	0.584	0.578	0.607	0.528	0.528	0.453	0.554	0.493	0.455	0.501	0.387	0.483	0.440	0.440	0.378
162	0.714	0.574	0.532	0.554	0.555	0.548	0.575	0.498	0.499	0.423	0.524	0.464	0.425	0.471	0.358	0.452	0.410	0.410	0.349
174	0.688	0.547	0.507	0.529	0.527	0.518	0.545	0.468	0.471	0.395	0.494	0.437	0.398	0.443	0.331	0.422	0.382	0.382	0.322
186	0.663	0.521	0.482	0.505	0.500	0.489	0.515	0.440	0.444	0.368	0.465	0.411	0.372	0.416	0.306	0.394	0.356	0.355	0.298
198	0.637	0.496	0.458	0.481	0.473	0.461	0.485	0.413	0.418	0.343	0.438	0.387	0.347	0.391	0.283	0.368	0.331	0.331	0.275
210	0.612	0.472	0.436	0.459	0.448	0.433	0.457	0.387	0.394	0.320	0.411	0.364	0.324	0.367	0.261	0.342	0.308	0.307	0.254
222	0.586	0.448	0.414	0.437	0.423	0.407	0.429	0.362	0.370	0.297	0.386	0.342	0.302	0.344	0.241	0.318	0.286	0.286	0.234
234	0.561	0.426	0.393	0.416	0.399	0.382	0.402	0.339	0.348	0.277	0.362	0.321	0.282	0.322	0.223	0.296	0.266	0.265	0.216
246	0.542	0.406	0.375	0.397	0.379	0.361	0.380	0.319	0.328	0.259	0.342	0.302	0.263	0.302	0.206	0.276	0.247	0.246	0.200
258	0.530	0.389	0.358	0.379	0.361	0.343	0.363	0.304	0.312	0.244	0.326	0.285	0.247	0.286	0.191	0.260	0.229	0.228	0.184

Notes

(1)-(19) Data from U.S. Treasury
http://www.treasury.gov/offices/domestic-finance/debt-management/interest-rate/yield_historical_main.shtml

(20)-(38) Computed from (1)-(19), by interpolation of rates, compounded for number of months indicated

