

RULES – IMPLEMENTATION

MAY 31, 2019

COMMERCIAL MULTIPLE LINE

LI-ML-2019-019

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**ARKANSAS COMMERCIAL PACKAGE POLICY REVISED  
PACKAGE MODIFICATION FACTOR REVISION TO BE  
IMPLEMENTED; EXCEL WORKBOOK NEWLY INCLUDED**

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**KEY MESSAGE**

Revised Commercial Package Policy package modification factors for an overall statewide change of +4.7% to be implemented.

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**BACKGROUND**

In circular [LI-ML-2019-004](#), we provided you with information about the Commercial Package Policy modification factor experience review.

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**ISO ACTION**

We are implementing ML-2019-RLA1, which presents a review of Commercial Package Policy modification factors experience. Refer to the attachment(s) for complete details.

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**EFFECTIVE DATE**

We do not establish an effective date for Commercial Package Policy rules revisions in this state. Each insurer that elects to utilize this revision is responsible for determining its own effective date.

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**COMPANY ACTION**

ISO has not filed this revision on behalf of insurers.

You must independently determine what revision to make and when to make any revision effective. If you decide to use all or any part of our revision, you are NOT required to file anything with the Insurance Department.

You must document your files in case the Insurance Department wishes to review the information at a later date. In all internal correspondence on this revision, you should refer to ISO Revision Designation Number [ML-2019-RLA1](#), 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.

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**RATING SOFTWARE IMPACT**

No new attributes are being introduced with this revision.

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## 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-2018-044](#) 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.

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## REVISION DISTRIBUTION

We will issue a Notice to Manualholders with an edition date of 10-19 (or the earliest possible subsequent date), along with any new and/or revised manual pages.

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## REFERENCE(S)

- [LI-ML-2019-004](#) (04/03/2019) Commercial Package Policy Experience Reviewed By Staff
- [LI-CL-2018-044](#) (11/27/2018) Revised Lead Time Requirements Listing

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## ATTACHMENT(S)

- Filing [ML-2019-RLA1](#)
- Excel Workbook

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## 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.

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## 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 was 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.

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## 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.

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## CONTACT INFORMATION

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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](http://www.verisk.com/iso). To keep abreast of the latest Insurance Lines Services updates, view [www.verisk.com/ils](http://www.verisk.com/ils).

ARKANSAS

ADVISORY PACKAGE MODIFICATION FACTOR REVIEW

COMMERCIAL PACKAGE POLICY  
ML-2019-RLA1

EXECUTIVE SUMMARY

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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.
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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. &amp; Liab. Total</u>
Motel/Hotel	+2.0%	0.0%	+1.4%
Apartment	+1.0	+7.5	+1.4
Office	+4.7	+4.6	+4.7
Mercantile	+2.1	-1.2	+1.2
Institutional	+7.3	-3.7	+6.0
Services	+7.5	-1.1	+5.3
Indust./Proc.	+4.2	+3.7	+4.0
Contractors	<u>+4.3</u>	<u>+6.0</u>	<u>+5.6</u>
Statewide	+5.6%	+2.7%	+4.7%

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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.

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ADVISORY PACKAGE MODIFICATION FACTOR REVIEW

COMMERCIAL PACKAGE POLICY  
ML-2019-RLA1

EXECUTIVE SUMMARY

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HISTORICAL  
SOURCE DATA

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

- Basic Group I: five fiscal accident years ending 03/31/18.
  - Basic Group II: ten fiscal accident years ending 03/31/18.
  - Special Causes of Loss: five fiscal accident years ending 03/31/18.
  - Crime: calendar year ending 06/30/16.
  - Inland Marine: five calendar accident years ending 12/31/16.
  - Fidelity: policy year ending 12/31/15.
  - Owners, Landlords, and Tenants: five fiscal accident years ending 03/31/18.
  - Manufacturers and Contractors: five fiscal accident years ending 03/31/18.
  - Products: three calendar accident years ending 03/31/18.
  - Local Products and Completed Operations: three calendar accident years ending 03/31/18.
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PRIOR ISO  
REVISIONS

The latest revisions in this state are:

<u>Filing</u>	ML-17-RLA1	ML-15-RLA1	ML-09-RLA1
<u>Dates</u>			
Implemented	11/01/17	10/01/15	01/01/10
<u>Changes</u>			
Indicated	-3.0%	+2.1%	-3.8%
Filed	-3.0%	+2.1%	-3.8%
Implemented	-3.0%	+2.1%	-3.8%

ARKANSAS

ADVISORY PACKAGE MODIFICATION FACTOR REVIEW

COMMERCIAL PACKAGE POLICY

ML-2019-RLA1

EXECUTIVE SUMMARY

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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.

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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 12/31/17 for the Annual Statement Line of Business (ASLOB) indicated.

COMMERCIAL MULTI PERIL (ASLOB 51 & 52)

1. Travelers Indemnity Company
  2. Cincinnati Insurance Company
  3. Nationwide Mutual Insurance Company
  4. Tokio Marine Companies
  5. Columbia Insurance Group
  6. Continental Casualty Company
  7. Liberty Mutual Insurance Company
  8. State Auto Mutual Insurance Company
  9. Hartford Accident & Indemnity Company
  10. Admiral 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 12/31/17 is:

Commercial Multi Peril (ASLOB 51 & 52). 50.6%.

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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.

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ARKANSAS

ADVISORY PACKAGE MODIFICATION FACTOR REVIEW

COMMERCIAL PACKAGE POLICY

ML-2019-RLA1

EXECUTIVE SUMMARY

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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.

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COMMERCIAL PACKAGE POLICY

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COMMERCIAL PACKAGE POLICY

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COMMERCIAL PACKAGE POLICY  
METHODOLOGY OVERVIEW

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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 relative to that for monoline policies providing the same coverages.

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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.

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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.

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TABLE 1  
COMMERCIAL PACKAGE POLICY

SUMMARY OF THIS REVIEW

The display below summarizes the review and shows the capped Package Modification Factors for Property and Liability. For each type of risk, the PMFs are determined to be those factors which when applied to the monoline loss costs produce the appropriate CPP aggregate loss cost level as determined by an analysis of the CPP experience.

TYPE OF POLICY	PROPERTY PMFS			LIABILITY PMFS			PROP. & LIAB. TOTAL
	CURRENT	CAPPED	% CHANGE	CURRENT	CAPPED	% CHANGE	% CHANGE
MOTEL/HOTEL (31)	0.98	1.00	2.0%	0.92	0.92	0.0%	1.4%
APARTMENT (32)	0.99	1.00	1.0%	0.93	1.00	7.5%	1.4%
OFFICE (33)	0.64	0.67	4.7%	0.87	0.91	4.6%	4.7%
MERCANTILE (34)	0.94	0.96	2.1%	0.85	0.84	-1.2%	1.2%
INSTITUTION (35)	0.82	0.88	7.3%	0.81	0.78	-3.7%	6.0%
SERVICES (36)	0.93	1.00	7.5%	0.92	0.91	-1.1%	5.3%
IND/PROC (37)	0.71	0.74	4.2%	0.81	0.84	3.7%	4.0%
CONTRACTORS (38)	0.93	0.97	4.3%	0.84	0.89	6.0%	5.6%
STATEWIDE			5.6%			2.7%	4.7%

ARKANSAS  
TABLE 2  
COMMERCIAL PACKAGE POLICY  
CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS (PMF)

MOTEL/HOTEL (31) *****	(1) AGGREG- ATE LOSS COSTS	(2) CURRENT IMPLICIT PMF	(3) NET INDICATION	(4) INDIC. PMF	(5) CAPPED PMF
<u>COVERAGE</u>					
PROPERTY-					
BASIC GRP I	507,719	0.817	-2.9%	0.793	0.770
BASIC GRP II	541,655	1.176	17.2	1.378	1.338
SP CAUSE/LOSS	119,587	0.923	1.3	0.935	0.907
*CRIME	592	0.910	0.0	0.910	0.910
*INL. MAR.	3,892	0.910	0.0	0.910	0.910
*FIDELITY	4,700	1.000	0.0	1.000	1.000
<u>TOTAL</u>	<u>1,178,145</u>	<u>0.98</u>	<u>5.1%</u>	<u>1.030</u>	<u>1.00</u>
LIABILITY-					
OL&T	554,778	0.919	-6.4%	0.860	0.921
<u>TOTAL</u>	<u>554,778</u>	<u>0.92</u>	<u>-6.5%</u>	<u>0.860</u>	<u>0.92</u>
-----	-----	-----	-----	-----	-----
PROP. & LIAB. TOTAL	1,732,923		1.4%		
APARTMENT (32) *****	(1) AGGREG- ATE LOSS COSTS	(2) CURRENT IMPLICIT PMF	(3) NET INDICATION	(4) INDIC. PMF	(5) CAPPED PMF
<u>COVERAGE</u>					
PROPERTY-					
BASIC GRP I	2,144,782	0.948	-0.2%	0.946	0.874
BASIC GRP II	2,115,357	0.937	24.4	1.166	1.076
SP CAUSE/LOSS	781,525	1.304	-1.3	1.287	1.189
*CRIME	469	0.910	0.0	0.910	0.910
*INL. MAR.	835	0.910	0.0	0.910	0.910
*FIDELITY	2,975	1.000	0.0	1.000	1.000
<u>TOTAL</u>	<u>5,045,943</u>	<u>0.99</u>	<u>9.4%</u>	<u>1.083</u>	<u>1.00</u>
LIABILITY-					
OL&T	346,466	0.935	-3.5%	0.902	1.000
<u>TOTAL</u>	<u>346,466</u>	<u>0.93</u>	<u>-3.0%</u>	<u>0.902</u>	<u>1.00</u>
-----	-----	-----	-----	-----	-----
PROP. & LIAB. TOTAL	5,392,409		8.6%		

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

ARKANSAS  
TABLE 2  
COMMERCIAL PACKAGE POLICY  
CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS (PMF)

OFFICE (33) *****	(1)	(2)	(3)	(4)	(5)
	AGGREGATE <u>LOSS COSTS</u>	CURRENT IMPLICIT <u>PMF</u>	NET <u>INDICATION</u>	INDIC. <u>PMF</u>	CAPPED <u>PMF</u>
COVERAGE					
PROPERTY-					
BASIC GRP I	913,799	0.709	-3.4%	0.685	0.694
BASIC GRP II	818,009	0.502	16.9	0.587	0.594
SP CAUSE/LOSS	419,597	0.838	-2.9	0.814	0.824
*CRIME	2,622	0.910	0.0	0.910	0.910
*INL. MAR.	54,283	0.910	0.0	0.910	0.910
*FIDELITY	8,831	1.000	0.0	1.000	1.000
<u>TOTAL</u>	<u>2,217,141</u>	<u>0.64</u>	<u>3.5%</u>	<u>0.662</u>	<u>0.67</u>
LIABILITY-					
OL&T	1,437,567	0.883	4.0%	0.918	0.918
M&C	63,312	0.705	5.5	0.744	0.744
<u>TOTAL</u>	<u>1,500,879</u>	<u>0.87</u>	<u>4.5%</u>	<u>0.909</u>	<u>0.91</u>
-----	-----	-----	-----	-----	-----
PROP. & LIAB. TOTAL	3,718,020		3.9%		
MERCANTILE (34) *****	(1)	(2)	(3)	(4)	(5)
	AGGREGATE <u>LOSS COSTS</u>	CURRENT IMPLICIT <u>PMF</u>	NET <u>INDICATION</u>	INDIC. <u>PMF</u>	CAPPED <u>PMF</u>
COVERAGE					
PROPERTY-					
BASIC GRP I	4,348,682	0.977	-3.9%	0.939	0.951
BASIC GRP II	3,817,099	0.909	9.9	0.999	1.012
SP CAUSE/LOSS	1,064,036	0.876	-3.9	0.842	0.852
*CRIME	19,994	0.910	0.0	0.910	0.910
*INL. MAR.	597,111	0.910	0.0	0.910	0.910
*FIDELITY	139,615	1.000	0.0	1.000	1.000
<u>TOTAL</u>	<u>9,986,537</u>	<u>0.94</u>	<u>1.1%</u>	<u>0.950</u>	<u>0.96</u>
LIABILITY-					
OL&T	2,583,674	0.800	-1.7%	0.786	0.786
M&C	695,291	1.065	5.2	1.120	1.120
LOCAL PRODUCT	93,197	0.883	0.1	0.884	0.884
*MULTI PRODUCT	406,269	0.832	2.5	0.853	0.853
<u>TOTAL</u>	<u>3,778,431</u>	<u>0.85</u>	<u>-0.6%</u>	<u>0.845</u>	<u>0.84</u>
-----	-----	-----	-----	-----	-----
PROP. & LIAB. TOTAL	13,764,968		0.6%		

