

RULES – IMPLEMENTATION

SEPTEMBER 11, 2024

COMMERCIAL MULTIPLE LINE

LI-ML-2024-037

TENNESSEE COMMERCIAL PACKAGE POLICY REVISED PACKAGE MODIFICATION FACTOR REVISION TO BE IMPLEMENTED

KEY MESSAGE

Revised Commercial Package Policy package modification factors for an overall statewide change of -4.3% to be implemented.

BACKGROUND

In circular [LI-ML-2024-021](#), we provided you with information about the Commercial Package Policy modification factor experience review.

CONSIDERATION OF COVID-19

ISO has considered whether any adjustments need to be made to prospective loss costs or rating factors, which are based on historical experience (pre-COVID-19), to reflect the conditions in which these loss costs or rating factors will be effective (post-COVID-19). Commercial Package Policy Modification Factors are applied to separate underlying coverages that are then combined to create a package policy. Any adjustment that is made to the underlying coverage loss costs to reflect the potential impact of COVID-19 will, therefore, also be reflected in commercial package policy rating. While there will almost certainly be long-term behavioral, social and economic changes as a result of COVID-19, we expect, based on the information currently available, that those changes will have negligible effects on Commercial Package Policy Modification Factors. Therefore, ISO is not making any explicit adjustment to those factors due to COVID-19.

ISO ACTION

We are implementing [ML-2024-RLA1](#), which presents a review of Commercial Package Policy modification factors experience.

Refer to the attachment(s) for complete details.

For more information on the status of filings in a particular state, including filed and approved documents, associated circulars and links to Print Ready Manuals and Commercial Lines Manual, please feel free to access our [Filings](#) feature within the ISOnet Circulars product.

EFFECTIVE DATE

The ISO revision is subject to the following rule of application:

These changes are applicable to all policies written on or after March 1, 2025.

COMPANY ACTION

If you have authorized us to file on your behalf and decide:

- To use our revision and effective date, you are not required to file anything with the Insurance Department.
- To use our revision with a different effective date, to use our revision with modification, or to not use our revision, you must make an appropriate submission with the Insurance Department.

For guidance on submission requirements, consult the ISO State Filing Handbook.

WE WILL SUBMIT THIS REVISION TO THE INSURANCE DEPARTMENT ON JANUARY 23, 2025. IF STATE FILING REQUIREMENTS DICTATE THAT YOU MAKE A SUBMISSION WITH THE INSURANCE DEPARTMENT, DO NOT SUBMIT IT PRIOR TO THIS DATE.

In all correspondence with the Insurance Department on this revision, you should refer to ISO Filing Number [ML-2024-RLA1](#) and SERFF Tracking Number [ISOF-G134199131](#), NOT this circular number. Communications with the regulator concerning a filing affecting multiple lines of business (i.e., CL, PL, AL filing designation) should specify the line(s) of business that you are addressing.

RATING SOFTWARE IMPACT

No new attributes are being introduced with this revision.

POLICYHOLDER NOTIFICATION

If you decide to implement this revision, you should check all applicable laws for the state(s) to which this revision applies to determine whether or not a specific policyholder notice requirement may apply. Please note that circular [LI-CL-2024-016](#) contains the ISO Guide To Renewals With Changed Conditions For Commercial Lines, which is available only as a guide to assist participating companies in complying with various conditional renewal statutes or regulations, for the major commercial lines of insurance serviced by ISO. The information in the Guide does not necessarily reflect all requirements or exceptions that may apply, and it is not intended as a substitute for your review of all applicable statutes and regulations concerning policyholder notification.

REVISION DISTRIBUTION

We will issue a Notice to Manualholders with an edition date of 3-25 (or the earliest possible subsequent date), along with any new and/or revised manual pages.

REFERENCE(S)

- [LI-ML-2024-021](#) (07/16/2024) Commercial Package Policy Experience Reviewed By Staff
- [LI-CL-2024-016](#) (03/12/2024) Commercial Lines Revised Lead Time Requirements Listing

ATTACHMENT(S)

Filing [ML-2024-RLA1](#)

FILES AVAILABLE FOR DOWNLOAD

To download all files associated with this circular, including attachments in the full circular PDF and/or any additional files not included in the PDF, search for the circular number on [ISOnet Circulars](#). Then click the Word/Excel link under the Full Circular column on the Search Results screen.

Please note that in some instances, not all files listed in the Attachment(s) block (if applicable) are included in the PDF.

DATA QUALITY

Statistical plan data reported to ISO is first processed through a system of rigorous automated data verification procedures so that only valid data would be used for ratemaking. Subsequent to this initial data submission review, additional analyses on the statistical plan data involving an even more customized data review for this line were performed by staff. During these processes, various data records were excluded from the review. The ISO staff responsible for this circular also reviewed the data for reasonableness.

ACKNOWLEDGMENT OF ACTUARIAL QUALIFICATIONS

The American Academy of Actuaries' "Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States" requires that an actuary issuing a Statement of Actuarial Opinion should include an acknowledgment with the opinion that he/she has met the qualification standards of the AAA. ISO considers this rule revision a Statement of Actuarial Opinion; therefore, we are including the following acknowledgment:

I, Rimma Maasbach, am an Actuarial Consultant in Actuarial Operations for ISO, and I, Bei Zhou, am an Actuarial Product Director for Commercial Property for ISO. We are jointly responsible for the content of this Statement of Actuarial Opinion. We are both members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

COPYRIGHT EXPLANATION

The material distributed by Insurance Services Office, Inc. is copyrighted. All rights reserved. Possession of these pages does not confer the right to print, reprint, publish, copy, sell, file or use same in any manner without the written permission of the copyright owner. Permission is hereby granted to members, subscribers and service purchasers to reprint, copy or otherwise use the enclosed material for purposes of their own business use relating to that territory or line or kind of insurance, or subdivision thereof, for which they participate, provided that:

- (A) Where ISO copyrighted material is reprinted, copied, or otherwise used **as a whole**, it must reflect the copyright notice actually shown on such material.
- (B) Where ISO copyrighted material is reprinted, copied, or otherwise used **in part**, the following credit legend must appear at the bottom of each page so used:
Includes copyrighted material of Insurance Services Office, Inc., with its permission.

IMPORTANT NOTICE FOR USERS OF ISO PRODUCTS AND SERVICES

Please make sure that your company has authorized your use of this product and has complied with the requirements applicable in the jurisdiction where you plan to use it.

We distribute both state-specific and multistate products and services. We do not distribute all the multistate products and services for use in every jurisdiction due to corporate policy, regulatory preference, or variations or lack of clarity in state laws.

We provide participating insurers with information concerning the jurisdictions for which our products and services are distributed. Even in those jurisdictions, each insurer must determine what filing requirements, if any, apply and whether those requirements have been satisfied.

Now, as in the past, all of our products and services are advisory, and are made available for optional use by participating insurers as a matter of individual choice. Your company must decide for itself which, if any, ISO products or services are needed or useful to its operation and how those selected for use should be applied. We urge that you be guided by the advice of your attorneys on the legal requirements.

CONTACT INFORMATION

If you have any questions concerning:

- The actuarial content of this circular, please contact:
Rachelle Itzkowitz
Actuarial Operations
201-469-3775
Rachelle.Itzkowitz@verisk.com
propertyactuarial@verisk.com
- The non-actuarial content of this circular, please contact:
Christopher Woolis
Production Operations, Compliance and Product Services
201-469-2928
prodops@verisk.com
- Other issues for this circular, please contact Customer Support:
E-mail: info@verisk.com
Phone: 800-888-4476

Callers outside the United States, Canada, and the Caribbean may contact us using our global toll-free number (International Access Code + 800 48977489). For information on all ISO products, visit us at www.verisk.com/iso. To keep abreast of the latest Insurance Lines Services updates, view www.verisk.com/ils.

TENNESSEE
ADVISORY PACKAGE MODIFICATION FACTOR REVIEW
COMMERCIAL PACKAGE POLICY
ML-2024-RLA1
EXECUTIVE SUMMARY

PURPOSE

This document:

- presents a review of advisory Package Modification Factors (PMFs). PMFs are relativity factors used to adjust monoline loss costs as appropriate for multiline risks.
 - provides the analyses used to derive these advisory PMFs.
-

CONSIDERATION
OF COVID-19

ISO has considered whether any adjustments need to be made to prospective loss costs or rating factors, which are based on historical experience (pre-COVID-19), to reflect the conditions in which these loss costs or rating factors will be effective (post-COVID-19). Commercial Package Policy Modification Factors are applied to separate underlying coverages that are then combined to create a package policy. Any adjustment that is made to the underlying coverage loss costs to reflect the potential impact of COVID-19 will therefore also be reflected in commercial package policy rating. While there will almost certainly be long-term behavioral, social and economic changes as a result of COVID-19, we expect, based on the information currently available, that those changes will have negligible effects on Commercial Package Policy Modification Factors. Therefore, ISO is not making any explicit adjustment to those factors due to COVID-19.

PMF CHANGES

The proposed Commercial Package Policy (CPP) Package Modification Factor changes are:

<u>Type of Policy</u>	<u>Property</u>	<u>Liability</u>	<u>Prop. & Liab. Total</u>
Motel/Hotel	-4.0%	-4.0%	-4.0%
Apartment	-7.0%	-5.0%	-6.8%
Office	-9.5%	-5.3%	-7.6%
Mercantile	-4.4%	-3.3%	-4.0%
Institutional	-3.2%	-9.0%	-4.1%
Services	-1.0%	-5.4%	-2.4%
Indust./Proc.	-9.5%	0.0%	-6.1%
Contractors	<u>-3.4%</u>	<u>-2.5%</u>	<u>-2.6%</u>
Statewide	-4.4%	-4.1%	-4.3%

TENNESSEE

ADVISORY PACKAGE MODIFICATION FACTOR REVIEW

COMMERCIAL PACKAGE POLICY

ML-2024-RLA1

EXECUTIVE SUMMARY

INDICATED
VS. CAPPED

Indicated PMF changes are based on standard ISO methodology. Differences between indicated and capped PMF changes are caused by rounding each indicated PMF to the nearest one percent and applying an upper cap of 1.00, where necessary.

HISTORICAL
SOURCE DATA

The data used in this review is from ISO reporting companies for:

- Basic Group I: five fiscal accident years ending 6/30/22.
 - Basic Group II: ten fiscal accident years ending 6/30/22.
 - Special Causes of Loss: five fiscal accident years ending 6/30/22.
 - Crime: calendar year ending 06/30/22.
 - Inland Marine: calendar accident year ending 12/31/22.
 - Fidelity: policy year ending 12/31/21.
 - Owners, Landlords, and Tenants: five fiscal accident years ending 6/30/22.
 - Manufacturers and Contractors: five fiscal accident years ending 6/30/22.
 - Products: five calendar accident years ending 12/31/21.
 - Local Products and Completed Operations: five calendar accident years ending 12/31/21.
-

PRIOR ISO
REVISIONS

The latest revisions in this state are:

<u>Filing</u>	ML-2022-RLA1	ML-2018-RLA1	ML-2017-RLA1
<u>Dates</u>			
Implemented	3/1/2023	10/1/2019	6/1/2018
<u>Changes</u>			
Indicated	-2.1%	-1.3%	-2.8%
Filed	-2.1%	-1.3%	-2.8%
Implemented	-2.1%	-1.3%	-2.8%

TENNESSEE
ADVISORY PACKAGE MODIFICATION FACTOR REVIEW
COMMERCIAL PACKAGE POLICY
ML-2024-RLA1
EXECUTIVE SUMMARY

ADJUSTMENTS
TO REPORTED
EXPERIENCE

Standard actuarial procedures have been used in the reviews underlying the calculation of the PMFs, including adjusting the fire and liability losses to ultimate settlement level and, for all coverages, reflecting all loss adjustment expenses and trend. Specific procedures vary by subline.

TEN LARGEST
GROUPS IN
ISO DATA BASE

Insurers are listed in descending order based on the percent of statewide written premium volume from Annual Statement Page 15 for the year ending 12/31/22 for the Annual Statement Line of Business (ASLOB) indicated.

COMMERCIAL MULTI PERIL (ASLOB 51 & 52)

1. Cincinnati Insurance Company
 2. Travelers Indemnity Company
 3. Insurance Company Of North America
 4. Tokio Marine Companies
 5. Westfield Insurance Company
 6. Liberty Mutual Insurance Company
 7. Nationwide Mutual Insurance Company
 8. Continental Casualty Company
 9. Hanover Insurance Company
 10. Frankenmuth Mutual Insurance Company
-

SIZE OF ISO
DATA BASE

The market share of ISO participating insurers as measured by Annual Statement Page 15 written premium for the year ending 12/31/2022 is:

Commercial Multi Peril (ASLOB 51 & 52). 44.2%.

ADDITIONAL
SUPPORTING
MATERIAL

Additional supporting material underlying the calculation of the experience review indications used in this PMF analysis may be found in the respective monoline experience review documents for each line.

TENNESSEE
ADVISORY PACKAGE MODIFICATION FACTOR REVIEW
COMMERCIAL PACKAGE POLICY
ML-2024-RLA1
EXECUTIVE SUMMARY

COMPANY DECISION

We encourage each insurer to decide independently whether the judgments made and the procedures or data used by ISO in developing the PMFs contained herein are appropriate for your use. We have included within this document the information upon which ISO relied in order to enable companies to make such independent judgments. The data underlying the enclosed material comes from companies reporting to Insurance Services Office, Inc. Therefore, the ISO experience permits the establishment of a much broader statistical ratemaking base than could be employed by using any individual company's data. A broader data base enhances the validity of ratemaking analysis derived therefrom.

At the same time, however, an individual company may benefit from a comparison of its own experience to the aggregate ISO experience, and may reach valid conclusions with respect to the manner in which its own costs can be expected to differ from ISO's projection based on the aggregate data.