OTHER LIABILITY OCCURRENCE **SECTION E**
INDUSTRY NET RESULTS **EXHIBIT 8**
PRESENT VALUE FACTORS

Accident Year Age (Months)	Cumulative Paid Development Factor	Cumulative Percent Paid	Incremental Percent Paid	*DISCOUNT FACTORS*																	
				12/31/2008	12/31/2007	12/29/2006	12/30/2005	12/31/2004	12/31/2003	12/31/2002	12/31/2001	12/29/2000	12/31/1999	12/31/1998	12/31/1997	12/31/1996	12/29/1995	12/30/1994	12/31/1993	12/31/1992	12/31/1991	12/31/1990
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
12	6.958	14.4%	14.4%	14.4%	14.1%	14.0%	14.1%	14.2%	14.3%	14.3%	14.2%	14.0%	14.0%	14.1%	14.0%	14.0%	14.0%	13.9%	14.1%	14.1%	14.1%	13.9%
24	3.462	28.9%	14.5%	14.4%	13.8%	13.5%	13.6%	13.9%	14.2%	14.2%	14.0%	13.5%	13.3%	13.6%	13.4%	13.4%	13.5%	13.0%	13.7%	13.7%	13.6%	13.1%
36	2.170	46.1%	17.2%	16.8%	16.0%	15.3%	15.5%	15.9%	16.3%	16.5%	15.9%	15.2%	14.8%	15.4%	15.0%	14.9%	15.2%	14.3%	15.4%	15.3%	15.2%	14.4%
48	1.631	61.3%	15.2%	14.6%	13.6%	12.9%	13.1%	13.6%	13.9%	14.1%	13.4%	12.8%	12.3%	13.0%	12.5%	12.4%	12.7%	11.7%	12.9%	12.7%	12.7%	11.8%
60	1.373	72.9%	11.6%	10.8%	10.0%	9.4%	9.5%	9.9%	10.1%	10.3%	9.6%	9.3%	8.8%	9.5%	9.0%	8.8%	9.1%	8.2%	9.3%	9.0%	9.0%	8.3%
72	1.233	81.1%	8.3%	7.5%	6.8%	6.4%	6.5%	6.8%	6.9%	7.0%	6.5%	6.3%	5.9%	6.4%	6.1%	5.9%	6.2%	5.5%	6.2%	5.9%	6.0%	5.5%
84	1.147	87.2%	6.1%	5.4%	4.8%	4.5%	4.6%	4.8%	4.8%	5.0%	4.5%	4.4%	4.0%	4.5%	4.2%	4.1%	4.3%	3.7%	4.3%	4.1%	4.1%	3.7%
96	1.099	91.0%	3.8%	3.3%	2.9%	2.7%	2.8%	2.8%	2.9%	2.9%	2.7%	2.6%	2.4%	2.7%	2.5%	2.4%	2.5%	2.2%	2.5%	2.4%	2.4%	2.1%
108	1.065	93.9%	2.9%	2.4%	2.1%	2.0%	2.0%	2.1%	2.1%	2.2%	1.9%	1.9%	1.7%	2.0%	1.8%	1.7%	1.8%	1.5%	1.8%	1.7%	1.7%	1.5%
120	1.039	96.3%	2.4%	1.9%	1.6%	1.5%	1.6%	1.6%	1.6%	1.7%	1.5%	1.5%	1.3%	1.5%	1.4%	1.3%	1.4%	1.2%	1.4%	1.3%	1.3%	1.1%
132	1.025	97.6%	1.3%	1.0%	0.9%	0.8%	0.8%	0.8%	0.8%	0.9%	0.8%	0.8%	0.7%	0.8%	0.7%	0.7%	0.7%	0.6%	0.7%	0.7%	0.7%	0.6%
144	1.016	98.4%	0.8%	0.6%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.4%	0.5%	0.4%	0.4%	0.5%	0.4%	0.4%	0.4%	0.4%	0.3%
156	1.010	99.0%	0.6%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%	0.3%	0.2%	0.2%	0.2%
168	1.007	99.3%	0.4%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%
180	1.004	99.6%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
192	1.003	99.7%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.0%
204	1.002	99.8%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
216	1.001	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
228	1.001	99.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
240	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
252	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
264	1.000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total			100.0%	94.5%	88.1%	84.4%	85.4%	87.7%	89.3%	90.4%	86.1%	83.4%	80.1%	84.8%	81.8%	80.6%	82.6%	76.7%	83.6%	81.8%	81.7%	77.0%
Present Value Factor				**0.945**	**0.881**	**0.844**	**0.854**	**0.877**	**0.893**	**0.904**	**0.861**	**0.834**	**0.801**	**0.848**	**0.818**	**0.806**	**0.826**	**0.767**	**0.836**	**0.818**	**0.817**	**0.770**

Notes

(1) From Exhibit 6

(2) = 1 / (1)

(3) From (2)

(4) - (22) Product of (3) and Exhibit 7, Columns (20) - (38)

OTHER LIABILITY OCCURRENCE **SECTION E**
INDUSTRY NET RESULTS **EXHIBIT 9**
DURATION OF PAYOUT OF ACCIDENT YEAR LOSSES

Accident Year Age (Months)	Cumulative Paid Development Factor	Cumulative Percent Paid	Incremental Percent Paid	Duration
(1)	(2)	(3)	(4)	(5)
12	6.958	14.4%	14.4%	0.07
24	3.462	28.9%	14.5%	0.22
36	2.170	46.1%	17.2%	0.43
48	1.631	61.3%	15.2%	0.53
60	1.373	72.9%	11.6%	0.52
72	1.233	81.1%	8.3%	0.45
84	1.147	87.2%	6.1%	0.40
96	1.099	91.0%	3.8%	0.28
108	1.065	93.9%	2.9%	0.25
120	1.039	96.3%	2.4%	0.23
132	1.025	97.6%	1.3%	0.14
144	1.016	98.4%	0.8%	0.10
156	1.010	99.0%	0.6%	0.07
168	1.007	99.3%	0.4%	0.05
180	1.004	99.6%	0.2%	0.03
192	1.003	99.7%	0.2%	0.02
204	1.002	99.8%	0.1%	0.02
216	1.001	99.9%	0.1%	0.01
228	1.001	99.9%	0.0%	0.01
240	1.000	100.0%	0.0%	0.01
252	1.000	100.0%	0.0%	0.00
264	1.000	100.0%	0.0%	0.01
Total			100.0%	383.9%

Duration (years)	**3.8387**

Notes
(2) From Exhibit 6
(3) = 1 / (2)
(4) From (2)
(5) = (4) * [(1) / 12 - 0.5]

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY NET RESULTS **EXHIBIT 10**