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

ARKANSAS  
TABLE 2  
COMMERCIAL PACKAGE POLICY  
CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS (PMF)

INSTITUTION (35) *****	(1)	(2)	(3)	(4)	(5)
	AGGREGATE <u>LOSS COSTS</u>	CURRENT IMPLICIT <u>PMF</u>	NET <u>INDICATION</u>	INDIC. <u>PMF</u>	CAPPED <u>PMF</u>
COVERAGE					
PROPERTY-					
BASIC GRP I	3,105,557	0.954	-1.8%	0.937	0.949
BASIC GRP II	4,937,762	0.769	13.3	0.871	0.882
SP CAUSE/LOSS	1,267,181	0.719	1.4	0.729	0.738
*CRIME	13,430	0.910	0.0	0.910	0.910
*INL. MAR.	19,715	0.910	0.0	0.910	0.910
*FIDELITY	65,698	1.000	0.0	1.000	1.000
<u>TOTAL</u>	<u>9,409,343</u>	<u>0.82</u>	<u>6.0%</u>	<u>0.869</u>	<u>0.88</u>
LIABILITY-					
OL&T	1,050,644	0.924	-3.3%	0.894	0.894
M&C	243,066	0.500	1.1	0.505	0.505
<u>TOTAL</u>	<u>1,293,710</u>	<u>0.81</u>	<u>-4.0%</u>	<u>0.777</u>	<u>0.78</u>
-----					
PROP. & LIAB. TOTAL	10,703,053		4.8%		
SERVICES (36) *****	(1)	(2)	(3)	(4)	(5)
	AGGREGATE <u>LOSS COSTS</u>	CURRENT IMPLICIT <u>PMF</u>	NET <u>INDICATION</u>	INDIC. <u>PMF</u>	CAPPED <u>PMF</u>
COVERAGE					
PROPERTY-					
BASIC GRP I	2,328,108	1.025	-5.3%	0.971	0.982
BASIC GRP II	2,157,943	0.809	24.2	1.005	1.017
SP CAUSE/LOSS	811,161	1.038	-5.0	0.986	0.998
*CRIME	4,324	0.910	0.0	0.910	0.910
*INL. MAR.	17,819	0.910	0.0	0.910	0.910
*FIDELITY	39,946	1.000	0.0	1.000	1.000
<u>TOTAL</u>	<u>5,359,301</u>	<u>0.93</u>	<u>6.3%</u>	<u>0.988</u>	<u>1.00</u>
LIABILITY-					
OL&T	678,874	0.992	0.0%	0.992	0.993
M&C	987,743	0.816	-0.5	0.812	0.813
LOCAL PRODUCT	135,652	1.500	1.6	1.524	1.500
*MULTI PRODUCT	62,618	0.899	1.8	0.915	0.915
<u>TOTAL</u>	<u>1,864,887</u>	<u>0.92</u>	<u>-1.4%</u>	<u>0.907</u>	<u>0.91</u>
-----					
PROP. & LIAB. TOTAL	7,224,188		4.3%		

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

ARKANSAS  
TABLE 2  
COMMERCIAL PACKAGE POLICY  
CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS (PMF)

IND/PROC (37) *****	(1)	(2)	(3)	(4)	(5)
	AGGREGATE <u>LOSS COSTS</u>	CURRENT IMPLICIT <u>PMF</u>	NET <u>INDICATION</u>	INDIC. <u>PMF</u>	CAPPED <u>PMF</u>
COVERAGE					
PROPERTY-					
BASIC GRP I	1,183,830	0.681	-7.0%	0.633	0.641
BASIC GRP II	824,562	0.713	20.3	0.858	0.869
SP CAUSE/LOSS	285,352	0.856	-5.8	0.806	0.817
*CRIME	1,586	0.910	0.0	0.910	0.910
*INL. MAR.	1,286	0.910	0.0	0.910	0.910
*FIDELITY	24,958	1.000	0.0	1.000	1.000
<u>TOTAL</u>	<u>2,321,574</u>	<u>0.71</u>	<u>3.4%</u>	<u>0.734</u>	<u>0.74</u>
LIABILITY-					
M&C	1,165,793	0.781	6.6	0.833	0.833
LOCAL PRODUCT	32,348	0.665	2.1	0.679	0.679
*MULTI PRODUCT	486,978	0.884	-2.3	0.864	0.864
<u>TOTAL</u>	<u>1,685,119</u>	<u>0.81</u>	<u>3.4%</u>	<u>0.837</u>	<u>0.84</u>
-----					
PROP. & LIAB. TOTAL	4,006,693		3.4%		
CONTRACTORS (38) *****	(1)	(2)	(3)	(4)	(5)
	AGGREGATE <u>LOSS COSTS</u>	CURRENT IMPLICIT <u>PMF</u>	NET <u>INDICATION</u>	INDIC. <u>PMF</u>	CAPPED <u>PMF</u>
COVERAGE					
PROPERTY-					
BASIC GRP I	553,410	0.895	-5.0%	0.850	0.861
BASIC GRP II	621,854	0.871	12.2	0.977	0.990
SP CAUSE/LOSS	293,609	1.181	-2.1	1.156	1.171
*CRIME	1,758	0.910	0.0	0.910	0.910
*INL. MAR.	2,564	0.910	0.0	0.910	0.910
*FIDELITY	39,536	1.000	0.0	1.000	1.000
<u>TOTAL</u>	<u>1,512,731</u>	<u>0.93</u>	<u>2.9%</u>	<u>0.957</u>	<u>0.97</u>
LIABILITY-					
M&C	3,534,659	0.853	6.5	0.908	0.908
LOCAL PRODUCT	1,240,351	0.809	4.8	0.848	0.848
<u>TOTAL</u>	<u>4,775,010</u>	<u>0.84</u>	<u>6.2%</u>	<u>0.892</u>	<u>0.89</u>
-----					
PROP. & LIAB. TOTAL	6,287,741		5.4%		

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

ARKANSAS  
TABLE 2  
COMMERCIAL PACKAGE POLICY  
CALCULATION OF REVISED CPP PACKAGE MODIFICATION FACTORS (PMF)

STATEWIDE *****	(1)	(2)	(3)	(4)	(5)
	AGGREGATE	CURRENT	NET	INDIC.	CAPPED
COVERAGE	<u>LOSS COSTS</u>	<u>IMPLICIT</u>	<u>INDICATION</u>	<u>PMF</u>	<u>PMF</u>
PROPERTY-		PMF			
BASIC GRP I	15,085,887	0.914	-3.4%	0.883	0.881
BASIC GRP II	15,834,241	0.812	16.1	0.942	0.941
SP CAUSE/LOSS	5,042,048	0.905	-2.1	0.886	0.884
*CRIME	44,775	0.910	0.0	0.910	0.910
*INL. MAR.	697,505	0.910	0.0	0.910	0.910
*FIDELITY	326,259	1.000	0.0	1.000	1.000
<u>TOTAL</u>	<u>37,030,715</u>	<u>0.862</u>	<u>5.8%</u>	<u>0.912</u>	<u>0.910</u>
LIABILITY-					
OL&T	6,652,003	0.869	-1.0%	0.860	0.870
M&C	6,689,864	0.828	5.1	0.871	0.871
LOCAL PRODUCT	1,501,548	0.845	4.2	0.880	0.879
*MULTI PRODUCT	955,865	0.862	0.0	0.862	0.862
<u>TOTAL</u>	<u>15,799,280</u>	<u>0.848</u>	<u>2.2%</u>	<u>0.867</u>	<u>0.871</u>
-----	-----	-----	-----	-----	-----
PROP. & LIAB. TOTAL	52,829,995		4.7%		

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

ARKANSAS

TABLE 2

COMMERCIAL PACKAGE POLICY

COMBINED PMFs

<u>TYPE OF POLICY</u>	<u>CURRENT COMBINED</u>	<u>INDICATED COMBINED</u>	<u>CAPPED COMBINED</u>
MOTEL/HOTEL (31)	0.96	0.974	0.97
APARTMENT (32)	0.98	1.071	1.00
OFFICE (33)	0.72	0.744	0.75
MERCANTILE (34)	0.90	0.919	0.93
INSTITUTION (35)	0.81	0.858	0.87
SERVICES (36)	0.92	0.967	0.98
IND/PROC (37)	0.75	0.774	0.78
CONTRACTORS (38)	0.86	0.906	0.91

NOTE: Combined PMFs are provided for informational purposes only.

EXPLANATORY NOTES TO TABLE 2

CALCULATION OF REVISED PACKAGE MODIFICATION FACTORS

**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.

## EXPLANATORY NOTES TO TABLE 2 (Cont'd)

### 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.

EXPLANATORY NOTES TO TABLE 2 (Cont'd)

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) shown 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

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TABLE 3 - BASIC GROUP I RELATIVITY ANALYSIS

	(1)	(2)	(3)	(4)	(5)
TOP	\$ LST SQ FORMULA RELATIVITY	CREDIBILITY Z	Z-WTD. RELATIVITY	BALANCED RELATIVITY	INDICATED CHANGE *
10	1.346	0.096	1.029	1.030	
31	0.955	0.021	0.999	1.000	-2.9%
32	1.389	0.081	1.027	1.028	-0.2%
33	0.859	0.040	0.994	0.995	-3.4%
34	0.936	0.176	0.988	0.990	-3.9%
35	1.081	0.125	1.010	1.011	-1.8%
36	0.775	0.105	0.974	0.975	-5.3%
37	0.466	0.058	0.957	0.958	-7.0%
38	0.450	0.028	0.978	0.979	-5.0%
RATING GROUP					
01	0.876	0.139	0.982	0.990	
02	0.857	0.113	0.983	0.991	
03	1.106	0.118	1.012	1.020	
04	0.862	0.320	0.954	0.962	
05	0.830	0.049	0.991	0.999	
06	1.610	0.177	1.088	1.097	
07	1.311	0.039	1.011	1.019	
08	0.859	0.215	0.968	0.976	
09	0.909	0.084	0.992	1.000	
10	1.300	0.061	1.016	1.025	
11	0.859	0.019	0.997	1.005	
13	1.560	0.072	1.033	1.041	
14	0.925	0.087	0.993	1.002	
15	0.851	0.061	0.990	0.998	
17	0.765	0.010	0.997	1.006	
18	0.669	0.015	0.994	1.002	
19	0.760	0.008	0.998	1.006	
21	0.800	0.082	0.982	0.990	
22	0.686	0.040	0.985	0.993	

\* INDICATED CHANGE = (BALANCED RELATIVITY FOR TOP) / (MONOLINE RELATIVITY (TOP 10)) - 1

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TABLE 4 - SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS

	(1)	(2)	(3)	(4)	(5)
TOP	\$ LST SQ FORMULA RELATIVITY	CREDIBILITY Z	Z-WTD. RELATIVITY	BALANCED RELATIVITY	INDICATED CHANGE *
10	1.136	0.087	1.011	1.019	
31	6.034	0.013	1.024	1.032	+1.3%
32	0.974	0.079	0.998	1.006	-1.3%
33	0.659	0.046	0.981	0.989	-2.9%
34	0.764	0.108	0.971	0.979	-3.9%
35	1.210	0.129	1.025	1.033	+1.4%
36	0.651	0.093	0.961	0.968	-5.0%
37	0.246	0.035	0.952	0.960	-5.8%
38	0.772	0.038	0.990	0.998	-2.1%
-----					
CATEGORY					
01	1.052	0.567	1.029	1.014	
02	0.269	0.050	0.936	0.922	
03	0.894	0.046	0.995	0.980	
04	1.230	0.049	1.010	0.995	
05	1.083	0.032	1.003	0.987	
06	1.035	0.017	1.001	0.985	
07	0.065	0.011	0.970	0.956	
08	0.499	0.043	0.971	0.956	
09	0.563	0.074	0.958	0.944	
10	2.137	0.006	1.005	0.989	
11	2.800	0.029	1.030	1.015	
12	0.644	0.073	0.968	0.954	
13	1.631	0.026	1.013	0.997	
14	0.920	0.050	0.996	0.981	

\* INDICATED CHANGE = (BALANCED RELATIVITY FOR TOP) / (MONOLINE RELATIVITY (TOP 10)) - 1

EXPLANATORY NOTES TO TABLES 3 AND 4

BASIC GROUP I AND SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS

OBJECTIVE

The explanations which follow clarify Tables 3 and 4, the Basic Group I Relativity Analysis and the Special Causes of Loss Relativity Analysis, respectively. The purpose of these analyses is to:

- (1) determine monoline classification loss cost level needs for Basic Group I;
- (2) determine monoline category loss cost level needs for Special Causes of Loss;
- (3) determine indicated changes to the eight property CPP Package Modification Factors (PMFs) based on Basic Group I/Special Causes of Loss experience.

COLUMN (1)

LEAST SQUARES FORMULA RELATIVITIES

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. rating group for Basic Group I and category for Special Causes of Loss).

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 rating group 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.

EXPLANATORY NOTES TO TABLES 3 AND 4 (Cont'd)

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 Table 5 for Basic Group I and Table 6 for Special Causes of Loss). Specifically, the iteration procedure uses the following formulas:

BASIC GROUP I:

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

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

SPECIAL CAUSES OF LOSS:

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

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

EXPLANATORY NOTES TO TABLES 3 AND 4 (Cont'd)

COLUMN (1)  
(Cont'd)

- $TOP_i$  is the relativity for the  $i$ th Type of Policy;
- $RG_j$  is the relativity for the  $j$ th Rating Group;
- $CAT_j$  is the relativity for the  $j$ th Category;
- $W_{ij}$  is the aggregate loss costs for the  $i$ th Type of Policy,  $j$ th Rating Group or Category;
- $R_{ij}$  is the experience ratio relativity for the  $i$ th Type of Policy,  $j$ th Rating Group or Category;
- $m$  is the number of Types of Policy in the analysis;
- $n$  is the number of Rating Groups or Categories in the analysis.

The procedure determines  $m$  Type of Policy relativities using the above formulas. Then, using those results, a set of  $n$  Rating Group or Category relativities 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  $P$  is the 5-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 \$40,000,000 for rating group and \$100,000,000 for type of policy. For Special Causes of Loss,  $K$  equals an aggregate loss cost volume of \$15,000,000.

EXPLANATORY NOTES TO TABLES 3 AND 4 (Cont'd)

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.

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:

$$\text{TOP y indicated IPMF} = \frac{(\text{TOP y current IPMF}) \times (\text{TOP y relativity})}{\text{monoline relativity}}$$

EXPLANATORY NOTES TO TABLES 3 AND 4 (Cont'd)

MULTILINE  
CONSIDERATIONS  
(Cont'd)

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 Table 3 and Table 4.

Loss cost changes for each TOP are calculated as described on Tables 3 and 4.

Entire State (Arkansas)

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ARKANSAS  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 5 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 03/31/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY
10 MONOLINE	01 APARTMENTS	558,379	2,281,519	0.542	0.972	1.178
	02 OTHER HABITATIONAL	77,980	397,819	1.497	1.138	1.379
	03 RESTAURANTS & BARS	15,532	56,331	0.000	0.899	1.090
	04 OTHER MERCANTILE RS	439,654	2,014,793	0.331	0.936	1.135
	05 PUBLIC BUILDINGS	169,386	722,913	0.484	0.972	1.178
	06 CHURCHES	22,153	121,735	0.559	0.987	1.196
	07 SCHOOLS	71,299	310,521	0.150	0.920	1.115
	08 OFFICES AND BANKS	248,367	1,191,866	2.179	1.259	1.526
	09 REC. FACILITIES	143,682	690,977	0.148	0.916	1.110
	10 HOTELS AND MOTELS	103,395	443,050	3.392	1.447	1.754
	11 HOSPITALS/NURS HOME	51,549	190,683	0.187	0.928	1.125
	13 MOTOR VEHICLE RISKS	109,475	578,446	1.196	1.090	1.321
	14 OTHER NON-MANUF.	145,845	790,106	0.851	1.032	1.251
	15 STORAGE	60,354	255,224	9.269	2.387	2.893
	17 FOOD MANUFACTURING	4,829	21,786	0.000	0.900	1.091
	18 WOOD MANUFACTURING	1,891	23,088	0.000	0.900	1.091
	19 WEARING APPAREL	56	13,056	0.000	0.900	1.091
	21 METAL MANUFACTURING	75,652	369,922	1.095	1.073	1.301
	22 OTHER MANUFACTURING	21,200	133,052	0.000	0.898	1.088
	TOTAL*	2,320,678	10,606,887	1.073	1.065	1.291
31 MULTILINE	10 HOTELS AND MOTELS	507,719	2,171,237	1.191	1.027	1.245
MOTEL/HOTEL	TOTAL*	507,719	2,171,237	1.191	1.027	1.245
32 MULTILINE	01 APARTMENTS	1,186,808	4,196,196	1.089	1.008	1.222
APARTMENT	02 OTHER HABITATIONAL	957,974	4,620,940	1.043	0.984	1.193
	TOTAL*	2,144,782	8,817,136	1.068	0.997	1.209
33 MULTILINE	08 OFFICES AND BANKS	913,799	4,149,059	0.397	0.611	0.741
OFFICE	TOTAL*	913,799	4,149,059	0.397	0.611	0.741
34 MULTILINE	03 RESTAURANTS & BARS	856,377	5,023,140	0.833	0.858	1.040
MERCANTILE	04 OTHER MERCANTILE RS	2,772,651	13,179,643	0.612	0.671	0.813
	08 OFFICES AND BANKS	133,793	691,513	0.946	0.911	1.104
	13 MOTOR VEHICLE RISKS	189,055	583,239	0.466	0.786	0.953
	14 OTHER NON-MANUF.	72,279	343,178	0.445	0.798	0.967
	15 STORAGE	324,527	1,473,160	0.248	0.655	0.794
	TOTAL*	4,348,682	21,293,873	0.630	0.721	0.874

Entire State (Arkansas)

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ARKANSAS  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 5 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 03/31/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY
35 MULTILINE	02 OTHER HABITATIONAL	13,875	71,510	0.000	0.744	0.902
INSTITUTIONAL	05 PUBLIC BUILDINGS	284,457	1,322,880	0.405	0.722	0.875
	06 CHURCHES	1,699,977	8,456,905	1.656	1.441	1.747
	07 SCHOOLS	342,414	1,332,370	1.749	1.202	1.457
	08 OFFICES AND BANKS	238,658	917,234	0.042	0.636	0.771
	09 REC. FACILITIES	70,854	392,113	0.120	0.720	0.873
	11 HOSPITALS/NURS HOME	177,595	597,105	0.415	0.772	0.936
	13 MOTOR VEHICLE RISKS	52,474	219,490	0.000	0.719	0.872
	14 OTHER NON-MANUF.	225,253	1,016,378	1.038	0.943	1.143
	TOTAL*	3,105,557	14,325,985	1.241	1.181	1.431
36 MULTILINE	03 RESTAURANTS & BARS	41,219	250,717	0.000	0.306	0.371
SERVICES	04 OTHER MERCANTILE RS	241,842	1,127,914	0.091	0.239	0.290
	08 OFFICES AND BANKS	491,525	3,024,459	0.438	0.437	0.530
	09 REC. FACILITIES	567,239	2,600,715	0.654	0.596	0.722
	13 MOTOR VEHICLE RISKS	355,292	1,726,648	1.711	1.272	1.542
	14 OTHER NON-MANUF.	310,069	1,352,721	0.545	0.501	0.607
	15 STORAGE	165,061	848,955	0.034	0.231	0.280
	21 METAL MANUFACTURING	84,770	433,115	0.000	0.271	0.328
	22 OTHER MANUFACTURING	71,091	359,406	0.436	0.434	0.526
	TOTAL*	2,328,108	11,724,650	0.611	0.568	0.689
37 MULTILINE	04 OTHER MERCANTILE RS	124,283	530,923	0.216	0.344	0.417
INDUST/PROCESS	08 OFFICES AND BANKS	34,271	161,808	0.036	0.336	0.407
	13 MOTOR VEHICLE RISKS	824	6,272	1.855	0.633	0.767
	14 OTHER NON-MANUF.	34,653	206,674	0.236	0.380	0.461
	15 STORAGE	91	13,185	0.000	0.369	0.447
	17 FOOD MANUFACTURING	63,307	370,712	0.035	0.294	0.356
	18 WOOD MANUFACTURING	145,999	581,369	0.024	0.258	0.313
	19 WEARING APPAREL	63,286	318,496	0.003	0.293	0.355
	21 METAL MANUFACTURING	496,217	2,766,954	0.266	0.308	0.373
	22 OTHER MANUFACTURING	220,899	1,180,494	0.137	0.262	0.318
	TOTAL*	1,183,830	6,136,887	0.174	0.299	0.362

Entire State (Arkansas)

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ARKANSAS  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 5 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 03/31/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY
38 MULTILINE	04 OTHER MERCANTILE RS	378,766	1,993,066	0.261	0.315	0.382
CONTRACTORS	08 OFFICES AND BANKS	158,295	803,873	0.265	0.350	0.424
	14 OTHER NON-MANUF.	16,349	115,674	1.262	0.612	0.742
	TOTAL*	553,410	2,912,613	0.292	0.334	0.405
TOTAL ALL TOPS*	01 APARTMENTS	1,745,187	6,477,715	0.914	0.996	1.208
	02 OTHER HABITATIONAL	1,049,829	5,090,269	1.063	0.992	1.203
	03 RESTAURANTS & BARS	913,128	5,330,188	0.781	0.834	1.011
	04 OTHER MERCANTILE RS	3,957,196	18,846,339	0.503	0.630	0.763
	05 PUBLIC BUILDINGS	453,843	2,045,793	0.434	0.815	0.988
	06 CHURCHES	1,722,130	8,578,640	1.642	1.435	1.740
	07 SCHOOLS	413,713	1,642,891	1.473	1.154	1.398
	08 OFFICES AND BANKS	2,218,708	10,939,812	0.585	0.643	0.779
	09 REC. FACILITIES	781,775	3,683,805	0.513	0.666	0.807
	10 HOTELS AND MOTELS	611,114	2,614,287	1.563	1.098	1.331
	11 HOSPITALS/NURS HOME	229,144	787,788	0.364	0.807	0.978
	13 MOTOR VEHICLE RISKS	707,120	3,114,095	1.172	1.072	1.300
	14 OTHER NON-MANUF.	804,448	3,824,731	0.731	0.745	0.903
	15 STORAGE	550,033	2,590,524	1.174	0.718	0.870
	17 FOOD MANUFACTURING	68,136	392,498	0.033	0.337	0.408
	18 WOOD MANUFACTURING	147,890	604,457	0.024	0.266	0.323
	19 WEARING APPAREL	63,342	331,552	0.003	0.294	0.356
	21 METAL MANUFACTURING	656,639	3,569,991	0.327	0.391	0.474
	22 OTHER MANUFACTURING	313,190	1,672,952	0.196	0.344	0.417
	TOTAL*	17,406,565	82,138,327	0.812	0.825	1.000

\* TOTALS IN COLUMNS (3), (4) & (5) ARE AVERAGES USING COLUMN (1) AS WEIGHTS.