Some calculations included in this document involve areas of ISO staff judgment. Each company should carefully review and evaluate whether the ISO selected PMFs are appropriate for its use.

The material has been developed exclusively by the staff of Insurance Services Office, Inc.

COMMERCIAL PACKAGE POLICY

TABLE OF CONTENTS

	<u>Explanatory Pages</u>	<u>Corresponding Exhibits</u>
<u>SECTION A – SCOPE OF REVISION</u>		
Methodology Overview	Page 6	--
Summary of Package Modification Factor (PMF) Review	--	Exhibit A1
Calculation of Revised Package Modification Factors	Page 7-9	Exhibit A2
<u>SECTION B – CALCULATION OF PROPOSED CHANGES</u>		
PROPERTY COVERAGES		
Commercial Fire and Allied Lines		
Distribution of Advisory Loss Cost Level Change	Page 10-19	Exhibits B1-B5
Crime, Fidelity, and Inland Marine	Page 20	--
LIABILITY COVERAGES		
Distribution of Advisory Loss Cost Level Change	Page 21-27	Exhibits B8-B17

COMMERCIAL PACKAGE POLICY

SECTION A: SCOPE OF REVISION METHODOLOGY OVERVIEW

OBJECTIVE	A Commercial Package Policy (CPP) is essentially a combination of monoline coverages. CPP pricing employs monoline loss costs modified by Package Modification Factors (PMFs). These factors vary by the eight CPP types of policy and are reviewed annually. Monoline and multiline experience are combined and reviewed via a monoline/multiline relativity analysis. The resulting indicated PMFs represent the loss cost for a CPP <u>relative to</u> that for monoline policies providing the same coverages.
STEP 1: THE RELATIVITY ANALYSES	Each line of insurance develops indicated changes to monoline and multiline aggregate loss costs based on an experience ratio relativity analysis for that coverage. The monoline indication represents the needed change to monoline loss costs. The multiline indication represents the needed change to multiline aggregate loss costs, which is implemented through changes to the PMFs. For this PMF analysis, multiline indications are developed for each line of insurance and Type of Policy. Relativity analyses are explained in Section B.
STEP 2: CALCULATION OF THE PMFs	The procedure described above generates indicated Implicit PMFs (IPMFs) which vary by the various lines of insurance and by type of policy. IPMFs represent what the PMF would be for the CPP risk if only a single coverage were written. For each Type of Policy, IPMFs are weighted by CPP aggregate loss costs to determine the indicated property and liability PMFs. These PMFs may be capped, or rounded to the nearest one percent, and certain component IPMFs appropriately adjusted for this change. These calculations are explained in the remainder of Section A.

COMMERCIAL PACKAGE POLICY

SECTION A: SCOPE OF REVISION

CALCULATION OF REVISED PACKAGE MODIFICATION FACTORS (EXHIBIT A2)

OBJECTIVE Commercial package policies were introduced in the 1960's as a convenient tool for both insurer and insured to have the many types of insurance needed by commercial risks packaged under one cover. Thus fire, extended coverage, crime, liability insurance, etc. could be written using a single policy instead of several. Today, virtually any type of monoline coverage can also be purchased as part of a package policy such as the CPP.

The types of insured which can be written under a CPP are generally categorized into the following Types of Policy:

- . Motels and Hotels (TOP 31)
- . Apartments (TOP 32)
- . Offices (TOP 33)
- . Mercantile Operations (TOP 34)
- . Institutions (TOP 35)
- . Service Operations (TOP 36)
- . Industrial and Processing Operations (TOP 37)
- . Contractors (TOP 38)

PRICING OF POLICIES Since a CPP is essentially a combination of monoline coverages, CPP pricing employs monoline loss costs modified by PMFs (Package Modification Factors). These factors vary by the categories shown above and are reviewed annually.

CPP PMF REVIEW PROCEDURE The CPP review of Package Modification Factors, which appears in Table 2 of this document, determines the appropriate PMF loss cost level for each of the eight CPP categories. This is done by combining the indications of the simultaneous reviews of monoline and multiline experience for the various lines (or coverages).

A detailed explanation of the calculation of the revised PMFs follows.

COMMERCIAL PACKAGE POLICY

SECTION A: SCOPE OF REVISION

CALCULATION OF REVISED PACKAGE MODIFICATION FACTORS (EXHIBIT A2)

LINES OF INSURANCE (COVERAGES) INCLUDED

The CPP review reflects the contribution from each significant coverage which can be written on a CPP. Included are:

Property Coverages

- . Basic Group I (BGI) - the predominant property coverage included.
- . Basic Group II (BGII) - both Basic Group I and Basic Group II must be purchased under a CPP contract.
- . Special Causes of Loss (SCL) - typically a type of insurance which is purchased in addition to Basic Group I and Basic Group II in order to provide "all risk" property coverage for the insured.
- . Crime (CRIME) - Crime insurance is a commonly purchased CPP coverage.
- . Inland Marine (INL. MAR.) - A highly specialized line of property insurance, Inland Marine coverages can be purchased as part of a package policy.
- . Fidelity (FIDELITY) - Certain forms of fidelity insurance can be part of the CPP package. Various forms of employee dishonesty coverage are available.

Liability Coverages

- . Owners, Landlords and Tenants (OL&T) Liability - this is the prevalent type of Premises/Operations liability for CPP insureds.
- . Manufacturers and Contractors Liability (M&C) - this is the type of Premises/Operations liability insurance for risks whose liability exposure is more heavily off-premises than on.
- . Products/Completed Operations Liability (PROD) - this type of insurance protects against claims for damages arising from products/completed operations in conjunction with an insured's business. For review purposes, this line of insurance is split into the following two categories:
 - Products: experience for this category is reviewed on a multistate basis.
 - Local Products/ Completed Operations: experience for this category reflects an exposure to loss which is local in nature; therefore, individual state experience is used.

COMMERCIAL PACKAGE POLICY

SECTION A: SCOPE OF REVISION

CALCULATION OF REVISED PACKAGE MODIFICATION FACTORS (EXHIBIT A2)

THE IMPLICIT PACKAGE MODIFICATION FACTOR

For each applicable coverage listed under each of the eight (8) CPP categories, a "current implicit PMF" is shown in column (2). The definition of this factor follows:

For a given CPP category (e.g., apartments) the published Package Modification Factor (PMF) represents the loss cost for a CPP relative to that for monoline policies providing the same coverages. Thus a property (liability) PMF of .80 represents a 20% lower aggregate loss cost for a CPP than for the comparable monoline policies. This PMF, however, represents the CPP "loss cost" for all property (liability) coverages combined. Based on CPP experience, it has been determined that this CPP "loss cost" can differ significantly if it is determined for each property (liability) coverage individually. The IPMF represents what the PMF would be for that CPP risk if only a single coverage were written. The use of the IPMF in monoline/ multiline ratemaking and in the determination of revised CPP Package Modification Factors is significant in that it appropriately identifies how different the component parts of the multiline "loss cost" are.

THE MULTILINE INDICATION

Under the CPP ratemaking procedures, monoline and multiline experience are combined for each coverage. The results of these coverage analyses are indicated changes to monoline loss costs and also indicated CPP aggregate loss cost level changes. The CPP indications by coverage are then incorporated in the CPP PMF review. These indications (shown in column (3)) represent the needed adjustments to the IPMFs (shown in column (2)) described above.

The development of these indications is detailed in Section B.

THE INDICATED PMF

For each CPP category (and for property vs. liability), the indicated PMF is calculated as follows:

Each of the current IPMFs in column (2) is multiplied by the indicated percent change shown in column (3). A weighted average of the indicated IPMFs, using weights based on latest year aggregate loss costs at current ISO loss cost level (column (1) divided by column (2)), yields the indicated PMF at the bottom of column (4).

THE CAPPED PMF

The indicated PMF for each category (and for property vs. liability) shown at the bottom of column (4) is limited to a maximum of 1.00 in arriving at the proposed PMF (bottom of column (5)). All indicated PMFs which are below 1.00 are rounded to the nearest .01 in determining the proposed PMF. To the extent that any indicated PMFs are capped at 1.00, indicated PMFs below this value are adjusted in order to minimize any revenue changes which would result from capping.

In addition to the adjustments just described, the IPMFs (for property and liability) in column (4) are subject to minimum and maximum values and adjusted in column (5) so that they average to the proposed PMF shown at the bottom of column (5).

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES PROPERTY COVERAGES: COMMERCIAL FIRE AND ALLIED LINES

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE BASIC GROUP I AND SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS (EXHIBIT B1-B2)

OBJECTIVE	<p>The explanations which follow clarify Exhibits B1 and B2, the Basic Group I Relativity Analysis and the Special Causes of Loss Relativity Analysis, respectively. The purpose of these analyses is to:</p> <ol style="list-style-type: none">(1) determine monoline classification and territorial loss cost level needs for Basic Group I;(2) determine monoline category loss cost level need for Special Causes of Loss;(3) determine indicated changes to the eight property CPP Package Modification Factors based on Basic Group I/Special Causes of Loss experience.
-----------	--

COLUMN (1)	<p><u>LEAST SQUARES FORMULA RELATIVITIES</u></p> <p>The Least Squares Formula Relativities are the marginal relativities which result from the application of the simultaneous review procedure to the raw experience (where marginal refers to the relativities for a given rating variable, e.g. type of policy, across all subsets of any other rating variables, i.e. territory for Basic Group I, and category for Special Causes of Loss).</p> <p>The purpose of such a simultaneous review procedure is to arrive at a set of type of policy relativities (which will serve to price CPP policies relative to monoline policies via the PMF); a set of territory relativities for Basic Group I; and a set of category relativities for Special Causes of Loss that best represent the experience. This procedure is in contrast to a review of each rating variable's experience separately. Such one-way types of review do not take into account differing percentages of monoline and multiline experience in each rating variable, or differing percentages of a particular rating variable's experience in the monoline and multiline types of policy. The simultaneous relativity procedure accounts for these different distributions in generating relativities for the various rating variables.</p>
------------	---

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES PROPERTY COVERAGES: COMMERCIAL FIRE AND ALLIED LINES

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE BASIC GROUP I AND SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS (EXHIBIT B1-B2)

COLUMN (1)
(Cont'd)

The procedure uses an iterative technique to determine a set of marginal relativities by rating variable that is a best fit to the individual cell relativities, with each cell being defined as the cross-section of specific values of each rating variable. The process uses the relativity of the five year experience ratios by rating cell to the overall statewide experience ratio and the latest year aggregate loss costs for each rating cell. (This experience is shown in Exhibit B3 for Basic Group I and Exhibit B4 for Special Causes of Loss). Specifically, the iteration procedure uses the following formulas:

BASIC GROUP I:

$$TOP_i = \frac{\sum_{k=1}^t W_{ik}^2 R_{ik} TER_k}{\sum_{k=1}^t W_{ik}^2 TER_k^2}, \quad \text{where } 1 \leq i \leq m;$$

$$TER_i = \frac{\sum_{i=1}^m W_{ik}^2 R_{ik} TOP_k}{\sum_{i=1}^m W_{ik}^2 TOP_i^2}, \quad \text{where } 1 \leq k \leq t;$$

SPECIAL CAUSES OF LOSS:

$$TER_i = \frac{\sum_{i=1}^m W_{ik}^2 R_{ik} TOP_k}{\sum_{i=1}^m W_{ik}^2 TOP_i^2}, \quad \text{where } 1 \leq k \leq t;$$

$$CAT_j = \frac{\sum_{i=1}^m W_{ij}^2 R_{ij} TOP_i}{\sum_{i=1}^m W_{ij}^2 TOP_i^2}, \quad \text{where } 1 \leq j \leq n;$$

- TOP_i is the relativity for the i th Type of Policy;
- CAT_j is the relativity for the j th Category;
- TER_k is the relativity for the k th Territory;

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES PROPERTY COVERAGES: COMMERCIAL FIRE AND ALLIED LINES

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE BASIC GROUP I AND SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS (EXHIBIT B1-B2)

COLUMN (1)
(Cont'd)

- W_{ik} is the loss cost volume at current level for the i th Type of Policy and k th Territory;
- R_{ik} is the experience ratio relativity for the i th Type of Policy, k th Territory (Basic Group I);
- R_{ij} is the experience ratio relativity for the i th Type of Policy, j th Category (Special Causes of Loss);
- m is the number of Types of Policy in the analysis;
- n is the number of Rating Groups or Categories in the analysis;
- t is the number of Territories in the analysis.

The procedure determines m Type of Policy relativities using the above formulas. Then, using those results, a set of t Territory relativities (BG1) or a set of n category relativities (SCL) are determined. These steps form an iterative process which continues until there is no appreciable difference in results from one iteration to the next.

COLUMN (2)

CREDIBILITY

The credibility of the experience for each rating variable is determined from the formula:

$$Z = \frac{P}{P + K}$$

where P presents the five-year adjusted aggregate loss costs for a given rating variable, and K is a constant value. For Basic Group I, K equals an aggregate loss cost volume of \$55,000,000 for territory, and \$100,000,000 for type of policy. For Special Causes of Loss, K equals an aggregate loss cost volume of \$15,000,000 for category and \$40,000,000 for type of policy.

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES PROPERTY COVERAGES: COMMERCIAL FIRE AND ALLIED LINES

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE BASIC GROUP I AND SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS (EXHIBIT B1-B2)

COLUMN (3)

CREDIBILITY-WEIGHTED RELATIVITIES

Credibility-weighted relativities are calculated based on the formula

$$W = R^Z$$

where Z is the credibility, R is the least squares formula relativity and W is the credibility-weighted relativity for a given rating variable.

This formula implicitly assigns the complement of credibility to a relativity of unity.