DEVELOPED INDUSTRY ULTIMATE LOSS & ALAE

Dollars in Thousands

Accident Year	Net Booked Ultimate Loss & ALAE (1)	Average Development Parameter μ (2)	Variance Development Parameter σ^2 (3)	Net Developed Ultimate Loss & ALAE (4)	Developed vs Booked Ultimate Loss & ALAE (5)	Paid Loss & ALAE (6)	Developed Unpaid Loss & ALAE (7)
1987	7,803,623	0.000%	0.000%	7,803,623	-	6,683,895	1,119,728
1988	8,080,501	0.000%	0.000%	8,080,501	-	7,137,308	943,193
1989	8,283,756	0.000%	0.000%	8,283,756	-	7,364,261	919,495
1990	8,392,058	0.000%	0.000%	8,392,058	-	7,478,012	914,046
1991	7,902,927	0.000%	0.000%	7,902,927	-	7,077,850	825,077
1992	7,604,931	0.000%	0.000%	7,604,931	-	6,904,651	700,280
1993	7,670,083	0.000%	0.000%	7,670,083	-	7,085,431	584,652
1994	8,106,941	0.000%	0.000%	8,106,941	-	7,595,110	511,831
1995	8,604,084	0.000%	0.000%	8,604,084	-	7,937,811	666,273
1996	9,262,316	0.000%	0.000%	9,262,316	-	8,410,530	851,786
1997	10,843,992	0.000%	0.000%	10,843,992	-	9,753,103	1,090,889
1998	13,048,118	0.000%	0.000%	13,048,118	-	11,305,671	1,742,447
1999	12,936,281	0.000%	0.000%	12,936,281	-	11,207,812	1,728,469
2000	12,364,579	-0.121%	0.019%	12,350,775	(13,804)	10,817,577	1,533,198
2001	13,325,195	-0.458%	0.060%	13,268,268	(56,927)	11,139,425	2,128,843
2002	13,945,357	-0.773%	0.127%	13,846,795	(98,562)	11,253,888	2,592,907
2003	13,937,881	-1.141%	0.305%	13,800,757	(137,124)	10,621,280	3,179,477
2004	13,935,832	-1.655%	0.526%	13,743,091	(192,741)	9,206,140	4,536,951
2005	14,378,626	-1.779%	0.932%	14,191,014	(187,612)	7,748,686	6,442,328
2006	16,612,206	-2.549%	1.746%	16,336,113	(276,093)	6,469,418	9,866,695
2007	18,021,362	-3.076%	2.450%	17,690,879	(330,483)	4,443,315	13,247,564
2008	17,908,920	-4.850%	3.050%	17,323,213	(585,707)	1,678,871	15,644,342
Total	252,969,569			251,090,515	(1,879,054)	179,320,045	71,770,470

Notes

(1) From Exhibit 5, Column 3

(2) From Exhibit 3, Cumulative Average

(3) From Exhibit 4, Variance

(4) = (1) * exp[(2) + (3) / 2]

(5) = (4) - (1)

(6) From Exhibit 5, Column 4

(7) = (4) - (6)

OTHER LIABILITY OCCURRENCE **SECTION E**
INDUSTRY NET RESULTS **EXHIBIT 11**
INDUSTRY HISTORICAL ULTIMATE LOSS & ALAE RATIOS
Dollars in Thousands