ARKANSAS

SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS  
 TABLE 6 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1)	(2)	(3)	(4)
		ACCIDENT YEAR ENDING 03/31/18 AGGREGATE LOSS COSTS	5 - YEAR AGGREGATE LOSS COSTS	5 - YEAR EXPERIENCE RATIO	RELATIVITY
10 MONOLINE	01 BUILDINGS	585,487	2,740,965	1.124	1.197
	02 RES. APTS. AND COND	16,484	81,856	1.582	1.685
	03 OFFICES	30,742	190,197	1.705	1.816
	04 MERCANTILE - HIGH	41,034	211,252	0.300	0.319
	05 MERCANTILE - MEDIUM	8,508	38,895	15.504	16.511
	06 MERCANTILE - LOW	7,617	41,397	1.388	1.478
	07 MOTELS AND HOTELS	14,075	64,356	1.780	1.896
	08 INSTITUTIONAL - HIG	12,017	56,662	0.143	0.152
	09 INSTITUTIONAL - LOW	43,497	109,065	2.518	2.682
	10 INDUST-PROC - HIGH	384	3,861	0.000	0.000
	11 INDUST-PROC - LOW	9,195	51,094	1.609	1.714
	12 SERVICE - HIGH	19,522	90,800	0.802	0.854
	13 SERVICE - LOW	21,484	112,996	2.786	2.967
	14 CONTRACTORS	5,935	20,485	0.000	0.000
	TOTAL*	815,981	3,813,881	1.370	1.459
31 MULTILINE MOTEL/HOTEL	01 BUILDINGS	98,371	430,356	6.002	6.392
	07 MOTELS AND HOTELS	21,216	99,996	0.227	0.242
	TOTAL*	119,587	530,352	4.977	5.300
32 MULTILINE APARTMENT	01 BUILDINGS	609,637	2,744,001	0.969	1.032
	02 RES. APTS. AND COND	171,888	701,614	0.234	0.249
	TOTAL*	781,525	3,445,615	0.807	0.859
33 MULTILINE OFFICE	01 BUILDINGS	315,700	1,438,137	0.667	0.710
	03 OFFICES	103,043	470,321	0.434	0.462
	04 MERCANTILE - HIGH	254	1,056	0.000	0.000
	08 INSTITUTIONAL - HIG	257	877	0.000	0.000
	12 SERVICE - HIGH	343	983	0.000	0.000
	TOTAL*	419,597	1,911,374	0.608	0.647

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SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS  
 TABLE 6 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1)	(2)	(3)	(4)
		ACCIDENT YEAR ENDING 03/31/18 AGGREGATE LOSS COSTS	5 - YEAR AGGREGATE LOSS COSTS	5 - YEAR EXPERIENCE RATIO	RELATIVITY
34 MULTILINE MERCANTILE	01 BUILDINGS	825,440	3,588,477	0.758	0.807
	03 OFFICES	1,879	4,294	0.000	0.000
	04 MERCANTILE - HIGH	97,331	557,434	1.159	1.234
	05 MERCANTILE - MEDIUM	85,890	452,800	0.573	0.610
	06 MERCANTILE - LOW	45,619	216,622	0.740	0.788
	08 INSTITUTIONAL - HIG	2	42	0.000	0.000
	12 SERVICE - HIGH	4,701	15,303	0.000	0.000
	13 SERVICE - LOW	334	2,361	0.000	0.000
	14 CONTRACTORS	2,840	12,173	0.000	0.000
	TOTAL*	1,064,036	4,849,506	0.772	0.822
	35 MULTILINE INSTITUTIONAL	01 BUILDINGS	863,976	4,280,711	1.206
03 OFFICES		577	3,219	0.000	0.000
08 INSTITUTIONAL - HIG		145,539	608,642	0.573	0.610
09 INSTITUTIONAL - LOW		256,891	1,038,021	0.593	0.632
12 SERVICE - HIGH		2	96	0.000	0.000
14 CONTRACTORS		196	936	0.000	0.000
TOTAL*	1,267,181	5,931,625	1.008	1.073	
36 MULTILINE SERVICES	01 BUILDINGS	567,127	2,649,758	0.652	0.694
	03 OFFICES	1,199	4,964	0.000	0.000
	04 MERCANTILE - HIGH	2,341	7,408	0.000	0.000
	05 MERCANTILE - MEDIUM	250	1,132	0.000	0.000
	06 MERCANTILE - LOW	3,904	4,325	0.000	0.000
	08 INSTITUTIONAL - HIG	3,167	12,735	0.000	0.000
	09 INSTITUTIONAL - LOW	8,864	45,016	0.000	0.000
	10 INDUST-PROC - HIGH	95	203	0.000	0.000
	11 INDUST-PROC - LOW	182	1,115	0.000	0.000
	12 SERVICE - HIGH	156,918	1,074,542	0.394	0.420
	13 SERVICE - LOW	59,260	290,324	0.767	0.817
	14 CONTRACTORS	7,854	28,155	0.000	0.000
	TOTAL*	811,161	4,119,677	0.588	0.626

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SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS  
 TABLE 6 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1)	(2)	(3)	(4)	
		ACCIDENT YEAR ENDING 03/31/18 AGGREGATE LOSS COSTS	5 - YEAR AGGREGATE LOSS COSTS	5 - YEAR EXPERIENCE RATIO	RELATIVITY	
37 MULTILINE INDUST/PROC	01 BUILDINGS	196,130	986,639	0.207	0.220	
	03 OFFICES	367	2,090	0.000	0.000	
	04 MERCANTILE - HIGH	83	273	0.000	0.000	
	05 MERCANTILE - MEDIUM	211	211	0.000	0.000	
	06 MERCANTILE - LOW	0	270	0.000	0.000	
	10 INDUST-PROC - HIGH	15,821	87,459	0.504	0.537	
	11 INDUST-PROC - LOW	71,300	388,799	0.760	0.809	
	12 SERVICE - HIGH	305	1,441	0.000	0.000	
	13 SERVICE - LOW	0	412	0.000	0.000	
	14 CONTRACTORS	1,135	2,125	0.000	0.000	
	TOTAL*	285,352	1,469,719	0.360	0.383	
	38 MULTILINE CONTRACTORS	01 BUILDINGS	156,900	789,902	0.762	0.812
		03 OFFICES	9,171	46,052	1.663	1.771
		04 MERCANTILE - HIGH	137	3,209	0.000	0.000
05 MERCANTILE - MEDIUM		45	393	0.000	0.000	
06 MERCANTILE - LOW		225	1,682	0.000	0.000	
08 INSTITUTIONAL - HIG		17	17	0.000	0.000	
11 INDUST-PROC - LOW		656	867	0.000	0.000	
12 SERVICE - HIGH		430	1,744	0.000	0.000	
13 SERVICE - LOW		51	111	0.000	0.000	
14 CONTRACTORS		125,977	722,225	0.677	0.721	
TOTAL*		293,609	1,566,202	0.750	0.799	
TOTAL ALL TOPS*		01 BUILDINGS	4,218,768	19,648,946	1.007	1.072
		02 RES. APTS. AND COND	188,372	783,470	0.352	0.375
		03 OFFICES	146,978	721,137	0.765	0.815
	04 MERCANTILE - HIGH	141,180	780,632	0.886	0.944	
	05 MERCANTILE - MEDIUM	94,904	493,431	1.908	2.032	
	06 MERCANTILE - LOW	57,365	264,296	0.773	0.823	
	07 MOTELS AND HOTELS	35,291	164,352	0.846	0.901	
	08 INSTITUTIONAL - HIG	160,999	678,975	0.529	0.563	
	09 INSTITUTIONAL - LOW	309,252	1,192,102	0.847	0.902	
	10 INDUST-PROC - HIGH	16,300	91,523	0.489	0.521	
	11 INDUST-PROC - LOW	81,333	441,875	0.848	0.903	
	12 SERVICE - HIGH	182,221	1,184,909	0.425	0.453	
	13 SERVICE - LOW	81,129	406,204	1.298	1.382	
	14 CONTRACTORS	143,937	786,099	0.593	0.632	
TOTAL*	5,858,029	27,637,951	0.939	1.000		

\* TOTALS IN COLUMNS (3) & (4) ARE AVERAGES USING COLUMN (1) AS WEIGHTS.

EXPLANATORY NOTES TO TABLES 5 AND 6

BASIC GROUP I/SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS  
SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

INTRODUCTION      The experience used in the relativity analysis and displayed in Tables 5 and 6 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 and the Special Causes of Loss excess 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)      CREDIBILITY (Z) WEIGHTED EXPERIENCE RATIO

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, rating group or category, and territory (where applicable).

EXPLANATORY NOTES TO TABLES 5 AND 6 (Cont'd)

COLUMN (4)  
(Cont'd)

The important concept underlying empirical Bayesian credibility is that the credibility should depend both on the overall variation of the group of which the cell is a member, in addition to the variation of the yearly experience ratios for each cell. Therefore, if a cell's data is itself very stable then we would assign a relatively high credibility value, 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 (Territory, TOP and Rating Group/Category) within a class group. The K value is estimated from the underlying data using the empirical Bayes method and varies by TOP group and by territory where applicable. 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.

The calculated credibility (Z) is then applied to the five-year experience ratio with the complement of credibility applied to the credibility-weighted average of the individual experience ratios of the group, where group refers to the specified TOP/territory group. In a non-territory state, K values would be determined for the three TOP groups on an entire state basis.

COLUMN (5)

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, rating groups 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.

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TABLE 7 - BASIC GROUP II RELATIVITY ANALYSIS

	(1) ACCIDENT YEAR ENDING 03/31/18 AGGR. LOSS COSTS AT CURRENT IMPLICIT PMF	(2) ACCIDENT YEARS 2009-2018 EXPER. RATIO AT CURRENT PMF	(3) FORMULA RELATIVITY (2) / 1.105	(4) CREDI- BILITY Z C	(5) Z WEIGHTED RELATIVITY D	(6) BALANCED FORMULA RELATIVITY E	(7) NORMALIZED FORMULA RELATIVITY F	(8) INDICATED CHANGE G
MONOLINE	2,783,063	0.779	0.705	0.353	0.896	0.896	0.8797	
MULTILINE	15,834,241	1.162	1.052	0.764	1.040	1.040	1.0213	
COVERAGE	18,617,304	1.105	1.000			1.0185 B	1.0001	
MULTILINE TOP								
31 MOTEL/HOTEL	541,655	1.307	1.183	0.095	1.017	1.050	1.0309	+17.2%
32 APARTMENT	2,115,357	1.412	1.278	0.287	1.080	1.115	1.0947	+24.4%
33 OFFICE	818,009	1.216	1.100	0.144	1.014	1.047	1.0280	+16.9%
34 MERCANTILE	3,817,099	0.983	0.890	0.420	0.954	0.985	0.9671	+9.9%
35 INSTITUTIONAL	4,937,762	1.068	0.967	0.507	0.983	1.015	0.9966	+13.3%
36 SERVICES	2,157,943	1.376	1.245	0.318	1.078	1.113	1.0928	+24.2%
37 INDUST/PROCESS	824,562	1.418	1.283	0.156	1.044	1.078	1.0584	+20.3%
38 CONTRACTORS	621,854	0.879	0.795	0.133	0.973	1.005	0.9867	+12.2%
	15,834,241	1.162 B	1.052		1.007 B	1.040 B	1.0213	

B - 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))

E - (6) = (5) \* (1.040/1.007)

F - (7) = (6) / 1.0185

G - (8) = (NORMALIZED FORMULA RELATIVITY FOR TOP) / (NORMALIZED FORMULA MONOLINE (TOP 10) RELATIVITY) - 1

EXPLANATORY NOTES TO TABLE 7

BASIC GROUP II RELATIVITY ANALYSIS

OBJECTIVE

The explanations which follow clarify Table 7, the Basic Group II (BG II) relativity analysis. The purpose of this analysis is to:

- (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)

AGGREGATE LOSS COSTS

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.