COLUMN (4)

BALANCED RELATIVITIES

The credibility-weighted relativities are balanced to assure that the average relativity across all rating variables remains at unity.

COLUMN (5)

INDICATED CHANGES

The indicated changes by Type of Policy is calculated as follows:

$$\text{Indicated Change} = \frac{\text{Balanced Relativity for TOP}}{\text{Monoline Relativity}} - 1$$

MULTILINE CONSIDERATIONS

The type of policy (TOP) relativities are used to generate multiline indications which apply to the current Implicit Package Modification Factors (IPMFs). The indicated IPMFs are calculated as follows:

$$\text{TOP y Indicated IPMF} = \frac{(\text{TOP y Current IPMF}) \times (\text{TOP y Relativity})}{\text{Monoline Relativity}}$$

For each CPP Type of Policy the indicated IPMF is subject to a minimum value of 0.50 and a maximum value of 1.50. If an indicated IPMF falls outside one of those limits, it is capped at that amount, the aggregate loss costs for that Type of Policy are adjusted to the capped IPMF level, and the entire relativity review as described above is re-performed to take this into account. If an IPMF has been capped it is so noted at the bottom of Exhibits B1 and B2.

Loss cost changes for each TOP are calculated as described on Exhibits B1-B2.

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES PROPERTY COVERAGES: COMMERCIAL FIRE AND ALLIED LINES

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE BASIC GROUP I RELATIVITY ANALYSIS SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW (EXHIBIT B3)

INTRODUCTION The experience used in the relativity analysis and displayed in Exhibits B3 is the latest five years of accident year data as reported under the Commercial Statistical Plan. As in the overall review, loss costs have been adjusted to current ISO loss cost and prospective amount of insurance levels (with multiline aggregate loss costs adjusted additionally by the current implicit package modification factors). Incurred losses are adjusted to prospective cost levels, and are further adjusted by the Basic Group I large loss procedure. Losses have also been developed to their ultimate settlement value by application of loss development factors.

COLUMN (1) AGGREGATE LOSS COSTS

The latest year adjusted aggregate loss costs (adjusted as described above) are used as weights both in the calculation of any totals shown in this table and in the iterative formulae used in the simultaneous review procedure.

COLUMN (2) 5 - YEAR AGGREGATE LOSS COSTS

The combined five-year adjusted aggregate loss costs (adjusted as described above) are used to calculate the experience ratios in column (3).

COLUMN (3) FIVE-YEAR EXPERIENCE RATIOS

These are the ratio of the combined five-year adjusted incurred losses (adjusted as described above) to the combined five-year adjusted aggregate loss costs as shown in Column (2). Any totals which are shown are weighted averages using the adjusted aggregate loss costs in Column (1).

COLUMN (4) RELATIVITIES

The relativities are the ratios of the five-year experience ratios shown in column (3) to the average five-year experience ratio for all TOP's and territories (where applicable) combined. These relativities represent how much better or worse than average the experience for a given cell is. They are used along with the aggregate loss costs in column (1) as input for the simultaneous review procedure.

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES PROPERTY COVERAGES: COMMERCIAL FIRE AND ALLIED LINES

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW (EXHIBIT B4)

INTRODUCTION	<p>The experience used in the relativity analysis and displayed on Exhibit B4 is the latest five accident years of data reported under the Commercial Statistical Plan. As in the overall review, loss costs have been adjusted to current ISO loss cost and prospective amount of insurance levels (with multiline aggregate loss costs adjusted additionally by the current implicit package modification factors). Incurred losses are adjusted to prospective cost levels, and are further adjusted by the Special Causes of Loss excess procedure. Losses have also been developed to their ultimate settlement value by application of loss development factors.</p>
COLUMN (1)	<p><u>AGGREGATE LOSS COSTS</u></p> <p>The latest accident year aggregate loss costs (adjusted as described above) are used as weights both in the calculation of any totals shown in this table and in the iterative formulas used in the simultaneous review procedure.</p>
COLUMN (2)	<p><u>5 - YEAR AGGREGATE LOSS COSTS</u></p> <p>The combined five-year adjusted aggregate loss costs (adjusted as described above) are used to calculate the experience ratios in column (3).</p>
COLUMN (3)	<p><u>FIVE-YEAR EXPERIENCE RATIOS</u></p> <p>These are the ratios of the combined five-year adjusted incurred losses (adjusted as described above) to the combined five-year adjusted aggregate loss costs as shown in column (2). Any totals which are shown are weighted averages using the adjusted aggregate loss costs in column (1).</p>
COLUMN (4)	<p><u>CREDIBILITY (Z) WEIGHTED EXPERIENCE RATIO</u></p> <p>A credibility procedure is applied to the initial experience ratios in column (3) on a cell-by-cell basis prior to the simultaneous review procedure. The credibility values are calculated using an empirical Bayesian credibility procedure. In the following discussion, cell refers to an individual combination of TOP and category.</p>

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES PROPERTY COVERAGES: COMMERCIAL FIRE AND ALLIED LINES

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW (EXHIBIT B4)

COLUMN (4)
(cont'd)

The important concept underlying empirical Bayesian credibility is that credibility should depend both on the overall variation of the group of which the cell is a member and the variation of the yearly experience ratios for the cell. Therefore, if a cell's data is very stable then a relatively high credibility value is assigned, and vice versa.

The empirical Bayesian credibility formula for individual cell credibility is $Z = ((C-3)/C) (P/(P+K)) + (3/C)$. P equals the cell's five-year adjusted aggregate loss costs and C equals the number of unique combinations of rating variables (TOP and Category) within a class group. The K value is estimated from the underlying data using the empirical Bayes method and varies by TOP group. The three TOP groups used in this analysis are: Monoline (TOP 10), Premises (TOP's 31-35), and Operations (TOP's 36-38). The 3/C term corrects for the statistical bias associated with the credibility process. The minimum credibility that is possible is 3/C.

COLUMN (5)

Z-WEIGHTED RELATIVITIES

The relativities are the ratios of the five-year credibility-weighted experience ratios shown in column (4) to the average five-year credibility-weighted experience ratio for all TOP's and categories combined. These relativities represent how much better or worse than average the experience for a given cell is. They are used along with the aggregate loss costs in column (1) as input for the simultaneous review procedure.

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES PROPERTY COVERAGES: COMMERCIAL FIRE AND ALLIED LINES

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE BASIC GROUP II RELATIVITY ANALYSIS (EXHIBIT B5)

OBJECTIVE	<p>The explanations which follow clarify Exhibit B5, the Basic Group II (BG II) relativity analysis. The purpose of this analysis is to:</p> <ol style="list-style-type: none">(1) determine the monoline loss cost level need;(2) determine indicated changes to the eight property Commercial Package Policy (CPP) Package Modification Factors (PMFs) based on Basic Group II experience.
COLUMN (1)	<p><u>AGGREGATE LOSS COSTS</u></p> <p>The latest accident year adjusted aggregate loss costs (adjusted in the same manner as in the overall review, i.e. to current manual loss cost and prospective amount of insurance levels, with multiline aggregate loss costs further adjusted to current IPMF level) are used as weights in the calculation of any totals shown in this table.</p>
COLUMN (2)	<p><u>10 - YEAR EXPERIENCE RATIO</u></p> <p>These experience ratios are the ratio of the combined ten year CSP adjusted incurred losses (adjusted to current deductible and prospective cost levels including loss development, and also adjusted to reflect the BGII excess loss procedure) to the combined ten year CSP adjusted aggregate loss costs. Any totals which are shown are weighted averages using the aggregate loss costs in Column (1). When a dash is displayed in the column, it indicates that the indicated IPMF which resulted from this procedure was capped. The procedure which follows when capping occurs is described below.</p>
COLUMN (3)	<p><u>FORMULA RELATIVITY</u></p> <p>The formula relativities are the ratios of the ten year experience ratios for the type of policy (either monoline vs. multiline or individual multiline programs) to the average ten year experience ratio for monoline and multiline combined. These relativities represent how much better or worse than average the experience for a given type of policy is. Again, any totals which are shown are weighted averages and the display of a dash indicates that the resulting IPMF was capped.</p>

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES PROPERTY COVERAGES: COMMERCIAL FIRE AND ALLIED LINES

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE BASIC GROUP II RELATIVITY ANALYSIS (EXHIBIT B5)

COLUMN (3)
(Cont'd)

Unlike the BGI and SCL relativity analyses, the BGII analysis does not employ a simultaneous review procedure since a one way review is involved. That is, the overall loss cost change is only distributed across type of policy; no other rating variables are considered.

COLUMN (4)

CREDIBILITY

The credibility of the experience for each type of policy is determined from the formula:

$$Z = \frac{P}{P + K}$$

where P is the ten year adjusted aggregate loss costs for a given type of policy, and K is a constant loss cost volume of \$45,000,000.

COLUMN (5)

Z - WEIGHTED RELATIVITY

The weighted relativity is a weighted average of the individual TOP formula relativity and the overall (coverage) formula relativity using credibility and its complement as the respective weights. Therefore, to the extent that the indication for a type of policy is not fully credible, the complement of credibility is assigned to the statewide coverage level change.

COLUMN (6)

BALANCED FORMULA RELATIVITY

The individual multiline weighted relativities are balanced to the multiline weighted relativity level by applying a factor equal to the overall multiline relativity (i.e. the weighted relativity for all multiline combined which is shown on the top of the exhibit directly under the corresponding monoline relativity) divided by the average multiline relativity (i.e. the weighted average of the individual multiline weighted relativities which is shown on the bottom of the exhibit). When the indicated IPMF for a type of policy is capped, the balanced relativity is set equal to the product of the capped IPMF and the monoline balanced formula relativity, divided by the current IPMF.

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES
PROPERTY COVERAGES: COMMERCIAL FIRE AND ALLIED LINES

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE
BASIC GROUP II RELATIVITY ANALYSIS (EXHIBIT B5)

COLUMN (7)

NORMALIZED FORMULA RELATIVITY

The normalized relativity is equal to the balanced formula relativity divided by the average monoline/multiline combined relativity. This balances the average monoline/multiline relativity to unity.

COLUMN (8)

INDICATED LOSS COST CHANGES

The indicated multiline (by TOP) changes are calculated by taking the ratio of the TOP relativity (Column 7) to the monoline relativity.

For each type of policy the indicated IPMF is subject to a minimum value of 0.50 and a maximum value of 1.50. If an indicated IPMF falls outside one of those limits, it is capped at that amount, the aggregate loss costs for that type of policy are adjusted to the capped IPMF level, and the entire relativity review as described above is redone to take this into account. If an IPMF has been capped it is so noted in footnote A.

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES PROPERTY COVERAGES: CRIME, FIDELITY, AND INLAND MARINE

Crime and Fidelity

The reviews for Crime (Burglary and Theft) and for Fidelity are performed on a multistate basis, combining both multiline and monoline experience. Unlike other coverages included in a Commercial Package Policy, there is no simultaneous review procedure for either Burglary and Theft or for Fidelity in which separate loss cost level changes can be determined for multiline and monoline experience. In the absence of a simultaneous review procedure, we are unable to determine Type of Policy relativities with which to price CPP policies relative to monoline policies and therefore have assumed a multiline change of 0.0% and thus no change to the historic Crime or Fidelity IPMFs.

Inland Marine

A simultaneous review procedure had been performed in the past to calculate indicated IPMFs for Inland Marine. Beginning with this review, the IPMFs for Inland Marine are being frozen at 0.910 since the results of the simultaneous review procedure were not used to calculate monoline loss cost level changes and the IPMFs have little impact, or weight, in the calculation of the overall Property PMFs. Indications for Inland Marine are to bring the current IPMFs to the 0.910 level.

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES LIABILITY COVERAGES: GENERAL LIABILITY

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE (EXHIBIT B8-B17)

OBJECTIVES	<p>The objectives of this procedure are to:</p> <ol style="list-style-type: none">1) determine monoline loss cost level needs for the appropriate rating variables;2) determine indicated changes to the eight liability Commercial Package Policy (CPP) Package Modification Factors (PMFs) based on Premises/Operations and Products/Completed Operations data.
EXPERIENCE BASE	<p>The experience used in this relativity analysis is the latest five (5) years of accident year data, as reported under the Commercial Statistical Plan with aggregate loss costs adjusted to current loss cost level (multiline aggregate loss costs adjusted additionally by the current Implicit Package Modification Factors). Losses have been trended and developed in the Relativity Analysis. ALCCL have been trended.</p>
SIMULTANEOUS DETERMINATION OF RATING VARIABLE RELATIVITIES	<p>Once the aggregate loss costs at current level and incurred losses used in the analysis have been appropriately adjusted, the 5-year experience ratios are calculated for each combination of the appropriate rating variables. From these ratios, relativities to the statewide 5-year experience ratio are calculated. These relativities are then used in a minimum bias iterative review procedure, which simultaneously determines the relativities for each rating variable.</p> <p>The purpose of a simultaneous review procedure is to arrive at a set of relativities for each rating variable that best represent the experience. For example, the type of policy relativities will serve to derive the relationship of CPP policies relative to monoline policies, via the PMF, while the class group and territory (if applicable) relativities will serve to derive the relationship of the various classification and territories relative to one another. An iterative technique is used to derive relativities for each rating variable. This procedure is in contrast to a one-way type of review, wherein relativities for each rating variable would each be reviewed separately.</p> <p>Such one-way types of review do not take into account differing percentages of experience of each rating variable within the other rating variables. The simultaneous review procedure accounts for these different distributions in generating relativities for each rating variable.</p>

RATING
VARIABLES
USED

For Premises/Operations and Products/Completed Operations, the rating variables used in the relativity analysis are as follows:

Manufacturers and Contractors -	Type of policy and Class group
Owners, Landlords and Tenants -	Type of policy, Territory and Class group
Products -	Type of policy and Class group
Local Products/Completed Operations-	Type of policy, State and Class group

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES
LIABILITY COVERAGES: GENERAL LIABILITY

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE (EXHIBIT B8-B17)

ITERATIVE
PROCEDURE

The iterative technique referred to in the previous paragraph solves for a set of relativities for each rating variable based on the experience for the cells; that is, based on the experience ratio and latest year adjusted aggregate loss cost volume for each combination of rating variables relative to the experience ratio and adjusted aggregate loss cost volume for all combinations of rating variables combined. Specifically, the iterative procedure uses the following formulas:

For Owners, Landlords and Tenants:

$$TOP_i = \frac{\sum_j \sum_k W_{ijk} r_{ijk}}{\sum_j \sum_k W_{ijk} CG_j TER_k} \quad \text{where } 1 \leq i \leq m$$

$$CG_j = \frac{\sum_i \sum_k W_{ijk} r_{ijk}}{\sum_i \sum_k W_{ijk} TOP_i TER_k} \quad \text{where } 1 \leq j \leq n$$

$$TER_k = \frac{\sum_i \sum_j W_{ijk} r_{ijk}}{\sum_i \sum_j W_{ijk} TOP_i CG_j} \quad \text{where } 1 \leq k \leq p$$

TOP_i is the relative change for the i^{th} type of policy;

CG_j is the relative change for the j^{th} class group;

TER_k is the relative change for the k^{th} territory;

W_{ijk} is the aggregate loss costs at current level for the i^{th} type of policy,

j^{th} class group, and k^{th} territory;

r_{ijk} is the relative change for the i^{th} type of policy, j^{th} class group, and k^{th} territory;

m is the number of types of policy in the analysis;

n is the number of class groups in the analysis;

p is the number of territories in the analysis;

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES
LIABILITY COVERAGES: GENERAL LIABILITY

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE (EXHIBIT B8-B17)

For Manufacturers and Contractors, and Products:

$$TOP_i = \frac{\sum_j W_{ij} r_{ij}}{\sum_j W_{ij} CG_j} \quad \text{where } 1 \leq i \leq m$$
$$CG_j = \frac{\sum_i W_{ij} r_{ij}}{\sum_i W_{ij} TOP_i} \quad \text{where } 1 \leq j \leq n$$

TOP_i is the relative change for the i^{th} type of policy;

CG_j is the relative change for the j^{th} class group;

W_{ij} is the aggregate loss costs at current level for the i^{th} type of policy,
and j^{th} class group;

r_{ij} is the relative change for the i^{th} type of policy and j^{th} class group;

m is the number of types of policy in the analysis;

n is the number of class groups in the analysis;

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES
LIABILITY COVERAGES: GENERAL LIABILITY

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE (EXHIBIT B8-B17)

For Local Products/Completed Operations:

$$TOP_i = \frac{\sum_j \sum_k W_{ijk} r_{ijk}}{\sum_j \sum_k W_{ijk} CG_j ST_k} \quad \text{where } 1 \leq i \leq m$$
$$CG_j = \frac{\sum_i \sum_k W_{ijk} r_{ijk}}{\sum_i \sum_k W_{ijk} TOP_i ST_k} \quad \text{where } 1 \leq j \leq n$$
$$ST_k = \frac{\sum_i \sum_j W_{ijk} r_{ijk}}{\sum_i \sum_j W_{ijk} TOP_i CG_j} \quad \text{where } 1 \leq k \leq p$$

TOP_i is the relative change for the i^{th} type of policy;

CG_j is the relative change for the j^{th} class group;

ST_k is the relative change for the k^{th} state;

W_{ijk} is the aggregate loss costs at current level for the i^{th} type of policy,

j^{th} class group and k^{th} state;

r_{ijk} is the relative change for the i^{th} type of policy, j^{th} class group and k^{th} state;

m is the number of types of policy in the analysis;

n is the number of class groups in the analysis;

p is the number of states in the analysis;

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES
LIABILITY COVERAGES: GENERAL LIABILITY

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE (EXHIBIT B8-B17)

ITERATIVE
PROCEDURE
(Cont'd)

For example, for Owners, Landlords and Tenants, the procedure starts by inserting the actual relativities for type of policy and class group into the third formula to get a territory relativity. This result is then used with the class group relativity in the first formula to get a new type of policy relativity, which in turn is substituted along with the territory relativity into the second formula to get a new class group relativity. The process continues on in that fashion until there is no appreciable difference from one iteration to the next.

APPLICATION OF
CREDIBILITY

Consideration is then given to the credibility of the experience for each rating variable. The credibility of each of these categories is based on the formula

$$Z = \sqrt{P/18,000} \text{ for Owners, Landlords and Tenants, } Z = \sqrt{P/18,000} \text{ for}$$

$$\text{Manufacturers and Contractors and } Z = \sqrt{P/20,000} \text{ for Products, where P is the 5}$$

year occurrence total for a given class group, territory or type of policy. For Local Products/Completed Operations, separate formulas are used to calculate the credibility of the experience for each type of policy and class group versus the

$$\text{credibility of the experience for each state, namely } Z = \sqrt{P/15,000} \text{ for type of}$$

$$\text{policy and class group, and } Z = \sqrt{P/5,500} \text{ for state (in this case, P is the 5 year}$$

occurrence total for a given state). Credibility-weighted relativities are then calculated as follows:

$$W = RZ \quad \text{where:}$$

Z is the class group, territory, state or type of policy credibility;

R is the class group, territory, state or type of policy relativity;

W is the credibility-weighted relativity.

The resulting credibility-weighted relativities are then balanced to assure that the average relativity remains at unity.

INDICATED
CHANGES

The indicated changes by Type of Policy is calculated as follows:

$$\text{Indicated Change} = \frac{\text{Balanced Relativity for TOP}}{\text{Monoline Relativity}} - 1$$

COMMERCIAL PACKAGE POLICY

SECTION B: CALCULATION OF PROPOSED CHANGES

LIABILITY COVERAGES: GENERAL LIABILITY

DISTRIBUTION OF ADVISORY LOSS COST LEVEL CHANGE (EXHIBIT B8-B17)

MULTILINE
CONSIDERATIONS

The monoline relativities and the class group, territory (if applicable) and state relativities which result from the aforementioned procedures are then used to generate indicated monoline classification loss cost changes. The multiline relativities are used to generate multiline indications that apply to the current Implicit Package Modification Factors. The indicated IPMFs are calculated as follows:

$$\text{TOP y Indicated IPMF} = \frac{(\text{TOP y Current IPMF}) \times (\text{TOP y Relativity})}{\text{Monoline relativity}}$$

For each CPP Type of Policy the indicated IPMF is subject to a minimum value of 0.50 and a maximum value of 1.50. If an indicated IPMF falls outside one of those limits, it is capped at that amount, the aggregate loss costs for that Type of Policy are adjusted to the capped IPMF level, and the entire relativity review as described above is re-performed to take this into account.

TENNESSEE

COMMERCIAL PACKAGE POLICY
SUMMARY OF THIS REVIEW

Type of Policy	<u>PROPERTY PMFS</u>			<u>LIABILITY PMFS</u>			<u>PROP. & LIAB. TOTAL</u>
	Current	Capped	% Change	Current	Capped	% Change	% Change
Motel/Hotel (31)	1.00	0.96	-4.0%	1.00	0.96	-4.0%	-4.0%
Apartment (32)	1.00	0.93	-7.0%	1.00	0.95	-5.0%	-6.8%
Offices (33)	0.84	0.76	-9.5%	0.95	0.90	-5.3%	-7.6%
Mercantile (34)	0.91	0.87	-4.4%	0.91	0.88	-3.3%	-4.0%
Institutional (35)	0.93	0.90	-3.2%	0.78	0.71	-9.0%	-4.1%
Services (36)	0.97	0.96	-1.0%	0.93	0.88	-5.4%	-2.4%
Ind/Proc (37)	0.95	0.86	-9.5%	1.00	1.00	0.0%	-6.1%
Contractors (38)	0.89	0.86	-3.4%	0.80	0.78	-2.5%	-2.6%
			_____				_____
Statewide			-4.4%			-4.1%	-4.3%

TENNESSEE
COMMERCIAL PACKAGE POLICY
CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS(PMF)

Motel / Hotel (31) *****	(1) Aggregate Loss Costs	(2) Current Implicit PMF	(3) Net Indication	(4) Indicated PMF	(5) Capped PMF
<u>Coverage</u>					
Property-					
Basic Group I	1,787,192	0.912	-8.5%	0.834	0.834
Basic Group II	1,019,576	1.040	-7.0%	0.967	0.967
Special Causes of Loss	735,154	1.223	9.1%	1.334	1.334
* Crime	5,106	0.910	0.0%	0.910	0.910
* Inland Marine	4,181	0.910	0.0%	0.910	0.910
* Fidelity	10,388	1.000	0.0%	1.000	1.000
Total	3,561,597	1.000	-4.4%	0.956	0.960
Liability -					
OL&T	2,201,029	1.000	-3.6%	0.964	0.964
Total	2,201,029	1.000	-3.6%	0.964	0.960
Property & Liability Total	5,762,626		-4.1%		-4.0%

Apartment (32) *****	(1) Aggregate Loss Costs	(2) Current Implicit PMF	(3) Net Indication	(4) Indicated PMF	(5) Capped PMF
<u>Coverage</u>					
Property-					
Basic Group I	10,060,754	1.078	-7.8%	0.994	0.994
Basic Group II	4,916,438	0.860	-11.4%	0.762	0.762
Special Causes of Loss	2,706,912	1.032	2.2%	1.055	1.055
* Crime	2,921	0.910	0.0%	0.910	0.910
* Inland Marine	340	0.910	0.0%	0.910	0.910
* Fidelity	3,802	1.000	0.0%	1.000	1.000
Total	17,691,167	1.000	-7.2%	0.928	0.930
Liability -					
OL&T	1,709,015	1.000	-5.4%	0.946	0.946
Total	1,709,015	1.000	-5.4%	0.946	0.950
Property & Liability Total	19,400,182		-7.0%		-6.8%

* indicates coverage for which reviews are on a MULTISTATE basis.

TENNESSEE
COMMERCIAL PACKAGE POLICY
CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS(PMF)

Office (33) *****	(1) Aggregate Loss Costs	(2) Current Implicit PMF	(3) Net Indication	(4) Indicated PMF	(5) Capped PMF
<u>Coverage</u>					
Property-					
Basic Group I	1,898,015	0.999	-8.9%	0.910	0.910
Basic Group II	2,112,825	0.624	-14.5%	0.534	0.534
Special Causes of Loss	1,545,977	1.038	4.4%	1.084	1.084
* Crime	2,477	0.910	0.0%	0.910	0.910
* Inland Marine	51,920	0.910	0.0%	0.910	0.910
* Fidelity	11,226	1.000	0.0%	1.000	1.000
Total	5,622,440	0.840	-9.3%	0.762	0.760
Liability -					
OL&T	4,292,647	0.992	-5.9%	0.933	0.933
M&C	234,891	0.534	-2.3%	0.522	0.522
Total	4,527,538	0.950	-5.7%	0.895	0.900
Property & Liability Total	10,149,978		-7.7%		-7.6%
Mercantile (34) *****	(1) Aggregate Loss Costs	(2) Current Implicit PMF	(3) Net Indication	(4) Indicated PMF	(5) Capped PMF
<u>Coverage</u>					
Property-					
Basic Group I	8,510,256	1.028	-5.2%	0.975	0.975
Basic Group II	8,804,410	0.839	-10.8%	0.748	0.748
Special Causes of Loss	4,295,812	0.848	12.8%	0.957	0.957
* Crime	42,666	0.910	0.0%	0.910	0.910
* Inland Marine	240,035	0.910	0.0%	0.910	0.910
* Fidelity	186,446	1.000	0.0%	1.000	1.000
Total	22,079,625	0.910	-4.1%	0.873	0.870
Liability -					
OL&T	9,657,497	0.927	-4.4%	0.886	0.886
M&C	1,289,596	0.770	0.0%	0.770	0.770
Local Product	715,152	1.051	0.0%	1.051	1.050
* Multi Product	1,168,778	0.889	1.5%	0.902	0.901
Total	12,831,024	0.910	-3.1%	0.882	0.880
Property & Liability Total	34,910,649		-3.7%		-4.0%

* indicates coverage for which reviews are on a MULTISTATE basis.

TENNESSEE
COMMERCIAL PACKAGE POLICY
CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS(PMF)

Institution (35) *****	(1) Aggregate Loss Costs	(2) Current Implicit PMF	(3) Net Indication	(4) Indicated PMF	(5) Capped PMF
<u>Coverage</u>					
Property-					
Basic Group I	5,391,099	0.989	-10.5%	0.885	0.885
Basic Group II	7,870,963	0.892	-6.8%	0.831	0.831
Special Causes of Loss	3,427,477	0.950	16.9%	1.111	1.111
* Crime	51,731	0.910	0.0%	0.910	0.910
* Inland Marine	15,867	0.910	0.0%	0.910	0.910
* Fidelity	99,319	1.000	0.0%	1.000	1.000
Total	16,856,456	0.930	-2.7%	0.905	0.900
Liability-					
OL&T	2,465,626	0.803	-9.7%	0.725	0.725
M&C	482,771	0.665	-2.2%	0.650	0.650
Total	2,948,397	0.780	-8.9%	0.711	0.710
Property & Liability Total	19,804,853		-3.6%		-4.1%
Services (36) *****	(1) Aggregate Loss Costs	(2) Current Implicit PMF	(3) Net Indication	(4) Indicated PMF	(5) Capped PMF
<u>Coverage</u>					
Property-					
Basic Group I	4,862,915	1.066	3.3%	1.101	1.101
Basic Group II	4,939,962	0.864	-10.5%	0.773	0.773
Special Causes of Loss	2,655,485	1.010	13.7%	1.148	1.148
* Crime	35,423	0.910	0.0%	0.910	0.910
* Inland Marine	760,355	0.910	0.0%	0.910	0.910
* Fidelity	99,282	1.000	0.0%	1.000	1.000
Total	13,353,422	0.970	-0.8%	0.962	0.960
Liability -					
OL&T	2,615,271	0.875	-8.5%	0.801	0.801
M&C	2,463,179	0.976	-4.0%	0.937	0.937
Local Product	737,059	0.991	-1.2%	0.979	0.979
* Multi Product	139,384	0.963	1.1%	0.974	0.974
Total	5,954,893	0.930	-5.5%	0.879	0.880
Property & Liability Total	19,308,315		-2.2%		-2.4%

* indicates coverage for which reviews are on a MULTISTATE basis.