Accident Year	12 month Booked Ultimate Loss & ALAE Ratio (1)	PV Factor (2)	1 - Exp Ratio (3)	Loss Ratio Prior to Adjustment (4)	Loss Ratio Adjustment (5)	Adjusted Loss Ratio (6)	Log of Adjusted Loss Ratio (7)	12 Month Booked Ultimate Loss (8)	Latest Evaluation Ultimate Loss (9)	Ratio Latest to 12 Month Booked (10)	Log of Ratio (11)
1987	75.0%	0.770	77.4%	56.9%	0.946	53.9%	-61.9%	10,715,088	7,803,623	0.728	-0.317
1988	74.3%	0.770	75.5%	57.8%	0.946	54.7%	-60.4%	10,073,805	8,080,501	0.802	-0.220
1989	77.9%	0.770	74.0%	61.8%	0.946	58.5%	-53.6%	9,643,663	8,283,756	0.859	-0.152
1990	76.8%	0.770	73.3%	61.6%	0.946	58.3%	-54.0%	9,537,734	8,392,058	0.880	-0.128
1991	76.4%	0.817	71.7%	66.5%	0.946	62.9%	-46.3%	8,805,106	7,902,927	0.898	-0.108
1992	76.3%	0.818	72.1%	66.1%	0.946	62.5%	-47.0%	8,657,249	7,604,931	0.878	-0.130
1993	79.9%	0.836	72.2%	70.6%	0.946	66.8%	-40.4%	8,711,506	7,670,083	0.880	-0.127
1994	80.1%	0.767	73.0%	64.2%	0.946	60.8%	-49.8%	8,877,242	8,106,941	0.913	-0.091
1995	79.3%	0.826	71.7%	69.8%	0.946	66.0%	-41.5%	9,042,828	8,604,084	0.951	-0.050
1996	80.0%	0.806	73.4%	67.0%	0.946	63.4%	-45.6%	9,342,998	9,262,316	0.991	-0.009
1997	80.9%	0.818	72.9%	69.3%	0.946	65.5%	-42.3%	10,028,801	10,843,992	1.081	0.078
1998	82.3%	0.848	70.5%	75.4%	0.819	61.8%	-48.1%	10,841,918	13,048,118	1.203	0.185
1999	79.1%	0.801	69.1%	70.0%	0.819	57.3%	-55.6%	9,714,700	12,936,281	1.332	0.286
2000	79.1%	0.834	70.5%	71.4%	0.819	58.5%	-53.6%	9,755,953	12,364,579	1.267	0.236
2001	89.0%	0.861	71.4%	81.9%	0.819	67.1%	-39.8%	11,666,056	13,325,195	1.142	0.129
2002	71.8%	0.904	74.6%	66.4%	1.000	66.4%	-40.9%	12,600,530	13,945,357	1.107	0.094
2003	70.0%	0.893	77.2%	61.8%	1.000	61.8%	-48.1%	15,247,263	13,937,881	0.914	-0.100
2004	68.4%	0.877	74.6%	61.3%	1.000	61.3%	-48.9%	17,438,909	13,935,832	0.799	-0.238
2005	65.1%	0.854	74.6%	56.9%	1.000	56.9%	-56.5%	16,690,750	14,378,626	0.861	-0.162
2006	63.8%	0.844	74.5%	55.1%	1.000	55.1%	-59.6%	18,183,265	16,612,206	0.914	-0.107
2007	65.6%	0.881	73.6%	59.9%	1.000	59.9%	-51.2%	18,735,570	18,021,362	0.962	-0.057
2008	67.0%	0.945	72.1%	67.0%	1.000	67.0%	-40.1%	17,908,920	17,908,920	1.000	-0.033
(12) Average						61.2%	-49.3%				
(13) Variance							0.480%				2.424%
(14) Covariance (log of Adjusted Loss Ratio, log of Ratio of Latest to 12 month Booked)							0.335%				
(15) Total Variance of Adjusted Loss Ratio (log) and Ratio of Latest to 12 month Booked (log)							3.573%				

Notes

(1) Exhibit 1 @ 12 Months / Exhibit 5, Column 1
(2) 1995-2008 from Exhibit 8, Columns 4-17; 1994 and prior selectec
(3) = 100% - Exhibit 5, Column 9
(4) = (1) * $(2)_{AYxxxx}/(2)_{AY2008}$ * $(3)_{AY2008}/(3)_{AYXXXX}$
(5) Adjustment of historical loss ratios to normalize for major differences in levels across multi-year periods
AY 1987-1997: AY 2002-2008 Average / AY 1987-1997 Average; AY 1998-2001: AY 2002-2008 Average / AY 1998-2001 Average; 1.000 for AY 2002-200
(6) = (4) * (5)
(7) = LN(6)
(8) Exhibit 1 @ 12 Months
(9) Exhibit 1 @ 12 Current Evaluation
(10) = (9) / (8)
(11) = LN (10) + Exhibit 10, Column 2 + (Exhibit 10, Column 3) / 2
(12) Average of Column 7
(13) Variance of Column 7 and Column 11
(14) Covariance(Column 7, Column 11)
(15) = Row 13, Column 7 + Row 13, Column 7 + 2 * Row 14

OTHER LIABILITY OCCURRENCE **SECTION E**
INDUSTRY NET RESULTS **EXHIBIT 12A**
DERIVATION OF INDUSTRY 2008 MARKET VALUE OF RISK PARAMETER (λ)
Dollars in Thousands

MARKET VALUE OF RISK (λ)