COLUMN (2)

10 - YEAR EXPERIENCE RATIO

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.

COLUMN (3)

FORMULA RELATIVITY

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.

EXPLANATORY NOTES TO TABLE 7 (Cont'd)

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.

EXPLANATORY NOTES TO TABLE 7 (Cont'd)

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.

## CRIME AND FIDELITY

The reviews for Burglary and Theft and for Fidelity are done on a multistate basis, combining both multiline and monoline experience. However, 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.

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TABLE 8

COMMERCIAL I.M. RELATIVITY ANALYSIS

(1)	(2)	(3)	(4)	(5)
<u>TOP</u>	<u>BALANCED</u>	<u>CURRENT</u>	<u>INDICATED</u>	<u>SELECTED</u>
<u>10</u>	<u>RELATIVITY</u>	<u>IPMF</u>	<u>IPMF*</u>	<u>IPMF</u>
10	1.000	0.910	0.910	0.910
3X & 7X	1.000			

CLASSIFICATION

150	0.923
191	1.100
192	0.785
220	0.789
221	0.755
234	1.202
235	1.088
240	0.789
241	0.715
327	0.757
328	0.932
340	0.646
341	0.757
342	0.751
343	0.767
403	0.640
451	0.946
452	0.778
453	0.811
454	0.713
460	0.479
482	0.889
510	0.662
514	0.631
530	0.628
534	0.757

\*COLUMN (4) = COLUMN (3) \* (TOP 3X & 7X COLUMN (2) / TOP 10 COLUMN (2))

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COMMERCIAL INLAND MARINE RELATIVITY ANALYSIS

TABLE 9 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

<u>TYPE OF POLICY</u>	<u>RATING</u>	(1) <u>2016 AGGREGATE</u>	(2) <u>2012 - 2016</u>	(3) <u>FIVE-YEAR</u>	(4) <u>RELATIVITY</u>
<u>MONOLINE 10</u>	<u>GROUP</u>	<u>LOSS COSTS</u>	<u>AGGREGATE LOSS COSTS</u>	<u>EXP RATIO</u>	
	150	311,633	1,898,096	1.151	1.353
	191	5,446,492	15,816,054	1.032	1.213
	192	862,002	2,760,886	0.627	0.737
	220	5,112	87,903	5.716	6.717
	221	1,491	2,853	1.199	1.409
	234	5,224,155	20,144,072	0.600	0.705
	235	8,439,000	24,407,283	0.761	0.894
	240	928,183	3,685,254	0.656	0.771
	241	15,553	114,739	0.053	0.062
	327	18,917	91,546	0.000	0.000
	328	2,319,887	11,908,665	0.792	0.931
	340	40,688	87,993	0.000	0.000
	341	0	0	0.000	0.000
	342	19,188	65,375	0.555	0.652
	343	589	3,417	343.665	578.925
	403	1,600,852	5,771,545	0.345	0.405
	451	3,309,677	12,953,836	0.855	1.005
	452	34,702	137,467	1.628	1.913
	453	45,575	212,456	3.203	3.764
	454	164,836	745,300	0.734	0.863
	460	790,198	3,687,530	0.415	0.488
	482	839,364	2,841,134	0.986	1.159
	510	3,252	39,977	0.020	0.024
	514	446,469	1,612,361	0.339	0.398
	530	504,434	2,697,004	0.489	0.575
	534	0	0	0.000	0.000
	<b>TOTAL#</b>	<b>31,372,249</b>	<b>111,772,746</b>	<b>0.785</b>	<b>0.922</b>

ARKANSAS

COMMERCIAL INLAND MARINE RELATIVITY ANALYSIS  
TABLE 9 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

<u>TYPE OF POLICY</u>	<u>RATING GROUP</u>	(1) <u>2016 AGGREGATE LOSS COSTS</u>	(2) <u>2012 - 2016 AGGREGATE LOSS COSTS</u>	(3) <u>FIVE-YEAR EXP RATIO</u>	(4) <u>RELATIVITY</u>
MULTILINE ##	150	720,095	3,333,227	0.795	0.934
3X & 7X	191	603,595	2,704,067	0.774	0.910
	192	202,803	783,492	0.826	0.971
	220	6,439	28,512	1.526	1.793
	221	5,606	27,010	0.258	0.303
	234	12,669,443	52,530,286	1.162	1.365
	235	478,171	2,380,353	2.879	3.383
	240	11,651	60,061	1.983	2.330
	241	5,028	15,371	0.019	0.022
	327	2,942	18,862	0.000	0.000
	328	396	2,751	168.726	198.268
	340	32,828	132,609	0.016	0.019
	341	0	0	0.000	0.000
	342	6,082	30,546	0.000	0.000
	343	2,369	7,996	0.000	0.000
	403	479,869	2,417,275	0.739	0.868
	451	95,342	438,635	0.360	0.423
	452	38,096	206,651	0.535	0.629
	453	34,375	104,958	0.147	0.173
	454	228,162	984,183	0.274	0.322
	460	3,613,811	15,118,089	0.318	0.374
	482	127,496	760,961	0.693	0.814
	510	23,290	121,842	0.000	0.000
	514	63,169	300,866	0.073	0.086
	530	1,129,574	4,779,992	0.414	0.486
	534	0	0	0.000	0.000
	TOTAL#	20,580,632	87,288,595	0.952	1.119

## REFLECTS CURRENT IPMF OF 0.910.

ARKANSAS

COMMERCIAL INLAND MARINE RELATIVITY ANALYSIS

TABLE 9 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

<u>TYPE OF POLICY</u>	<u>RATING</u>	(1)	(2)	(3)	(4)
<u>TOTAL ALL TOPS#</u>	<u>GROUP</u>	<u>2016 AGGREGATE LOSS COSTS</u>	<u>2012 - 2016 AGGREGATE LOSS COSTS</u>	<u>FIVE-YEAR EXP RATIO</u>	<u>RELATIVITY</u>
	150	1,031,728	5,231,323	0.903	1.061
	191	6,050,087	18,520,121	1.006	1.182
	192	1,064,805	3,544,378	0.665	0.781
	220	11,551	116,415	3.380	3.972
	221	7,097	29,863	0.456	0.536
	234	17,893,598	72,674,358	0.998	1.173
	235	8,917,171	26,787,636	0.875	1.028
	240	939,834	3,745,315	0.672	0.790
	241	20,581	130,110	0.045	0.053
	327	21,859	110,408	0.000	0.000
	328	2,320,283	11,911,416	0.821	0.965
	340	73,516	220,602	0.007	0.008
	341	0	0	0.000	0.000
	342	25,270	95,921	0.421	0.495
	343	2,958	11,413	267.552	314.397
	403	2,080,721	8,188,820	0.436	0.512
	451	3,405,019	13,392,471	0.841	0.988
	452	72,798	344,118	1.056	1.241
	453	79,950	317,414	1.889	2.220
	454	392,998	1,729,483	0.467	0.549
	460	4,404,009	18,805,619	0.335	0.394
	482	966,860	3,602,095	0.947	1.113
	510	26,542	161,819	0.002	0.002
	514	509,638	1,913,227	0.306	0.360
	530	1,634,008	7,476,996	0.437	0.514
	534	0	0	0.000	0.000
	<b>TOTAL#</b>	<b>51,952,881</b>	<b>199,061,341</b>	<b>0.851</b>	<b>1.000</b>

# TOTAL IN COLUMN (3) IS AN AVERAGE USING COLUMN (1) AS WEIGHTS.

EXPLANATORY NOTES TO TABLES 8 AND 9

COMMERCIAL INLAND MARINE RELATIVITY ANALYSIS

EXPERIENCE  
BASE

The Commercial Inland Marine IPMF review presented in the attached exhibits is based on a review of the latest available five years of monoline and multiline experience through accident year 2016 for all companies reporting data to Insurance Services Office under the Inland Marine Module of the Commercial Statistical Plan (CSP) and the Intermediate Level of the Commercial Minimum Statistical Plan (CMSP).

ADJUSTMENT  
OF DATA

Aggregate loss costs for each year in the review period have been adjusted to the levels which would have been earned had the current loss costs applied throughout the experience period. Reported premiums are adjusted to current level on an individual policy basis by applying a factor equal to all loss cost level changes that have been implemented subsequent to the policy being written. These adjusted premiums are then converted to a loss cost at current level. In order to eliminate the impact of company deviations from the manual level and individual risk modifications which were in effect at the time the policy was written, aggregate loss costs are further adjusted based on reported Rate Modification and Rate Departure Factors/Loss Cost Multipliers. Multiline aggregate loss costs are further adjusted to the level of the current Implicit Package Modification Factor (IPMF). Incurred losses are loaded for all loss adjustment expenses by applying a factor of 1.105.

RELATIVITY  
ANALYSIS

For Inland Marine coverage, a multistate IPMF level is determined via a two-way relativity analysis similar to the analysis used in Basic Group I. The experience for all reviewed classes is used to form class group relativities. These relativities for monoline and multiline (all programs combined) are determined through an iterative procedure. The ratio of the multiline relativity to the monoline relativity is multiplied by the current IPMF to yield the indicated IPMF. The indicated IPMF is subject to a minimum value of 0.500 and a maximum value of 1.500. If an indicated IPMF falls outside one of those limits, it is capped at that amount, the premiums for that Type of Policy (i.e., TOP 10 versus TOP 3X) are adjusted to the capped IPMF level, and the entire relativity review is performed again to take this into account.