TENNESSEE
COMMERCIAL PACKAGE POLICY
CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS(PMF)

Industrial / Processing (37) *****	(1) Aggregate Loss Costs	(2) Current Implicit PMF	(3) Net Indication	(4) Indicated PMF	(5) Capped PMF
<u>Coverage</u>					
Property-					
Basic Group I	4,082,719	1.205	-6.7%	1.124	1.124
Basic Group II	3,080,252	0.720	-9.5%	0.652	0.652
Special Causes of Loss	1,799,453	0.890	-5.8%	0.838	0.838
* Crime	6,319	0.910	0.0%	0.910	0.910
* Inland Marine	6,356	0.910	0.0%	0.910	0.910
* Fidelity	42,052	1.000	0.0%	1.000	1.000
Total	9,017,151	0.950	-9.8%	0.857	0.860
Liability-					
M&C	2,777,953	1.107	-0.9%	1.097	1.097
Local Product	101,611	0.584	-2.2%	0.571	0.571
* Multi Product	2,069,136	0.897	2.6%	0.920	0.920
Total	4,948,700	1.000	-0.3%	0.997	1.000
Property & Liability Total	13,965,851		-6.5%		-6.1%

Contractors (38) *****	(1) Aggregate Loss Costs	(2) Current Implicit PMF	(3) Net Indication	(4) Indicated PMF	(5) Capped PMF
<u>Coverage</u>					
Property-					
Basic Group I	1,302,159	1.135	-8.9%	1.034	1.034
Basic Group II	916,638	0.617	0.0%	0.617	0.617
Special Causes of Loss	979,175	0.970	3.7%	1.006	1.006
* Crime	4,952	0.910	0.0%	0.910	0.910
* Inland Marine	4,102	0.910	0.0%	0.910	0.910
* Fidelity	66,714	1.000	0.0%	1.000	1.000
Total	3,273,740	0.890	-3.5%	0.859	0.860
Liability-					
M&C	11,483,243	0.824	-5.5%	0.779	0.779
Local Product	7,510,232	0.773	-0.4%	0.770	0.770
Total	18,993,474	0.800	-3.1%	0.775	0.780
Property & Liability Total	22,267,214		-3.2%		-2.6%

* indicates coverage for which reviews are on a MULTISTATE basis.

TENNESSEE
COMMERCIAL PACKAGE POLICY
CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS(PMF)

Statewide *****	(1) Aggregate Loss Costs	(2) Current Implicit PMF	(3) Net Indication	(4) Indicated PMF	(5) Capped PMF
Coverage					
Property-					
Basic Group I	37,895,109	1.052	-6.2%	0.987	0.987
Basic Group II	33,661,064	0.823	-9.6%	0.744	0.744
Special Causes of Loss	18,145,445	0.953	8.9%	1.038	1.038
* Crime	151,595	0.910	0.0%	0.910	0.910
* Inland Marine	1,083,156	0.910	0.0%	0.910	0.910
* Fidelity	519,229	1.000	0.0%	1.000	1.000
Total	91,455,598	0.936	-4.4%	0.894	0.894
Liability -					
OL&T	22,941,086	0.928	-5.7%	0.875	0.875
M&C	18,731,633	0.859	-4.1%	0.824	0.824
Local Product	9,064,054	0.801	-0.5%	0.797	0.797
* Multi Product	3,377,298	0.897	2.2%	0.917	0.916
Total	54,114,071	0.881	-4.1%	0.845	0.845
Property & Liability Total	145,569,669		-4.3%		-4.3%

* indicates coverage for which reviews are on a MULTISTATE basis.

TENNESSEE
 COMMERCIAL PACKAGE POLICY
 CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS(PMF)

Combined PMFs			
<u>Type of Policy</u>	<u>Current Combined</u>	<u>Indicated Combined</u>	<u>Capped Combined</u>
Motel/Hotel (31)	1.000	0.959	0.960
Apartment (32)	1.000	0.930	0.930
Office (33)	0.890	0.817	0.820
Mercantile (34)	0.910	0.876	0.880
Institution (35)	0.900	0.871	0.870
Services (36)	0.960	0.936	0.940
Ind/Proc (37)	0.970	0.904	0.900
Contractors (38)	0.820	0.786	0.790

NOTE: Combined PMFs are provided for informational purposes only.

TENNESSEE
BASIC GROUP I RELATIVITY ANALYSIS

	(1)	(2)	(3)	(4)	(5)
TOP	\$ Lst Sq Formula Relativity	Credibility Z	Credibility Weighted Relativity	Balanced Relativity	Indicated Change
10	1.353	0.177	1.055	1.057	
31	0.657	0.086	0.965	0.967	-8.5%
32	0.904	0.269	0.973	0.975	-7.8%
33	0.653	0.094	0.961	0.963	-8.9%
34	1.001	0.297	1.000	1.002	-5.2%
35	0.769	0.218	0.944	0.946	-10.5%
36	1.538	0.200	1.090	1.092	3.3%
37	0.908	0.171	0.984	0.986	-6.7%
38	0.513	0.060	0.961	0.963	-8.9%

	(1)	(2)	(3)	(4)
Territory	\$ Lst Sq Formula Relativity	Credibility Z	Credibility Weighted Relativity	Balanced Relativity
Memphis	1.548	0.248	1.114	1.208
Nashville	1.685	0.267	1.149	1.246
Bal. Of State (T)	0.817	0.746	0.860	0.933

TENNESSEE
SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS

	(1)	(2)	(3)	(4)	(5)
<u>TOP</u>	<u>\$ Lst Sq Formula Relativity</u>	<u>Credibility Z</u>	<u>Credibility Weighted Relativity</u>	<u>Balanced Relativity</u>	<u>Indicated Change</u>
10	0.731	0.222	0.933	0.927	
31	1.227	0.080	1.017	1.011	9.1%
32	0.784	0.199	0.953	0.947	2.2%
33	0.844	0.155	0.974	0.968	4.4%
34	1.163	0.339	1.053	1.046	12.8%
35	1.329	0.307	1.091	1.084	16.9%
36	1.262	0.256	1.061	1.054	13.7%
37	0.485	0.179	0.879	0.873	-5.8%
38	0.717	0.102	0.967	0.961	3.7%

	(1)	(2)	(3)	(4)
<u>Category</u>	<u>\$ Lst Sq Formula Relativity</u>	<u>Credibility Z</u>	<u>Credibility Weighted Relativity</u>	<u>Balanced Relativity</u>
01	1.032	0.817	1.026	1.015
02	1.118	0.083	1.009	0.998
03	0.879	0.172	0.978	0.967
04	0.781	0.189	0.954	0.943
05	1.930	0.158	1.109	1.097
06	0.729	0.079	0.975	0.964
07	0.749	0.046	0.987	0.976
08	1.096	0.148	1.014	1.003
09	0.687	0.219	0.921	0.911
10	1.088	0.047	1.004	0.993
11	1.092	0.171	1.015	1.004
12	0.416	0.168	0.863	0.853
13	0.663	0.109	0.956	0.945
14	0.758	0.135	0.963	0.952

TENNESSEE
BASIC GROUP I RELATIVITY ANALYSIS
SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

<u>Type Of Policy</u>	(1) Latest Year Aggregate Loss <u>Costs</u>	(2) 5 - Year Aggregate Loss Costs	(3) 5 - Year Experience Ratio	(4) 5 - Year Exp. Ratio <u>Relativity</u>
Memphis				
10 Monoline	510,758	1,853,508	0.650	0.648
31 Multiline Motel/Hotel	68,154	388,548	0.000	0.000
32 Multiline Apartment	1,637,754	4,299,619	1.452	1.448
33 Multiline Office	103,250	510,370	0.627	0.625
34 Multiline Mercantile	850,812	3,811,586	2.752	2.744
35 Multiline Institutional	618,313	3,205,593	0.645	0.643
36 Multiline Services	564,380	2,628,466	1.079	1.076
37 Multiline Indust/Process	147,348	886,086	4.855	4.840
38 Multiline Contractors	112,700	531,874	0.247	0.246
Total All Tops*	4,613,469	18,115,650	1.489	1.484
Nashville				
10 Monoline	787,674	3,018,943	3.045	3.036
31 Multiline Motel/Hotel	245,619	871,217	1.580	1.575
32 Multiline Apartment	1,828,297	5,372,589	0.625	0.623
33 Multiline Office	220,999	1,043,359	1.982	1.976
34 Multiline Mercantile	904,890	3,854,563	3.966	3.954
35 Multiline Institutional	477,278	2,308,767	1.237	1.233
36 Multiline Services	451,107	2,055,165	1.697	1.692
37 Multiline Indust/Process	223,909	1,059,761	4.138	4.126
38 Multiline Contractors	102,597	443,560	0.156	0.156
Total All Tops*	5,242,370	20,027,924	1.956	1.950

TENNESSEE
 BASIC GROUP I RELATIVITY ANALYSIS
SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

<u>Type Of Policy</u>	(1) Latest Year Aggregate Loss Costs	(2) 5 - Year Aggregate Loss Costs	(3) 5 - Year Experience Ratio	(4) 5 - Year Exp. Ratio Relativity
Balance Of State (Tennessee)				
10 Monoline	4,008,625	16,576,052	1.039	1.036
31 Multiline Motel/Hotel	1,473,419	8,127,958	0.491	0.490
32 Multiline Apartment	6,594,703	27,169,309	0.832	0.830
33 Multiline Office	1,573,766	8,824,317	0.479	0.478
34 Multiline Mercantile	6,754,554	34,560,755	0.663	0.661
35 Multiline Institutional	4,295,508	22,335,702	0.625	0.623
36 Multiline Services	3,847,428	20,293,068	1.283	1.279
37 Multiline Indust/Process	3,711,462	18,653,588	0.684	0.682
38 Multiline Contractors	1,086,862	5,390,771	0.426	0.425
Total All Tops*	33,346,327	161,931,520	0.787	0.784

TENNESSEE
BASIC GROUP I RELATIVITY ANALYSIS
SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

<u>Type Of Policy</u>	(1) Latest Year Aggregate Loss Costs	(2) 5 - Year Aggregate Loss Costs	(3) 5 - Year Experience Ratio	(4) 5 - Year Exp. Ratio Relativity
Entire State				
10 Monoline	5,307,057	21,448,503	1.299	1.295
31 Multiline Motel/Hotel	1,787,192	9,387,723	0.622	0.620
32 Multiline Apartment	10,060,754	36,841,517	0.895	0.893
33 Multiline Office	1,898,015	10,378,046	0.662	0.660
34 Multiline Mercantile	8,510,256	42,226,904	1.223	1.219
35 Multiline Institutional	5,391,099	27,850,062	0.681	0.679
36 Multiline Services	4,862,915	24,976,699	1.298	1.294
37 Multiline Indust/Process	4,082,719	20,599,435	1.024	1.021
38 Multiline Contractors	1,302,159	6,366,205	0.389	0.388
Total All Tops*	43,202,166	200,075,094	1.003	1.001

TENNESSEE
SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS
SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

			(1) Latest Year Aggregate Loss Costs	(2) 5 - Year Aggregate Loss Costs	(3) 5 - Year Experience Ratio	(4) Credibility Weighted Experience Ratio	(5) Credibility Weighted Relativity
Entire State	<u>Type Of Policy</u>	<u>Category</u>					
	10 Monoline	01 Buildings	1,630,010	7,426,545	0.951	0.941	0.761
		02 Res. Apts. And Cond	28,701	96,376	1.231	0.975	0.788
		03 Offices	146,354	751,009	0.454	0.695	0.562
		04 Mercantile - High	199,711	861,838	0.558	0.733	0.593
		05 Mercantile - Medium	77,823	306,891	0.218	0.668	0.540
		06 Mercantile - Low	36,613	186,373	0.153	0.676	0.546
		07 Motels And Hotels	5,190	43,257	1.366	0.999	0.808
		08 Institutional - Hig	63,128	296,082	1.136	0.969	0.783
		09 Institutional - Low	45,643	280,130	2.077	1.269	1.026
		10 Indust-Proc - High	19,039	79,886	0.639	0.826	0.668
		11 Indust-Proc - Low	74,354	347,051	0.908	0.895	0.724
		12 Service - High	44,978	243,211	0.603	0.800	0.647
		13 Service - Low	78,443	383,336	1.356	1.053	0.851
		14 Contractors	18,199	91,210	0.084	0.685	0.554
		Total	2,468,186	11,393,195	0.881	0.901	0.729
	31 Multiline Motel/Hotel	01 Buildings	586,882	2,793,283	1.653	1.573	1.272
		07 Motels And Hotels	148,272	686,334	0.665	1.142	0.923
		Total	735,154	3,479,617	1.454	1.486	1.202
	32 Multiline Apartment	01 Buildings	2,420,823	8,710,301	0.937	1.006	0.813
		02 Res. Apts. And Cond	286,089	1,254,171	0.747	1.090	0.881
		Total	2,706,912	9,964,472	0.917	1.015	0.820
	33 Multiline Office	01 Buildings	1,086,945	5,226,157	0.988	1.081	0.874
		03 Offices	457,970	2,131,901	0.612	0.929	0.751
		04 Mercantile - High	328	1,808	321.017	35.965	29.074