		Notes	
1 - ER	72.1%	100% - Expense Ratio	From Exhibit 5, Column 10 Selected
1 + ULAE	1.069	1 + ULAE Factor	From Exhibit 5, Column 8 Selected
PV	0.945	Present Value Factor	From Exhibit 8, Column 4 Total
Target Loss Ratio	71.4%	= (1 - ER) / (1 + ULAE) / PV	
ULR12	67.0%	Estimated Ultimate Loss Ratio (at 12 months) of Latest Accident Year	From Exhibit 5, Column 7 Selected
μ	-4.850%	Sample mean of development of estimated ultimate losses	From Exhibit 10, Column 2, 2008
σ^2	3.050%	Variance of development of estimated ultimate losses	From Exhibit 10, Column 3, 2008
σ	17.464%	Standard deviation of development of estimated ultimate losses	= square root of σ^2
D	3.839	Duration	From Exhibit 9, Total Duration
λ	0.282	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - ln (ULR12) - μ - ½σ^2] / [σ·√(D)]	
$\mu_{AY\ ULR}$	-40.1%	Sample mean of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 12, 2008 Accident Year
Combined μ	-44.9%	= μ + $\mu_{AY\ ULR}$	
$\sigma^2_{AY\ ULR}$	0.480%	Sample variance of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 13, Variance of Column 7
$\sigma^2_{12\text{-ult}}$	2.424%	Sample variance of logarithm of developed accident year ultimate	From Exhibit 11, Row 13, Variance of Column 11
Cov(AY ULR, 12-ult)	0.335%	Covariance of Accident Year Loss Ratio and Development	From Exhibit 11, Row 14, Covariance
Combined σ^2	3.573%	= $\sigma^2_{AY\ ULR}$ + $\sigma^2_{12\text{-ult}}$ + 2 · Cov(AY ULR, 12-ult)	From Exhibit 11, Row 15
λ adj for pricing risk (2008 market value of risk)	0.253	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - $\mu_{AY\ ULR}$ - ½ · combined σ^2] / [combined σ · √(D)]	

OTHER LIABILITY OCCURRENCE **SECTION E**
INDUSTRY NET RESULTS **EXHIBIT 12B**
DERIVATION OF INDUSTRY LONG-TERM MARKET VALUE OF RISK PARAMETER (λ)
Dollars in Thousands

MARKET VALUE OF RISK (λ)

		Notes	
1 - ER	72.1%	100% - Expense Ratio	From Exhibit 5, Column 10 Selected
1 + ULAE	1.069	1 + ULAE Factor	From Exhibit 5, Column 8 Selected
PV	0.945	Present Value Factor	From Exhibit 8, Column 4 Total
Target Loss Ratio	71.4%	= (1 - ER) / (1 + ULAE) / PV	
ULR12	67.0%	Estimated Ultimate Loss Ratio (at 12 months) of Latest Accident Year	From Exhibit 5, Column 7 Selected
μ	-4.850%	Sample mean of development of estimated ultimate losses	From Exhibit 10, Column 2, 2008
σ^2	3.050%	Variance of development of estimated ultimate losses	From Exhibit 10, Column 3, 2008
σ	17.464%	Standard deviation of development of estimated ultimate losses	= square root of σ^2
D	3.839	Duration	From Exhibit 9, Total Duration
λ	0.282	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - ln (ULR12) - μ - ½σ^2] / [σ·√(D)]	
$\mu_{AY\ ULR}$	-49.3%	Sample mean of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 12, Average
Combined μ	-54.2%	= μ + $\mu_{AY\ ULR}$	
$\sigma^2_{AY\ ULR}$	0.480%	Sample variance of logarithm of Accident Year Ultimate Loss Ratio	From Exhibit 11, Row 13, Variance of Column 7
$\sigma^2_{12\text{-ult}}$	2.424%	Sample variance of logarithm of developed accident year ultimate	From Exhibit 11, Row 13, Variance of Column 11
Cov(AY ULR, 12-ult)	0.335%	Covariance of Accident Year Loss Ratio and Development	From Exhibit 11, Row 14, Covariance
Combined σ^2	3.573%	= $\sigma^2_{AY\ ULR}$ + $\sigma^2_{12\text{-ult}}$ + 2 · Cov(AY ULR, 12-ult)	From Exhibit 11, Row 15
λ adj for pricing risk (long-term market value of risk)	0.503	= [ln (1-ER) - ln (1+ULAE) - ln (PV) - $\mu_{AY\ ULR}$ - ½ · combined σ^2] / [combined σ · √(D)]	

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY NET RESULTS **EXHIBIT 13A**