TABLE 10  
ARKANSAS  
OWNERS, LANDLORDS AND TENANTS  
BASIC LIMIT RELATIVE CHANGE ANALYSIS  
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TOP	(1) BAILEY FORMULA RELATIV.	(2) CREDIBILITY Z	(3) Z-WTD RELATIV.	(4) BALANCED RELATIV.	(5) INDICATED CHANGE *
10	1.102	0.141	1.014	1.008	
31	0.441	0.064	0.949	0.943	-6.4%
32	0.720	0.064	0.979	0.973	-3.5%
33	1.559	0.119	1.054	1.048	+4.0%
34	0.979	0.125	0.997	0.991	-1.7%
35	0.842	0.114	0.981	0.975	-3.3%
36	1.203	0.075	1.014	1.008	0.0%
CLASS GROUP					
01	0.859	0.096	0.986	0.998	
02	0.659	0.081	0.967	0.979	
03	0.537	0.064	0.961	0.973	
04	2.819	0.019	1.020	1.032	
05	0.966	0.016	0.999	1.012	
06	0.220	0.022	0.967	0.979	
07	1.351	0.071	1.022	1.034	
08	1.363	0.030	1.009	1.022	
09	1.251	0.091	1.021	1.033	
10	1.219	0.112	1.022	1.035	
11	2.658	0.071	1.072	1.085	
12	0.741	0.146	0.957	0.969	
13	1.462	0.043	1.016	1.029	
16	5.999	0.007	1.013	1.025	

\* INDICATED CHANGE = (BALANCED RELATIVITY FOR TOP) / (MONOLINE RELATIVITY (TOP 10)) - 1

TABLE 11  
 ARKANSAS  
 MANUFACTURERS AND CONTRACTORS  
 BASIC LIMIT RELATIVE CHANGE ANALYSIS  
 -----

	(1) BAILEY FORMULA RELATIV.	(2) CREDIBILITY Z	(3) Z-WTD RELATIV.	(4) BALANCED RELATIV.	(5) INDICATED CHANGE *
TOP					
10	0.844	0.189	0.968	0.972	
33	2.541	0.022	1.021	1.025	+5.5%
34	1.233	0.091	1.019	1.023	+5.2%
35	0.578	0.039	0.979	0.983	+1.1%
36	0.629	0.081	0.963	0.967	-0.5%
37	1.742	0.057	1.032	1.036	+6.6%
38	1.205	0.162	1.031	1.035	+6.5%
CLASS GROUP					
30	0.894	0.067	0.993	0.988	
31	1.353	0.113	1.035	1.030	
32	1.186	0.177	1.031	1.025	
33	1.132	0.111	1.014	1.009	
34	0.713	0.109	0.964	0.959	
35	0.149	0.016	0.970	0.965	
36	0.443	0.054	0.957	0.952	
37	0.197	0.028	0.955	0.951	
38	1.448	0.071	1.027	1.022	

\* INDICATED CHANGE = (BALANCED RELATIVITY FOR TOP) / (MONOLINE RELATIVITY (TOP 10)) - 1

TABLE 12  
ARKANSAS  
OWNERS, LANDLORDS AND TENANTS  
BASIC LIMIT RELATIVE CHANGE ANALYSIS  
-----

SUMMARY OF EXPERIENCE USED IN RELATIVE CHANGE ANALYSIS

TYPE OF POLICY	CLASS GROUP	(1)	(2)	(3)	(4)	(5)	(6)
		FISCAL A.Y.E. 03/31/2018 AGGREGATE LOSS COSTS AT CURRENT LEVEL	FISCAL A.Y.E. 2014 - 2018 AGG LOSS COST CURRENT LEVEL	FIVE YEAR EXPERIENCE RATIO	RELATIV.	NUMBER OF OCCURRENCES	BAL CELL RELATIV.
10 MONOLINE	01 FOOD&BEV. (RETAIL)	\$216,586	\$1,405,480	0.607	0.731	69	1.005
	02 RESTAURANTS	210,311	809,913	0.737	0.888	33	0.986
	03 STORES	73,494	312,502	1.197	1.441	18	0.980
	04 VENDING & RENTAL	15,412	156,240	0.000	0.000	0	1.040
	05 FOOD & BEV. DIST.	38,556	192,649	0.007	0.008	0	1.019
	06 NON-FOOD&BEV.DIST	40,893	219,195	0.162	0.195	2	0.987
	07 CLUBS, AMSMT&SPRTS	96,179	471,064	1.669	2.010	38	1.042
	08 HEALTH CARE FACIL	9,404	48,641	0.091	0.110	1	1.029
	09 HOTELS AND MOTELS	170,484	766,504	1.202	1.447	74	1.041
	10 SCHLS & CHURCHES	89,414	493,011	1.010	1.216	20	1.043
	11 APARTMENTS	88,044	569,957	2.435	2.932	24	1.093
	12 BUILDINGS&OFFICES	404,233	1,900,990	0.678	0.817	62	0.976
	13 MISC. PREMISES	30,793	124,916	1.419	1.708	17	1.037
	TOTAL *	\$1,483,803	\$7,471,062	0.924		358	
31 MULT MOTEL/HOTEL	09 HOTELS AND MOTELS	\$342,033	\$1,476,414	0.458	0.551	75	0.974
	TOTAL *	\$342,033	\$1,476,414	0.458		75	
32 MULT APARTMENT	11 APARTMENTS	\$178,594	\$858,949	1.587	1.911	68	1.056
	12 BUILDINGS&OFFICES	35,010	155,622	0.452	0.544	7	0.943
	TOTAL *	\$213,604	\$1,014,571	1.401		75	
33 MULT OFFICE	12 BUILDINGS&OFFICES	\$883,686	\$4,213,271	0.966	1.163	254	1.015
	13 MISC. PREMISES	2,607	10,845	0.010	0.012	1	1.078
	TOTAL *	\$886,293	\$4,224,116	0.963		255	
34 MULT MERCANTILE	01 FOOD&BEV. (RETAIL)	\$465,566	\$2,190,829	0.782	0.941	98	0.989
	02 RESTAURANTS	420,841	2,068,988	0.468	0.564	88	0.970
	03 STORES	330,884	1,566,402	0.274	0.330	50	0.964
	04 VENDING & RENTAL	168	808	0.000	0.000	0	1.023
	05 FOOD & BEV. DIST.	88,026	373,949	1.169	1.408	5	1.003
	06 NON-FOOD&BEV.DIST	129,911	637,553	0.191	0.230	7	0.971
	12 BUILDINGS&OFFICES	157,498	907,396	0.657	0.791	37	0.961
	TOTAL *	\$1,592,894	\$7,745,925	0.554		285	

TABLE 12  
ARKANSAS  
OWNERS, LANDLORDS AND TENANTS  
BASIC LIMIT RELATIVE CHANGE ANALYSIS

-----  
SUMMARY OF EXPERIENCE USED IN RELATIVE CHANGE ANALYSIS

TYPE OF POLICY	CLASS GROUP	(1)	(2)	(3)	(4)	(5)	(6)
		FISCAL A.Y.E. 03/31/2018 AGGREGATE LOSS COSTS AT CURRENT LEVEL	FISCAL A.Y.E. 2014 - 2018 AGG LOSS COST CURRENT LEVEL	FIVE YEAR EXPERIENCE RATIO	RELATIV.	NUMBER OF OCCURRENCES	BAL CELL RELATIV.
35 MULT INSTITUT.	07 CLUBS, AMSMT&SPRTS	\$10,760	\$42,672	0.809	0.975	4	1.008
	08 HEALTH CARE FACIL	138,436	543,388	1.019	1.227	15	0.996
	10 SCHLS & CHURCHES	483,720	2,324,682	0.846	1.019	207	1.009
	12 BUILDINGS&OFFICES	14,805	69,773	0.183	0.221	8	0.944
	13 MISC. PREMISES	19	115	0.000	0.000	0	1.003
	16 GOVT SUBDIVISIONS	6	660	4.192	5.048	1	0.999
	TOTAL *	\$647,746	\$2,981,290	0.867		235	
36 MULT SERVICES	03 STORES	\$55,675	\$248,669	0.574	0.692	6	0.980
	04 VENDING & RENTAL	12,433	44,418	6.045	7.278	7	1.040
	07 CLUBS, AMSMT&SPRTS	265,799	948,176	1.199	1.443	51	1.042
	08 HEALTH CARE FACIL	1,362	4,353	2.556	3.078	1	1.030
	09 HOTELS AND MOTELS	10,934	58,735	0.360	0.434	3	1.041
	10 SCHLS & CHURCHES	2,102	6,381	7.051	8.490	1	1.043
	12 BUILDINGS&OFFICES	41,847	230,919	0.533	0.642	17	0.976
	13 MISC. PREMISES	28,389	138,438	1.546	1.862	16	1.037
	TOTAL *	\$418,541	\$1,680,089	1.228		102	
	TOTAL ALL TOP	01 FOOD&BEV. (RETAIL)	\$682,152	\$3,596,309	0.726		167
	02 RESTAURANTS	631,152	2,878,901	0.558		121	
	03 STORES	460,053	2,127,573	0.458		74	
	04 VENDING & RENTAL	28,013	201,466	2.683		7	
	05 FOOD & BEV. DIST.	126,582	566,598	0.815		5	
	06 NON-FOOD&BEV.DIST	170,804	856,748	0.184		9	
	07 CLUBS, AMSMT&SPRTS	372,738	1,461,912	1.309		93	
	08 HEALTH CARE FACIL	149,202	596,382	0.975		17	
	09 HOTELS AND MOTELS	523,451	2,301,653	0.698		152	
	10 SCHLS & CHURCHES	575,236	2,824,074	0.894		228	
	11 APARTMENTS	266,638	1,428,906	1.867		92	
	12 BUILDINGS&OFFICES	1,537,079	7,477,971	0.827		385	
	13 MISC. PREMISES	61,808	274,314	1.417		34	
	16 GOVT SUBDIVISIONS	6	660	4.192		1	
	TOTAL *	\$5,584,914	\$26,593,467	0.831		1,385	

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

TABLE 13  
 ARKANSAS  
 MANUFACTURERS AND CONTRACTORS  
 BASIC LIMIT RELATIVE CHANGE ANALYSIS  
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SUMMARY OF EXPERIENCE USED IN RELATIVE CHANGE ANALYSIS

TYPE OF POLICY	CLASS GROUP	(1)	(2)	(3)	(4)	(5)	(6)	
		FISCAL A.Y.E. 03/31/2018 AGGREGATE LOSS COSTS AT CURRENT LEVEL	FISCAL A.Y.E. 2014 - 2018 AGG LOSS COST CURRENT LEVEL	FIVE YEAR EXPERIENCE RATIO	RELATIV.	NUMBER OF OCCURRENCES	BAL CELL RELATIV.	
10 MONOLINE	30 SERVICE	\$153,103	\$811,992	0.433	0.458	16	0.960	
	31 LIGHT CONTRACTING	168,061	748,305	1.551	1.641	119	1.001	
	32 MEDIUM CONTRCTING	1,558,193	7,392,998	0.852	0.902	265	0.997	
	33 HEAVY CONTRACTING	329,612	1,976,430	0.924	0.978	170	0.981	
	34 DEALER OR DISTRIB	283,619	1,614,420	0.534	0.565	27	0.932	
	35 LGT. MANUFACTURER	10,562	133,085	0.462	0.489	2	0.938	
	36 MED. MANUFACTURER	395,541	1,760,026	0.437	0.462	22	0.926	
	37 HVY. MANUFACTURER	169,249	859,794	0.343	0.362	4	0.924	
	38 MISC. OPERATION	164,747	727,342	1.419	1.502	18	0.993	
	TOTAL *	\$3,232,687	\$16,024,392	0.798		643		
33 MULT OFFICE	31 LIGHT CONTRACTING	\$6,496	\$38,316	2.984	3.158	3	1.055	
	32 MEDIUM CONTRACTING	2,076	5,952	0.000	0.000	0	1.051	
	33 HEAVY CONTRACTING	11,861	66,325	0.000	0.000	0	1.034	
	38 MISC. OPERATION	18,600	80,121	5.621	5.949	6	1.047	
		TOTAL *	\$39,033	\$190,714	3.175		9	
34 MULT MERCANTILE	30 SERVICE	\$17,058	\$108,959	0.000	0.000	0	1.011	
	32 MEDIUM CONTRCTING	25,979	112,948	0.084	0.089	3	1.049	
	34 DEALER OR DISTRIB	369,830	2,040,608	0.966	1.023	137	0.981	
	36 MED. MANUFACTURER	474	26,089	0.383	0.405	1	0.974	
	38 MISC. OPERATION	15,322	80,971	1.774	1.877	10	1.045	
		TOTAL *	\$428,663	\$2,369,575	0.903		151	
35 MULT INSTITUT.	31 LIGHT CONTRACTING	\$3,779	\$18,117	5.039	5.333	2	1.012	
	32 MEDIUM CONTRCTING	146,077	635,515	0.537	0.568	26	1.008	
		TOTAL *	\$149,856	\$653,632	0.650		28	
36 MULT SERVICES	30 SERVICE	\$19,614	\$122,393	0.060	0.063	1	0.955	
	31 LIGHT CONTRACTING	45,604	253,396	0.551	0.583	13	0.996	
	32 MEDIUM CONTRCTING	33,167	179,165	0.226	0.239	3	0.992	
	33 HEAVY CONTRACTING	17,071	86,752	8.708	9.216	8	0.976	
	34 DEALER OR DISTRIB	300,350	1,253,288	0.279	0.295	49	0.927	
	36 MED. MANUFACTURER	578	25,978	0.061	0.064	1	0.921	
	38 MISC. OPERATION	192,582	769,793	0.567	0.600	45	0.988	
		TOTAL *	\$608,966	\$2,690,765	0.617		120	