TENNESSEE
SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS
SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

<u>Type Of Policy</u>	<u>Category</u>	(1) Latest Year Aggregate Loss Costs	(2) 5 - Year Aggregate Loss Costs	(3) 5 - Year Experience Ratio	(4) Credibility Weighted Experience Ratio	(5) Credibility Weighted Relativity
	08 Institutional - Hig	155	1,748	0.000	1.263	1.021
	12 Service - High	328	2,470	58.551	7.612	6.154
	14 Contractors	251	744	0.000	1.264	1.022
	Total	1,545,977	7,364,828	0.956	1.045	0.845
34 Multiline Mercantile	01 Buildings	3,019,531	14,463,302	1.499	1.491	1.205
	03 Offices	10,814	34,261	0.927	1.355	1.095
	04 Mercantile - High	512,864	2,305,622	0.949	1.125	0.909
	05 Mercantile - Medium	512,779	2,459,866	3.597	2.805	2.268
	06 Mercantile - Low	195,534	1,042,335	0.602	1.051	0.850
	08 Institutional - Hig	149	1,023	0.000	1.264	1.022
	11 Indust-Proc - Low	807	3,426	0.000	1.262	1.020
	12 Service - High	12,662	58,411	0.185	1.247	1.008
	13 Service - Low	21,335	81,649	0.435	1.270	1.027
	14 Contractors	9,337	69,676	0.014	1.216	0.983
	Total	4,295,812	20,519,571	1.629	1.581	1.278
35 Multiline Institutional	01 Buildings	2,471,978	11,716,471	1.740	1.704	1.378
	03 Offices	5,588	23,510	1.109	1.379	1.115
	04 Mercantile - High	583	1,111	0.000	1.263	1.021
	08 Institutional - Hig	274,302	2,174,536	2.077	1.819	1.470
	09 Institutional - Low	658,072	3,789,003	1.025	1.133	0.916
	12 Service - High	1,882	4,960	0.000	1.261	1.019
	13 Service - Low	14,411	35,831	1.464	1.422	1.150
	14 Contractors	661	4,216	0.000	1.261	1.019
	Total	3,427,477	17,749,638	1.626	1.601	1.295

TENNESSEE
SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS
SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

<u>Type Of Policy</u>	<u>Category</u>	(1) Latest Year Aggregate Loss Costs	(2) 5 - Year Aggregate Loss Costs	(3) 5 - Year Experience Ratio	(4) Credibility Weighted Experience Ratio	(5) Credibility Weighted Relativity
36 Multiline Services	01 Buildings	1,781,018	9,221,777	1.657	1.619	1.309
	03 Offices	8,978	37,956	0.074	0.876	0.708
	04 Mercantile - High	15,714	59,879	2.956	1.338	1.082
	05 Mercantile - Medium	9,317	40,162	0.260	0.900	0.728
	06 Mercantile - Low	6,743	24,697	2.222	1.160	0.938
	08 Institutional - Hig	24,984	125,863	0.000	0.765	0.618
	09 Institutional - Low	18,101	125,081	0.000	0.766	0.619
	10 Indust-Proc - High	1,540	9,037	0.000	0.904	0.731
	11 Indust-Proc - Low	6,198	32,986	0.000	0.872	0.705
	12 Service - High	515,944	2,694,182	0.574	0.649	0.525
	13 Service - Low	258,554	1,318,279	1.013	1.012	0.818
	14 Contractors	8,394	46,107	0.000	0.855	0.691
	Total	2,655,485	13,736,006	1.346	1.345	1.088
37 Indust/Proc	01 Buildings	1,052,528	5,243,072	0.579	0.621	0.502
	03 Offices	6,993	18,312	0.000	0.891	0.720
	04 Mercantile - High	7,990	43,719	0.000	0.858	0.694
	05 Mercantile - Medium	426	4,970	0.000	0.910	0.736
	06 Mercantile - Low	0	151	0.000	0.917	0.741
	08 Institutional - Hig	0	185	0.000	0.917	0.741
	10 Indust-Proc - High	154,712	649,052	0.374	0.659	0.533
	11 Indust-Proc - Low	567,547	2,715,038	0.588	0.660	0.534
	12 Service - High	2,024	6,218	0.000	0.908	0.734
	13 Service - Low	2,344	6,958	0.000	0.907	0.733
	14 Contractors	4,889	22,025	0.952	1.002	0.810
	Total	1,799,453	8,709,700	0.559	0.640	0.518

TENNESSEE
SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS
SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

<u>Type Of Policy</u>	<u>Category</u>	(1) Latest Year Aggregate Loss Costs	(2) 5 - Year Aggregate Loss Costs	(3) 5 - Year Experience Ratio	(4) Credibility Weighted Experience Ratio	(5) Credibility Weighted Relativity
38 Multiline Contractors	01 Buildings	425,125	2,009,260	0.887	0.914	0.739
	03 Offices	25,432	115,456	3.826	1.659	1.341
	04 Mercantile - High	43,268	223,428	0.993	1.004	0.812
	05 Mercantile - Medium	1,242	3,196	0.000	0.913	0.738
	06 Mercantile - Low	9,445	35,946	5.553	1.643	1.328
	08 Institutional - Hig	1,197	4,283	0.000	0.911	0.736
	11 Indust-Proc - Low	1,380	3,838	0.000	0.912	0.737
	12 Service - High	1,829	9,595	1.725	1.084	0.876
	13 Service - Low	2,323	10,693	0.483	0.953	0.770
	14 Contractors	467,934	2,114,360	0.588	0.676	0.546
	Total	979,175	4,530,055	0.867	0.831	0.672
Total All TOPs	01 Buildings	14,474,840	66,810,168	1.287	1.292	1.045
	02 Res. Apts. And Cond	314,790	1,350,547	0.791	1.080	0.873
	03 Offices	662,129	3,112,405	0.696	0.915	0.740
	04 Mercantile - High	780,458	3,497,405	1.016	1.034	0.836
	05 Mercantile - Medium	601,587	2,815,085	3.098	2.494	2.016
	06 Mercantile - Low	248,335	1,289,502	0.768	1.021	0.826
	07 Motels And Hotels	153,462	729,591	0.689	1.137	0.919
	08 Institutional - Hig	363,915	2,603,720	1.763	1.596	1.290
	09 Institutional - Low	721,816	4,194,214	1.066	1.132	0.916
	10 Indust-Proc - High	175,291	737,975	0.399	0.679	0.549
	11 Indust-Proc - Low	650,286	3,102,339	0.617	0.690	0.558
	12 Service - High	579,647	3,019,047	0.600	0.682	0.552
	13 Service - Low	377,410	1,836,746	1.059	1.050	0.849
	14 Contractors	509,665	2,348,338	0.552	0.693	0.560
	Total	20,613,631	97,447,082	1.223	1.237	1.000

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Latest Year Loss Costs At Current <u>Implicit PMF</u>	10-Year Experience Ratio At Current <u>PMF</u>	Formula Relativity <u>(2)/</u>	Credibility <u>(C)</u>	Credibility Weighted Relativity (D)	Balanced Formula Relativity (E)	Normalized Formula Relativity (F)	Indicated Change
Monoline	5,652,349	1.424	1.163	0.498	1.08	1.081	1.0896	
Multiline	33,661,064	1.191	0.973	0.868	0.98	0.977	0.9850	
Coverage	39,313,413	1.224	1.000			0.992	1.0000	
<u>Multiline Top</u>								
31 Motel/Hotel	1,019,576	1.308	1.069	0.178	1.01	1.005	1.0130	-7.0%
32 Apartment	4,916,438	1.119	0.914	0.412	0.97	0.958	0.9656	-11.4%
33 Office	2,112,825	0.910	0.743	0.270	0.93	0.924	0.9314	-14.5%
34 Mercantile	8,804,410	1.166	0.953	0.627	0.97	0.964	0.9717	-10.8%
35 Institutional	7,870,963	1.253	1.024	0.645	1.02	1.008	1.0160	-6.8%
36 Services	4,939,962	1.165	0.952	0.512	0.98	0.968	0.9757	-10.5%
37 Indust/Process	3,080,252	1.175	0.960	0.371	0.99	0.978	0.9858	-9.5%
38 Contractors	916,638	1.986	1.623	0.143	1.09	1.081	1.0896	0.0%
	33,661,064	1.191	0.973		0.98	0.977	0.9850	

For Columns (2) - (10), the Multiline total is the average weighted by Column (1)

C - Credibility = $P/(P+K)$ where P represents the total 10-year adjusted loss costs and $K = 45,000,000$

D - $(5) = ((3) * (4)) + ((1.000 - (4)) * 1.000)$

E - $(6) = (5) * (0.977/0.984)$

F - $(7) = (6) / 0.9921$

G - $(9) = (7) * (8) / (1.0896)$

TENNESSEE
OWNERS, LANDLORDS, AND TENANTS
BASIC LIMIT RELATIVE CHANGE ANALYSIS

	(1)	(2)	(3)	(4)	(5)
<u>TOP</u>	Bailey Formula Relativity	Credibility <u>Z</u>	Credibility Weighted Relativity	Balanced Relativity	Indicated Change
10	1.219	0.257	1.052	1.049	
31	1.090	0.156	1.014	1.011	-3.6%
32	0.934	0.082	0.994	0.992	-5.4%
33	0.933	0.150	0.990	0.987	-5.9%
34	1.026	0.237	1.006	1.003	-4.4%
35	0.705	0.149	0.949	0.947	-9.7%
36	0.733	0.123	0.962	0.960	-8.5%
Class Group					
1	0.826	0.137	0.974	0.977	
2	0.894	0.197	0.978	0.981	
3	0.660	0.106	0.957	0.960	
4	1.521	0.028	1.012	1.015	
5	1.311	0.047	1.013	1.016	
6	1.025	0.057	1.001	1.004	
7	1.204	0.116	1.022	1.025	
8	2.011	0.035	1.025	1.028	
9	1.075	0.194	1.014	1.017	
10	1.168	0.157	1.025	1.028	
11	1.240	0.100	1.022	1.025	
12	0.941	0.214	0.987	0.990	
13	1.128	0.068	1.008	1.011	
16	0.403	0.011	0.990	0.993	
Territory					
501	0.974	0.170	0.996	0.998	
503	1.004	0.246	1.001	1.003	
504	1.421	0.109	1.039	1.041	
505	0.972	0.334	0.99	0.993	

TENNESSEE
MANUFACTURERS AND CONTRACTORS
BASIC LIMIT RELATIVE CHANGE ANALYSIS

	(1)	(2)	(3)	(4)	(5)
<u>TOP</u>	<u>Bailey Formula Relativity</u>	<u>Credibility Z</u>	<u>Credibility Weighted Relativity</u>	<u>Balanced Relativity</u>	<u>Indicated Change</u>
10	1.102	0.259	1.026	1.026	
33	1.052	0.031	1.002	1.002	-2.3%
34	1.334	0.087	1.025	1.026	0.0%
35	1.047	0.065	1.003	1.003	-2.2%
36	0.883	0.121	0.985	0.985	-4.0%
37	1.230	0.079	1.017	1.017	-0.9%
38	0.876	0.233	0.970	0.970	-5.5%
Class Group					
30	0.929	0.109	0.992	0.990	
31	1.048	0.200	1.009	1.007	
32	1.009	0.238	1.002	1.000	
33	1.280	0.124	1.031	1.029	
34	1.006	0.123	1.001	0.998	
35	0.175	0.026	0.956	0.954	
36	0.431	0.065	0.947	0.945	
37	0.580	0.044	0.976	0.974	
38	1.136	0.096	1.012	1.010	

TENNESSEE
OWNERS, LANDLORDS, AND TENANTS
SUMMARY OF EXPERIENCE USED IN BASIC LIMIT RELATIVE CHANGE ANALYSIS

Territory: All		(1)	(2)	(3)	(4)	(5)	(6)
		Calendar A.Y.E 6/30/2022	Calendar A.Y.E 2018-2022	Five Year Experience			
<u>Type of Policy</u>	<u>Class Group</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Ratio</u>	<u>Relativity</u>	<u>Number of Occurrences</u>	<u>Bal Cell Relativity</u>
10 MONOLINE	1 FOOD&BEV.(RETAIL)	\$365,643	\$2,979,796	1.090		192	
	2 RESTAURANTS	\$577,027	\$3,700,912	1.044		171	
	3 STORES	\$346,092	\$1,864,091	1.104		48	
	4 VENDING & RENTAL	\$11,673	\$91,192	0.453		2	
	5 FOOD & BEV. DIST.	\$13,739	\$201,976	0.001		0	
	6 NON-FOOD&BEV.DIST	\$111,993	\$563,880	2.079		16	
	7 CLUBS,AMSMT&SPRTS	\$302,059	\$2,169,840	1.815		99	
	8 HEALTH CARE FACIL	\$29,696	\$147,524	2.269		6	
	9 HOTELS AND MOTELS	\$347,816	\$3,296,531	1.413		241	
	10 SCHLS & CHURCHES	\$590,663	\$2,223,626	1.602		78	
	11 APARTMENTS	\$646,829	\$3,831,115	1.661		88	
	12 BUILDINGS&OFFICES	\$1,139,291	\$6,205,886	0.964		199	
	13 MISC. PREMISES	\$99,264	\$964,500	1.283		48	
	TOTAL *	\$4,581,785	\$28,240,869	1.304		1188	
31 MULT MOTEL/HOTEL	9 HOTELS AND MOTELS	\$1,392,175	\$6,706,096	1.227		439	
	TOTAL *	\$1,392,175	\$6,706,096	1.227		439	
32 MULT APARTMENT	11 APARTMENTS	\$970,672	\$3,856,956	1.171		91	
	12 BUILDINGS&OFFICES	\$110,298	\$579,869	1.400		30	
	TOTAL *	\$1,080,971	\$4,436,825	1.194		121	
33 MULT OFFICE	12 BUILDINGS&OFFICES	\$2,695,156	\$13,724,755	0.940		404	
	13 MISC. PREMISES	\$19,991	\$106,498	0.000		0	
	TOTAL *	\$2,715,147	\$13,831,253	0.933		404	
34 MULT MERCANTILE	1 FOOD&BEV.(RETAIL)	\$828,998	\$4,965,260	0.863		148	
	2 RESTAURANTS	\$2,960,335	\$14,294,759	0.984		527	
	3 STORES	\$1,004,958	\$4,815,328	0.602		136	
	4 VENDING & RENTAL	\$15,114	\$77,720	1.927		1	
	5 FOOD & BEV. DIST.	\$204,835	\$946,087	1.519		40	
	6 NON-FOOD&BEV.DIST	\$401,298	\$2,026,726	0.893		43	
	12 BUILDINGS&OFFICES	\$692,935	\$3,408,432	1.205		114	
	TOTAL *	\$6,108,474	\$30,534,311	0.944		1009	