NET IMPACT OF RISK MARGINS AND DISCOUNT FOR LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK

Dollars in Thousands

	Simulated 1997-2008 Unpaid Claims	Industry Aggregate	Company A	Company B	Company C	Company D	...	Total Largest 100 Companies
(1)	25th Percentile	60,405,324	11,501,842	1,545,783	1,831,385	416,108		
(2)	50th Percentile	63,297,504	12,167,242	1,732,145	2,162,776	483,379		
(3)	75th Percentile	66,966,032	12,949,705	1,898,888	2,498,765	567,030		
(4)	Average	63,726,165	12,253,773	1,732,582	2,181,270	501,636		
(5)	Standard Deviation	5,240,517	1,042,861	258,131	478,900	124,555		
(6)	Simulated Sample μ = Average[log(simulated unpaid claims)]	17.967	16.318	14.355	14.572	13.099		
(7)	Simulated Sample σ = Standard Deviation[log(simulated unpaid claims)]	0.081	0.084	0.148	0.222	0.235		
(8)	Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2)$	63,756,358	12,260,254	1,734,264	2,184,487	501,902		60,968,044
(9)	Industry Market Value of Risk (λ_1)	0.253	0.253	0.253	0.253	0.253		
(10)	Duration of Unpaid Claims (D)	2.873	2.911	2.884	2.833	3.140		
(11)	Risk Adjusted Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2 + \lambda_1\cdot\sigma\cdot\sqrt{D})$	66,014,752	12,711,676	1,848,469	2,400,632	557,667		64,872,432
(12)	Risk Margin = (11) - (8)	2,258,395	451,422	114,205	216,145	55,765		3,904,388
(13)	Risk Margin % of Expected Unpaid Claims = (11) / (8)	3.5%	3.7%	6.6%	9.9%	11.1%		6.4%

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY NET RESULTS **EXHIBIT 13B**

RISK MARGIN RESULTS FOR INDUSTRY AND LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK

Dollars in Thousands

	Simulated 1997-2008 Unpaid Claims	Industry Aggregate	Company A	Company B	Company C	Company D	...	Total Largest 100 Companies
(1)	25th Percentile	60,405,324	11,501,842	1,545,783	1,831,385	416,108		
(2)	50th Percentile	63,297,504	12,167,242	1,732,145	2,162,776	483,379		
(3)	75th Percentile	66,966,032	12,949,705	1,898,888	2,498,765	567,030		
(4)	Average	63,726,165	12,253,773	1,732,582	2,181,270	501,636		
(5)	Standard Deviation	5,240,517	1,042,861	258,131	478,900	124,555		
(6)	Simulated Sample μ = Average[log(simulated unpaid claims)]	17.967	16.318	14.355	14.572	13.099		
(7)	Simulated Sample σ = Standard Deviation[log(simulated unpaid claims)]	0.081	0.084	0.148	0.222	0.235		
(8)	Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2)$	63,756,358	12,260,254	1,734,264	2,184,487	501,902		60,968,044
(9)	Industry Market Value of Risk (λ_1)	0.503	0.503	0.503	0.503	0.503		
(10)	Duration of Unpaid Claims (D)	2.873	2.911	2.884	2.833	3.140		
(11)	Risk Adjusted Expected Unpaid Claims = $\exp(\mu + \frac{1}{2}\cdot\sigma^2 + \lambda_1\cdot\sigma\cdot\sqrt{D})$	68,328,571	13,174,797	1,968,898	2,635,594	618,955		69,268,550
(12)	Risk Margin = (11) - (8)	4,572,213	914,543	234,634	451,107	117,052		8,300,506
(13)	Risk Margin % of Expected Unpaid Claims = (11) / (8)	7.2%	7.5%	13.5%	20.7%	23.3%		13.6%

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY NET RESULTS **EXHIBIT 14**