TABLE 13  
ARKANSAS  
MANUFACTURERS AND CONTRACTORS  
BASIC LIMIT RELATIVE CHANGE ANALYSIS

-----  
SUMMARY OF EXPERIENCE USED IN RELATIVE CHANGE ANALYSIS

TYPE OF POLICY	CLASS GROUP	(1)	(2)	(3)	(4)	(5)	(6)
		FISCAL A.Y.E. 03/31/2018 AGGREGATE LOSS COSTS AT CURRENT LEVEL	FISCAL A.Y.E. 2014 - 2018 AGG LOSS COST CURRENT LEVEL	FIVE YEAR EXPERIENCE RATIO	RELATIV.	NUMBER OF OCCURRENCES	BAL CELL RELATIV.
37 MULT INDUST/PROC.	32 MEDIUM CONTRCTING	\$70,577	\$319,310	2.558	2.707	9	1.063
	33 HEAVY CONTRACTING	13,192	63,154	4.317	4.568	6	1.045
	34 DEALER OR DISTRIB	11,873	52,657	1.433	1.516	1	0.994
	35 LGT. MANUFACTURER	36,136	113,041	0.145	0.154	3	1.000
	36 MED. MANUFACTURER	424,135	2,242,332	0.650	0.688	29	0.987
	37 HVY. MANUFACTURER	158,563	905,210	0.125	0.133	11	0.985
	38 MISC. OPERATION	4,262	22,751	0.000	0.000	0	1.059
	TOTAL *	\$718,738	\$3,718,455	0.773		59	
38 MULT CONTRACTORS	30 SERVICE	\$420,979	\$1,987,890	1.185	1.254	64	1.022
	31 LIGHT CONTRACTING	187,903	889,078	1.103	1.167	96	1.065
	32 MEDIUM CONTRCTING	1,138,676	5,503,806	1.503	1.591	262	1.061
	33 HEAVY CONTRACTING	375,266	1,772,474	0.905	0.957	41	1.044
	38 MISC. OPERATION	56,374	356,777	1.333	1.411	12	1.057
	TOTAL *	\$2,179,198	\$10,510,025	1.300		475	
TOTAL ALL TOP	30 SERVICE	\$610,754	\$3,031,234	0.927		81	
	31 LIGHT CONTRACTING	411,843	1,947,212	1.290		233	
	32 MEDIUM CONTRCTING	2,974,745	14,149,694	1.112		568	
	33 HEAVY CONTRACTING	747,002	3,965,135	1.137		225	
	34 DEALER OR DISTRIB	965,672	4,960,973	0.631		214	
	35 LGT. MANUFACTURER	46,698	246,126	0.217		5	
	36 MED. MANUFACTURER	820,728	4,054,425	0.547		53	
	37 HVY. MANUFACTURER	327,812	1,765,004	0.238		15	
	38 MISC. OPERATION	451,887	2,037,755	1.217		91	
	TOTAL *	\$7,357,141	\$36,157,558	0.945		1,485	

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

TABLE 14  
ARKANSAS  
PRODUCTS  
BASIC LIMIT RELATIVE CHANGE ANALYSIS  
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TOP	(1) BAILEY FORMULA RELATIV.	(2) CREDIBILITY Z	(3) Z-WTD RELATIV.	(4) BALANCED RELATIV.	(5) INDICATED CHANGE *
10	0.988	0.372	0.995	0.996	
34	1.036	0.371	1.013	1.014	+ 1.8%
36	1.005	0.187	1.001	1.002	+ 0.6%
37	0.988	0.507	0.994	0.994	- 0.2%
CLASS GROUP					
3	0.924	0.500	0.961	0.965	
4	1.048	0.406	1.019	1.024	
5	1.107	0.132	1.014	1.018	
6	1.007	0.320	1.002	1.006	
7	1.006	0.182	1.001	1.005	

\* INDICATED CHANGE =  
(BALANCED RELATIVITY FOR TOP) / (BALANCED MONOLINE (TOP 10) RELATIVITY) - 1

NOTE: THE INDICATED CHANGES BY TOP WERE FURTHER ADJUSTED BY THE FOLLOWING  
DIFFERENTIALS:  
TOP 34: 1.007  
TOP 36: 1.012  
TOP 37: 0.979

TABLE 15  
MULTISTATE  
PRODUCTS  
BASIC LIMIT RELATIVE CHANGE ANALYSIS

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SUMMARY OF EXPERIENCE USED IN RELATIVE CHANGE ANALYSIS

TYPE OF POLICY	CLASS GROUP	(1)	(2)	(3)	(4)	(5)	(6)
		CALENDAR A.Y.E. 12/31/2017 AGGREGATE LOSS COSTS AT CURRENT LEVEL	CALENDAR A.Y.E. 2013 - 2017 AGG LOSS COST CURRENT LEVEL	FIVE YEAR EXPERIENCE RATIO	RELATIV.	NUMBER OF OCCURRENCES	BAL CELL RELATIV.
10 MONOLINE	03 MAN,DLR,DSTFD/DRG	\$18,227,491	\$79,500,211	0.856	0.869	1,461	0.961
	04 DLR,DST-NOTFD/DRG	9,616,743	42,155,667	1.119	1.136	640	1.019
	05 MAN.NTFD/DRG (LOW)	1,605,615	6,748,634	1.039	1.055	84	1.014
	06 MAN.NTFD/DRG (MED)	9,640,686	42,498,903	0.958	0.972	466	1.002
	07 MAN.NTFD/DRG (HGH)	2,568,561	11,286,663	1.018	1.033	129	1.001
	TOTAL *	\$41,659,096	\$182,190,078	0.957		2,780	
34 MULT MERCANTILE	03 MAN,DLR,DSTFD/DRG	\$5,166,155	\$25,851,441	1.131	1.148	791	0.979
	04 DLR,DST-NOTFD/DRG	29,011,611	140,165,685	1.037	1.052	1,972	1.038
	06 MAN.NTFD/DRG (MED)	7,625	57,567	0.000	0.000	0	1.020
	TOTAL *	\$34,185,391	\$166,074,693	1.051		2,763	
36 MULT SERVICES	04 DLR,DST-NOTFD/DRG	\$3,197,904	\$14,609,890	1.041	1.057	699	1.025
	06 MAN.NTFD/DRG (MED)	54,898	258,512	0.781	0.793	1	1.008
	TOTAL *	\$3,252,802	\$14,868,402	1.037		700	
37 MULT INDUST/PROC.	03 MAN,DLR,DSTFD/DRG	\$16,474,514	\$81,117,947	0.888	0.901	2,761	0.960
	05 MAN.NTFD/DRG (LOW)	4,070,679	20,897,437	1.092	1.108	269	1.012
	06 MAN.NTFD/DRG (MED)	28,248,516	131,744,418	0.987	1.002	1,582	1.001
	07 MAN.NTFD/DRG (HGH)	7,346,721	36,933,393	0.965	0.980	537	1.000
	TOTAL *	\$56,140,430	\$270,693,195	0.963		5,149	
TOTAL ALL TOP	03 MAN,DLR,DSTFD/DRG	\$39,868,160	\$186,469,599	0.905		5,013	
	04 DLR,DST-NOTFD/DRG	41,826,258	196,931,242	1.056		3,311	
	05 MAN.NTFD/DRG (LOW)	5,676,294	27,646,071	1.077		353	
	06 MAN.NTFD/DRG (MED)	37,951,725	174,559,400	0.979		2,049	
	07 MAN.NTFD/DRG (HGH)	9,915,282	48,220,056	0.979		666	
	TOTAL *	\$135,237,719	\$633,826,368	0.985		11,392	

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

TABLE 16  
 ARKANSAS  
 LOCAL PRODUCTS/COMPLETED OPERATIONS  
 BASIC LIMIT RELATIVE CHANGE ANALYSIS

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TOP	(1) BAILEY FORMULA RELATIV.	(2) CREDIBILITY Z	(3) Z-WTD RELATIV.	(4) BALANCED RELATIV.	(5) INDICATED CHANGE *
10	0.969	0.752	0.977	0.973	
34	0.959	0.541	0.978	0.974	+ 0.1%
36	0.986	0.516	0.993	0.989	+ 1.6%
37	0.972	0.138	0.996	0.993	+ 2.1%
38	1.025	0.962	1.024	1.020	+ 4.8%
CLASS GROUP					
1	0.918	0.550	0.954	0.948	
2	1.037	0.495	1.018	1.012	
11	1.095	0.352	1.032	1.026	
12	1.016	1.000	1.016	1.010	
13	0.785	0.266	0.938	0.932	

\* INDICATED CHANGE =  
 (BALANCED RELATIVITY FOR TOP) / (BALANCED MONOLINE (TOP 10) RELATIVITY) - 1

TABLE 16C  
MULTISTATE  
LOCAL PRODUCTS/COMPLETED OPERATIONS  
BASIC LIMIT RELATIVE CHANGE ANALYSIS \*

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	(1)	(2)	(3)	(4)
	BAILEY			
STATE	FORMULA	CREDIBILITY	Z-WTD	BALANCED
	RELATIV	Z	RELATIV	RELATIV.
	1.418	0.386	1.144	1.144
	1.202	0.623	1.122	1.121
	1.425	0.229	1.085	1.084
	1.144	0.427	1.059	1.059
	1.413	0.160	1.057	1.057
	1.437	0.153	1.057	1.057
	1.197	0.263	1.049	1.048
	1.096	0.505	1.048	1.047
	1.135	0.345	1.045	1.044
	1.122	0.368	1.043	1.043
	1.191	0.231	1.041	1.041
	1.128	0.326	1.040	1.040
	1.173	0.239	1.039	1.039
	1.148	0.224	1.031	1.031
	1.059	0.435	1.025	1.025
	1.052	0.453	1.023	1.023
	1.257	0.100	1.023	1.023
	1.083	0.227	1.018	1.018
	1.101	0.187	1.018	1.018
Arkansas	1.090	0.192	1.017	1.016
	1.045	0.369	1.016	1.016
	1.037	0.307	1.011	1.011
	1.019	0.449	1.008	1.008
	1.027	0.143	1.004	1.003
	1.002	0.494	1.001	1.000
	1.002	0.131	1.000	1.000
	0.994	0.097	0.999	0.999
	0.992	0.402	0.997	0.997
	0.989	0.377	0.996	0.995
	0.975	0.190	0.995	0.995
	0.965	0.458	0.984	0.983
	0.924	0.241	0.981	0.981
	0.933	0.349	0.976	0.976
	0.895	0.260	0.972	0.971
	0.892	0.285	0.968	0.968
	0.788	0.160	0.963	0.962
	0.693	0.104	0.963	0.962
	0.889	0.364	0.958	0.958
	0.759	0.154	0.958	0.958
	0.843	0.288	0.952	0.952
	0.720	0.158	0.949	0.949
	0.765	0.195	0.949	0.949
	0.906	0.547	0.948	0.947
	0.793	0.238	0.946	0.946
	0.512	0.084	0.945	0.945
	0.639	0.136	0.941	0.941
	0.813	0.308	0.938	0.938
	0.889	0.581	0.934	0.933
	0.846	0.470	0.924	0.924
	0.756	0.321	0.914	0.914
	0.602	0.179	0.913	0.913
	0.804	0.575	0.882	0.882

\* Sorted by balanced relative change.