TENNESSEE
OWNERS, LANDLORDS, AND TENANTS
SUMMARY OF EXPERIENCE USED IN BASIC LIMIT RELATIVE CHANGE ANALYSIS

Territory: All		(1) Calendar A.Y.E 6/30/2022 Aggregate Loss Costs at Current Level	(2) Calendar A.Y.E 2018-2022 Aggregate Loss Costs at Current Level	(3) Five Year Experience Ratio	(4) Relativity	(5) Number of Occurrences	(6) Bal Cell Relativity
Type of Policy	Class Group						
35 MULT INSTITUT.	7 CLUBS,AMSMT&SPRTS	\$53,461	\$385,268	1.427		13	
	8 HEALTH CARE FACIL	\$123,736	\$640,737	1.703		16	
	10 SCHLS & CHURCHES	\$1,266,859	\$7,415,762	0.829		365	
	12 BUILDINGS&OFFICES	\$5,598	\$28,547	0.099		1	
	13 MISC. PREMISES	\$450	\$2,588	0.000		0	
	16 GOVT SUBDIVISIONS	\$109,432	\$729,406	0.292		2	
	TOTAL *	\$1,559,536	\$9,202,308	0.878		397	
36 MULT SERVICES	3 STORES	\$148,396	\$605,264	0.690		17	
	4 VENDING & RENTAL	\$99,765	\$597,057	1.334		11	
	7 CLUBS,AMSMT&SPRTS	\$928,172	\$4,530,509	0.806		131	
	8 HEALTH CARE FACIL	\$10,354	\$54,414	0.000		0	
	9 HOTELS AND MOTELS	\$15,432	\$105,512	0.234		0	
	10 SCHLS & CHURCHES	\$14,055	\$43,706	0.272		3	
	12 BUILDINGS&OFFICES	\$257,052	\$1,253,010	0.997		75	
	13 MISC. PREMISES	\$180,962	\$1,028,003	1.079		36	
	TOTAL *	\$1,654,188	\$8,217,476	0.872		273	
TOTAL ALL TOP	1 FOOD&BEV.(RETAIL)	\$1,194,641	\$7,945,056	0.933		340	
	2 RESTAURANTS	\$3,537,362	\$17,995,671	0.994		698	
	3 STORES	\$1,499,446	\$7,284,683	0.727		201	
	4 VENDING & RENTAL	\$126,553	\$765,970	1.324		14	
	5 FOOD & BEV. DIST.	\$218,574	\$1,148,062	1.424		40	
	6 NON-FOOD&BEV.DIST	\$513,291	\$2,590,606	1.152		59	
	7 CLUBS,AMSMT&SPRTS	\$1,283,693	\$7,085,617	1.069		243	
	8 HEALTH CARE FACIL	\$163,786	\$842,675	1.698		22	
	9 HOTELS AND MOTELS	\$1,755,423	\$10,108,139	1.255		680	
	10 SCHLS & CHURCHES	\$1,871,577	\$9,683,093	1.069		446	
	11 APARTMENTS	\$1,617,502	\$7,688,071	1.367		179	
	12 BUILDINGS&OFFICES	\$4,900,330	\$25,200,498	0.995		823	
	13 MISC. PREMISES	\$300,667	\$2,101,589	1.073		84	
	16 GOVT SUBDIVISIONS	\$109,432	\$729,406	0.292		2	
	TOTAL *	\$19,092,276	\$101,169,137	1.052		3831	

* TOTALS IN COLUMN (3) ARE AVERAGES USING COLUMN (1) AS WEIGHTS.

TENNESSEE
MANUFACTURERS AND CONTRACTORS
SUMMARY OF EXPERIENCE USED IN BASIC LIMIT RELATIVE CHANGE ANALYSIS

		(1) Calendar A.Y.E 6/30/2022 Aggregate Loss Costs as Current Level	(2) Calendar A.Y.E 2018-2022 Aggregate Loss Costs as Current Level	(3) Five Year Experience Ratio	(4) Relativity	(5) Number of Occurrences	(6) Bal Cell Relativity
Type of Policy	Class Group						
10 MONOLINE	30 SERVICE	\$402,451	\$1,704,886	0.798	0.948	58	1.016
	31 LIGHT CONTRACTING	\$1,083,879	\$5,082,624	1.237	1.469	333	1.033
	32 MEDIUM CONTRCTING	\$3,861,506	\$17,913,757	0.858	1.019	603	1.026
	33 HEAVY CONTRACTING	\$980,842	\$4,730,884	1.226	1.456	95	1.056
	34 DEALER OR DISTRIB	\$226,298	\$1,279,649	0.894	1.062	39	1.024
	35 LGT. MANUFACTURER	\$127,502	\$571,853	0.148	0.176	2	0.979
	36 MED. MANUFACTURER	\$250,155	\$1,774,889	0.500	0.594	18	0.970
	37 HVY. MANUFACTURER	\$209,669	\$1,079,290	0.052	0.062	4	0.999
	38 MISC. OPERATION	\$308,579	\$1,779,944	1.357	1.612	56	1.036
	TOTAL *	\$7,450,879	\$35,917,774	0.933		1208	
33 MULT OFFICE	31 LIGHT CONTRACTING	\$11,267	\$45,214	0.214	0.254	1	1.009
	32 MEDIUM CONTRCTING	\$4,421	\$18,594	0.000	0.000	0	1.002
	33 HEAVY CONTRACTING	\$32,673	\$169,201	0.008	0.010	1	1.031
	38 MISC. OPERATION	\$100,209	\$436,010	1.493	1.773	15	1.012
	TOTAL *	\$148,571	\$669,019	1.025		17	
34 MULT MERCANTILE	30 SERVICE	\$43,529	\$204,890	0.305	0.362	6	1.016
	32 MEDIUM CONTRCTING	\$169,256	\$803,735	1.487	1.766	19	1.026
	34 DEALER OR DISTRIB	\$554,549	\$2,837,687	1.068	1.268	96	1.024
	36 MED. MANUFACTURER	\$23	\$124	0.000	0.000	0	0.970
	38 MISC. OPERATION	\$48,326	\$241,003	1.396	1.658	16	1.036
	TOTAL *	\$815,684	\$4,087,440	1.134		137	
35 MULT INSTITUT.	31 LIGHT CONTRACTING	\$34,193	\$130,991	0.296	0.352	5	1.010
	32 MEDIUM CONTRCTING	\$271,165	\$1,365,972	0.969	1.151	72	1.003
	TOTAL *	\$305,358	\$1,496,963	0.894		77	
36 MULT SERVICES	30 SERVICE	\$51,556	\$262,777	3.348	3.976	21	0.975
	31 LIGHT CONTRACTING	\$158,916	\$878,023	0.546	0.648	28	0.992
	32 MEDIUM CONTRCTING	\$138,983	\$562,044	0.136	0.162	7	0.985
	33 HEAVY CONTRACTING	\$26,976	\$107,370	5.896	7.002	5	1.014

TENNESSEE
MANUFACTURERS AND CONTRACTORS
SUMMARY OF EXPERIENCE USED IN BASIC LIMIT RELATIVE CHANGE ANALYSIS

		(1) Calendar A.Y.E 6/30/2022 Aggregate Loss Costs as Current Level	(2) Calendar A.Y.E 2018-2022 Aggregate Loss Costs as Current Level	(3) Five Year Experience Ratio	(4) Relativity	(5) Number of Occurrences	(6) Bal Cell Relativity
Type of Policy	Class Group						
	34 DEALER OR DISTRIB	\$716,290	\$3,480,753	0.699	0.830	133	0.983
	36 MED. MANUFACTURER	\$1,393	\$6,810	0.000	0.000	0	0.931
	38 MISC. OPERATION	\$463,874	\$2,431,313	0.600	0.713	68	0.995
	TOTAL *	\$1,557,988	\$7,729,091	0.781		262	
37 MULT INDUST/PROC.	31 LIGHT CONTRACTING	\$581	\$2,122	0.000	0.000	0	1.024
	32 MEDIUM CONTRCTING	\$132,274	\$613,339	0.329	0.391	6	1.017
	33 HEAVY CONTRACTING	\$33,365	\$186,987	0.104	0.124	5	1.046
	34 DEALER OR DISTRIB	\$9,012	\$32,857	9.566	11.361	3	1.015
	35 LGT. MANUFACTURER	\$125,627	\$665,290	0.195	0.232	10	0.970
	36 MED. MANUFACTURER	\$891,027	\$4,158,183	0.419	0.498	58	0.961
	37 HVY. MANUFACTURER	\$547,444	\$2,503,273	0.787	0.935	31	0.991
	38 MISC. OPERATION	\$17,754	\$93,846	0.044	0.052	0	1.027
	TOTAL *	\$1,757,086	\$8,255,897	0.548		113	
38 MULT CONTRACTORS	30 SERVICE	\$1,029,082	\$5,126,591	0.608	0.722	129	0.960
	31 LIGHT CONTRACTING	\$1,685,555	\$8,519,964	0.643	0.764	350	0.977
	32 MEDIUM CONTRCTING	\$2,668,196	\$13,165,781	0.896	1.064	313	0.970
	33 HEAVY CONTRACTING	\$1,831,388	\$8,693,438	0.893	1.061	173	0.998
	38 MISC. OPERATION	\$49,057	\$376,637	0.538	0.639	12	0.980
	TOTAL *	\$7,263,278	\$35,882,411	0.793		977	
TOTAL ALL TOP	30 SERVICE	\$1,526,618	\$7,299,144	0.742		214	
	31 LIGHT CONTRACTING	\$2,974,393	\$14,658,938	0.849		717	
	32 MEDIUM CONTRCTING	\$7,245,800	\$34,443,222	0.867		1020	
	33 HEAVY CONTRACTING	\$2,905,245	\$13,887,880	1.033		279	
	34 DEALER OR DISTRIB	\$1,506,149	\$7,630,946	0.917		271	
	35 LGT. MANUFACTURER	\$253,129	\$1,237,142	0.171		12	
	36 MED. MANUFACTURER	\$1,142,598	\$5,940,006	0.436		76	
	37 HVY. MANUFACTURER	\$757,113	\$3,582,563	0.583		35	
	38 MISC. OPERATION	\$987,799	\$5,358,754	0.953		167	
	TOTAL *	\$19,298,844	\$94,038,595	0.842		2791	

TENNESSEE
PRODUCTS
BASIC LIMIT RELATIVE CHANGE ANALYSIS

	(1)	(2)	(3)	(4)	(5)
<u>TOP</u>	<u>Bailey Formula Relativity</u>	<u>Credibility Z</u>	<u>Credibility Weighted Relativity</u>	<u>Balanced Relativity</u>	<u>Indicated Change</u>
10	0.928	0.322	0.976	0.976	
34	1.049	0.356	1.017	1.016	4.2%
36	1.049	0.178	1.008	1.008	3.3%
37	1.011	0.431	1.005	1.004	2.9%
Class Group					
3	0.930	0.423	0.970	0.970	
4	1.069	0.394	1.027	1.027	
5	1.116	0.105	1.012	1.012	
6	0.992	0.299	0.998	0.998	
7	0.865	0.118	0.983	0.983	

Note: The indicated changes by TOP were further adjusted by the following differentials