PAYOUT OF EXPECTED UNPAID LOSS & ALAE FOR LARGEST 100 U.S. INSURERS

Dollars in Thousands

Payout of 12/31/2008 Expected Unpaid Loss & ALAE

	Total Accident Years 1997-2008	Accident Year 2008	Accident Year 2007	Accident Year 2006	Accident Year 2005	Accident Year 2004	Accident Year 2003	Accident Year 2002	Accident Year 2001	Accident Year 2000	Accident Year 1999	Accident Year 1998	Accident Year 1997
Paid in	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Year 1	15,849,476	2,563,265	3,113,260	2,695,196	1,834,516	1,295,767	972,108	702,895	618,680	546,304	576,884	579,763	350,835
Year 2	13,036,552	3,037,868	2,753,291	2,046,827	1,310,107	955,348	606,068	538,815	507,883	296,264	377,709	378,127	228,244
Year 3	9,817,739	2,686,615	2,090,946	1,461,727	965,921	595,619	464,591	442,321	275,429	193,976	246,345	246,000	148,248
Year 4	7,014,390	2,040,311	1,493,235	1,077,708	602,210	456,581	381,389	239,874	180,334	126,513	160,266	159,781	96,189
Year 5	4,900,305	1,457,073	1,100,938	671,905	461,633	374,814	206,830	157,055	117,616	82,306	104,096	103,671	62,368
Year 6	3,400,960	1,074,277	686,388	515,059	378,962	203,264	135,420	102,433	76,518	53,459	67,541	67,220	40,421
Year 7	2,310,240	669,766	526,161	422,819	205,513	133,085	88,322	66,640	49,700	34,686	43,793	43,565	26,190
Year 8	1,625,063	513,419	431,933	229,298	134,558	86,799	57,460	43,284	32,247	22,490	28,382	28,227	16,966
Year 9	1,098,627	421,473	234,240	150,131	87,760	56,469	37,321	28,084	20,909	14,576	18,390	18,285	10,989
Year 10	682,973	228,568	153,367	97,916	57,094	36,678	24,215	18,209	13,551	9,444	11,913	11,844	20,173
Year 11	446,122	149,653	100,027	63,702	37,084	23,798	15,701	11,802	8,780	6,118	7,716	21,742	-
Year 12	285,185	97,605	65,075	41,376	24,061	15,430	10,176	7,647	5,688	3,963	14,165	-	-
Year 13	180,719	63,499	42,267	26,846	15,601	10,000	6,593	4,953	3,684	7,275	-	-	-
Year 14	116,908	41,244	27,425	17,407	10,111	6,480	4,271	3,208	6,763	-	-	-	-
Year 15	75,229	26,760	17,782	11,281	6,551	4,197	2,766	5,890	-	-	-	-	-
Year 16	48,226	17,351	11,525	7,309	4,244	2,719	5,079	-	-	-	-	-	-
Year 17	31,187	11,245	7,467	4,735	2,749	4,991	-	-	-	-	-	-	-
Year 18	20,236	7,286	4,837	3,067	5,046	-	-	-	-	-	-	-	-
Year 19	13,483	4,720	3,133	5,630	-	-	-	-	-	-	-	-	-
Year 20	8,809	3,057	5,752	-	-	-	-	-	-	-	-	-	-
Year 21	5,612	5,612	-	-	-	-	-	-	-	-	-	-	-
Year 22	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	60,968,044	15,120,668	12,869,048	9,549,940	6,143,722	4,262,040	3,018,311	2,373,111	1,917,780	1,397,376	1,657,200	1,658,226	1,000,622

Notes

Total equals expected unpaid by accident year

(2) - (13) Based on expected unpaid by accident year and payout pattern from Exhibit 8

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY NET RESULTS **EXHIBIT 15**