TABLE 17  
ARKANSAS

LOCAL PRODUCTS/COMPLETED OPERATIONS  
BASIC LIMIT RELATIVE CHANGE ANALYSIS

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SUMMARY OF EXPERIENCE USED IN RELATIVE CHANGE ANALYSIS

TYPE OF POLICY	CLASS GROUP	(1)	(2)	(3)	(4)	(5)	(6)
		CALENDAR A.Y.E. 12/31/2017 AGGREGATE LOSS COSTS AT CURRENT LEVEL	CALENDAR A.Y.E. 2013 - 2017 AGG LOSS COST CURRENT LEVEL	FIVE YEAR EXPERIENCE RATIO	RELATIV.	NUMBER OF OCCURRENCES	BAL CELL RELATIV.
10 MONOLINE	01 RET. STRS-FOOD/DRG	\$10,345	\$43,514	6.099	5.626	6	0.938
	02 RET. STRS-NTFD/DRG	7,803	41,798	1.293	1.193	5	1.001
	11 COMP. OPS. (LOW)	23,903	151,481	0.336	0.310	4	1.015
	12 COMP. OPS. (MED)	544,302	2,453,945	0.953	0.879	43	0.999
	13 COMP. OPS. (HGH)	49,856	245,386	0.349	0.322	5	0.922
	TOTAL *	\$636,209	\$2,936,124	0.970		63	
34 MULT MERCANTILE	01 RET. STRS-FOOD/DRG	\$29,414	\$130,576	0.829	0.765	17	0.939
	02 RET. STRS-NTFD/DRG	20,425	93,448	2.743	2.531	9	1.003
	12 COMP. OPS. (MED)	4,694	25,666	0.000	0.000	0	1.000
	TOTAL *	\$54,533	\$249,690	1.475		26	
36 MULT SERVICES	01 RET. STRS-FOOD/DRG	\$2,673	\$11,617	0.000	0.000	0	0.953
	02 RET. STRS-NTFD/DRG	48,474	228,830	2.769	2.554	30	1.018
	11 COMP. OPS. (LOW)	7,591	36,104	0.000	0.000	0	1.032
	12 COMP. OPS. (MED)	9,677	92,881	0.548	0.506	4	1.015
	13 COMP. OPS. (HGH)	10,960	56,297	0.278	0.256	1	0.937
	TOTAL *	\$79,375	\$425,729	1.796		35	
37 MULT INDUST/PROC.	11 COMP. OPS. (LOW)	\$218	\$748	0.000	0.000	0	1.035
	12 COMP. OPS. (MED)	18,683	81,086	3.305	3.049	2	1.019
	13 COMP. OPS. (HGH)	27	478	0.000	0.000	0	0.940
	TOTAL *	\$18,928	\$82,312	3.262		2	
38 MULT CONTRACTORS	11 COMP. OPS. (LOW)	\$37,146	\$148,208	2.102	1.939	6	1.064
	12 COMP. OPS. (MED)	589,550	3,006,113	1.255	1.158	66	1.047
	13 COMP. OPS. (HGH)	99,080	452,274	0.524	0.484	6	0.966
	TOTAL *	\$725,776	\$3,606,595	1.198		78	
TOTAL ALL TOP	01 RET. STRS-FOOD/DRG	\$42,432	\$185,707	2.062		23	
	02 RET. STRS-NTFD/DRG	76,702	364,076	2.612		44	
	11 COMP. OPS. (LOW)	68,858	336,541	1.250		10	
	12 COMP. OPS. (MED)	1,166,906	5,659,691	1.136		115	
	13 COMP. OPS. (HGH)	159,923	754,435	0.453		12	
	TOTAL *	\$1,514,821	\$7,300,450	1.169		204	

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

TABLE 18  
MULTISTATE  
LOCAL PRODUCTS/COMPLETED OPERATIONS  
BASIC LIMIT RELATIVE CHANGE ANALYSIS

-----  
SUMMARY OF EXPERIENCE USED IN RELATIVE CHANGE ANALYSIS

TYPE OF POLICY	CLASS GROUP	(1)	(2)	(3)	(4)	(5)	(6)
		CALENDAR A.Y.E. 12/31/2017 AGGREGATE LOSS COSTS AT CURRENT LEVEL	CALENDAR A.Y.E. 2013 - 2017 AGG LOSS COST CURRENT LEVEL	FIVE YEAR EXPERIENCE RATIO	RELATIV.	NUMBER OF OCCURRENCES	BAL CELL RELATIV.
10 MONOLINE	01 RET. STRS-FOOD/DRG	\$2,570,942	\$11,000,189	0.978		762	
	02 RET. STRS-NTFD/DRG	2,629,603	11,663,817	1.219		494	
	11 COMP. OPS. (LOW)	4,024,036	18,069,271	1.329		705	
	12 COMP. OPS. (MED)	82,107,926	364,826,722	1.080		6,242	
	13 COMP. OPS. (HGH)	7,801,373	39,341,081	0.703		282	
	TOTAL *	\$99,133,880	\$444,901,080	1.062		8,485	
34 MULT MERCANTILE	01 RET. STRS-FOOD/DRG	\$8,002,266	\$37,342,335	0.940		3,591	
	02 RET. STRS-NTFD/DRG	5,186,195	23,434,483	1.012		665	
	12 COMP. OPS. (MED)	2,043,786	10,139,349	1.186		140	
	TOTAL *	\$15,232,247	\$70,916,167	0.997		4,396	
36 MULT SERVICES	01 RET. STRS-FOOD/DRG	\$729,961	\$3,439,653	1.065		197	
	02 RET. STRS-NTFD/DRG	12,256,900	48,452,562	1.088		2,518	
	11 COMP. OPS. (LOW)	3,094,937	14,012,389	1.111		510	
	12 COMP. OPS. (MED)	4,447,208	21,021,492	0.941		694	
	13 COMP. OPS. (HGH)	989,332	5,061,195	1.199		87	
	TOTAL *	\$21,518,338	\$91,987,291	1.065		4,006	
37 MULT INDUST/PROC.	01 RET. STRS-FOOD/DRG	\$26,867	\$90,627	2.388		1	
	11 COMP. OPS. (LOW)	114,535	530,208	1.229		19	
	12 COMP. OPS. (MED)	3,550,014	17,334,430	1.039		268	
	13 COMP. OPS. (HGH)	40,532	307,938	0.580		0	
	TOTAL *	\$3,731,948	\$18,263,203	1.050		288	
38 MULT CONTRACTORS	11 COMP. OPS. (LOW)	\$8,122,432	\$37,446,153	1.157		634	
	12 COMP. OPS. (MED)	143,209,202	677,397,379	1.125		12,565	
	13 COMP. OPS. (HGH)	14,631,915	67,788,410	0.919		693	
	TOTAL *	\$165,963,549	\$782,631,942	1.108		13,892	
TOTAL ALL TOP	01 RET. STRS-FOOD/DRG	\$11,330,036	\$51,872,804	0.960		4,551	
	02 RET. STRS-NTFD/DRG	20,072,698	83,550,862	1.086		3,677	
	11 COMP. OPS. (LOW)	15,355,940	70,058,021	1.193		1,868	
	12 COMP. OPS. (MED)	235,358,136	1,090,719,372	1.105		19,909	
	13 COMP. OPS. (HGH)	23,463,152	112,498,624	0.858		1,062	
	TOTAL *	\$305,579,962	\$1,408,699,683	1.084		31,067	

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

EXPLANATORY NOTES TO GENERAL LIABILITY  
RELATIVITY ANALYSIS - TABLES 10 THROUGH 18.

OBJECTIVES

The objectives of this procedure are to:

- 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

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.

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SIMULTANEOUS  
DETERMINATION  
OF RATING  
VARIABLE  
RELATIVITIES

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.

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 relativities will serve to derive the relationship of the various classifications 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.

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.

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RATING  
VARIABLES  
USED

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

Owners, Landlords and Tenants -	type of policy and class group
Manufacturers and Contractors -	type of policy and class group
Products -	type of policy and class group
Local Products/Completed Operations-	type of policy, state and class group

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EXPLANATORY NOTES TO GENERAL LIABILITY  
RELATIVITY ANALYSIS - TABLES 10 THROUGH 18.

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:

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

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

$TOP_i$  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;

EXPLANATORY NOTES TO GENERAL LIABILITY  
RELATIVITY ANALYSIS - TABLES 10 THROUGH 18.

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  $i^{\text{th}}$  type of policy;

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

$W_{ij}$  is the aggregate loss costs at current level for the  $i^{\text{th}}$

type of policy and  $j^{\text{th}}$  class group;

$r_{ij}$  is the relative change for the  $i^{\text{th}}$  type of policy

and  $j^{\text{th}}$  class group;

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

$n$  is the number of class groups in the analysis;

EXPLANATORY NOTES TO GENERAL LIABILITY  
RELATIVITY ANALYSIS - TABLES 10 THROUGH 18.

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  $i^{\text{th}}$  type of policy;

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

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

$W_{ijk}$  is the aggregate loss costs at current level for the  $i^{\text{th}}$

type of policy,  $j^{\text{th}}$  class group and  $k^{\text{th}}$  state;

$r_{ijk}$  is the relative change for the  $i^{\text{th}}$  type of policy,

$j^{\text{th}}$  class group and  $k^{\text{th}}$  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;

EXPLANATORY NOTES TO GENERAL LIABILITY  
RELATIVITY ANALYSIS - TABLES 10 THROUGH 18.

ITERATIVE  
PROCEDURE  
(Cont'd)

For example, for Owners, Landlords and Tenants, the procedure starts by inserting the actual relativities for type of policy into the second formula to get a class group relativity. The resultant class group relativities then produce a new set of type of policy relativities. 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 credibility of the experience for each state, namely  $Z$

$$= \sqrt{P/15,000} \text{ for type of policy and class group, and } Z = \sqrt{P/5,500} \text{ for}$$

state (in this case, P is the 5 year occurrence total for a given state).

Credibility-weighted relativities are then calculated as follows:

$$W = R^Z \quad \text{where:}$$

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

R is the class group, 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.

EXPLANATORY NOTES TO GENERAL LIABILITY  
RELATIVITY ANALYSIS - TABLES 10 THROUGH 18.

MULTILINE  
CONSIDERATIONS

The monoline relativities, the class group and state relativities which result from the aforementioned procedures are then used to generate indicated monoline classification loss cost changes. The multiline relativities, the class group and state relativities which result from the aforementioned procedures are then 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.

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COMMERCIAL PACKAGE POLICY

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 COMMERCIAL PACKAGE POLICY  
 PACKAGE MODIFICATION FACTORS

ARKANSAS (03)

**PACKAGE MODIFICATION FACTORS**

<b>Package Modification Assignment (PMA)</b>	<b>Premium From CLM Division</b>			
	<b>Two</b>	<b>Three, Four, Five, Eight  Property</b>	<b>Four, Six  Liability</b>	<b>All Other Divisions</b>
Apartment House	.90	1.00	1.00	1.00
Contractors	.90	.97	.89	1.00
Industrial & Processing	.90	.74	.84	1.00
Institutional	.90	.88	.78	1.00
Mercantile	.90	.96	.84	1.00
Motel/Hotel	.90	1.00	.92	1.00
Office	.90	.67	.91	1.00
Service	.90	1.00	.91	1.00

**Table 1. Package Modification Factors**