TOP 34: 0.974

TOP 36: 0.979

TOP 37: 0.997

MULTISTATE
PRODUCTS
SUMMARY OF EXPERIENCE USED IN BASIC LIMIT RELATIVE CHANGE ANALYSIS

		(1)	(2)	(3)	(4)	(5)	(6)
		Calendar A.Y.E 12/31/2021	Calendar A.Y.E 2017-2021	Five Year Experience			
Type of Policy	Class Group	Aggregate Loss Costs as Current Level	Aggregate Loss Costs Current Level	Ratio	Relativity	Number of Occurrences	Bal Cell Relativity
10 MONOLINE	3 MAN,DLR,DSTFD/DRG	11,819,097	63,658,617	0.783	0.870	1,091	0.946
	4 DLR,DST-NOTFD/DRG	7,190,323	36,653,516	0.937	1.042	432	1.002
	5 MAN.NTFD/DRG(LOW)	1,226,514	7,102,146	0.788	0.876	56	0.987
	6 MAN.NTFD/DRG(MED)	8,466,486	42,680,135	0.814	0.905	423	0.973
	7 MAN.NTFD/DRG(HGH)	2,036,214	10,951,431	0.681	0.757	70	0.959
	TOTAL *	30,738,634	161,045,845	0.821		2,072	
34 MULT MERCANTILE	3 MAN,DLR,DSTFD/DRG	5,085,663	25,340,297	0.947	1.053	506	0.986
	4 DLR,DST-NOTFD/DRG	27,891,818	137,888,579	0.997	1.108	2,035	1.044
	6 MAN.NTFD/DRG(MED)	2,648	13,111	0.000	0.000	-	1.014
	TOTAL *	32,980,129	163,241,987	0.989		2,541	
36 MULT SERVICES	4 DLR,DST-NOTFD/DRG	3,130,195	15,943,473	1.018	1.131	631	1.035
	6 MAN.NTFD/DRG(MED)	30,963	176,926	0.028	0.031	1	1.005
	TOTAL *	3,161,158	16,120,400	1.008		632	
37 MULT INDUST/PROC.	3 MAN,DLR,DSTFD/DRG	11,666,754	62,347,318	0.810	0.901	1,979	0.974
	5 MAN.NTFD/DRG(LOW)	3,213,073	18,166,949	1.070	1.190	163	1.015
	6 MAN.NTFD/DRG(MED)	26,040,916	133,610,898	0.908	1.010	1,362	1.001
	7 MAN.NTFD/DRG(HGH)	6,218,877	29,699,655	0.800	0.890	210	0.987
	TOTAL *	47,139,619	243,824,820	0.881		3,714	
TOTAL ALL TOP	3 MAN,DLR,DSTFD/DRG	28,571,513	151,346,232	0.823		3,576	
	4 DLR,DST-NOTFD/DRG	38,212,336	190,485,568	0.987		3,098	
	5 MAN.NTFD/DRG(LOW)	4,439,588	25,269,095	0.992		219	
	6 MAN.NTFD/DRG(MED)	34,541,014	176,481,070	0.884		1,786	
	7 MAN.NTFD/DRG(HGH)	8,255,091	40,651,087	0.771		280	
	TOTAL *	114,019,542	584,233,052	0.899		8,959	

TENNESSEE
LOCAL PRODUCTS/COMPLETED OPERATIONS
BASIC LIMIT RELATIVE CHANGE ANALYSIS

	(1)	(2)	(3)	(4)	(5)
<u>TOP</u>	Bailey Formula Relativity	Credibility <u>Z</u>	Credibility Weighted Relativity	Balanced Relativity	Indicated Change
10	1.006	0.779	1.005	1.006	
34	1.009	0.487	1.004	1.005	0.0%
36	0.988	0.571	0.993	0.994	-1.2%
37	0.887	0.148	0.982	0.983	-2.2%
38	1.001	0.975	1.001	1.002	-0.4%
Class Group					
1	1.380	0.484	1.169	1.175	
2	1.005	0.553	1.003	1.008	
11	1.100	0.365	1.036	1.041	
12	0.983	1.000	0.983	0.988	
13	0.961	0.263	0.990	0.995	

MULTISTATE
LOCAL PRODUCTS/COMPLETED OPERATIONS
BASIC LIMIT RELATIVE CHANGE ANALYSIS *

State	(1) Bailey Formula Relativity	(2) Credibility	(3) Credibility Weighted Relativity	(4) Balanced Relativity
	1.268	0.358	1.089	1.092
	1.365	0.259	1.084	1.087
	1.833	0.110	1.069	1.073
	1.342	0.222	1.068	1.071
	1.300	0.230	1.062	1.066
	1.301	0.218	1.059	1.063
	1.251	0.252	1.058	1.062
	1.289	0.180	1.047	1.050
	1.156	0.306	1.045	1.049
	1.080	0.562	1.044	1.048
	1.169	0.254	1.040	1.044
	1.081	0.487	1.039	1.042
	1.077	0.410	1.031	1.034
	1.114	0.269	1.030	1.033
	1.085	0.323	1.027	1.030
	1.260	0.111	1.026	1.029
	1.080	0.333	1.026	1.029
	1.033	0.489	1.016	1.019
	1.027	0.466	1.013	1.016
	1.047	0.211	1.010	1.013
	1.037	0.226	1.008	1.012
	1.015	0.243	1.004	1.007
	1.010	0.354	1.004	1.007
	1.111	0.030	1.003	1.007
	0.995	0.171	0.999	1.003
	0.996	0.436	0.998	1.002
	0.995	0.688	0.997	1.000
	0.984	0.327	0.995	0.998
	0.965	0.163	0.994	0.998
	0.960	0.162	0.993	0.997
	0.984	0.436	0.993	0.996
	0.966	0.208	0.993	0.996
	0.968	0.232	0.992	0.996
	0.936	0.133	0.991	0.995
	0.960	0.249	0.990	0.993
	0.977	0.493	0.988	0.992
	0.973	0.635	0.982	0.986
	0.873	0.137	0.982	0.985
TENNESSEE	0.947	0.374	0.980	0.983
	0.924	0.314	0.975	0.979
	0.930	0.371	0.973	0.977
	0.835	0.157	0.972	0.975
	0.913	0.357	0.968	0.971
	0.899	0.376	0.961	0.964
	0.340	0.043	0.955	0.958
	0.898	0.432	0.955	0.958
	0.896	0.507	0.946	0.949
	0.690	0.163	0.941	0.944
	0.825	0.328	0.939	0.942
	0.827	0.390	0.928	0.932
	0.811	0.363	0.927	0.930
	0.683	0.237	0.914	0.917

* Sorted by balanced relative change

TENNESSEE
LOCAL PRODUCTS/COMPLETED OPERATIONS
SUMMARY OF EXPERIENCE USED IN BASIC LIMIT RELATIVE CHANGE ANALYSIS

		(1)	(2)	(3)	(4)	(5)	(6)
		Calendar A.Y.E 12/31/2021	Calendar A.Y.E 2017-2021	Five Year Experience		Number of	Bal Cell
Type of Policy	Class Group	Aggregate Loss Costs as Current Level	Aggregate Loss Costs as Current Level	Ratio	Relativity	Occurrences	Relativity
10 MONOLINE	1 RET.STRS-FOOD/DRG	\$31,484	\$183,824	3.520	3.654	12	1.162
	2 RET.STRS-NTFD/DRG	\$60,338	\$297,533	0.609	0.633	7	0.997
	11 COMP. OPS. (LOW)	\$239,533	\$1,039,263	0.790	0.820	12	1.030
	12 COMP. OPS. (MED)	\$2,657,832	\$12,887,763	0.767	0.796	180	0.977
	13 COMP. OPS. (HGH)	\$127,859	\$802,767	1.220	1.266	8	0.984
	TOTAL *	\$3,117,046	\$15,211,151	0.812		219	
34 MULT MERCANTILE	1 RET.STRS-FOOD/DRG	\$201,230	\$949,466	1.097	1.139	98	1.162
	2 RET.STRS-NTFD/DRG	\$150,864	\$754,502	0.993	1.030	18	0.997
	12 COMP. OPS. (MED)	\$65,147	\$285,096	0.463	0.481	5	0.977
	TOTAL *	\$417,242	\$1,989,064	0.960		121	
36 MULT SERVICES	1 RET.STRS-FOOD/DRG	\$13,075	\$135,443	0.716	0.743	10	1.148
	2 RET.STRS-NTFD/DRG	\$272,552	\$1,200,069	0.767	0.796	59	0.985
	11 COMP. OPS. (LOW)	\$26,153	\$142,310	0.753	0.781	3	1.018
	12 COMP. OPS. (MED)	\$105,354	\$458,469	1.017	1.055	23	0.966
	13 COMP. OPS. (HGH)	\$12,890	\$64,253	0.042	0.043	0	0.972
	TOTAL *	\$430,023	\$2,000,543	0.804		95	
37 MULT INDUST/PROC.	1 RET.STRS-FOOD/DRG	\$31	\$31	0.000	0.000	0	1.136
	11 COMP. OPS. (LOW)	\$268	\$1,676	0.000	0.000	0	1.007
	12 COMP. OPS. (MED)	\$58,985	\$297,713	0.695	0.721	8	0.955
	TOTAL *	\$59,283	\$299,420	0.691		8	
38 MULT CONTRACTORS	11 COMP. OPS. (LOW)	\$238,622	\$1,282,495	0.851	0.883	25	1.026
	12 COMP. OPS. (MED)	\$3,858,161	\$19,949,053	1.049	1.089	291	0.973
	13 COMP. OPS. (HGH)	\$284,916	\$1,470,755	0.446	0.463	9	0.980
	TOTAL *	\$4,381,699	\$22,702,303	0.999		325	
TOTAL ALL TOP	1 RET.STRS-FOOD/DRG	\$245,820	\$1,268,764	1.387		120	
	2 RET.STRS-NTFD/DRG	\$483,754	\$2,252,104	0.818		84	
	11 COMP. OPS. (LOW)	\$504,575	\$2,465,743	0.816		40	
	12 COMP. OPS. (MED)	\$6,745,479	\$33,878,094	0.929		507	
	13 COMP. OPS. (HGH)	\$425,665	\$2,337,775	0.666		17	
TOTAL *		\$8,405,292	\$42,202,480	0.916		768	

MULTISTATE
LOCAL PRODUCTS/COMPLETED OPERATIONS
SUMMARY OF EXPERIENCE USED IN BASIC LIMIT RELATIVE CHANGE ANALYSIS

		(1)	(2)	(3)	(4)	(5)	(6)
		Calendar A.Y.E. 12/31/2021	Calendar A.Y.E. 2017-2021	Five Year Experience		Number of	Bal Cell
<u>Type of Policy</u>	<u>Class Group</u>	<u>Aggregate Loss Costs as Current Level</u>	<u>Aggregate Loss Costs as Current Level</u>	<u>Ratio</u>	<u>Relativity</u>	<u>Occurrences</u>	<u>Relativity</u>
10 MONOLINE	1 RET.STRS-FOOD/DRG	1,748,833	13,294,303	1.231		621	
	2 RET.STRS-NTFD/DRG	3,644,206	17,449,172	1.109		492	
	11 COMP. OPS. (LOW)	5,499,261	29,100,438	1.217		689	
	12 COMP. OPS. (MED)	120,011,947	572,386,816	0.962		7,034	
	13 COMP. OPS. (HGH)	7,536,492	38,042,850	0.672		262	
	TOTAL *	138,440,739	670,273,579	0.964		9,098	
34 MULT MERCANTILE	1 RET.STRS-FOOD/DRG	8,156,117	43,997,404	1.362		2,733	
	2 RET.STRS-NTFD/DRG	7,639,610	36,671,723	0.951		693	
	12 COMP. OPS. (MED)	3,008,570	14,169,615	0.939		125	
	TOTAL *	18,804,297	94,838,741	1.127		3,551	
36 MULT SERVICES	1 RET.STRS-FOOD/DRG	643,620	4,295,009	1.241		162	
	2 RET.STRS-NTFD/DRG	15,583,411	76,045,252	0.943		3,398	
	11 COMP. OPS. (LOW)	3,267,900	16,818,142	1.161		488	
	12 COMP. OPS. (MED)	5,157,211	26,533,736	0.988		778	
	13 COMP. OPS. (HGH)	1,204,826	5,882,500	0.609		61	
	TOTAL *	25,856,969	129,574,639	0.971		4,887	
37 MULT INDUST/PROC.	1 RET.STRS-FOOD/DRG	22,984	127,871	0.000		-	
	11 COMP. OPS. (LOW)	118,128	638,240	0.539		14	
	12 COMP. OPS. (MED)	5,046,084	25,673,289	0.857		313	
	13 COMP. OPS. (HGH)	2,262	21,501	0.000		-	
	TOTAL *	5,189,458	26,460,901	0.846		327	
38 MULT CONTRACTORS	11 COMP. OPS. (LOW)	11,708,508	61,005,531	0.958		812	
	12 COMP. OPS. (MED)	192,727,882	985,553,302	0.941		12,745	
	13 COMP. OPS. (HGH)	15,769,275	78,710,767	1.070		712	
	TOTAL *	220,205,665	1,125,269,600	0.951		14,269	
TOTAL ALL TOP	1 RET.STRS-FOOD/DRG	10,571,554	61,714,586	1.330		3,516	
	2 RET.STRS-NTFD/DRG	26,867,226	130,166,147	0.968		4,583	
	11 COMP. OPS. (LOW)	20,593,798	107,562,352	1.057		2,003	
	12 COMP. OPS. (MED)	325,951,694	1,624,316,756	0.948		20,995	
	13 COMP. OPS. (HGH)	24,512,856	122,657,618	0.925		1,035	
	TOTAL *	408,497,128	2,046,417,459	0.963		32,132	

COMMERCIAL PACKAGE POLICY

TABLE OF CONTENTS

SECTION C - REVISED CLM DIVISION NINE

Commercial Package Policy Package Modification Factors (Revised MLCP-PMF-1)	C-2
---	-----

**COMMERCIAL LINES MANUAL
DIVISION NINE – MULTIPLE LINE
COMMERCIAL PACKAGE POLICY
PACKAGE MODIFICATION FACTORS**

PACKAGE MODIFICATION FACTORS

Package Modification Assignment (PMA)	Premium From CLM Division			
	Two	Three, Four, Five, Eight Property	Four, Six Liability	All Other Divisions
Apartment House	.90	.93	.95	1.00
Contractors	.90	.86	.78	1.00
Industrial & Processing	.90	.86	1.00	1.00
Institutional	.90	.90	.71	1.00
Mercantile	.90	.87	.88	1.00
Motel/Hotel	.90	.96	.96	1.00
Office	.90	.76	.90	1.00
Service	.90	.96	.88	1.00

Table 1. Package Modification Factors