DISCOUNTED PAYOUT OF EXPECTED UNPAID LOSS & ALAE FOR LARGEST 100 U.S. INSURERS

Dollars in Thousands

Discounted Payout of 12/31/2008 Expected Unpaid Loss & ALAE

	Discount Factor	Total Accident Years 1997-2008	Accident Year 2008	Accident Year 2007	Accident Year 2006	Accident Year 2005	Accident Year 2004	Accident Year 2003	Accident Year 2002	Accident Year 2001	Accident Year 2000	Accident Year 1999	Accident Year 1998	Accident Year 1997
Paid in	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Year 1	0.999	15,828,122	2,559,812	3,109,066	2,691,565	1,832,045	1,294,021	970,799	701,948	617,847	545,568	576,107	578,982	350,362
Year 2	0.992	12,926,843	3,012,302	2,730,120	2,029,602	1,299,082	947,309	600,967	534,281	503,609	293,771	374,531	374,945	226,323
Year 3	0.978	9,605,032	2,628,408	2,045,645	1,430,058	944,994	582,714	454,525	432,738	269,461	189,774	241,008	240,670	145,037
Year 4	0.961	6,742,131	1,961,117	1,435,276	1,035,878	578,836	438,859	366,586	230,563	173,335	121,603	154,045	153,579	92,455
Year 5	0.939	4,600,568	1,367,949	1,033,597	630,806	433,397	351,887	194,179	147,449	110,421	77,272	97,728	97,330	58,553
Year 6	0.915	3,111,580	982,869	627,984	471,234	346,717	185,969	123,897	93,717	70,007	48,911	61,794	61,500	36,982
Year 7	0.891	2,058,609	596,815	468,852	376,766	183,129	118,590	78,702	59,382	44,286	30,908	39,023	38,820	23,337
Year 8	0.866	1,407,663	444,734	374,149	198,622	116,557	75,187	49,773	37,493	27,933	19,482	24,585	24,451	14,696
Year 9	0.841	923,800	354,403	196,965	126,240	73,794	47,483	31,382	23,615	17,581	12,257	15,463	15,376	9,240
Year 10	0.814	556,107	186,110	124,878	79,728	46,489	29,865	19,717	14,827	11,034	7,690	9,700	9,644	16,426
Year 11	0.788	351,727	117,987	78,862	50,223	29,237	18,762	12,379	9,305	6,922	4,823	6,084	17,142	-
Year 12	0.764	217,841	74,556	49,708	31,605	18,379	11,787	7,773	5,841	4,345	3,027	10,820	-	-
Year 13	0.739	133,538	46,921	31,232	19,837	11,528	7,390	4,872	3,660	2,722	5,375	-	-	-
Year 14	0.714	83,437	29,435	19,573	12,423	7,216	4,624	3,048	2,290	4,827	-	-	-	-
Year 15	0.688	51,776	18,418	12,238	7,764	4,509	2,889	1,904	4,054	-	-	-	-	-
Year 16	0.663	31,959	11,499	7,637	4,844	2,812	1,802	3,366	-	-	-	-	-	-
Year 17	0.637	19,869	7,164	4,757	3,017	1,751	3,180	-	-	-	-	-	-	-
Year 18	0.612	12,375	4,456	2,958	1,876	3,086	-	-	-	-	-	-	-	-
Year 19	0.586	7,903	2,766	1,836	3,300	-	-	-	-	-	-	-	-	-
Year 20	0.561	4,940	1,715	3,226	-	-	-	-	-	-	-	-	-	-
Year 21	0.542	3,042	3,042	-	-	-	-	-	-	-	-	-	-	-
Year 22	0.530	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		58,678,863	14,412,480	12,358,560	9,205,388	5,933,557	4,122,318	2,923,869	2,301,162	1,864,330	1,360,460	1,610,888	1,612,439	973,411

Notes

(1) From Exhibit 7, Column 20

(2) Sum of Columns 3-14

(3) - (14) Product of Column 1 and Exhibit 14, Columns 2-13

OTHER LIABILITY OCCURRENCE **SECTION E**

INDUSTRY NET RESULTS **EXHIBIT 16**

RISK MARGIN RESULTS FOR LARGEST 100 U.S. INSURERS BASED ON LONG-TERM MARKET VALUE OF RISK

Dollars in Thousands

Accident Year	31-Dec-08 Booked Unpaid Loss & ALAE (1)	31-Dec-08 Expected Unpaid Loss & ALAE (2)	Average Indicated Risk Margin (3)	Present Value Expected Unpaid Loss & ALAE (4)	Present Value Discount (5)	Risk-Adjusted Discounted Expected Unpaid Loss & ALAE (6)	Net Impact of Risk Margins and Discount vs. Booked (7)
1997	1,000,622	1,000,622	N/A	973,411	-2.7%	N/A	N/A
1998	1,658,226	1,658,226	N/A	1,612,439	-2.8%	N/A	N/A
1999	1,657,200	1,657,200	N/A	1,610,888	-2.8%	N/A	N/A
2000	1,447,529	1,397,376	N/A	1,360,460	-2.6%	N/A	N/A
2001	2,030,975	1,917,780	N/A	1,864,330	-2.8%	N/A	N/A
2002	2,421,754	2,373,111	N/A	2,301,162	-3.0%	N/A	N/A
2003	3,091,860	3,018,311	N/A	2,923,869	-3.1%	N/A	N/A
2004	4,386,332	4,262,040	N/A	4,122,318	-3.3%	N/A	N/A
2005	6,112,082	6,143,722	N/A	5,933,557	-3.4%	N/A	N/A
2006	9,322,158	9,549,940	N/A	9,205,388	-3.6%	N/A	N/A
2007	12,558,570	12,869,048	N/A	12,358,560	-4.0%	N/A	N/A
2008	15,029,823	15,120,668	N/A	14,412,480	-4.7%	N/A	N/A
Total 1997-2008	60,717,131	60,968,044	13.6%	58,678,863	-3.8%	66,667,708	9.8%

Notes

(3) From Exhibit 13B, Row 13, Total Largest 100 U.S. Insurers

(4) From Exhibit 15, Total by Accident Year

(5) = (4) / (2) - 1

(6) = (2) Total * [1 + (3) Total] * [1 + (5) Total]

(7) = (6) Total / (1) Total - 1